



**INTERNATIONAL OCEAN INSTITUTE**



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

# **2014 COURSE REPORT**



**Dalhousie University, Halifax, Canada  
21<sup>st</sup> May – 18<sup>th</sup> July, 2014**

*Left blank for double-sided printing*

**INTERNATIONAL OCEAN INSTITUTE**

# **2014 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](mailto:ioi@dal.ca) • Web: [www.dal.ca/ioihfx](http://www.dal.ca/ioihfx)**

*Left blank for double-sided printing*

## TABLE OF CONTENTS

	Page
Introduction	1
Group Photograph	2
International Ocean Institute	3
The Training Programme	4
Syllabus	5
Course Director's Report	18
Participants	23
Funders	25
Lecturers and Field Trip Co-ordinators	35
IOI-Canada Contact Information	43



## INTRODUCTION

This report provides a record of the 2014 training programme on *Ocean Governance: Policy, Law and Management*, conducted by the International Ocean Institute (IOI) at Dalhousie University, Halifax, Canada. Held from 21<sup>st</sup> May to 18<sup>th</sup> July, this was the 34<sup>th</sup> annual course since the training programme was instituted by Elisabeth Mann Borgese, Founder of the IOI.



The programme was attended by 12 participants from a range of disciplines and backgrounds. A reasonable balance of countries and regions was achieved, with participants from Africa, Asia, the Caribbean and Central America. As usual, emphasis was placed on having strong female representation among the group, with equal numbers of women and men in the class. Lectures and presentations were delivered by about 90 speakers, and included local and international experts and practitioners. The course 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:** Fisheries and Aquaculture
- Module 5:** Communication and Negotiation
- Module 6:** Integrated Coastal and Ocean Management
- Module 7:** Maritime Security
- Module 8:** Marine Transportation
- Module 9:** Energy
- Module 10:** International Round Table and Conclusion of Training Programme

*Photo credits (unless otherwise indicated): IOI-Canada staff/participants, Dirk Werle, Kevin Deagle*

## GROUP PHOTOGRAPH



*Photo credit: Nick Pearce, Dalhousie University*

**Front row (from left to right):** Mauro Gongora (Belize), Ylénia Randrianarisoa (Madagascar), Yin Jie (China), Mike Butler, Director & 2014 Course Director (England/Canada), Kim Kierans, Vice President, University of King's College (Canada), Richard Florizone, President, Dalhousie University (Canada), Madeleine Coffen-Smout, Programme Officer (England), Suparat Chatjareyaves (Thailand), Annika van Roy, 2014 Course Co-ordinator (The Netherlands), Dirk Werle, Chair, IOI-Canada Board (Germany)

**Second row:** Liu Wei (China), Reshevski Jack (St Vincent and the Grenadines), Keiichiro Fujikawa (Japan), Yan Hao (China), Theofelus Kairua (Namibia), Liu Rushun (China), David Griffiths, Senior Research Fellow (Canada), Lydia Selis Kapapa (Tanzania), Yvonne Edwin (St Lucia), Hugh Williamson, Senior Research Fellow (Canada)

**Missing from picture:** Jennifer Barr, Finance Officer (Canada)



## INTERNATIONAL OCEAN INSTITUTE

IOI-Canada is a leading member of the International Ocean Institute's network of operational 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/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 Operational 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](http://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. Our goals define what we intend to accomplish in fulfillment of the mission. We aim 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. Interdisciplinary training is its major focus, and through its flagship course, it has trained more than 655 individuals from over 100 countries.

## **THE TRAINING PROGRAMME**

### **Purpose and Approach**

With the support of Dalhousie University, the International Ocean Institute has offered an intensive, interdisciplinary training programme in Halifax annually since 1981. This flagship course is available through the IOI network's OceanLearn suite of programmes.

The purpose of this training programme 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 course 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 training programme takes place in Halifax on the campus of Dalhousie University, and consists of approximately 200 hours of intensive learning. While it is primarily lecture-based, the course also includes interactive discussions, participant presentations, exercises and simulations, field trips and an international round table.

### **Participants**

The training programme is specifically designed to benefit developing country mid-career professionals who are responsible 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 create 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 2014 training programme was organised into 10 modules and covered a wide range of different themes and issues, as set out in the following syllabus. When provided by lecturers, a brief summary of the topics to be covered in their presentation was posted on the IOI-Canada website, and these can be reviewed at <http://internationaloceaninstitute.dal.ca/2014LectureTopics.doc>.

## SYLLABUS

<b>MODULE 1</b> Orientation and Introduction to the Training Programme
---

### Wednesday, 21<sup>st</sup> May

10:00 – 10:30	Introductions and Administrative Matters	Ms Annika van Roy (Module Leader)
10.45 – 12.15	Killam Library Tour	Ms Michelle Paon
1.30 – 3.15	Managing at University	Dr David Mensink
3.30 – 4.30	Walking Tour of Upper Campus	Registrar's Office Tour Guide

### Thursday, 22<sup>nd</sup> May

9.00 – 10.30	Understanding Canada	Dr Mike MacKinnon
10.45 – 12.00	Intercultural Awareness	Ms Joanne Fraser
1.30 – 4.00	Ethical Issues in Ocean Governance	Prof. Ian McAllister Ms Rebecca Godbout

### Friday, 23<sup>rd</sup> May

9.00 – 12.00	Organisation of Course Work, and Introduction to Modules & Module Leaders	Mr Mike Butler Module Leaders IOI staff
1.30 – 2.30	The Sea in Human History	Mr David Griffiths
2.30 – 2.45	Introduction to Simulation Exercise	Mr David Griffiths
4.00 – 6.00	Opening Ceremony	Hon. Andrew Younger All

### Saturday, 24<sup>th</sup> May

All day	Free. Optional morning trip to Farmers Market
---------	---

**Sunday, 25<sup>th</sup> May**

All day          Free

<b>MODULE 2</b> Ocean Sciences
-----------------------------------

**Monday, 26<sup>th</sup> May**

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

**Tuesday, 27<sup>th</sup> May**

9.00 – 12.00	Land/Sea Interface: Estuarine and Coastal Waters	Dr Graham Daborn
1.30 – 4.00	Mangroves and Human Security	Dr Brad Walters

**Wednesday, 28<sup>th</sup> May**

9.00 – 12.00	Climate Change	Dr John Shaw
1.30 – 4.00	Marine Biodiversity: Census of Marine Life, Ocean Tracking Network and Ocean Biogeographic Information System	Dr Ron O'Dor Ms Mary Kennedy

**Thursday, 29<sup>th</sup> May**

9.00 – 11.30	Ocean Weather and Forecasting	Mr Doug Mercer
11.30 – 12.00	Simulation Exercise 2	Mr David Griffiths
1.30 – 4.00	Remote Sensing of the Ocean	Mr Dirk Werle
4.00 – 4.15	Module Summary	Dr Peter Wells

### **Friday, 30<sup>th</sup> May**

All day	Field Trip: Bedford Institute of Oceanography	Mr Scott Coffen-Smout Ms Jacinthe Cormier Mr Chris Cyr Mr Warren Joyce Mr Marty King Mr Keith Laidlaw Mr Paul Macnab Dr Hilary Moors-Murphy Dr David Mosher Dr Tom Sephton Dr Angelica Silva Dr Alain Vézina Ms Annika van Roy
---------	---	--

### **Saturday, 31<sup>st</sup> May**

All day	Free
---------	------

### **Sunday, 1<sup>st</sup> June**

All day	Free
---------	------

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

### **Monday, 2<sup>nd</sup> June**

All day	Introduction to Law of the Sea	Mr Hugh Williamson (Module Leader)
---------	--------------------------------	------------------------------------

### **Tuesday, 3<sup>rd</sup> June**

9.00 – 12.00	Legal Aspects of Maritime Boundary Delimitation	Prof. Phillip Saunders, QC
1.30 – 4.00	Technical Aspects of Maritime Boundary Delimitation	Mr Galo Carrera

### **Wednesday, 4<sup>th</sup> June**

9.00 – 12.00	Polluter Pays	Mr Kenneth MacInnis, QC
1.30 – 4.00	Climate Change, ICOM and the Role of Law	Dr Tony George Puthucherril

### **Thursday, 5<sup>th</sup> June**

9.00 – 9.30	Law of the Sea Trivia	Ms Yvonne Edwin
9.30 – 10.45	Participant Presentations	Participants
11.00 – 12.00	Strengthening Oceans Education in Nova Scotia High Schools	Ms Liz Muaror-Wilson Ms Christine Stortini
1.30 – 2.45	Introduction to Oceanography (cont.)	Dr Bob Fournier
3.00 – 4.00	Simulation Exercise 3	Mr David Griffiths

### **Friday, 6<sup>th</sup> June**

9.00 – 12.00	Contemporary Issues in Law of the Sea	Mr Brian Flemming, QC
1.30 – 4.00	Precautionary Principle	Dr David VanderZwaag

### **Saturday, 7<sup>th</sup> June**

All day      Free

### **Sunday, 8<sup>th</sup> June: World Ocean Day**

All day      Free

<p><b>MODULE 4</b>          Fisheries and Aquaculture</p>
---

### **Monday, 9<sup>th</sup> June**

9.00 – 12.00	Introduction to Module and Fishery Governance Issues	Dr Tony Charles (Module Leader)
--------------	--	---------------------------------

1.30 – 4.00	Canadian Government Fishery Science	Dr Ross Claytor
7.00 onwards	Elisabeth Mann Borgese Ocean Lecture (“Reckless Endangerment: The Gulf Oil Spill Revisited – And Why Canada Should Pay Attention”)	Dr Susan Shaw All

### **Tuesday, 10<sup>th</sup> June**

9.00 – 10.30	Small-scale Fisheries	Mr Mauricio Castrejón
10.45 – 12.00	Participant Presentations	Participants
1.30 – 2.45	Climate Change and Fisheries Sustainability: the Governance Dimension	Dr Ahmed Khan
3.00 – 4.00	Fisheries and Large Marine Ecosystems: the Benguela Current of Southern Africa	Dr Barbara Paterson

### **Wednesday, 11<sup>th</sup> June**

9.00 – 12.00	Ecosystem-based Fishery Management	Dr Tony Charles Dr Nancy Shackell
1.30 – 2.45	Whales	Dr Hilary Moors-Murphy
3.00 – 4.00	Marine Conservation in Canada	Dr Sean Brilliant

### **Thursday, 12<sup>th</sup> June**

9.00 – 10.30	Aboriginal Fisheries	Prof. Patricia Doyle-Bedwell
10.45 – 12.00	High Seas Fisheries	Dr Susanna Fuller
1.30 – 2.45	Seafood Value Chain	Mr Lew Clancey
3.00 – 3.30	Fisheries Wrap-up	Dr Tony Charles
3.30 – 4.30	Simulation Exercise 4	Mr David Griffiths

### Friday, 13<sup>th</sup> June

9.00 – 12.00	Aquaculture	Mr David Roberts
1.30 onwards	Field Trip to Bay of Fundy: Sustainable Blue Fish Farm, Grand Pré Historic Site, Evangeline Beach	Mr David Roberts Dr Graham Daborn Ms Annika van Roy

### Saturday, 14<sup>th</sup> June

All day	Field Trip to Bay of Fundy: Fundy Adventures, Port of Digby Tour, Bear River First Nations Cultural Centre	Ms Wanda VanTassel Mr Edwin Chisholm Mr Reginald Hazelton Mr Frank Meuse Ms Shalan Joudry Ms Annika van Roy
---------	--	--

### Sunday, 15<sup>th</sup> June

All day	Field Trip to Bay of Fundy: Annapolis Royal Marsh Nature Trail, Annapolis Tidal Power Station, Fort Anne, Habitation	Dr Jon Percy Mr Leslie Smith Ms Annika van Roy
---------	--	--

### Monday, 16<sup>th</sup> June

All day	Field Trip to Bay of Fundy: Acadian Seaplants, Lunenburg Fisheries Museum, Mahone Bay	Mr Will Neily Ms Annika van Roy
---------	---	------------------------------------

<p><b>MODULE 5</b>          Communication and Negotiation</p>
---

### Tuesday, 17<sup>th</sup> June

9.30 – 12.00	Introduction to Module, and Media	Mr Ian Porter (Module Leader) Prof. Kim Kierans
1.30 – 4.00	Communications	Mr Peter MacLellan
4.00 – 4.30	Marine Protected Areas	Dr Elizabeth De Santo
7.00 onwards	Oceans Film Festival (optional)	



### **Wednesday, 18<sup>th</sup> June**

9.00 – 12.00	Interview and Presentation Skills	Prof. Kim Kierans Mr Ian Porter Mr Tim Tracey
12.00	Class photograph	All
1.30 – 4.00	Interview and Presentation Skills (cont.)	Prof. Kim Kierans Mr Tim Tracey
7.00 onwards	Oceans Film Festival (optional)	

### **Thursday, 19<sup>th</sup> June**

9.00 – 12.00	Negotiation Theory	Dr Gil Winham
1.30 – 4.00	Preparing for Negotiation	Mr Hugh Williamson Prof. Diana Ginn

<p style="text-align: center;"><b>MODULE 6</b> Integrated Coastal and Ocean Management</p>
--

### **Friday, 20<sup>th</sup> June**

9.00 – 12.00	Introduction to ICOM	Dr Larry Hildebrand
1.30 – 4.00	Information Management	Mr Paul Boudreau (Module Leader) Dr Bertrum MacDonald Ms Suzuette Soomai Mr James Ross Mr Lee Wilson

### **Saturday, 21<sup>st</sup> June**

All day      Free

### **Sunday, 22<sup>nd</sup> June**

All day      Free

### **Monday, 23<sup>rd</sup> June**

9.00 – 12.00	Planning and Coastal Regions	Ms Alison Evans
1.30 – 4.00	Project Cycle	Prof. Ian McAllister

### **Tuesday, 24<sup>th</sup> June**

9.00 – 10.30	Nova Scotia Coastal Policy	Ms Ashley Sprague
10.45 – 12.00	Simulation Exercise 5	Mr David Griffiths
1.30 – 2.45	Environmental Economics	Dr Peter Burton
3.00 – 4.00	Participant Presentations	Participants

### **Wednesday, 25<sup>th</sup> June**

9.00 – 12.00	Marine Spatial Planning	Mr Paul Macnab Mr Scott Coffen-Smout
1.30 – 4.00	Coastal Tourism ( <i>venue: Maritime Museum of the Atlantic</i> )	Mr Richard MacMichael Ms Jenny Nodelman

### **Thursday, 26<sup>th</sup> June** (*venue: Room 4001, Rowe Building*)

9.00 – 12.00	Introduction to GIS	Mr James Boxall
1.30 – 4.00	GIS Applications	Mr James Boxall

### **Friday, 27<sup>th</sup> June**

9.00 – 10.30	Information Networks and Web-based Tools	Mr Andy Sherin Ms Alexi Westcott
10.45 – 12.00	Salmonid Fisheries	Dr Fred Whoriskey
1.30 – 4.00	Extreme Marine Events: the Science, the Impacts, and the Geo-ethics	Dr Eduardo Marone

**Saturday, 28<sup>th</sup> June**

All day          Free

**Sunday, 29<sup>th</sup> June**

All day          Free

<p><b>MODULE 7</b> Maritime Security</p>
--

**Monday, 30<sup>th</sup> June**

9.00 – 10.30	Maritime Security Issues	Mr David Griffiths (Module Leader)
10.45 – 12.00	Simulation Exercise 6	Mr David Griffiths
1.30 – 4.00	Participant Presentations and Study Period	Participants

**Tuesday, 1<sup>st</sup> July**

All day          Free: Canada Day holiday

**Wednesday, 2<sup>nd</sup> July**

9.00 – 10.30	Introduction to Integrated Maritime Compliance and Enforcement (IMCE)	Cdr Bob Edwards (ret'd) Mr Glen Herbert
10.45 – 12.00	IMCE Exercise	Cdr Bob Edwards (ret'd) Mr Glen Herbert
1.30 – 4.00	IMCE Exercise (cont.)	Cdr Bob Edwards (ret'd) Mr Glen Herbert

**Thursday, 3<sup>rd</sup> July**

All day	IMCE Exercise (cont.)	Cdr Bob Edwards (ret'd) Mr Glen Herbert
---------	-----------------------	--

### **Friday, 4<sup>th</sup> July**

9.00 – 12.00	Emergency Management	Mr David Griffiths Ms Joanne Lawlor
1.30 – 4.00	Emergency Management (cont.)	Mr David Griffiths

### **Saturday, 5<sup>th</sup> July**

All day          Free

### **Sunday, 6<sup>th</sup> July**

All day          Free

<p style="text-align: center;"><b>MODULE 8</b> Marine Transportation</p>
--

### **Monday, 7<sup>th</sup> July**

9.00 – 12.00	Shipping Fundamentals	Mr Dick Hodgson
1.30 – 4.00	Evolution of Containerisation	Mr Jim Frost (Module Leader)

### **Tuesday, 8<sup>th</sup> July**

9.00 – 12.00	Human Elements of International Shipping	Capt. Angus McDonald
1.30 – 4.00	Safety of Ships	Capt. Alan Knight

### **Wednesday, 9<sup>th</sup> July**

9.00 – 12.00	Role and Record of the International Maritime Organisation (IMO)	Mr Bud Streeter
1.30 – 2.00	Optional Briefing: Dalhousie's Marine Affairs Program	Ms Becky Field
2.00 – 4.00	Participant Presentations and Study Period	Participants

### **Thursday, 10<sup>th</sup> July**

All day	Field trip	
9.00 – 12.00	Eastern Canada Response Corporation, HMCS Sackville	Mr Darin Connors Ms Annika van Roy
12.15 – 1.30	Port of Halifax: lunch	All
1.30 – 2.45	Tour of Port of Halifax	Mr Patrick Bohan Capt. Deidre Lewis
2.45 – 4.00	Shipping Trade: Realities and Public Policy	Mr Patrick Bohan

<p><b>MODULE 9</b> Energy</p>
-----------------------------------

### **Friday, 11<sup>th</sup> July**

9.00 – 12.00	Introduction to Module	Dr Alain Joseph (Module Leader)
1.30 – 2.45	Introduction to Geology	Mr David Brown
3.00 – 4.00	Regulation and CEAA	Mr Eric Theriault

### **Saturday, 12<sup>th</sup> July**

All day	Simulation Exercise: Preparation of Presentations	Participants
---------	---	--------------

### **Sunday, 13<sup>th</sup> July**

All day	Simulation Exercise: Preparation of Presentations	Participants
---------	---	--------------

### **Monday, 14<sup>th</sup> July**

9.00 – 10.30	Exploration and Risk	Mr Doug Gregory
10.45 – 12.00	Introduction to Geophysics	Mr Kris Kendell

1.30 – 2.45	Tidal Power: Technical Aspects	Mr John Woods
3.00 – 4.00	Tidal Power: Biological Aspects	Ms Anne-Marie Belliveau

## **Tuesday, 15<sup>th</sup> July**

9.00 – 10.30	Wind Power	Mr Kevin Doucette
10.45 – 12.00	Solar Power	Dr Peter Allen
1.30 – 2.30	The Challenge of Ocean Governance in Areas Beyond National Jurisdiction (ABNJ)	Dr Awni Behnam
2.30 – 4.00	Study Period	Participants

<p><b>MODULE 10</b>          International Round Table          Conclusion of Training Programme</p>
--

## **Wednesday, 16<sup>th</sup> July**

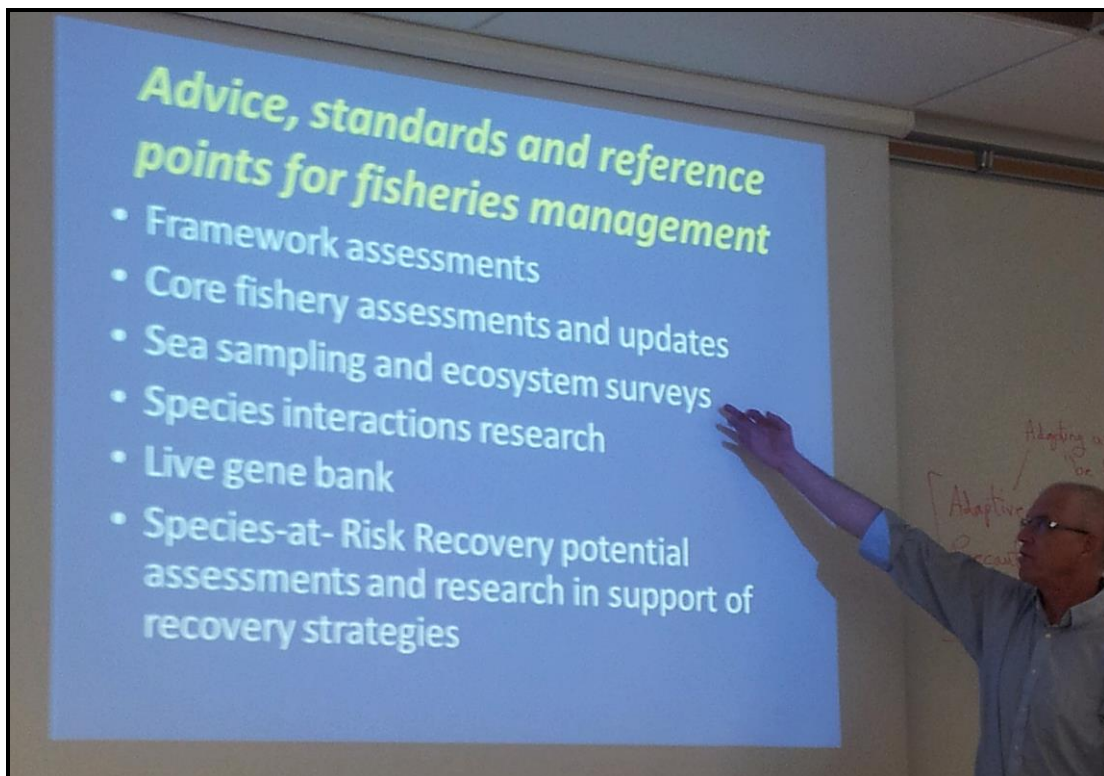
9.00 – 10.45	Round Table – Panel Presentations and Discussion, Introduction to Simulation & Scenario	Dr Awni Behnam Dr Daniela Diz Pereira Pinto Mr David Dzidzornu Dr Dan Lane Mr David Griffiths
11.00 – 12.30	Round Table – Participant Presentations: National Oceans Policy Frameworks	Dr Awni Behnam Dr Daniela Diz Pereira Pinto Mr David Dzidzornu Dr Dan Lane Participants
1.30 – 4.45	Round Table – Participant Presentations: National Oceans Policy Frameworks (cont.)	Dr Awni Behnam Dr Daniela Diz Pereira Pinto Mr David Dzidzornu Dr Dan Lane Participants

### Thursday, 17<sup>th</sup> July

9.00 – 12.00	Round Table – Working Sessions	Dr Awni Behnam Dr Daniela Diz Pereira Pinto Mr David Dzidzornu Dr Dan Lane Participants
1.30 – 3.30	Round Table – Participant Presentations: Regional Oceans Policy Framework	Dr Awni Behnam Dr Daniela Diz Pereira Pinto Mr David Dzidzornu Dr Dan Lane Participants
3.30	Conclusion of Round Table	All
4.30 – 6.30	Closing Ceremony and Reception	All

### Friday, 18<sup>th</sup> July

9.30 – 12.00	Feedback, What Next? and Closing Remarks	IOI Staff/Module Leaders Participants
--------------	--	--



## COURSE DIRECTOR'S REPORT

The planning and organization of the Training Program continues to be a collaborative effort of the IOI-Canada staff: Madeleine Coffen-Smout (Programme Officer), Jennifer Barr (Finance Officer), the Course Coordinator (Annika van Roy in 2014), and myself as Director of IOI-Canada and 2014 Course Director. In addition, input and guidance from the IOI-Canada Senior Research Fellows (SRFs) is important to the success of the course. The seven SRFs are as follows: Paul Boudreau, Dr Tony Charles, Dr Ratana Chuenpagdee, David Griffiths, Dr Larry Hildebrand, Dr Peter Wells and Hugh Williamson.

The heart of the Training Program is, as in previous years, the 200+ classroom hours of lectures encompassing 10 modules, entitled as follows: Orientation and Introduction to the Training Program; Ocean Sciences; Law of the Sea and Principled Ocean Governance; Fisheries and Aquaculture; Communication and Negotiation; Integrated Coastal and Ocean Management; Maritime Security; Marine Transportation; Energy; and the International Round Table. The module sequence and contained topics are revised each year to accommodate the latest research findings and the availability of the lecturers. Feedback from course participants, the lecturers and Module Leaders are other determinants of the following year's Program.

Module Leaders ensure that the lecture topics flow as seamlessly and logically as possible. This year the Module Leaders were Paul Boudreau, Dr Tony Charles, James Frost, David Griffiths, Dr Alain Joseph, Ian Porter (an IOI-Canada alumnus), Annika van Roy, Dr Peter Wells and Hugh Williamson. The availability, or otherwise, of our *pro bono* lecturers on a specific day and time adds to the challenge of this task. The Course Director, present for most of the lectures, also helps to provide the continuity between adjacent modules, themes and lecturers.

The first module commenced on 21<sup>st</sup> May with orientation sessions and culminated in the official Opening Ceremonies on Friday 23<sup>rd</sup> May, held as usual in the Great Hall of Dalhousie University. The welcoming panel consisted of Dr Alain Boutet, Executive Director, International Relations at Dalhousie University; Dr Alain Vézina, Regional Director of Science, Department of Fisheries and Oceans and Director of Bedford Institute of Oceanography; Jennifer Watts, Councillor, District 8, Halifax Regional Municipality; and Hon. Andrew Younger, Minister of Energy and Member of the Legislative Assembly for Dartmouth East, the Government of Nova





Scotia. All of the panellists are valued friends of IOI-Canada and have kindly participated in the welcoming panel on a number of previous occasions. This year's keynote address, entitled "The Fundy Standard: Harnessing the Strongest Tides in the World" was presented by Hon. Andrew Younger. Yvonne Edwin, course participant from St Lucia, responded on behalf of the participants to the collective words of welcome. An animated reception concluded the afternoon event.

Oceans Day and Month activities were again an important component of the Training Program. The



activities included the 10<sup>th</sup> annual Elisabeth Mann Borgese Ocean Lecture, open to the public, and presented this year by a colleague of Elisabeth, Dr Susan Shaw, President of the Marine Environmental Research Institute in Blue Hill, Maine. Dr Shaw presented an oil pollution topic: "Reckless Endangerment: The Gulf Oil Spill Revisited - And Why Canada Should Pay Attention". A discussion with audience members, followed by a reception in the upstairs foyer of the Law building, concluded an enjoyable evening.

Other Oceans Month activities included the Halifax Ocean Film Festival (HOFF) which was held on three consecutive evenings at the Museum of the Atlantic. This was the fifth year of the Festival initiated by IOI-Canada in 2010. The Oceans Day event on the waterfront was another regular event at which numerous organizations were represented, including IOI-Canada. All of this year's events were complemented by the Coastal Zone Canada conference, the 11<sup>th</sup> in the biennial series, which returned to Halifax 20 years after its inauguration here in 1994. A benefit of the conference was the attendance of friends from elsewhere in the world who agreed to lecture to the Course. Among these were Dr Larry Hildebrand from the World Maritime University in Malmo, Sweden and a Governor of the International Ocean Institute; Dr Eduardo Marone from the Centro de Estudos do Mar, Universidade Federal do Parana in Brazil and Director of IOI-South Western Atlantic Ocean; and Dr Elizabeth de Santo from Franklin & Marshall College in Pennsylvania, USA.

The variety of scheduled field trips provides an opportunity for the course participants to experience a little of Nova Scotia, its coastal industries and people, and at the same time offers a break from the intensive classroom schedule. The critically important host families complement this effort by engaging the participants on weekends within a family environment. An eight-week course, far from home, can be



a stressful undertaking for anyone but particularly for parents with young children. Yes, skype, facebook and supportive colleagues certainly help, but the understanding and compassion of the host families has proved to be essential.

The field trip to the Annapolis Valley is always one of the highlights of the course. Major events of this year's three-day trip included visits to the Sustainable Blue Fish Farm; Evangeline Beach; Grand-Pré National Historic Site and UNESCO World Heritage site; Fundy Adventures at Gulliver's Cove; Bear River First Nation Cultural Centre; Annapolis Tidal Power Station; Fort Anne; and Acadian Seaplants.



Unfortunately the planned seatrip to view sea cage aquaculture and the lobster fishery had to be cancelled because of the sudden illness of our boat captain's father. As a result, the field trip schedule was reorganised to include a visit to Kejimikujik National Park and the Fisheries Museum in Lunenburg, also a UNESCO World Heritage site. As always the accommodation, staff and food at Cornwallis Park, our home for this field trip, were exceptional. Other field trips of shorter duration included a very instructive day at the Bedford Institute of Oceanography organized this year by Scott Coffen-Smout, another alumnus of the Training Program. Half-day trips included visits to the Eastern Canada Response Corporation re oil spill remediation; HMCS Sackville, a corvette of historic significance and Canada's Naval memorial; and the Port of Halifax which included a boat trip around the harbour to view all manner of vessels, including container ships, tourist liners, a seismic vessel, a roll-on roll-off car transporter, bunker vessels and many others. The weather was most accommodating!



Another course activity which is of major importance to the learning experience and aims to generate a collaborative atmosphere among the participants is the course-long Simulation Exercise. Over a number of years the Simulation Exercise has continued to develop in complexity under the guidance and management of David Griffiths, one of the Senior Research Fellows. Teams of participants are responsible for the preparation of ocean governance plans for simulated countries and associated region.



The plans are based on numerous sources of information including personal experience, on-line research by the participants, and course lecture material. Many of the other lecturers are able to focus their subject matter in a way that complements and contributes to the simulation exercise. One example of this is the two-day Integrated Maritime Compliance and Enforcement (IMCE) exercise organized by Commander Bob Edwards, another alumnus! The conclusion of the eight-week Simulation is the presentation of the policy plans by all of the participants to an International Panel in the last week of the course. The Panel members provide feedback and guidance to the participants. This year we were very fortunate to have the same team as in 2013, namely Dr Awni Behnam, Dr Daniela Diz Pereira Pinto (another of our alumni),



David Dzidzornu and Dr Dan Lane. David Griffiths chaired the very successful event in the Lord Dalhousie Room at Dalhousie University.

The Closing Ceremonies were held in the University Hall as is customary. Dr Behnam, the IOI Honorary President, assisted by Annika van Roy, presented the participants with their certificates (and I gave them the all-important IOI lapel pin!) My closing comments as the IOI-Canada Director gave me an opportunity to thank the numerous organizations, groups and individuals that contribute to the success of this Training Program. These include the IOI-Canada Board of Directors, the IOI-Canada / Dalhousie University Advisory Committee, the Ocean Governance Training Foundation Board of Directors, and the many funders that support the Training Program, in particular the Ocean Science Research Foundation, the major supporter of the IOI network worldwide. Scott Coffen-Smout, a senior ocean management biologist at Bedford Institute of Oceanography and a 1988 graduate of the Training Program, welcomed the 12 participants of the 2014 course to the Alumni Association. Liu Rushun of China responded on behalf of the course



participants. Presentation of flowers to Madeleine and Annika concluded the official proceedings. A reception followed for participants, their host families, faculty, guests and staff -- a memorable occasion.

This is the fourth year that I have had the pleasure of being the Course Director, in addition to my role as Director (since 2007) of IOI-Canada. After daily immersion in the eight-week Training Program, over four consecutive years, one certainly begins to appreciate what works and what doesn't! The evaluation reports, with a revised format this year, and filled in on a daily basis by the course participants, provided another perspective on the curriculum, the course management and the very loyal suite of lecturers. An in-depth review on the last day was another opportunity for the participants to critique the course and provide advice regarding next year's Program. As a result, what do we envisage for the 2015 course? The sequence of modules will be revisited; the Simulation Exercise will be redesigned and updated; the issues associated with Climate Change will be more extensively reviewed; the role of social media in the context of the course will be further explored; opportunities for participants to interact with lecturers and other scientists will be expanded; the effort to attract Inuit, First Nation participants and other Canadians will be intensified; the IOI-Canada Alumni Association will be re-energised; a process to officially evaluate the Training Program will be researched; and new lecturers will be sought to introduce new cutting edge ocean governance topics. The Training Program has evolved over 34 years to address current and future ocean governance priorities, and will continue to do so, probably at an ever increasing rate.

We wish the "Ocean Ambassadors" of the 2014 course a favourable wind..... and bonne chance!

Michael J.A. Butler  
2014 Course Director



## PARTICIPANTS



**Belize:** Mr Mauro Gongora, Fisheries Officer, Belize Fisheries Department, Ministry of Forestry, Fisheries and Sustainable Development, Belize City

**China:** Mr Liu Rushun, Senior Staff, Department of Island Management, State Oceanic Administration, Beijing

**China:** Dr Liu Wei, Research Assistant, Marine Ecology Research Centre, First Institute of Oceanography, State Oceanic Administration, Qingdao

**China:** Mr Yan Hao, Section Chief, Law Enforcement Team, North China Sea Marine Rights Patrol, State Oceanic Administration, Qingdao

**China:** Ms Yin Jie, Assistant Research Fellow, Second Institute of Oceanography, State Oceanic Administration, Hangzhou

**Japan:** Mr Keiichiro Fujikawa, Staff Member, Maritime Affairs Division, Maritime Technology Department, Ocean Policy Research Foundation, Toranomon, Minato-ku, Tokyo

**Madagascar:** Dr L. Ylénia Randrianarisoa, Professor, Department of Law, University of Toamasina, Toamasina

**Namibia:** Mr Theofelus Kairua, Fisheries Biologist, Ministry of Fisheries and Marine Resources, Swakopmund

**St Lucia:** Ms Yvonne Edwin, Fisheries Officer, Department of Fisheries, Ministry of Agriculture, Food Production, Fisheries and Rural Development, Point Seraphine, Castries

**St Vincent and the Grenadines:** Mr Reshevski Jack, Fisheries Officer (Aquaculture Development), Ministry of Agriculture, Rural Transformation, Forestry and Fisheries, Kingstown



**Tanzania:** Ms Lydia Kapapa, Research Officer, Tanzania Fisheries Research Institute, Ministry of Livestock Development and Fisheries, Dar es Salaam

**Thailand:** Ms Suparat Chatjareyaves, Senior Fishery Biologist, Fishery Technology Development and Transfer Bureau, Department of Fisheries, Kaset Klang, Chatuchak, Bangkok



## **FUNDERS**

The International Ocean Institute wishes to acknowledge the very generous support for the 2014 training programme, which it received from a number of sources. Dalhousie University continues to provide significant in-kind support for the programme. Major scholarship funding for the course was made available by the Stiftung für Meereswissenschaft und -forschung (Ocean Science and Research Foundation) through both its IOI Women/Youth and the Sea Programme and the Danielle de St Jorre Scholarship. Acknowledgement is also gratefully given to the following organisations for their contributions towards individual participant expenses: Caribbean Regional Fisheries Mechanism, IOI-China, IOI-Thailand, Ocean Policy Research Foundation, State Oceanic Administration, Western Indian Ocean Marine Science Association and World Wildlife Fund – US through its Russell E. Train *Education for Nature Programme*. A brief profile of each of these organisations, listed alphabetically, is provided in the following pages.

In addition, sincere thanks are due to the various organisations which contributed to the 2014 programme by hosting the class and/or assisting with field trips or the Oceans Film Festival. These included Acadian Seaplants, Annapolis Tidal Power Station, Bear River First Nations Cultural Centre, Bedford Institute of Oceanography/Department of Fisheries and Oceans, Canadian Parks and Wilderness Society, Canadian Wildlife Federation, Dalhousie University's Marine Affairs Program, Eastern Canada Response Corporation, Ecology Action Centre, Fundy Adventures, HMCS Sackville, Maritime Museum of the Atlantic, Museum of Natural History, Port of Halifax, Port of Digby, Sustainable Fish Farming Canada, University of King's College and WWF – Canada.

**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](mailto:secretariat@crfm.int)  
Web: [www.crfm.net](http://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 & Nevis, St Lucia, St Vincent & the Grenadines, Suriname, Trinidad & Tobago, and Turks & 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 the airfares of participants from its member countries. This year's travel grants enabled three fisheries officers from Belize, St Lucia and St Vincent & the Grenadines to attend the course.



**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](http://www.dal.ca)

Founded by the ninth Earl of Dalhousie in 1818, 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 its recently acquired 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. Due to the university’s proximity to the ocean, one of Dalhousie’s two areas of special emphasis is Ocean Studies, with the other being Health Studies.

The university has approximately 18,500 full and part-time students. These come from across Canada and from 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 88 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 \$140 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.

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.

## **IOI-China**

International Ocean Institute-China Regional Centre for Western Pacific  
National Marine Data and Information Service (NMDIS)  
State Oceanic Administration of China (SOA)  
93 Liuwei Road, Hedong District  
Tianjin 300171  
China

Tel: 86 22 2401 0859  
Fax: 86 22 2401 0859  
E-mail: ioichina94@gmail.com

IOI-China was established in 1994 as one of the earliest Operational Centres in the International Ocean Institute's network, and in 2004 it evolved into the Regional Centre for the Western Pacific Region. It is hosted by the State Oceanic Administration and operates out of SOA's National Marine Data and Information Service in Tianjin.

IOI-China focuses on interdisciplinary and intersectoral training and research covering:

- ocean governance, policy, law, EEZ and coastal community management, and development of related resources for the sustainable livelihoods in coastal areas;
- fisheries and coastal aquaculture management;
- sustainable development of seabed resources;
- development and protection of island resources;
- management of ports and harbours, and sustainable development of large coastal urban centres;
- marine pollution abatement, prevention, and control;
- advancement of marine science and technology and related training;
- development of national marine related legislation and marine policy and building of national infrastructure;
- national and regional multi-hazards disaster early warning systems, shoreline change and erosion, sea level rise due to impacts of climate change, community awareness and resilience, and community and school-based adaptive management;
- marine and other related forms of eco-tourism; and
- regional and international co-operation and co-ordination.

Its main activities include:

- training courses with ship-board training using SOA research vessels;
- research projects on the implications of UNCLOS and UNCED;
- organisation of regional hearings on ocean affairs for the Asia-Pacific Region;
- contributions to the preparation of the China Ocean Agenda 21;
- organisation of seminars on the implementation of UNCLOS and harmonisation of national marine laws and regulations with UNCLOS provisions;
- organisation of Pacem in Maribus Conference XXIV (1996) and XXXIII (2010);
- publication of newsletters and reports; and,
- organisation of international alumni workshops.

IOI-China provided the airfares for four SOA staff members to attend the course.

### **IOI-Thailand**

International Ocean Institute-Thailand Operational Centre  
7<sup>th</sup> Floor, Plodprasop Building  
Premises of the Department of Fisheries  
Kaset Klang, Chatuchak  
Bangkok 10900  
Thailand

Tel: 66 [0]2 940 6148  
Fax: 66 [0]2 940 6148  
E-mail: kunjapong@windowslive.com  
Web: www.ioithailand.com

IOI Thailand was established in 2000 by the Thai Marine Policy and Restoration Committee under the Office of the Prime Minister, and in 2002 was transferred to the Department of Marine and Coastal Resources. From 2006 to 2009, it was hosted by Thailand's National Disaster Warning Centre, and its current host institute is the Foundation of National Disaster Warning Council.

IOI-Thailand was established to promote education, training and research to enhance the sustainable development of marine and coastal resources and the quality of marine management, protection and preservation. It contributes to meeting national and regional marine and coastal-related objectives, and to the harmonisation of national instruments and existing international agreements, including UNCLOS and Agenda 21 of UNCED 1992.

The Thai Operational Centre carries out training, research and other activities in support of their objectives and as endorsed by the IOI Governing Board. These activities are interdisciplinary and inter-sectoral, and include:

- EEZ and coastal community management, and development of related resources for the sustainable livelihoods of those residing in coastal areas;
- fisheries and coastal aquaculture management;
- sustainable development of seabed resources;
- development and protection of island resources;
- management of ports and harbours, and sustainable development of large coastal urban centres;
- marine pollution abatement, prevention, and control;
- advancement of marine science and technology and related training;
- development of national marine-related legislation and marine policy and building of national infrastructure;
- national and regional multi-hazards disaster early warning systems, shoreline change and erosion, sea level rise due to impacts of climate change, community awareness and resilience, and community and school-based adaptive management;
- marine and other related forms of eco-tourism; and
- regional and international co-operation and co-ordination.

IOI-Thailand provided the airfare for a Senior Fishery Biologist from the Thai Department of Fisheries.

**Ocean Policy Research Foundation**

8<sup>th</sup> Floor, Toranomon 35 Mori Building  
3-4-10 Toranomon  
Minato-ku  
Tokyo 105-0001  
Japan

Tel: 81 3 5404 6828  
Fax: 81 3 5404 6800  
E-mail: [info@sof.or.jp](mailto:info@sof.or.jp)  
Web: [www.sof.or.jp](http://www.sof.or.jp)

The Ocean Policy Research Foundation (OPRF) is a Tokyo-based NGO with special consultative status at the UN Economic and Social Council (ECOSOC). Its mission is to make a substantial contribution, uniquely possible by a non-governmental institute, toward the solution of ocean-related issues.

The original forerunner of OPRF was the Japan Foundation for Shipbuilding Advancement (JAFSA), established in 1975 to promote Japan's shipbuilding and related manufacturing industries. It subsequently expanded its activities to include research in the whole gamut of maritime affairs, and in 1990 changed its name to the Ship & Ocean Foundation (SOF). In 2002, SOF inaugurated the Institute for Ocean Policy, SOF. This reflected its growing involvement in research projects on ocean-related issues, and in 2005, SOF adopted a new name – the Ocean Policy Research Foundation – to better illustrate its increasingly ocean-oriented activities, thereby marking a turning point in its history by transforming itself into a think-tank capable of addressing major ocean-related issues. As such, it played a key role in bringing about the enactment of Japan's Basic Act on Ocean Policy, which entered into force in Japan in 2007.

In its promotion of the principle of “Co-existence between Man and the Ocean”, OPRF is currently undertaking a wide range of activities. These include, *inter alia*:

- Ocean Policy, Maritime Traffic and Security Studies;
- Studies on Coastal Zone Management, Marine Environment, and Marine Education;
- Maritime Technology Research and International Exchange;
- Research and Development financed by the Technology Development Fund.

In conducting these activities, OPRF is committed to cross-disciplinary methods employing the combined expertise of social and natural sciences, and it aims to provide concrete proposals and useful intelligence at home and overseas as result of its research efforts. To this end, OPRF unequivocally recognizes the primary importance of collaboration and exchange of views with partners around the world, and the formation of a research network.

The OPRF provided full funding for one of its staff members to attend the IOI training programme.

### **State Oceanic Administration**

1 Fuxingmenwai Avenue  
Beijing  
100860  
China

Tel: 86 10 6804 8072  
Fax: 86 10 6804 8051  
Web: [www.soa.gov.cn](http://www.soa.gov.cn)

The State Oceanic Administration (SOA) is the government administrative agency in China responsible for:

- the supervision and management of 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.

Within the SOA framework, there are eight departments in its Beijing-based headquarters, three branches, seven 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. Its 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.

SOA provided four scholarships to cover tuition and full expenses in Halifax. Together with the IOI-China travel grants, this funding enabled staff members to attend the 2014 course from the Department of Island Management (Beijing), North China Sea Marine Rights Patrol (Qingdao), First Institute of Oceanography (Qingdao) and Second Institute of Oceanography (Hangzhou).

**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. Support for the 2014 training programme included funds through both the IOI Women/Youth and the Sea Programme and the Danielle de St Jorre scholarship.

***IOI Women/Youth and the Sea Programme***

The IOI Women and the Sea Programme (subsequently expanded to the IOI Women/Youth and the Sea Programme) was established in 2000 to enhance the capacity and participation of women in poor developing countries in ocean and coastal affairs. The programme has involved several of the IOI Operational Centres, with activities including: training of women decision-makers (IOI-Canada); improving quality of life for women in poverty-stricken coastal communities (IOI-Costa Rica, IOI-India, IOI-Southern Africa, IOI-Senegal); development of seaweed mariculture and local fish processing (IOI-Eastern Africa, IOI-Southern Africa, IOI-Senegal); youth education on marine awareness (Operational Centres in the Black Sea/Caspian region); empowerment of women on aspects of marine ecology, conservation and fisheries (IOI-Nigeria, IOI-Senegal); education for sustainable management, conservation and development of marine resources, in cooperation with the Women and Fisheries Network (IOI-Pacific Islands); training on marine-related handicrafts for coastal women (IOI-Iran); and an outreach education programme on the oceans for women and youth (IOI-Malta). For the 2014 IOI-Canada course, this programme assisted four female participants, with full funding for the woman from Thailand, substantial scholarship funding for the women from Madagascar and Tanzania, and top-up funding for the Danielle de St Jorre scholar from St Lucia (see below).

***Danielle de St Jorre Scholarship***

The Danielle de St Jorre Scholarship was established by the IOI in 1999 to honour 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. This scholarship of Swiss Francs 10,000 annually is for women from SIDS to attend training programmes or university degree programmes in ocean affairs. Candidates are selected in consultation with the Alliance of Small Island States (AOSIS), and the scholarship is administered by the IOI Headquarters. The 2014 recipient, a Fisheries Officer from St Lucia, chose to use the scholarship to enable her to participate in the Halifax training programme.

**Western Indian Ocean Marine Science Association**

Mizingani Street, House No. 13644/10  
P. O. Box 3298  
Zanzibar  
Tanzania

Tel: 255 24 223 3472/4597  
Fax: 255 24 223 3852  
E-mail: [secretary@wiomsa.org](mailto:secretary@wiomsa.org)  
Web: [www.wiomsa.org](http://www.wiomsa.org)

Western Indian Ocean Marine Science Association (WIOMSA) is a regional professional, non-governmental, non-profit, membership organisation, registered in Zanzibar, Tanzania. It is dedicated to promoting the educational, scientific and technological development of all aspects of marine sciences throughout the region of Western Indian Ocean – Somalia, Kenya, Tanzania, Mozambique, South Africa, Comoros, Madagascar, Seychelles, Mauritius, Reunion – with a view to sustaining the use and conservation of its marine resources. In pursuit of this, the Association:

- provides a forum for communication and exchange of information amongst its members that promotes and fosters inter-institutional linkages within and beyond the region;
- supports marine research by offering research grants;
- implements programmes to build the capacity of marine scientists and coastal management practitioners; and,
- works to promote policy dialogue on key topics by organising meetings and seminars on the findings and policy implications of science.

WIOMSA has approximately 1,000 individual members as well as about 50 institutional members from within and outside the region. This interdisciplinary membership consists of marine scientists, coastal practitioners and institutions involved in the advancement of marine science research and development.

WIOMSA promotes marine science research through the award of research grants under the Marine Science for Management (MASMA) and the Marine Research Grant (MARG) programmes. Support in the form of a MARG III grant was given to the participants from Madagascar and Tanzania to cover their airfares.

**World Wildlife Fund - US**

1250 24<sup>th</sup> 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](mailto:efn@wwfus.org)  
Web: [www.wwf-efn.org](http://www.wwf-efn.org)

Founded in 1961, the World Wildlife Fund (WWF) has been protecting the future of nature for over 50 years. The world's leading conservation organization works in 100 countries and is supported by 1.1 million members in the United States and nearly 5 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, the 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 capacity of individuals and institutions, EFN provides potential and proven leaders with financial support for higher education, short-term training, and practical experience needed to take on conservation challenges in their home countries and regions.

Under the Russell E. Train EFN Programme, assistance was provided to the participants from Belize, Madagascar, Namibia and Tanzania in the form of four Professional Development Grants towards their expenses.



## LECTURERS & FIELD TRIP CO-ORDINATORS

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



**Dr Peter Allen**, Professor, Department of Mechanical Engineering, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Awni Behnam**, Honorary President, International Ocean Institute, Chatelaine, Switzerland

**Ms Anne-Marie Belliveau**, Director of Operations, Fundy Ocean Research Centre for Energy (FORCE), Halifax, Nova Scotia, Canada

**Mr Patrick Bohan**, Manager – Business Development, Halifax Port Authority, Halifax, Nova Scotia, Canada

**Mr Paul Boudreau** (Module Leader), Senior Research Fellow, IOI-Canada, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr James Boxall**, Director, GIS Centre, & Curator, Map Collection, Killam Library, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Sean Brilliant**, Manager - Marine Programmes, Canadian Wildlife Federation, c/o Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada

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

**Dr Peter Burton**, Professor, Department of Economics, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr Galo Carrera**, CEO, Geometrix Inc., Dartmouth, Nova Scotia, Canada

**Mr Mauricio Castrejón Mendoza**, Doctoral Student, Interdisciplinary PhD Programme, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Anthony Charles** (Module Leader), Senior Research Fellow, IOI-Canada, & Professor of Management Science and Environmental Studies, Department of Finance and Management Science, Saint Mary's University, Halifax, Nova Scotia, Canada

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

**Mr Lewis Clancey**, International Planning and Development Officer, Department of Economic and Rural Development and Tourism, Government of Nova Scotia, Halifax, Nova Scotia, Canada

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

**Mr Scott Coffen-Smout**, Senior Oceans Management Biologist, Oceans and Coastal Management Division, 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 Jacinthe Cormier**, Manager, Hydrographic Operations, Canadian Hydrographic Service (Maritimes), Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

**Mr Christopher Cyr**, Commanding Officer, CCGS G. Peddle, Canadian Coast Guard Operational Services, Dartmouth, 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

**Dr Elizabeth De Santo**, Assistant Professor of Environmental Studies, Department of Earth and Environment, Franklin & Marshall College, Lancaster, Pennsylvania, USA

**Dr Daniela Diz Pereira Pinto**, Senior Officer, Marine Policy, World Wildlife Fund, Halifax, Nova Scotia, Canada

**Mr Kevin Doucette**, Chief Financial Officer, Renewable Energy Services Ltd, Lower Sackville, Nova Scotia, Canada

**Prof. Patricia Doyle-Bedwell**, Associate Professor, & Director, Transition Year Programme, College of Continuing Education, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr David Dzidzornu**, Part-time Faculty Member, & Graduate Teaching and Research Assistant, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

**Cdr Bob Edwards (ret'd)**, Research Fellow, Centre for Foreign Policy Studies, Department of Political Science, Dalhousie University, Halifax, Nova Scotia, Canada

**Ms Alison Evans**, Senior Researcher & Biologist, CoastalPlanners, Faculty of Architecture and Planning, Dalhousie University, Halifax, Nova Scotia, Canada

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

**Mr Brian Flemming, QC**, Counsel, McInnes Cooper, Halifax, Nova Scotia, Canada

**Dr Bob Fournier**, Professor Emeritus in Oceanography, & Interim Director, Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada

**Ms Joanne Fraser**, Facilitator, RiverSystems: Leadership, Strategy & Organizational Development, Halifax, Nova Scotia, Canada

**Mr James Frost** (Module Leader), President, MariNova Consulting Ltd, Halifax, Nova Scotia, Canada

**Dr Susanna Fuller**, Marine Conservation Coordinator, Ecology Action Centre, Halifax, Nova Scotia, Canada

**Prof. Diana Ginn**, Professor of Law & Acting Associate Dean (Academic), Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

**Ms Rebecca Godbout**, Graduate Student, Department of International Development Studies, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr Doug Gregory**, Board Member, Canada-Nova Scotia Offshore Petroleum Board, Halifax, Nova Scotia, Canada

**Mr David Griffiths** (Module Leader), Resident Research Fellow, Centre for Foreign Policy Studies, & Senior Research Fellow, IOI-Canada, Dalhousie University, & Senior Research Fellow, International Centre for Emergency Management Studies, Cape Breton University, c/o Pendragon Applied Research, Halifax, Nova Scotia, Canada

**Mr Reginald Hazelton**, Chairman, Board of Directors, Digby Harbour Port Association, Digby, Nova Scotia, Canada

**Mr Glen Herbert**, Section Head, Integrated Management, Oceans and Coastal Management Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

**Dr Larry Hildebrand**, Professor and Canadian Chair in Marine Environment Protection, World Maritime University, Malmö, Sweden

**Mr J. Richard Hodgson**, Adjunct Professor, Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Alain Joseph** (Module Leader), Research Scientist, Applied Energy Research, Nova Scotia Community College, Dartmouth, Nova Scotia, Canada

**Ms Shalan Joudry**, Stone Bear Tracks and Trails, Bear River, Nova Scotia, Canada

**Mr Warren Joyce**, Fisheries Technician, Population Ecology Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, 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

**Dr Ahmed Khan**, Postdoctoral Research Fellow, Partnership for Canada-Caribbean Community Climate Change Adaptation, Saint Mary's University, Halifax, Nova Scotia, Canada

**Prof. Kim Kierans**, Vice President (Academic and Research), & Professor of Journalism, University of King's College, Halifax, Nova Scotia, Canada

**Mr Marty King**, Oceans Biologist, Oceans and Coastal Management Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

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

**Mr Keith Laidlaw**, Senior Response Officer, Canadian Coast Guard Maritime Services, Dartmouth, Nova Scotia, Canada

**Dr Daniel E. Lane**, Chair, Ocean Management Research Network, & Professor, Telfer School of Management, University of Ottawa, Ottawa, Ontario, Canada

**Ms Joanne Lawlor**, Director of Emergency Social Services, Nova Scotia Department of Community Services, Halifax, Nova Scotia, Canada

**Capt. Deidre Lewis**, Manager – Port Security & Marine Operations, Halifax Port Authority, Halifax, Nova Scotia, Canada

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

**Mr Kenneth A. MacInnis, QC**, Associate, Marine & Environmental Law Institute, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Michael MacKinnon**, Research Fellow, Centre for Foreign Policy Studies, Department of Political Science, Dalhousie University, Halifax, Nova Scotia, Canada

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

**Mr Richard MacMichael**, Supervisor & Heritage Interpreter, Maritime Museum of the Atlantic, Halifax, 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 Eduardo Marone**, Director, IOI-South Western Atlantic Ocean, & Professor, Centre for Marine Studies, Universidade Federal do Paraná, Pontal do Paraná, Brazil

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

**Capt. Angus McDonald**, National Councillor, Company of Master Mariners of Canada, Halifax, Nova Scotia, Canada

**Dr David Mensink**, Psychologist, Counselling and Psychological Services, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr Doug Mercer**, Lead Meteorologist, Canadian Hurricane Centre, Meteorological Service of Canada, Environment Canada, Dartmouth, Nova Scotia, Canada

**Mr Frank Meuse Jr**, Stone Bear Tracks and Trails, Bear River, 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

**Dr David Mosher**, Senior Research Scientist, Geological Survey of Canada, Natural Resources Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

**Ms Liz Muaror-Wilson**, Advisor / Research Associate, Oceans and Coasts Education Awareness Network Society – Nova Scotia (OCEANS-NS), Halifax, Nova Scotia, Canada

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

**Ms Jenny Nodelman**, Marketing and Events Officer, Maritime Museum of the Atlantic, Halifax, Nova Scotia, Canada

**Dr Ronald O'Dor**, Professor of Biology, & Global Scientific Director, Ocean Tracking Network, Department of Biology, Dalhousie University, Halifax, Nova Scotia, Canada

**Ms Michelle Paon**, Science Librarian, Killam Library, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Barbara Paterson**, Research Associate, University of Cape Town, & MEOPAR Postdoctoral Research Fellow, Marine Environmental Observation Prediction and Response Network, Department of Finance and Management Science, Saint Mary's University, Halifax, Nova Scotia, Canada

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

**Mr Ian Porter** (Module Leader), Freelance Journalist, Halifax, Nova Scotia, Canada

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

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

**Mr James Ross**, MLIS Student, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

**Prof. Phillip Saunders, QC**, Associate Professor, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Tom Sephton**, Manager, Strategic Planning, Advisory Activities and Outreach Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, 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

**Dr John Shaw**, Research Scientist, Geological Survey of Canada, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

**Dr Susan Shaw**, Professor, State University of New York, & President/Director, Marine Environmental Research Institute, Blue Hill, Maine, USA

**Mr Andrew Sherin**, Director, Atlantic Coastal Zone Information Steering Committee Secretariat, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Angelica Silva**, Research Scientist, Coastal Ecosystem Science Division, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

**Mr Leslie Smith**, Annapolis Tidal Power Station, Annapolis Royal, Nova Scotia, Canada

**Ms Suzette Soomai**, PhD Student, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

**Ms Ashley Sprague**, Coastal Coordinator, Nova Scotia Coastal Secretariat, Nova Scotia Department of Fisheries and Aquaculture, Cornwallis, Nova Scotia, Canada

**Ms Christine Stortini**, Environmental Consultant / Freelance Biologist, & MES Student, School for Resource and Environmental Studies, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr Bud Streeter**, President, Lloyd's Register Canada Ltd, Dartmouth, Nova Scotia, Canada

**Mr Eric Theriault**, Advisor - Environmental Affairs, Canada-Nova Scotia Offshore Petroleum Board, Halifax, Nova Scotia, Canada

**Mr Timothy Barron Tracey**, Independent Director, Machine Productions, 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

**Dr Alain Vézina**, Regional Director of Science, & Director, BIO, Regional Science Director's Office, Department of Fisheries and Oceans, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, Canada

**Dr Bradley Walters**, Professor of Geography and Environment, & Coordinator of Environmental Studies, Department of Geography and Environment, Mount Allison University, Sackville, New Brunswick, Canada

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

**Mr Dirk Werle**, Managing Partner & Geoscientist, Ærde Environmental Research, Halifax, Nova Scotia, Canada

**Ms Alexi Westcott**, Project Officer, Atlantic Coastal Zone Information Steering Committee Secretariat, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Fred Whoriskey**, Executive Director, Ocean Tracking Network, Department of Biology, Dalhousie University, Halifax, Nova Scotia, Canada

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



**Mr Lee Wilson**, MLIS Student, School of Information Management, Faculty of Management, Dalhousie University, Halifax, Nova Scotia, Canada

**Dr Gil Winham**, Professor Emeritus, Department of Political Science, & Adjunct Professor, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, Canada

**Mr John Woods**, Vice President, Energy Development, Minas Basin Pulp and Power Co. Ltd, Hantsport, Nova Scotia, Canada

**Hon. Andrew Younger, MLA**, Minister of Energy, Nova Scotia Department of Energy, Halifax, 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](mailto:ioi@dal.ca); web: [www.dal.ca/ioihfx](http://www.dal.ca/ioihfx)

### **STAFF**

Ms Jennifer Barr  
Finance Officer

Tel: 1 902 494 8018  
E-mail: [ioiadmin@dal.ca](mailto:ioiadmin@dal.ca)

Mr Michael Butler  
Director & 2014 Course Director

Tel: 1 902 494 1977  
E-mail: [michael.butler@dal.ca](mailto:michael.butler@dal.ca)

Ms Madeleine Coffen-Smout  
Programme Officer

Tel: 1 902 494 6918  
E-mail: [madeleine.coffen-smout@dal.ca](mailto:madeleine.coffen-smout@dal.ca)

Ms Annika van Roy  
2014 Course Co-ordinator

Tel: 1 902 494 8018  
E-mail: [avanroy05@gmail.com](mailto:avanroy05@gmail.com)

### **SENIOR RESEARCH FELLOWS**

Mr Paul Boudreau  
Dr Tony Charles  
Dr Ratana Chuenpagdee  
Mr David Griffiths  
Dr Larry Hildebrand  
Dr Peter Wells  
Mr Hugh Williamson

E-mail: [paulboudreau@dal.ca](mailto:paulboudreau@dal.ca)  
E-mail: [tony.charles@smu.ca](mailto:tony.charles@smu.ca)  
E-mail: [ratanac@mun.ca](mailto:ratanac@mun.ca)  
E-mail: [david.griffiths@dal.ca](mailto:david.griffiths@dal.ca)  
E-mail: [larry.hildebrand@eastlink.ca](mailto:larry.hildebrand@eastlink.ca)  
E-mail: [oceans2@ns.sympatico.ca](mailto:oceans2@ns.sympatico.ca)  
E-mail: [hrwillia@dal.ca](mailto:hrwillia@dal.ca)

### **INTERNS**

Ms Ziyun Wang (until 1<sup>st</sup> May)  
Ms Rebecca Godbout

E-mail: [z.wang@dal.ca](mailto:z.wang@dal.ca)  
E-mail: [rebecca.godbout@dal.ca](mailto:rebecca.godbout@dal.ca)

### **BOARD OF DIRECTORS**

Mr Dirk Werle (Chair)  
Ms Anita Coady  
Dr Daniel Lane  
Prof. Ian McAllister  
Mr William Rose

E-mail: [dwerle@.ca.inter.net](mailto:dwerle@.ca.inter.net)  
E-mail: [c/o ioi@dal.ca](mailto:c/o ioi@dal.ca)  
E-mail: [dlane@uottawa.ca](mailto:dlane@uottawa.ca)  
E-mail: [ian.mcallister@dal.ca](mailto:ian.mcallister@dal.ca)  
E-mail: [c/o ioi@dal.ca](mailto:c/o ioi@dal.ca)