

4th International Marine Conservation Congress

PROGRAM



St. John's, Newfoundland & Labrador

July 30–August 3, 2016

OceansOnline: August 4, 2016

Organised by: Society for Conservation Biology Marine Section

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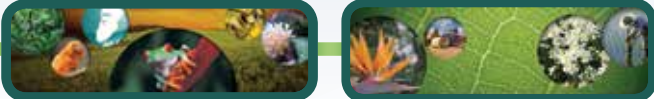
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Addendum

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The following changes in the IMCC4 scientific program have occurred. This page may not reflect last-minute changes. Please refer to the IMCC4 website and meeting app for the most up-to-date schedule.

- The focus group 'Integrating behavioural information into the process for the identification of Important Marine Mammal Areas (IMMAs)' (FG13, 29 July) has been cancelled
- The talk in the 09:15 time slot in SY42 (31 July, 08:30, Salon G) is now 'Bayesian perspectives on transferability,' presented by Mengersen, K., Queensland university of Technology and ACEMS – ARC Centre of Excellence for Mathematics and Statistics
- The symposium 'Improving coral reef science outreach: Current impediments and solutions' (SY81, 1 August, 08:30) will follow this schedule:
 - 08:30 Introduction by Clare Fieseler, University of North Carolina at Chapel Hill
 - 08:45 Regulation of fishing and coastal development increases ecological resilience to climate change on Caribbean reefs: Jackson, JBC *, Smithsonian Institution; Donovan, MK University of Hawaii at Manoa
 - 09:00 Marine conservation in the Saudi Arabian Red Sea: Challenges and opportunities: Khalil, MT , King Abdullah University of Science and Technology; Tietbohl, MD *King Abdullah University of Science and Technology; Berumen, ML King Abdullah University of Science and Technology
 - 09:15 Improving long-term coral reef monitoring in the Wider Caribbean region: Initial GCRMN-Caribbean accomplishments: Belmont, Julie , SPAW-RAC; Maréchal, Jean-Philippe Nova Blue Environment; Torres, Ruben Reef Check Dominican Republic; Flores, Marisol Rueda *Healthy Reefs for Healthy People Initiative
 - 09:30 The threat of tropical dead zones to coral reefs: Altieri, AH *, Smithsonian Tropical Research Institute; Harrison, SB Smithsonian Tropical Research Institute; Seemann, J Smithsonian Tropical Research Institute; Collin, R Smithsonian Tropical Research Institute; Diaz, RJ Virginia Institute of Marine Science; Knowlton, N National Museum of Natural History, Smithsonian Institution
 - 09:45 Panel Discussion



Addendum

- The panel discussion 'Solving marine conservation problems using all available tools' (PD17, 2 August, 08:30, Salon D) includes the following panelists discussing these topics:
 - Melinda Agapito: There is no such thing as win-win in conservation
 - Larry Crowder: Drivers of hypoxia and management engagement in the Southern California Bight
 - Anne Solomon: Coastal Voices: Navigating regime shifts & environmental justice along the Northeastern Pacific
 - Stefan Gelcich: Interdisciplinary conservation science and the Chilean ministry of the environment: innovating for marine offsets
 - Lisa Campbell: Talking turtle in the Big South: Engaging stakeholders in developing a sea turtle fishery management plan
 - Phillip Levin: Cryptic diversity (of people) and why it matters for conservation
- The focus group 'Making marine science matter to people: Steps forward' (FG79, 2 August) has been cancelled
- The presenter of 'A systematic review and meta-analysis on the behavioral responses of wild marine mammals to man-made sounds: Synthesis and recommendations for the future' at 15:30 in C3 (2 August, 15:00, Salon A) is Wright, Andrew J., George Mason University
- The Student Activities Fundraiser & Social (2 August) has been cancelled. Please see the note on the website concerning refunds.
- The presenter of 'Sea-scape effects of commercial trawling on seabed communities ' at 09:15 in SY20 (3 August, 8:30am, Salon E) is J Shepperson, Bangor University
- The first author and presenter of 'Measuring the increasing effects of shipping noise on marine mammals near Port Metro Vancouver, British-Columbia, Canada' at 12:15 in C34 (August 3, 11:00, Salon E) is John Moloney, JASCO Applied Sciences
- The focus group 'White-beaked dolphin conservation status in the NW Atlantic: Understanding knowledge gaps and recommendations for future research' (FG102, 3 August) has been cancelled
- The title of OceansOnline plenary Easley Britton's speech (4 August, 08:30, Salon A) is 'Be Like Water: Reflections on developing a cross-cultural program for women, surfing and social good'
- The OceansOnline workshop 'Storyboarding: A guide to creating a visually captivating science documentary' (OOWS56, 4 August) has been cancelled



4th International Marine Conservation Congress
 Organised by the Society for Conservation Biology Marine Section

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Schedule may be subject to change, please use the IMCC4 app and website to stay up to date.



Society for Conservation Biology

Dedicated to advancing the science and practice of conserving Earth's biological diversity, the Society for Conservation Biology (SCB) is a global community of conservation professionals with thousands of members worldwide. The Society's membership comprises a wide range of people interested in the conservation and study of biological diversity: researchers, resource managers, educators, government and private conservation workers, and students.

SCB publishes the flagship peer-reviewed journal of the field, *Conservation Biology*, the award-winning magazine, *Conservation* and the online journal, *Conservation Letters*. The International Congress for Conservation Biology, ranging in location from Chattanooga to Beijing, is recognized as the most important global meeting for conservation professionals and students. The Society provides many benefits to its community, including local, regional, and global networking, an active conservation-policy program, and free online access to publications for members in developing countries. SCB also administers a postdoctoral program, the David H. Smith Conservation Research Fellowship Program, sponsored by the Cedar Tree Foundation.

www.conbio.org

SCB Marine Section

After the first (1997) and second (2001) Symposia on Marine Conservation Biology confirmed the large number of marine conservation biologists (MCBs) interested in furthering marine science, research and public policy, a group of marine professionals organized a formal society for MCB. After much discussion, this group accepted an invitation from the Society for Conservation Biology to become an SCB Regional Section as SCB strived to internationalize and increase its membership to encompass both global marine and terrestrial conservation. The Section opened and elected its first board of directors in December of 2001, and is continuing to recruit members interested in the marine realm—both current SCB members and those new to SCB who are looking for a network for focusing their research interests.

The Marine Section's mission statement is: To advance the science and practice of conserving the Earth's marine biological diversity. The Section's goals are to 1.) Be a global focal point for marine conservation; 2.) Facilitate the dissemination of the science of marine conservation through education, publications, presentations, and media outreach; 3.) Promote marine conservation as a priority for SCB; 4.) Inform and facilitate the implementation of marine conservation policy; 5) Encourage communication and action across disciplinary, national, and institutional boundaries; and 6.) Create the capacity to accomplish the aforementioned goals. The Section board of directors currently has fifteen members whose work crosses international boundaries and represents a wide range of marine conservation issues.

www.conbio.org/marine



Welcome from IMCC Chair

Dear Delegates,

Welcome to the 4th International Marine Conservation Congress (IMCC)!

The recently retired Elliott Norse organized the Society for Conservation Biology's first Symposia on Marine Conservation Biology in 1997 (and a second in 2001). Elliott's symposia highlighted the increasingly urgent need to emphasize the oceans in the scientific and conservation communities.

Elliott's symposia inspired, and suggested a need for, an even larger, dedicated meeting on marine conservation science. Thus, the International Marine Conservation Congress (IMCC) was born. The first three IMCCs were held in Washington, DC, in 2009, Victoria, British Columbia, in 2011, and Glasgow, Scotland, in 2014. The IMCC meetings are the largest academic meetings dedicated to marine conservation.

At all these meetings, there was an emphasis on producing tangible outputs and making progress in aquatic conservation as a result of activities and discussions, making IMCCs stand out in the realm of academic conferences. These were part of the aim of Making Marine Science Matter, as well as increasing attention to science and conservation communication. In addition to these important values, this year's conference is adding diversity to the list of principles stressed by IMCCs. With establishing the Code of Conduct, paying attention to accessibility issues and language barriers, promoting women and minorities, declaring IMCCs a safe space for members of the LGBTQ community to be themselves, and heeding the needs of parents in science, we're adding IMCC for All to the overarching themes of the Congress. While we cannot facilitate attendance by everyone interested, we've made great strides in making science conferences more attainable and welcoming, and we hope to continue making progress in inclusivity.

The Society for Conservation Biology (SCB) Marine Section, the host of IMCCs, is also emphasizing diversity in marine science through the Diversity Membership Drive, Conservation Research Small Grants Program, and other diversity initiatives. Both the Marine Section and IMCCs have dedicated Diversity Committees, and volunteers are working on even more fantastic activities and programs. If you are not already a member of the SCB Marine Section, I encourage you to join us and get involved with the section's activities and future IMCCs.

IMCC also recognizes that conservation is inherently interdisciplinary. While the program is ultimately made up of content received during the proposal and abstract process, we have



worked to showcase a range of disciplines and fields, including social science, communication, natural science, citizen science, conservation marketing, education, outreach, policy, community conservation, indigenous science, and more. St. John's, Newfoundland and Labrador, was chosen to help bridge the gap between marine conservation science, industry, and the public, recognizing its history and position. In the months leading up to IMCC4, the local organizing committee already made headway on this difficult task through raising awareness of the event, discussing how marine conservation can help everyone, and garnering community support of the conference and associated activities.

Revenue from IMCCs not only supports the conference itself, but the programs and initiatives of the SCB Marine Section. The organizing committee is made up almost entirely of volunteers who have dedicated thousands of hours to making IMCC4 a great experience for delegates and a catalyst for change ... on a tight budget! I'd like to recognize and gratefully thank the entire team for their monumental efforts, especially those who have gone above and beyond.

I hope everyone finds inspiration at IMCC4 and has a grand time learning, teaching, networking, collaborating, and of course, socializing!

Samantha Oester (@samoester)

Chair, 4th International Marine Conservation Congress

Chair, OceansOnline

George Mason University

President-Elect, Society for Conservation Biology

Marine Section



Welcome from IMCC Deputy Chair & Communications Chair

Dr. Edward Hind (@edd_hind)
Deputy Chair & Communications Chair
4th International Marine Conservation
Congress
Manchester Metropolitan University
Email: scbmarinecomms@gmail.com



Science is not an island. Scientists do not have all the answers. Just a stone's throw from where we gather today is the fishing town of Petty Harbour, which some of you are lucky enough to be visiting as part of the 4th International Marine Conservation Congress (IMCC4) activity program. It's a renowned location in Canadian fisheries management and marine research circles. The reason? Well, before many scientists noticed, it's fishermen began to warn that this region's famously bountiful northern cod stock was beginning to collapse. Back in the late Twentieth Century, however, there wasn't a great culture of scientists and fishermen discussing matters of conservation; quite the opposite in fact! So, when the fishermen's warning came, few scientists listened. By the time scientists themselves realised the stock was indeed collapsing, it was too late.

One of reasons we're on this island this week is because we want to make communication failures like those between scientists and the fishermen of Petty Harbour a thing of the past. We know that if we use IMCC4's coffee breaks to talk to a fisherman, a policy-maker, a teacher, or a journalist; if our Congress tweeting reaches an interested audience; if our evening 'discussions' at a local bar lead to us leaving St. John's having entered into a new collaboration; then we may just find the answer to preventing our own northern cod collapse.

From its inception, The International Marine Conservation Congress has been a meeting where communication among delegates and from the conference to the outside world has been a priority. With each IMCC, communication measures expand in an effort to reach beyond the traditional outcomes of scientific conferences. We aspire to showcase your research and messages, reach marine scientists and conservationists who cannot attend the conference, and engage the public.

As part of the IMCC4 communication strategy, we have included workshops on how to use social media to support your research and collaboration activities, how to establish a media profile, and how to give better presentations. We've also structured

the program to allow opportunities for cross-sector interaction. Look out for the contributed sessions on *Fisheries, Aquaculture, and the Oceans*, for instance. During these consecutive sessions of talks, fisheries scientists, fish harvesters, and policy-makers will hopefully enter into fruitful, conservation-focused discussions. As you search through this document, you'll also find many communication-focused contributed sessions, including storytelling workshops and talks on how to set up your own marine podcast. I urge you to attend at least one such session by the end of the week.

The Canadian research community learned from the collapse of the northern cod. Some of the leading scholarship on scientist-stakeholder communication has since been produced by the country's researchers. One of my program highlights is sure to be the poster by Jennifer Janes of Fisheries and Oceans Canada, *Newfoundland and Labrador Marine Protected Areas: An Illustration in Effective Citizen Participation in Marine Conservation* (Sunday 31 July 5:30–7:30pm, Convention Centre Bannerman Ballroom). The successful management of the Eastport and Gilbert Bay conservation zones she will be presenting on is informed by local ecological knowledge; knowledge that marine scientists are now actively soliciting in this region. We couldn't be in a better place to learn how to *Make Our Marine Science Matter* through communication. Welcome to St. John's. Please join the IMCC4 conversation!

To join the IMCC4 conservation communication conversation, go to:

Blog: imcc2016.wordpress.com

Twitter: @IMCC2016

Facebook: International Marine Conservation Congress

Official Hashtag: #IMCC4

See the IMCC4 website to follow the meeting chairs and members of the organizing committee, as well as our wonderful plenary speakers.

Follow the Marine Section of the Society for Conservation Biology at:

Twitter: @SCBMarine

FaceBook: SCBMarine

Pinterest: SCBMarine



Welcome from Local Chair

Dear IMCC Delegates,

On behalf of the Local Organizing Committee I am excited to welcome you to St. John's, Newfoundland and Labrador, Canada for the fourth International Marine Conservation Congress.

Newfoundland and Labrador's history is entwined with the story of marine conservation. There are few fisheries stories more well-known than that of the Atlantic cod and the moratorium that affected so many people. But it is also a place that shows a great cause for ocean optimism. Early signs of ecosystem recovery are giving new hope and new opportunities to the province. Our federal government's plan to protect 10% of Canada's oceans is progressing, and a broad coalition of scientists, conservationists, aboriginal groups, industry, and other stakeholders across the country are more engaged than ever before in improving ocean management. This is critical, because Canada has one of the longest coastlines, and our territorial waters cover a wide variety of ecosystems and species in need of protection and management.

There are few missions more important than marine conservation, and it is our goal as organizers to ensure that IMCC advances the science and practice of the discipline. IMCC is a forum for you to learn, network, and build skills. I also hope that you get the chance to teach others. Share what you know, and absorb what others have learned, and together we can achieve the shared goal of *Making Marine Science Matter*.

Best regards,

Dr. Brett Favaro (@LetsFishSmarter)

Local Chair, 4th International Marine Conservation Congress
Fisheries and Marine Institute of Memorial University





Welcome to OceansOnline

Hello! I'm thrilled to welcome you to *OceansOnline* at the 4th International Marine Conservation Congress!

Modern internet tools have truly revolutionized how people communicate with one another, a revolution with important implications for scientific outreach, conservation advocacy, and professional collaborations. It's never been easier in all of human history for experts to share their knowledge with policymakers, journalists, or the concerned public!

Effectively navigating this new online ecosystem can be challenging, but learning how to do it successfully can be an incredibly valuable skill for ocean scientists, conservation professionals, or educators. That's why we created *OceansOnline*, a perfect fit for an interdisciplinary marine conservation biology meeting like the IMCC.

We're excited to have plenary talks from Dr. Easkey Britton (@EaskeySurf) and Dr. Andrew David Thaler (@SfriedScientist). Throughout the rest of the day, we have a great collection of discussion panels, demonstrations of tools and software, and hands-on technical training workshops that will cover a wide range of topics related to using the internet for ocean outreach, education and advocacy.

If you live-tweet the sessions you attend at *OceansOnline* (and we hope you will) please use hashtag #OceansOnline! You can also Tweet @OceansOnline.



If you're an IMCC attendee who hasn't yet registered for *OceansOnline*, there's still time! You can register at the registration and check-in desk.

Thanks for coming and helping to make *OceansOnline* a success!

Sincerely,

David Shiffman (@WhySharksMatter)
Chair, *OceansOnline*
University of Miami

OceansOnline

THURSDAY, 4th AUGUST 2016

OceansOnline is a full add-on to IMCC4 registration with a theme of *Making Marine Science Matter* through communication and online resources. Through hands-on training workshops for beginners and discussion panels aimed at experts, we will discuss how internet tools can help marine scientists and conservation professionals with research, education and outreach. Inspired by the former ScienceOnline Oceans, *OceansOnline* aims to cultivate the ways marine science is conducted, shared and communicated online. We will bring together a diverse group of hundreds of scientists and conservation professionals, as well as science writers, artists, programmers and educators from around the world, representing universities, organizations, governmental agencies and companies.

OceansOnline will build on the online ocean community and facilitate new collaborations. IMCC4 provides a means to exchange hard-won knowledge and experiences, develop new ideas and bravely overcome challenges, and *OceansOnline* will further this mission. *OceansOnline* will also help build on strategic opportunities, such as marketing, meeting potential partners, generating new ideas and gathering knowledge valuable in current and future endeavors.

For information on *OceansOnline* plenary speakers Andrew David Thaler and Easkey Britton, please visit the Plenary Talks page. For information on *OceansOnline* content—facilitated discussions, workshops, online tools presentations, and the social—please visit the *OceansOnline* program page on the IMCC4 website.



Welcome from SCB Marine Section President

Dear Delegates,

On behalf of the Board of Directors of the Marine Section of the Society for Conservation Biology, I welcome you to the 4th International Marine Conservation Congress (IMCC).

IMCC, the flagship activity of the Marine Section of the Society for Conservation Biology (SCB-Marine), has become the venue for discussing marine-conservation issues AND solutions (*Making Marine Science Matter*). But, IMCC is not the only activity of the section. SCB-Marine is one of the more active sections of SCB and this past year has been an incredibly active period for the section. Here are just a few of the initiatives from just this year:

Save the Vaquita! In collaboration with the Latin America and Caribbean Section (LACA) and the Conservation Marketing Working Group of SCB, we helped lead an effort to save the vaquita. The vaquita is one of the most endangered marine mammals in the world, with only about 60 remaining. SCB-Marine and LACA have taken actions to increase awareness of the vaquita's plight in Mexico, USA, and China.

Conservation Small Grants Program: The goal of this program is to provide funding to SCB-Marine members to support research, conservation, and restoration activities. While all members are welcome to apply, priority was given to individuals from developing countries and those working in developing countries. Eight projects from seven countries received funding (US\$500–700). We plan to make this an annual event.

Heart the Oceans Day: On 12 February 2016, we celebrated our first Heart the Oceans Day (#HearttheOceans). The goals of this event are to promote awareness of marine conservation issues by encouraging section members and others to hold #HearttheOceans events to share why they love the oceans and to raise funds for SCB-Marine diversity initiatives. It was a great success. Approximately 20 “ocean communication” events were held around the world, and the event raised over US\$800, which was used to purchase of 29 SCB memberships for developing world and small island state researchers. This will also be an annual event.

Inclusion, Equity, and Diversity: The initiative I am proudest of is our commitment to making the section, our discipline, and IMCCs diverse and inclusive. We recently added a Diversity



Officer to the board to chair the new Diversity Committee, whose charge is to increase diversity in the following (but not limited to) areas: international, racial, socioeconomic, religious, professional, varying abilities, gender, gender identity, and sexual orientation. Our Small Grants and Heart the Ocean programs help support our diversity initiatives.

However, the initiative that is likely most relevant here is the Code of Conduct that we have established for IMCC4 (and all future IMCCs), which is designed to create an environment where inclusiveness is encouraged and embraced, and harassment and bullying are explicitly disallowed. It is important to note that the Code is more than words. It has “procedural teeth.” And for any delegate who needs to report harassment or other inappropriate behavior, we have a trained Safety Officer that they can go to. The Safety Officer will be readily identifiable and all conversations will be done in a private area of the conference center. I encourage everyone to review the Code of Conduct on the IMCC website (conbio.org/mini-sites/imcc-2016/registration-participation/code-of-conduct). I also encourage everyone to read our paper “Your science conference should have a code of conduct” (Favaro et al. 2016) in *Frontiers in Marine Science: Marine Conservation and Sustainability*. Together, we can make IMCCs an inclusive and safe space for all delegates.

I hope that I have been able to show that the Marine Section is doing great things to advance marine conservation, including advancing diversity, equity, and inclusiveness. You can find more about these initiatives and others on the Marine Section website (conbio.org/groups/sections/marine/). If you are not a member of SCB or the Marine Section, we hope that you will join us.

And finally, many people were instrumental in organizing this congress but three require very special thanks: Sam Oester, Brett Favaro, and Edd Hind. Each have put in an extraordinary amount of time and effort into this congress. When you see them, please thank them.

Sincerely,

John A. Cigliano (@TieDyedSeas)
President, SCB-Marine Section
Cedar Crest College



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Welcome to St. John's

ST. JOHN'S

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MESSAGE FROM THE MAYOR

I am delighted on behalf of Council to welcome the International Marine Conservation Congress to St. John's!

It is always a pleasure to welcome delegates from throughout Canada and around the world to the oldest city in North America as you gather to discuss ideas and exchange knowledge in the area of marine conservation.

Our City's maritime history, together with world-class companies and research and development facilities in the ocean technology sector, emphasize the continuing importance of the ocean. St. John's historic and economic connection to the sea has fostered a significant and diverse marine industry and transformed St. John's into a City of Ocean Excellence.

We are pleased St. John's was chosen as the host city for this conference and we hope you take the opportunity to experience our intriguing blend of history, culture and hospitality to have a great conference experience.

Sincerely,

A handwritten signature in black ink that reads "Dennis O'Keefe".

Dennis O'Keefe

Mayor, St. John's, Newfoundland and Labrador





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David Shiffman (@WhySharksMatter),
OceansOnline Chair
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MASCOTS

Caleb Cod
Nevaeh Narwhal
Skylar Sea Star



Acknowledgements

Thank You!

The 4th International Marine Conservation Congress would not have been possible were it not for the generous help of our volunteers and partners. Their hard work has not gone unnoticed, and we'd like to recognize them here.

VOLUNTEERS

Heather Penney, Chelsea Gray, Keryn Gedan, and Holly Niner
 The Communication Committee
 The Fundraising Committee
 The Student Activities Committee
 The Scientific Program Committee
 The Diversity Committee
 IMCC4 Blog Contributors
 All conference volunteers, including volunteers from Memorial University of Newfoundland and the Marine Institute
 Abstract and proposal reviewers
 Session moderators

COMMUNICATION PARTNERS

OpenChannels

LOCAL PARTNERS

Gatherall's Puffin & Whale Watch
 Rocket Bakery
 Quidi Vidi Brewery

OUTREACH PARTNERS

Keni Rienks and the Outreach Volunteer Team
 COMPASS
 Tiffany Martin and MI Ocean Net
 Janeway Children's Health and Rehabilitation Centre

HOSTS

SCB Marine Section

SPONSORS

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 City of St. John's
 Natural Resources Defense Council
 Animal Welfare Institute
 FACETS
 Rocket Bakery
 Green Fire Productions
 Healthy Oceans Coalition, American Littoral Society

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There are undoubtedly several individuals not listed here who contributed their time and effort to make this conference successful, including a long list of abstract and proposal reviewers. To anyone we may have missed: your hard work was greatly appreciated and we are glad you were a part of IMCC 2016!



Sponsors

The IMCC4 Organising Committee owes our gratitude to the following groups for their generous support.

Gold



Gordon and Betty Moore Foundation

The Moore Foundation believes in bold ideas that create enduring impact in the areas of environmental conservation, patient care and science. Intel co-founder Gordon and his wife Betty established the foundation to create positive change around the world and at home in the San Francisco Bay Area. www.moore.org

Silver



World Wildlife Fund

The world's leading conservation organization, WWF works in 100 countries and is supported by 1.2 million members in the United States and close to 5 million globally. WWF draws on biology, hydrology, oceanography, and the social sciences to advance cutting-edge conservation tools and methods, connect natural and social systems, and tackle emerging threats. www.worldwildlife.org

Bronze



Additional Sponsors





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OPENCHANNELS

FORUM FOR OCEAN PLANNING AND MANAGEMENT

Follow the IMCC4 conference live-blog at

<https://www.openchannels.org/chat/imcc4>

- Live OpenChannels coverage of talks, posters, & workshops
- Curated tweets from the #IMCC4 feed
- Interviews with selected speakers
- Updates from organizers
- And more

Each year, OpenChannels.org and its associated programs are used by more than 50,000 ocean planners, managers, scientists, and conservationists worldwide. Providing up-to-date news, webinars, listservs, live Q&As, blogs, a huge literature library, videos, and job and grant listings, **OpenChannels.org is your knowledge-sharing hub.**

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OpenChannels, a project of MARE, is supported financially by the Gordon and Betty Moore Foundation and the David and Lucile Packard Foundation. OpenChannels co-coordinates the EBM Tools Network with NatureServe.



Getting Around

MAIN CONFERENCE VENUE:

Delta St. John's Hotel & Conference Center

IMCC4 is to be held in the Delta Conference Centre, the largest conference space in Newfoundland. The Centre is located in the heart of downtown St. John's and affords delegates easy access to local attractions.

Delta St. John's Hotel & Conference Center

120 New Gower Street
St John's, Newfoundland, A1C 6K4 Canada
Phone: 709-739-6404
Fax: 709-570-1622

TRAVELLING BY BUS

St John's has a good bus network, information can be sources from <http://www.metrobus.com/home.asp>

Travelling Around St. John's

St. John's Trolley Line

The 'step on, step off' St. John's Trolley, is a seasonal service in historical downtown. The Trolley stops at Signal Hill National Historic Site, The Johnson Geo Centre, The Commissariat Provincial Historic Site, The Rooms, The Newman Wine Vaults Provincial Historic Site, The Railway Coastal Museum, numerous bus stops along Water Street including near The City of St. John's Visitor Centre, The Delta Hotel and the Sheraton. For schedules and rates visit www.metrobus.com/trolley/

Destination St. John's Mobile App

Destination St. John's is making its member's information available to convention delegates, tourists and residents of the province. The app is available for all smartphones allowing users to check for places to stay, places to eat or things to do during their stay. You can even check to see what the weather will be like. Best of all the app is FREE! Visit <http://m.destinationst-johns.com/> to download.

Facilities & Resources

BUSINESS CENTRE

The Delta St. John's Business Centre is located on the lobby level, is accessible 24 hours a day with your guest key, offers complimentary printing (black and white) and has several work stations equipped with a variety of software. Colour printer also available at a nominal charge.

BANKS

All of the major banks are located in close proximity to the conference venue on Water Street.

MEDICAL FACILITIES

St. Clare's Hospital

154 LeMarchant Rd • 709-777-5000

Empire Medical Clinic

204 Freshwater Rd • 709-753-2055

Campbell Medical Group

39 Campbell Ave • 709-579-5001

POST BOX

There is a post box in the lower lobby of the hotel next to the pool. The post office is a block away at 354 Water Street on the corner of Water Street and Queen Street. It is open until 4 pm Monday to Friday.

WHEELCHAIRS

The IMCC4 venue is accessible to wheelchair users. For those that need to rent a wheelchair please contact Lawton's pharmacy (www.lawtons.ca), the closest pharmacy to the venue is on Campbell Avenue and can be contacted on 709-579-9531.

If wheelchair users require assistance with special arrangements or have any queries or concerns please contact IMCC4 Chair Samantha Oester and IMCC4 Diversity Chair Luli Martinez. If concerns arise during the conference, please highlight that your email is urgent or contact a conference volunteer.

WI-FI

The City of St. John's is providing WiFi at the Delta Conference Centre. The access code is **george**.



IMCC Survival Guide

Finding Your Way Around the Congress

VOLUNTEERS

Look for the green t-shirt. Volunteers can be easily identified by their green VOLUNTEER shirts. Please do not hesitate to ask them for assistance as they are here to help and direct you.

LOCAL ORGANIZING COMMITTEE

Local organizing committee folks can be identified by an “Ask Us” ribbon. Looking for recommendations about anything St. John’s or conference details, just ask them!! If they cannot answer your questions, they can point you to someone with the information you need.

REGISTRATION DESK HOURS

The registration desk will be located on the main hallway of the Delta Conference Centre starting 30 July 2016 at 09:30 and will be open until 4 August 2016 at Noon.

Saturday, 30 July	9:30 am – 5:00 pm
Sunday, 31 July	7:30 am – 5:00 pm
Monday, 1 August	8:00 am – 5:00 pm
Tuesday, 2 August	8:00 am – 5:00 pm
Wednesday, 3 August	8:00 am – 5:00 pm
Thursday, 4 August	8:00 am – 12 Noon

CONTACT INFORMATION:

During the Conference—Visit the registration desk in the main hallway of the Delta Conference Centre.

Before and After the Conference—Meeting Manager Lori Strong (LStrong@Burkinc.com)

GET A ROOM!

Need to book a room for a last-minute IMCC related meeting? Visit our registration desk to arrange with Lori Strong.

MERCHANDISE TABLE

Purchase or pick up your pre-ordered IMCC souvenirs at the merchandise table, next to the registration desk. Merchandise will also be available to purchase onsite in limited quantities. Local volunteers will also be on hand here to answer questions ranging from restaurants to things to do during your stay in St. John’s and more. Registration staff will be available for conference-related enquiries, including but not limit to information regarding session and event locations.

EMERGENCY CONTACTS

If you become ill and require medical assistance during your stay in St. John’s, call Healthline at 811. This is a dedicated helpline where you will be put in touch with a healthcare professional to provide assistance.

In a medical emergency call 911 for an ambulance. Please note, the Newfoundland Ambulance Service and Accident & Emergency departments provide care for people with symptoms of serious illness or who have been badly injured. When you call 911 the Newfoundland Ambulance Service will respond with the most appropriate help for your situation. 911 should only be used for serious illnesses or injuries.

The nearest hospital to the IMCC and the Delta Hotel, with a dedicated Accident & Emergency Unit is:

St. Clare’s Mercy Hospital

154 Lemarchant Rd. St. John’s, NL
Telephone: 709-777-5000

The nearest childrens’ hospital to the IMCC and the Delta Hotel, with a dedicated Accident & Emergency Unit is:

Health Sciences Center-General Hospital

300 Prince Phillip Dr. St. John’s, NL
Telephone: 709-777-6300

SPEAKER READY ROOM

The Fortune Bay room, which is located across the exhibitor hallway from Salon A in the Delta Conference Centre. All presenters must check in at the Speaker Ready Room one day prior to your presentation day. Hours are:

Saturday, 30 July	9:30 am – 5:00 pm
Sunday, 31 July	7:30 am – 5:00 pm
Monday, 1 August	8:00 am – 5:00 pm
Tuesday, 2 August	8:00 am – 5:00 pm
Wednesday, 3 August	8:00 am – 5:00 pm
Thursday, 4 August	8:00 am – 12 Noon

WIRELESS ACCESS

The City of St. John’s is providing WiFi at the Delta Conference Centre. The access code is **george**.



Cheap Eats Within Walking Distance

These dining options are within a 10-minute walk of IMCC4 (Delta Conference Centre). Note, walking times are approximate.

PRICE SCALE (pp in CAD): \$ = 10–20; \$\$ = 20–50		
<p>Relish Gourmet Burgers, \$\$ 11 Waldegrave St. Walking time: 1 min</p>	<p>Yellow Belly Brewery, \$\$ 288 Water St. Walking time: 6 min</p>	<p>Rocket Bakery, \$ 272 Water St. Walking time: 7 min</p>
<p>Boston Pizza, \$\$ 367 Water St. Walking time: 2 min</p>	<p>Celtic Hearth, \$\$ 298 Water St. Walking time: 6 min</p>	<p>The Sprout, \$\$ 364 Duckworth St. Walking time: 7 min</p>
<p>Magic Wok Eatery, \$\$ 408 Water St. Walking time: 3 min</p>	<p>Jack Astors Bar & Grill, \$\$ 125 Harbour Dr. Walking time: 6 min</p>	<p>Zapatas, \$\$ 10 Bates Hill Walking time: 7 min</p>
<p>Shamrock City Pub, \$\$ 340 Water St. Walking time: 4 min</p>	<p>Afghan Restaurant, \$\$ 375 Duckworth St. Walking time: 6 min</p>	<p>Sushi Island, \$\$ 210 Water St. Walking time: 9 min</p>
<p>Jungle Jim’s Eatery, \$\$ 2 Holdsworth Ct. Walking time: 4 min</p>	<p>Piatto, \$\$ 377 Duckworth St. Walking time: 6 min</p>	<p>Duke of Duckworth, \$\$ 325 Duckworth St. Walking time: 10 min</p>



The IMCC2016 Blog

Get information on St. John's, IMCC-related articles, interviews with plenaries and organizers, and IMCC4 features.

imcc2016.wordpress.com

Interested in contributing to the IMCC4 blog as a guest writer?

Contact Edward Hind at
scbmarinecomms@gmail.com or [@imcc2016](https://twitter.com/imcc2016)



Eco-Friendly IMCC4

Great efforts have been made to ensure that IMCC4 is as low-impact and sustainable as possible. To achieve this we have subscribed to a number of objectives and considered these at all stages of organisation to reduce the environmental impacts of the conference as far as possible.

IMCC4 Sustainability Objectives

- To offset the carbon emissions resulting from this conference.
- To minimize the environmental impacts of conference transportation, meetings and events.
- To source merchandise and conference gifts locally and as ethically/sustainably as possible.
- To minimize or eliminate waste from food, conference materials, water.
- To support sustainable energy initiatives undertaken by IMCC4 and partners.

Action Towards Achieving These Objectives

1. CARBON OFFSETTING

Given the scope and severity of climate change, and the mission of the Society for Conservation Biology (SCB) and the SCB Marine Section, the IMCC4 Organizing Committee has taken steps to ensure the congress does not become “part of the problem.” The recent Paris Agreement was a watershed moment, where a call for action rather than words was made in relation to the cutting and eliminating of carbon emissions. Given the particularly severe threats to ocean environments, IMCC4 should be a leader in addressing climate change and ocean acidification.

Resultantly, the IMCC4 Organizing Committee decided to donate to a carbon offset project to cover the carbon footprint of delegate travel and organizing the conference, rather than asking delegates to “opt in” to carbon offset and voluntarily pay a fee in addition to the registration fee. The carbon emissions associated with IMCC4 will be fully offset through this donation by the International Marine Conservation Congress and the SCB Marine Section. We will analyze the carbon footprint of the conference to identify means to do even better in the future. We are also taking steps to reduce the carbon footprint of the conference in many other ways.

Following a rigorous process, which involved the evaluation of several carbon offsetting projects, the IMCC4 Organizing Committee chose the Mikoko Pamoja mangrove offsetting project in Kenya as its offsetting partner. You can learn more about the project below and at its website.

Mikoko Pamoja is a community-led mangrove conservation and restoration project in Gazi Bay, Kenya. It involves community-based policing of illegal mangrove harvesting, as well as the application of local expertise in mangrove planting. Mikoko Pamoja is accredited by Plan Vivo, an independent charity that specialises in community-based forestry projects.

Mangroves provide a wide range of ecosystem services, including coastal protection, nursery habitat for fish and water purification. Along with a wide range of associated ecological benefits including improved fisheries wildlife habitat and coastal protection, the project seeks to raise income from forest resources, including carbon credits and other income generating activities such as beekeeping and ecotourism, for community benefit.

The project is managed by three groups: The Mikoko Pamoja Community Organization (MPCO) consists of representatives of Gazi Bay, specifically Gazi and Makongeni villages; The Mikoko Pamoja Steering Group (MPSG), which provides technical support to the MPCO; and the project coordinator, The Association for Coastal Ecosystem Services (ACES), a charity registered in Scotland.

2. LOCAL TRANSPORT

The Delta Conference Centre is well located for easy access to the main sights, attractions and accommodation of St John's. There is also a convenient bus and taxi service for longer or late night journeys.

3. CONFERENCE GIFTS & MERCHANDISE

Items have been sourced with the principles of sustainability in mind, for example, our t-shirts are manufactured of recycled plastic, organic cotton and environmentally sound inks and our pendant is made by a Canadian artist.

4. WASTE REDUCTION

We are committed to reducing waste, we recommend that delegates bring their own refillable water bottle for the conference and will be serving tea and coffee in a china service which can be used in addition to the IMCC4.



IMCC Sustainability Statement

To also help eliminate waste, we are providing pre-ordered printed programs only (it's a lot of paper) made from 100% post-consumer recycled materials. We are providing the meeting app, as well as the program pdf on the website, to everyone in lieu of printed programs for all.

We are being mindful of the waste involved in signage and trying to only print signs that are very necessary and recycling at the conference venue will be available.

5. FOOD

To minimize food waste, we are not providing food at the conference. Lunch can be ordered at the point of registration. Within events, all catering has, as far as possible, been sourced locally and sustainably, with a focus on vegetarian and vegan cuisine. Further, we have contacted all caterers and asked them to box up leftovers to give to us, which will be donated and/or provided to conference volunteers.

6. EVENTS & FIELD TRIPS

Our events include a Sustainable Seafood Dinner, with the seafood and its local source providing the central focus of the evening. Furthermore, our local field trip providers including Gatheralls and Fishing for Success have been chosen for their responsible practices and their commitments to marine conservation. Where possible all of our event and field trip providers have been selected based on the quality of their service and their reflection of IMCC4's sustainability principles.



green fire
PRODUCTIONS

Producer of Ocean Frontiers, an inspiring film series on marine planning success stories ~ www.ocean-frontiers.org

IMCC4 MARINE MOVIES FREE EVENT - AUGUST 2, 6:00PM

Journey to British Columbia's north Pacific coast in this film screening of *The Great Bear Sea*. Complimentary, delicious appetizers and cash bar, followed by Q+A with First Nations leaders Dallas Smith, Nanwakolas Council, Russ Jones, Haida Nation and filmmaker, Karen Meyer.

Rocket Bakery, 272 Water St., St. John's

NEW CURRICULUM

Great Bear Sea marine planning & stewardship teaching materials for elementary, secondary and post-secondary schools.

Available September 2016

www.greatbearsea.net



At the International Marine Conservation Congress, we want to promote a safe, comfortable space for presentations, collaboration, innovation, and creativity. We welcome suggestions and questions. Please email IMCC4 Chair Samantha Oester and IMCC4 Diversity Chair Luli Martinez with comments or concerns.

CODE OF CONDUCT

It was important to IMCC4 organizers to research and develop a Code of Conduct for the conference, and all IMCCs moving forward. The Society for Conservation Biology and the SCB Marine Section work to promote a welcoming environment at conferences that is safe, collaborative, supportive, and productive for all attendees, including delegates, volunteers, exhibitors, invited speakers/stakeholders, members of the media, and service providers. The SCB Marine Section and IMCC value the diversity of views, expertise, opinions, backgrounds, and experiences reflected among all attendees. A Code of Conduct is important to promoting diversity and creating a safe, productive environment. The IMCC4 organizers consulted with available materials and research on codes of conduct, other societies and conferences, the Society for Human Resource Management, and human resource psychologists and other experts. IMCC4, and future IMCCs, will also have a designated Safety Officer onsite to help with issues, answer questions, provide counseling, mediate, and advise on necessary actions. The Safety Officer is a human resources professional with experience in human resource management and psychology.

TOILETS

IMCC4 delegates should feel free to use the toilet (restrooms) of the gender they identify with at the Delta Conference Centre, as well as event venues. One toilet facility at the Delta Conference Centre will also be designated as a mixed-gender (or gender-neutral) restroom. This restroom can be used by all delegates, including (but not limited to) families and anyone who needs assistance in the restroom from a person of another gender. To accommodate a mixed-gender restroom, we will be changing some of the signs on the toilets. (This accommodation may also result in a “men’s” room converting to a “women’s” room, or vice versa.) Please use the IMCC4 sign designations, when present. If you have questions or need alternate accommodations, please let us know.

LOCATION

One of the reasons the Delta was chosen for IMCC4 was the convenience for delegates who would benefit from staying onsite. Hotel rooms at the Delta are upstairs from the conference centre, making it easier for delegates traveling with families and kids, delegates who may need to frequently visit their rooms (for medical or other reasons), or anyone who needs privacy at points throughout the day. We ask that everyone be respectful of others and understand people may have different needs.

PARENTS

We want parents to be able to make the most of IMCC4, while understanding traveling with kids can be a challenge. Please see the IMCC4 Bringing the Family page for information on caregiver badges, the lactation and changing room, children’s tickets to certain events, and more. We are also opening the poster reception to kids under the age of 17 (chaperoned by an IMCC4 delegate) with a free kids’ ticket that can be picked up at the registration desk as a means for ocean outreach. Additionally, we’ve strived to end sessions at a reasonable time each day for family time, time to decompress, and to promote an essential part of conferences—networking in a setting outside of session rooms.

ACCESSIBILITY

We are working with InclusionNL to help make IMCC4 as accessible as possible. Anyone who needs accessibility assistance—whether it’s getting materials and forms in a different format, onsite accessibility, or a volunteer to help navigate participation—can contact us to make requests. We want to help. IMCC4 and InclusionNL will work together to help make your participation at IMCC4 successful. Please email us with requests. The Accessibility page was formatted to be effective for people who may be using computer software for those who are visually impaired. If you need information in another format, please do not hesitate to contact us.

LANGUAGE

For the first time, it was possible to submit IMCC abstracts and proposals in languages other than English. Delegates could also request offline submission forms in languages other than English. We are working with delegates who wish to present in various languages, allowing them to feel as confident and comfortable as possible during their presentations. We will provide means so people who speak English can enjoy presentations in



IMCC for All

other languages. We are also working with a team of volunteers to give assistance upon request to delegates whose first language is not English but would like to give their presentations in English. If you need language assistance or need to present in a language other than English, please email IMCC4 Diversity Chair Luli Martinez.

INTERDISCIPLINARY

At IMCC, we understand conservation is inherently interdisciplinary and conservation cannot be achieved by natural scientists alone. We welcome abstracts, proposals, and participation by any stakeholder, sector, or discipline related to aquatic science and marine conservation. The overall theme of IMCCs is Making Marine Science Matter, but several themes for each particular congress are chosen to highlight various issues, local work, and the multiple disciplines needed for conservation success. We also always welcome proposals, abstracts, and other content that may not fit into one of the chosen themes. For IMCC4, we've increased our efforts to reach out to working groups, societies, NGOs, universities, etc. that specialize in fields other than natural science, including policy, communication, social science, management, diversity, culture, and more.

GLOBAL OUTREACH

The SCB Marine Section is a global section of the Society for Conservation Biology, and IMCC delegates come from around the world. We've made a special effort to increase our global reach with IMCC4, contacting 1,500+ universities, agencies, NGOs, and community groups in countries that have not been represented at past IMCCs, to invite them to participate in the Congress. We began developing a database of contact information for organizations on every inhabited continent, and communications and materials were provided in English, Spanish, French, Chinese, and Arabic. Want to add your group or organization to our database? Please contact IMCC4 Chair Samantha Oester.

While the location of IMCC changes with every conference, we fully recognize they have always stayed within the U.S., Canada, and the U.K., and this needs to be improved to continue saying we aim for global reach. The location of IMCC4—St. John's, Newfoundland and Labrador, Canada—was chosen based on the need to bridge the gap between conservation and industry, as well as a fantastic local organizing team. Starting with IMCC5, IMCCs will regularly move around the world with hopes to increase international access and participation.

DIVERSITY TRAVEL GRANTS

The travel grants available through IMCC4 were designated for the Diversity Travel Grant Awards Competition. The Diversity Travel Grant applications were open to delegates with approved abstracts from countries designated as developing countries by the World Bank, countries designated as small island developing states, and North American indigenous communities. Winners received either full travel assistance, partial travel assistance, or free IMCC4 registration. Winners included delegates from Brazil, Cuba, Ecuador, the Philippines, Colombia, Nepal, Peru, South Africa, Fiji, Palau, Slovenia, Nigeria, Uganda, Mexico, Bangladesh, Malaysia, Indonesia, and the North American indigenous communities of Iñupiat and Yup'ik. The competition was open to students and non-students. The IMCC4 program will benefit immensely from the participation of these presenters, some of which are representing countries and communities that have not been well-represented at past IMCCs. IMCC and the SCB Marine Section are global, and marine conservation issues affect all reaches.

DIVERSITY FOCUS GROUP SERIES

A focus group will take place every afternoon of the IMCC4 scientific program to discuss issues of diversity in marine science, academic societies, marine conservation, and science conferences. The following are the focus groups that are part of the IMCC4 Diversity Focus Group Series. The focus groups are open to the participation of any IMCC4 delegates. While we could not cover every aspect of diversity at IMCC4, we hope to continue the series at future IMCCs, bringing in more expertise and discussing more issues. Suggestion for focus groups in the IMCC5 Diversity Focus Group Series can be sent to IMCC4 Deputy Chair Edward Hind and IMCC4 Diversity Chair Luli Martinez.

Sunday, 31st July

Diversity Focus Group Series: Diversity in Conservation and the Creation of a Marine Diversity Network

Organizers: Luli Martinez, *University of California-Santa Cruz*; John Cigliano, *Cedar Crest College*; Nicola Smith, *Simon Fraser University*; Mel Cosentino, *Wild Earth Foundation*

Detail: 15:00–17:00, Salon D, Delta Conference Centre

In recent years, it has been recognized that diversity increases the effectiveness of research and innovation in the science realm. Diversity can be broadly defined as inclusion, no matter the country of origin, cultural roots, religion, gender, or special



abilities. The more diverse the group of people, the better the science. The Marine Section of the Society for Conservation Biology and the International Marine Conservation Congress are keen to embrace diversity and favor the inclusion of people from all over the world to share ideas and to collaborate, with the ultimate aim to increase the impact of our science in the conservation of the oceans and their biodiversity. A fundamental aspect to maintain a diverse group of people focused in marine conservation is the creation of a network that facilitates the communication and collaboration among those involved. This focus group seeks a deep insight to this respect to find ways to develop the network and most importantly to keep it active and nourished with the contributions of the members. We aim to answer: What is the best strategy to build a Marine Diversity Network? Which tools can be used to keep it active?

Monday, 1st August

Diversity Focus Group Series: Promoting the Participation of Women at Science Conferences

Organizers: Stephanie Sardelis, *Columbia University*; Joshua Drew, *Columbia University*; Samantha Oester, *George Mason University*; Luli Martinez, *University of California-Santa Cruz*; John Cigliano, *Cedar Crest College*

Detail: 15:00–17:00, Placentia Bay, Delta Conference Centre

Representation of women in science has increased over the past two decades. Approximately 60% of Master's recipients and up to 48% of PhD recipients are women (West and Curtis, 2006; Redden, 2007; Ceci et al., 2014). Yet, women occupy less than 40% of jobs in biology, chemistry and physics, and only 25% of STEM jobs overall (Beede et al., 2011). The “leaky-pipeline” effect occurs when a gender filter removes women from the academic stream and exclusively allows men to progress (Blickenstaff, 2005; Stout et al., 2011). This imbalance is a consequence of academia culture, which regrettably harbours gender biases against women (Rosser, 2004; Sugimoto et al., 2013; West et al., 2013). Gender biases range from social exclusion due to stereotypes to unequal distribution of promotions, awards, and tenure (Yentsch and Sindermann, 2013). The glass ceiling effect is where progress is limited by inequality in salary and opportunities, contributing to unequal ratios of recognized women to men (Addressi et al., 2012). A scientist's level of recognition is related to their citations, awards, and the

perceived value of their research (Jones et al., 2014). One solution is to increase the visibility of women, so they have a greater influence on junior female scientists and to help eliminate the misconception that women are less competent scientists than men. Symposia allow speakers to present in a prestigious venue and thus reduce negative gender schema. In this focus group, we plan to discuss a recent study on the participation of women in organizing science conferences and in conference symposia. We will also discuss reducing barriers to conference participation for women by facilitating travel, making conferences child-friendly, and promoting women to organize sessions. Additionally, we will discuss other factors that may influence the visibility of women at science conferences and how increasing visibility can impact women in science outside of conferences.

Tuesday, 2nd August

Diversity Focus Group Series: Conference Accessibility, Harassment, and Codes of Conduct

Organizers: Brett Favaro, *Memorial University*; Samantha Oester, *George Mason University*; Tracey Woodbury, *Society for Human Resource Management*; Edward Hind, *Manchester Metropolitan University*; John Cigliano, *Cedar Crest College*; Leslie Cornick, *Alaska Pacific University*; Luli Martinez, *University of California-Santa Cruz*

Details: 15:00–17:00, Placentia Bay, Delta Conference Centre

Harassment, bullying, and intimidation are pervasive problems in science. Recent high-profile articles in scientific journals and popular media have drawn attention to cases of abuse, and scholarly research has shown that these cases are far too common. Conferences are critical to the communication, conduct, and implementation of conservation science, and so making these spaces safe and accessible is absolutely necessary. As organizers of IMCC4, we built a code of conduct to guide delegate behaviour. We designed this code—and the consequences for violating it—with input from experts in inclusivity and human resources to make the conference accessible and safe. In this FG, we will discuss the need for conference codes of conduct, and will argue that all science conferences should adopt similar policies. In addition, we will discuss some of the misconceptions that people have about how to craft and implement codes of conduct. We will also discuss the importance of conference codes of conduct in welcoming diverse delegates.



IMCC for All

Wednesday, 3rd August

IMCC4 Diversity Focus Group Series: Cultural and Religious Diversity in Marine Science

Organizers: Luli Martinez, *University of California-Santa Cruz*

Details: 15:00–17:00, Placentia Bay, Delta Conference Centre

Human behavior and perceptions are shaped according to the cultural values and religious beliefs, to a great extent. Both have played a major role in the use of species and resources and in the dominance of humans in the natural world. In fact, 80% of the population worldwide is influenced by religion on a daily basis, being population growth a clear consequence. Although negative effects on nature have been documented, religion and culture may also have a strong influence in conservation. The designation of sacred sites as protected areas or the maintenance of animal populations because of their cultural services are just some of the examples. This focus group seeks an open discussion about how the religious and cultural values have influenced the use and conservation of the oceans and their resources. In a positive way, we want to answer: Under which circumstances the influence of religions and traditions have had a positive impact on the management, use and conservation of the marine species? What lessons can we learn and how can we take advantage of those cultural values to change human perceptions about our role and duties with the ocean?

Note from Organizers

It was important to IMCC4 organizers—including IMCC4 Chair and SCB Marine Section President-Elect Samantha Oester, IMCC4 Local Chair Brett Favaro, IMCC4 Deputy Chair Edward Hind, and SCB Marine Section President John Cigliano—to strive for an “IMCC for All” approach to organizing the conference. We have worked very hard and made large strides in making IMCC more accessible and open, while maintaining scientific integrity in our programming and keeping fees as low as possible for delegates. We understand improvements still need to be made and some approaches may need to be re-worked. We welcome input, assistance, and suggestions.



Tours/Activities/Things to Do

There is lots to see and do, if you've got some spare time during your stay.

Whale & Puffin Watching Boat Charter

Gatherall's

www.gatheralls.com

Best whale sighting record. Puffins guaranteed. New catamaran (whale & passenger friendly, designed to minimize seasickness). It's the largest, most stable and most comfortable vessel in Newfoundland. Enjoyable, interactive interpretive program. Private charter: 100 people.

Hiking & Walking

East Coast Trail

<http://www.eastcoasttrail.ca>

The East Coast Trail is 540 km of coastal hiking that takes you along the scenic shores of the Avalon Peninsula. Visit the website for maps and a schedule of guided hikes.

Grand Concourse Authority

<http://www.grandconcourse.ca>

Take a stroll, hike, cycle or snowshoe along the finest walkway system in Canada. The Grand Concourse offers over 130 km's of inter-connected Walks throughout St. John's, Mount Pearl and Paradise, connecting rivers, ponds, lakes and parks; the scenery is dazzling. The award-winning Grand Concourse has directional and interpretive signage along the entire network.

Inside Outside Battery

<http://twinstore.wix.com/insideoutsidebattery>

Although the Battery is part of St. John's, it doesn't feel urban. Nestled against Signal Hill National Historic Park, it's known as "The outpost in the city". Download this GPS-monitored app to get a personal guided tour of the area.

SCUBA Diving

Ocean Quest Adventures

<http://www.oceanquestadventures.com>

Offering day and week-long scuba diving packages just 20 minutes from St. John's in Conception Bay South! Scuba dive on upright and intact shipwrecks from World War II, in local caverns, or hang out with our personality filled ugly fishes. Tours offered May–November. Private and Group charters available with maximum 14 divers.

Sea Kayaking

Stan Cook Sea Kayak Adventures

<http://www.stancook.ca>

Paddle alongside whales, icebergs, dolphins and puffins.

Experience entertaining coastal interpretive adventures that access sea caves, waterfalls and fishing villages. The Cook family has offered award winning educational, entertaining enriching and sustainable adventures for all ages and experience levels since 1970.

Ocean Quest Adventures

<http://www.oceanquestadventures.com>

Offering single and multi-day adventure and cultural tours including Snorkeling with Humpback Whales, 1-day resort style diving programs, tour boat charters, guided sea kayaking tours, up close and personal zodiac tours of icebergs, cave exploration and more. Operating in Conception Bay South (20 minutes from St. John's) and Petty Harbor (10 minutes from St. John's). Tours offered May–November. Private & Scheduled Charters: 45 people, Private Zodiac Charters: 12 people.

The Outfitters Adventure

<http://www.theoutfitters.nf.ca>

Exhilarating sea kayaking tours of the Avalon Peninsula's world famous coastline.

Ziplining

North Atlantic Ziplines, Inc.

<http://www.zipthenorthatlantic.com>

North Atlantic Zipline welcomed its first adventure seeker in June, 2012 and has risen to the top of everyone's "to do" list when visiting the east coast. Located in the scenic fishing village of Petty Harbour, only 10 minutes from downtown St. John's, this zipline course is the largest east of the Canadian Rockies. Spectacular view from all 10 lines. Come zip our majestic coastline, it's an experience everyone deserves to have! Open all year!

Farmer's Market

St. John's Farmers' Market

<http://stjohnsfarmersmarket.org>

The St. John's Farmers' Market operates every year from June to mid December, 9 am to 2 pm at the Lion's Club Chalet on Bonaventure Avenue (between the ball field and the Remax Centre). The St. John's Farmers' Market is run by a group of dedicated volunteers who strive to create, maintain and support a weekly Farmers' Market and all that it represents. Local produce, art, prepared food, craft, activities and much more!



Things to Do in St. John's

Shopping

O'Brien's Music, Inc.

<http://www.obriens.ca>

Newfoundland's original traditional music store, with the best in Newfoundland CDs and music books, plus everything from spoons to ugly sticks, harmonicas, accordions, guitars, mandolins, fiddles, banjos and bodhrans. Drop in for a bit of music, or just to say hello.

Newfoundland Chocolate Co.

<http://www.newfoundlandchocolatecompany.com>

The Newfoundland Chocolate Company's chocolatiers create gourmet artisan chocolates using the finest chocolate and the best ingredients including Newfoundland wildberries. We pride ourselves on our reputation for uncompromising quality and customer service. We customize our packaging for your group. It makes a great delegate gift or take home treat.

Heritage Shops

<http://heritageshops.ca>

The Heritage Shop offers the finest in local gifts. Shop our extensive selection of Newfoundland and Labrador craft, art, books, food and souvenirs. The Heritage Shops are a branch of the non-profit Historic Sites Association of Newfoundland and Labrador. Profits from sales at the shop support numerous projects that preserve NL's history and heritage.

Jellybean Row

<http://www.jellybeanrow.com>

Jellybean Row is an elegant and unique art collectible celebrating the colourful heritage row houses of St. John's. Visit our shop and gallery on Duckworth Street to see jaw-dropping stretched canvas and plaque mounted pieces, our high quality galvanized steel mailbox, and more!

Art Galleries

The Rooms Provincial Art Gallery

<https://www.therooms.ca>

Experience art in all its forms at The Rooms Provincial Art Gallery. Two floors of galleries with 10,000 square feet of exhibit space make it the place to see selections from over 7,000 works in the permanent collection and travelling exhibits from around the world.

The Peter Lewis Gallery

<http://www.artofpeterlewis.com>

The Peter Lewis Gallery is located in the heart of beautiful downtown St. John's, in one of the city's historic Heritage Homes. The gallery exhibits a wide variety of artists and styles

ranging from impressionism to realism. Come in and experience original oil and acrylic paintings depicting the wonderful landscapes of Newfoundland.

Museums

Cupids Legacy Centre

<http://www.cupidslegacycentre.ca>

The Cupids Legacy Centre is a museum, archives, gallery and programming facility offering interactive cultural and heritage experiences. Our story begins in 1610, with the arrival of Canada's first English settlers. Museum exhibits reveal the settlers' challenges and accomplishments and how their descendants helped create our distinctive Newfoundland culture. The Centre also features a rooftop faerie garden and regular events. Open daily from June to October.

Fluvarium

<http://fluvarium.ca/information/fluvarium>

Suncor Energy Fluvarium—See it here. Experience it. Explore the secret life of a river, a watershed and ecosystems of which it is part. Discover how water shapes our land, cities, our history, and our lives. Recognize that water is a finite resource that is essential for life! Exhibits to explore and experience.

Bell Island Mine Museum & Underground Tour

<http://www.nlgeotourism.com/content/bell-island-museum-and-underground-mine-tour/nf8EB73009915109B8E>

Tourism Bell Island operates the Bell Island Heritage Museum and tours of the Underground Iron Ore Mine. To truly appreciate this dramatic tour it must be experienced first hand. Ferry departs from St. Phillip's just 15 minutes from downtown St. John's.

Provincial Seamans Museum

<http://www.nlgeotourism.com/content/provincial-seamans-museum/nf1D08AE886EE3D3082>

Explore the era of the banking schooner through photographs, documents, an extensive collection of artifacts and one of the largest murals in Atlantic Canada. Ask about special events and temporary exhibitions.

The Johnson GeoCentre

<https://www.geocentre.ca>

The Johnson GEO CENTRE is a "Showcase of Earth & Space". Descend glass elevators and view the Planets of our Solar System. Visit fourteen unique attractions—including Oil & Gas and Titanic Exhibits. Marvel at our 550 year-old Great Rock Wall. See our high definition 3D movies, included in admission.



Things to Do in St. John's

Yoga

Moksha Yoga St. John's

<http://st-johns.mokshayoga.ca>

Moksha (also known as Modo internationally) Yoga was built on the dream of having independently owned and community-driven studios that share their ideas, their love of conservation, an awesome hot yoga series rooted in the traditional teachings of yoga and yoga therapy concepts, and a passion for our 7 philosophical pillars. Today, studios are community hubs where yoga is just the beginning.

Exhale Pilates & Yoga

<http://www.exhalepilatesandyoga.com>

Looking for a training environment that is supportive and encouraging? Experience the Exhale difference. Our trainers have warm personalities and stellar credentials. And our studio is a comfortable, elegant space filled with positive energy. We're confident that at Exhale you'll get the most out of your training, and have fun while doing it. Classes range from introductory to challenging, focused to fusion, and include familiar favourites as well as classes that no other studio in the St. John's area can offer. With so many to choose from, and an evolving seasonal roster, new challenges await you.

Nova Yoga

<http://www.novayogaonline.com>

Come breathe, flow, & feel alive at Nova Yoga Studio, owned and operated by Certified Yoga Teacher Melanie Caines and located in the heart of beautiful St. John's, Newfoundland. Nova Yoga offers various levels of Vinyasa (Flow) Yoga, as well as Yin, Restorative, and other exciting yoga events. Our creative classes give you the opportunity to explore, strive, relax, and smile.

Lotus Centre

<http://thelotuscentre.ca>

The Lotus Centre is an inspiring yoga and meditation studio and a Gerald Squires art gallery nestled in the heart of downtown St. John's.

Spa Services

Winterholme

<http://www.winterholme.com>

Winterholme, a Queen Anne style mansion, has transitioned from a bed & breakfast to a Wellness Center now offering services such as: Registered Massage Therapy, Kinesiology, Acupuncture, Yoga and more. Winterholme continues to offer a full service Day Spa in a natural serenity that serves beautifully

as an elegant backdrop for wedding ceremonies, photographs, and as a choice venue for a variety of private and corporate functions.

Monastery Spa & Suites

<http://www.monasteryspa.ca>

At Monastery Spa & Suites you'll be transformed with deluxe treatments and therapies in a peaceful, tastefully renovated heritage monastery just moments from downtown St. John's. Luxuriate in our suites with air-massage tubs, king size beds, fireplaces, Aveda amenities, high-speed Internet, and so very much more.

Guided Tours

Wildland Tours

<http://wildlands.com>

We have been providing escorted tours and conference excursions since 1984. Our creative and experienced crew will immerse you in the flavours and spectacles of Newfoundland and Labrador. Ask about our contributions to many of our province's most famous and prestigious events. Contact us to ensure your authentic and engaging adventure.

City & Outport Adventures, Ltd.

<http://www.newfoundlandtours.com>

Multi-lingual guide service. City and Outport Adventures have been offering tours to all parts of Newfoundland and Labrador for over 25 years. Award winning Entertainers will make your Newfoundland experience most memorable. Also experience - Newfoundland Soiree with Steele n' Steps Traditional Newfoundland Step Dancing.

Legend Tours

<http://www.legendtours.ca>

We provide daily tour service, charter service, private tour service, and step on guide service. Discover St. John's Newfoundland, one of North America's oldest cities - a city where smiles are always warm! You will find rich history, genuine culture, and stunning coastal scenery awaiting you. We at Legend Tours want to show you some of the most spectacular places on the planet. Truly this is a city unlike any other, yours to discover. Give Brendan a call today, he's been doing tours since 1994!

A+ Taxi & Tours

<http://www.aplustaxitours.ca>

Let us take you around North America's oldest city, view the scenic rural areas before experiencing the beauty of the Southern Shore. Travel the Irish Loop where you can take in a boat



Things to Do in St. John's

tour, explore the Witless Bay Ecological Reserve or hike the East Coast Trail to view our rugged coastline and breathtaking scenery. During tour excursion enjoy a fine Newfoundland scotch in one of the established restaurants or take delight in a dinner theatre. With endless activities to fulfill your stay, we will make sure your travels with us will be your most memorable.

McCarthy's Party Tours

<http://www.mccarthyparty.com>

For over 30 years McCarthy's Party has offered a variety of local tours that run daily from the hotels and Bed and Breakfasts in the St. John's area. They feature the history, culture and spectacular scenery in St. John's and the surrounding area. All tours are lead by local guides who bring forth the history, current events and anecdotes that make this area so unique. Let this Multi Award winning company introduce you to our destination.

Guided Tours—Nature

Across the Tickle Tours

<http://www.acrossthetickletours.com>

Join us on a scenic tour along a section of the Killick Coast. We will travel along Marine Drive to the Ocean Science Centre to visit some of the local marine life, as well as a visit to a very popular beach in Middle Cove. From there we continue to "Our Lady of Lourdes Grotto" in the community of Flatrock and to Pouch Cove, where we visit "Horrid Gulch", the location where the sinking of the schooner "Water Witch" occurred.

Bird the Rock

<https://birdtherock.com>

Bird-The-Rock specializes in custom bird & nature tours in Newfoundland. We offer unique guided day tours, design custom multi-day excursions, or help you plan your own self-guided adventures. With a deep knowledge of local birds, nature, culture and history, our tours cater to everyone.

Guided Tours—Food

Cod Sounds

<http://www.codsounds.ca>

Owned and operated by local food enthusiast Lori McCarthy, Cod Sounds creates extraordinary food experiences that tell the unwritten history of Newfoundland and Labrador's food and culture. Lori guides you through one-of-a-kind experiences like exclusive restaurant tours, shared cooking nights and outdoor adventures, discovering Newfoundland & Labrador's oldest food traditions.

Guided Tours—Photography

Far East Photography

<http://www.fareastphotography.ca>

A tour with the photographer in mind—beginner to advanced amateur. Professional photographer Maurice Fitzgerald will coach you as you capture great landscape images of Cape Spear, St. John's, Signal Hill and North East Avalon. Take home creative and technical tips that you can use on future trips. Private Tours for 1–3 are available year round.

Golf

Clovelly

<http://clovelly.ca>

Clovelly boasts two immaculately groomed courses by award winning architect and heralded amateur player, Graham Cooke. You will find everything you need to improve your game and to enjoy our atmosphere, an even mix of toughness tempered with beauty. Our complete practice facilities give every golfer an opportunity to work on all aspects of their games. We have a number of membership options for all ages and interests. Furthermore, our certified Canadian PGA Professionals are committed to offering great instruction to the beginner and seasoned player alike, as well as organizing exciting tournaments to maximize the fun. Enjoy our on-site restaurant, XIX.

Brookside

<http://www.brooksidegolf.ca>

Brookside Golf Course & Camping Ground is a 9 hole golf course located in Hatchet Cove, Trinity Bay. The hilly terrains offers panoramic scenery including ocean views. This venue offers a restaurant, cozy clubhouse, full service RV site as well as onsite travel trailer rentals.

Bally Haly

<http://www.ballyhaly.com>

St. John's oldest and most prestigious golf course. Bally Haly offers an old Scottish Style course right in the heart of St. John's. Offering a four sheet curling rink, full service restaurant, private boardroom, and fabulous event space for up to 200 people, Bally Haly is everything you want it to be.

GlenDenning Golf

<http://www.glendenninggolf.ca>

18 hole Par 70 golf course. Offering clubhouse with food and beverage services, pro shop and a driving range. Banquet facilities with seating for up to 250 guests. 13km from downtown.



Pippy Park

<http://pippyparkgolf.com>

Operating the Admiral's Green 18-hole championship course, and the Captain's Hill 9-hole course. Both courses have spectacular views overlooking the city of St. John's. Club house available for private functions.

Fishing

Specialty Fishing Tours

<http://www.newfoundlandlabrador.com/ThingsToDo/Angling>
Guided fishing day trips from the City of St. John's; fishing for trophy brown trout, brook trout, rainbow trout, Atlantic salmon and deep sea species including cod fish and shark. Fly fishing and bait fishing packages, rates starting at \$150 per person per day. Fully licensed courteous fishing guides.

Adventures

<http://destinationstjohns.com/visiting/what-to-do>
Guided Sightseeing Tours and Salmon Fishing Adventures in and around St. John's, NL. Experience the beauty and the unique culture of St. John's, Newfoundland and Labrador. Discover for yourself why this province is known for its friendly people. Make memories that will last a lifetime!

Theatre Productions

Spirit of Newfoundland

<http://www.spiritofnewfoundland.com/events>
Comedic musical dinner theatre featuring some of Newfoundland's finest musicians and actors. From side splitting original Newfoundland story lines to Broadway and off-Broadway hits there is a show available for every group's taste.

Battle Reenactment

Signal Hill Tattoo

<http://www.signalhilltattoo.org>
During the Signal Hill Tattoo the sound of musket and cannon fire boom across St. John's like ghostly echoes from bygone days. This exciting battle re-enactment performed by the Royal Newfoundland Companies commemorates the final battle of the Seven Years' War, which was fought on Signal Hill on September 16, 1762. Held Wednesday, Thursday, Saturday and Sunday, weather permitting.

Festivals

Folk Festival (Aug. 5-7)

<http://nlfolk.com/newfoundland-labrador-folk-festival>
Annual Newfoundland and Labrador Folk Festival at Bannerman Park, St. John's. Canada's second-oldest folk festival is spread out over 3 exciting days and is attended by thousands of loyal supporters and visitors. and tradition.

George Street Festival (July 28-Aug 2)

<http://www.georgestreetlive.ca/festivals/george-street-festival>
Located in the center of historic downtown St. John's, George Street is the premiere entertainment district in the province. Whether you're looking for a fun night out, a tasty meal, a unique venue for a conference, or a place to relax after a hard day's work, George Street is the place for you. George Street is home to several top quality events, including the world-famous George Street Festival, Canada Day celebrations, and Mardi Gras.

Lantern Festival (July 30th)

<https://lanternfest.ca>
Activities in the Park kick off mid-afternoon on Festival Day with a line-up of music, dance, demonstrations, community booths, a glass jar lantern workshop and other entertainment. At dusk, the crowd swells. Following a mass lantern-lighting in the lower Park the lantern process winds its way up the hill to the installation and everyone settles down to enjoy the fire show.

Royal St. John's Regatta (Aug. 3rd)

<http://www.stjohnsregatta.org>
The Regatta began officially in 1825 and has run the first Wednesday in August ever since. Regatta Day is probably the only Municipal Holiday in Canada that is dependent on the weather. If it is raining or too windy, the holiday is simply postponed until the next suitable day.

Busker Festival (Aug. 5-7)

<http://www.downtownstjohns.com>
Every year clowns, magicians and musical talent come out into the streets to perform. The festival hosts a number of great acts all around the downtown area.



Schedule At A Glance

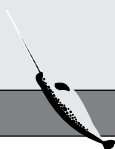
FRI. JUL 29		SAT. JUL 30		SUN. JUL 31	MON. AUG 1	TUE. AUG 2	WED. AUG 3	THU. AUG 4		
<p>Pre-Congress Activities: Focus Groups, Workshops & Short Courses 8:30–12:30</p> <p><i>Lunch Break</i> 12:30–13:30</p> <p>Focus Groups, Workshops & Short Courses 13:30–17:30</p>		<p>Registration <i>Opens 9:30</i></p> <p>Exhibitor Hands-On Classes 10:30–12:30</p> <p>Opening Session ***** Welcome & Opening Plenary Talks 12:30–13:30 ***** Moderated Questions 16:30–17:00 ***** Closing 17:00–17:15</p> <p>Opening Reception at The Rooms 17:30–19:30</p>		<p>Symposia 8:30–10:30</p>	<p>Symposia and Contributed Session 8:30–10:30</p>	<p>Symposia, Focus Groups, and Panel Discussion 8:30–10:30</p>	<p>Symposia and Contributed Sessions 8:30–10:30</p>	<p>OceansOnline Welcome & Opening Plenary Session 8:30–10:30</p>	<p>Post-Meeting Focus Groups 8:30–12:30</p>	
				Morning Coffee Break: 10:30–11:00						
				<p>Symposia, Focus Groups, and Contributed Sessions 11:00–13:00</p>	<p>Symposia, Focus Groups, and Contributed Sessions 11:00–13:00</p>	<p>Symposia, Focus Groups, and Panel Discussion 8:30–10:30</p>	<p>Symposia and Contributed Sessions 8:30–10:30</p>	<p>OOFD Sessions 11:00–12:00 12:00–13:00</p>		
				<p>Lunch, Workshops, and Special Events 13:15–14:45</p>	<p>Lunch, Workshops, and Special Events 13:15–14:45</p>	<p>Symposia, Focus Groups, and Contributed Sessions 15:00–17:00</p>	<p>Contributed Sessions 15:00–17:00</p>	<p>Lunch and OO Workshops 13:15–14:45</p>		
				<p>Poster Reception and Local Artisans Events 17:30–19:30</p>	<p>Exhibitor Happy Hour 17:00–18:00</p>	<p>IMCC4 George Street Festival Night 18:00–???</p>	<p>RAM Plenary and Closing Comments 17:30–19:00</p>	<p>Online Tools Presentation 17:00–18:00</p>		
					<p>Beer Sampling Social Hour and Sustainable Seafood Dinner 18:30–22:30</p>	<p>Student Fundraising Event: IMCC4 Pub Trivia 18:30–22:00</p>	<p>Final Party 20:00+</p>	<p>OceansOnline Social 20:00–22:00</p>		



8:30–13:00



13:00–17:00



17:00–21:00 +



Pre-Congress Focus Groups and Workshops

Pre-congress workshops will take place on Wednesday 27 July and/or Thursday 28 July. Pre-meeting workshops and focus groups will be held at the Marine Institute of Memorial University and the pre-meeting short course will be held at Memorial University. All workshops required payment and pre-registration.

WEDNESDAY–FRIDAY, 27–29 JULY

Introduction to Marxan

Memorial University

SC-1 & SC-2: Wednesday–Friday, 27–29 July, Full day (9:00–17:00)

Offered by: PacMARA

WEDNESDAY–THURSDAY, 27–28 JULY

Conserving the Other 50% of the World: Status and Opportunities in Conservation of Areas Beyond National Jurisdiction

Room 1, Marine Institute of Memorial University

FG53: Wednesday–Thursday, 27–28 July, full-day (8:30–17:30)

Organizers: Daniel Dunn, *Duke University*; Telmo Morato, *University of the Azores*; Steve Fletcher, *UNEP-WCMC*

Tales from the Sea: Communicating Science and Conservation Through Storytelling

Room 2, Marine Institute of Memorial University

WS47: Thursday–Friday, July 28–29, Full day (8:30–17:30)

Organizers: Kirsten Grorud-Colvert, *Oregon State University*; Stephanie Green, *Oregon State University*; Heather Mannix, *COMPASS*; Erica Goldman, *COMPASS*

FRIDAY, JULY 29, 2016

Marxan with Zones

Memorial University

SC3: Friday 29 July, Full day (9:00–17:00)

Offered by: PacMARA

Using Social Media to Make Your Marine Science Matter

Room 3, Marine Institute of Memorial University

WS95: Friday 29 July, Half day (8:30–12:30)

Organizers: David Shiffman, *University of Miami*; Keni Rienks, *Cape Fear Academy*; Edward Hind, *Manchester Metropolitan University*

Understanding Alaskan Inuit Food Security and Conservation Through Use

Room 4, Marine Institute of Memorial University

FG34: Friday 29 July, Half day (8:30–12:30)

Organizers: Carolina Behe, *Inuit Circumpolar Council-Alaska*; Denali Whiting, *ICC-AK Food Security Advisory Committee*; Harry Brower, *ICC-AK Food Security Project Contributing Author and North Slope Borough Wildlife Department*; Qaiyaan Harcharek, *ICC-AK Food Security Advisory Committee and North Slope Borough Wildlife Department*; Vera Metcalf, *ICC-AK Food Security Project Contributing Author and Eskimo Walrus Commission*; Vivian Korthuis, *ICC-AK Food Security Project Contributing Author and Association of Village Council Presidents*; Julie Raymond-Yakoubian, *Kawerak Inc.*; Raychelle Daniel, *Pew Environmental Group*

Towards 2020 Targets and Beyond: Evidence-based Adaptive Management of MPAs in Canada

Room 5, Marine Institute of Memorial University

FG49: Friday 29 July, Full day (8:30–17:30)

Organizers: Anna Metaxas, *Dalhousie University*; Peter Lawton, *Fisheries & Oceans Canada*; Pierre Pepin, *Fisheries & Oceans Canada*; Paul Snelgrove, *Memorial University*; Emilie-Pier Maldemay, *Fisheries & Oceans Canada*; Rodolphe Devillers, *Memorial University*; Lucia Fanning, *Dalhousie University*; Natalie Ban, *University of Victoria*

Making Citizen Science Matter: Developing Protocols to Address Questions of Marine Citizenship

Room 6, Marine Institute of Memorial University

FG54: Friday 29 July, Full day (8:30–17:30)

Organizers: Rina Hauptfeld, *Colorado State University*; Gregory Newman, *Colorado State University*; Rebecca Jordan, *Rutgers University*



Pre/Post-Congress Workshops

Integrating Behavioural Information Into the Process for the Identification of Important Marine Mammal Areas (IMMAs)

Room 7, Marine Institute of Memorial University
FG13: Friday 29 July, Full day (8:30–17:30)

Organizers: Michael J. Tetley, *IUCN-MMPATF*

Marketing Methods to Translate Marine Science Into Relevant Conservation Behaviors

Room 8, Marine Institute of Memorial University
WS30: Friday 29 July, Full day (8:30–17:30)

Organizers: Craig Lefebvre, *SocialShift/University of South Florida*; Diogo Verissimo, *Rare/Georgia State University*

Communicating Ecosystem Services Conservation Using Collaborative Learning and Mental Models

Room 9, Marine Institute of Memorial University
WS89: Friday 29 July, Full day (8:30–17:30)

Organizers: Dr. Christine Feurt, *University of New England and Wells NERR*

Talking the Talk: Giving Effective and Engaging Presentations

Room 3, Marine Institute of Memorial University
WS96: Friday 29 July, Half day (13:30–17:30)

Organizers: Marianne Teoh, *Fauna & Flora International-Cambodia*; David Shiffman, *University of Miami*; Samantha Oester, *George Mason University*; Edward Hind, *Manchester Metropolitan University*

How Can Ocean Plans Ensure Better Stakeholder Engagement in Ocean and Coastal Decision-making?

Room 4, Marine Institute of Memorial University
FG55: Friday 29 July, Half day (13:30–17:30)

Organizers: Sarah Winter Whelan, *American Littoral Society*; Jenna Valente, *American Littoral Society*; Jennifer Felt, *Conservation Law Foundation*

Event Sponsors: Healthy Oceans
Coalition and American Littoral Society



Post-Congress Focus Groups

Post-congress focus groups will take place on Thursday, 4 August. All focus groups required payment and pre-registration. Stop by the registration desk to sign up.

THURSDAY, 4 AUGUST

Marine Spatial Planning in Practice: Sharing Experience and Developing Guidance

Salon F of the Delta Conference Centre
FG62: Thursday, 4 August, Full-day (8:30–17:30)

Organizers: Ole Vestegaard, *UNEP*; Steve Fletcher, *UNEP-WCMC*; Ilona Porsche, *GIZ*

Developing Robust Criteria for the Global Ocean Refuge System (GLORES)

Salon G of the Delta Conference Centre
FG64: Thursday, August 4, Full-day (8:30–17:30)

Organizers: Lance Morgan, *Marine Conservation Institute*; Ratana Chuenpagdee, *Memorial University Newfoundland*; Rodolphe Devillers, *Memorial University Newfoundland*; Leslie Cornick, *Alaska Pacific University*; Lida Teneva, *Conservation International*; Daniel Dunn, *Duke University*; Sara Maxwell, *Old Dominion University*; Callum Roberts, *York University*



Special Events by Day

If you are a delegate with a disability and would like to attend a special event that indicates walking to the venue is required, please contact IMCC4 Chair Samantha Oester and IMCC4 Diversity Chair Luli Martinez. We would be more than happy to accommodate your transport to the event.

SATURDAY, 30th JULY

Opening Reception at The Rooms

Details: 17:30–19:30, The Rooms, 9 Bonaventure Avenue, St. John's
Pre-registration required

Directly following the Opening Plenary Session on 30 July, the opening reception will take place at The Rooms, Newfoundland and Labrador archives, art gallery, and museum. Delegates will be greeted to the reception by Newfoundland dogs and can explore the open exhibits throughout The Rooms, Newfoundland and Labrador's premier cultural space. At the reception, several vegetarian and vegan hors d'oeuvres will be served, along with cheese, fresh fruit, and antipasto platters. Each delegate will receive a free drink ticket, and a cash bar will be available for those wishing to purchase extra drinks. IMCC4 delegates can network, socialize, take in the open exhibits, and take selfies with Newfoundland dogs!

Delegates will walk from The Delta Conference Centre to The Rooms. A shuttle with limited seating will be available for those who need assistance.

Event Sponsor: WWF-Canada
©1986 Panda symbol WWF-World Wide Fund For Nature (also known as World Wildlife Fund).
“WWF” is a WWF Registered Trademark.



SUNDAY, 31st JULY

Sea Stories: Tales from the Field

Details: 13:15–14:45, LSPU Hall, 3 Victoria Street, St. John's
Pre-registration not required
Organized by: Stephanie Green, Kirsten Grorud-Colvert, Heather Mannix

Every scientist has a story to tell. Whether it's a day of adventure in the field or a shining moment of discovery, story can help make your science come alive. Come hear marine conservation scientists tell their stories and learn how elements of storytelling can help you effectively communicate your own research.

This special event will feature a blend of oral storytelling and personal accounts from the scientists who participated in a pre-IMCC4 storytelling workshop. This event takes place on the main stage LSPU Hall, St. John's Resource Center for the Arts. This event is open to the public, so the St. John's community can enjoy the performances of the scientist storytellers. Seats will be available on a first-come, first-served basis. Join us to hear inspiring tales of marine conservation science in action!

Delegates who wish to attend Sea Stories will need to walk the short distance from The Delta Conference Centre to LSPU Hall.

Poster Reception

Details: 17:30–19:30, St. John's Convention Centre
Bannerman Ballroom, 101 New Gower Street, St. John's
Pre-registration not required

The IMCC4 Poster Reception will feature the poster presentations of IMCC4 delegates, as well as local artists and artisans of Newfoundland and Labrador, at the new St. John's Convention Centre. Vegan and vegetarian hors d'oeuvres will be served throughout the reception. Delegates who attend the poster reception can get free drink tickets from poster presenters after listening to their presentations, and a cash bar will be available for those wishing to purchase extra drinks. Dessert trays will be available at the SCB Marine Chapters table, as well as information on forming a Marine Chapter in your local area. On the other side of the ballroom, meet and greet local artists and artisans, check out their work, and purchase art and crafts from those selling on-site. We encourage all delegates to take in posters, speak one-on-one with poster presenters, learn about setting up a Marine Chapter, and enjoy the work of Newfoundland and Labrador artists and artisans at the IMCC4 Poster Reception!

Delegates will need to walk across the street from The Delta Conference Centre to the St. John's Convention Centre for the Poster Reception.

MONDAY, 1st AUGUST

Exhibitor Happy Hour

Details: 17:00–18:00, Delta Conference Centre
Pre-registration not required

Socialize with delegates and IMCC4 exhibitors at the Exhibitor Happy Hour. The event will feature vegan and vegetarian hors d'oeuvres served around the exhibitor tables. Free drink tickets will be available from exhibitors sponsoring the Happy Hour event. A cash bar will also be available.



Special Events by Day

Brews and Sustainable Seafood

Details: 18:30–22:30, Quidi Vidi Brewery and a Local Upscale Restaurant (to announced soon!)
Pre-registration required

Delegates participating in this event will first be taken to Quidi Vidi Brewery, a Newfoundland-based independent brewing company, for a social hour. Participants can taste different brews at free beer sampling stations and purchase their favorites. You can learn about brewing in St. John's, check out the beer brewing area, socialize with other participants, and purchase gifts in the Quidi Vidi Brewery shop. Participants will then be taken to a local upscale restaurant in St. John's (to be announced soon!) with a nationally famous chef who has a passion for locally caught, sustainable seafood. Participants will enjoy a full tasting menu of sustainable seafood and vegetarian items. Each course will be introduced by the chef with a brief story of the seafood's source and history. Delegates can socialize, discuss seafood sustainability, and talk with the restaurant staff. At the restaurant, drinks will be available for purchase. Partake in a night of beer, fine dining, and fun!

Delegates who purchase tickets for this event will be picked up in front of the Delta Conference Centre and shuttled to each location. At the end of the event, the shuttles will make a stop at the Delta and the dorms to drop off participants.

George Street Festival Night

Details: 18:00–Late, Throughout Downtown St. John's
Pre-registration not required

All delegates will receive a one-day ticket to the George Street Festival in their IMCC4 name badge! The annual George Street Festival has grown to become an iconic event in the St. John's calendar—a must-attend attraction for tourists and residents alike. Over 40,000 people party on the “biggest little street in North America” for six straight days leading into the annual Regatta Day civic holiday. IMCC4 delegates will get the “night off” on Monday to enjoy the George Street Festival, which takes place throughout downtown St. John's. The George Street Festival features internationally famous live bands on multiple stages, as well as local favorites. The George Street Festival also features free cover to participating bars and pubs, drink specials, and more.

Delegates who wish to attend the George Street Festival will need to turn in their special IMCC4 George Street Festival ticket to gain admission. Tickets for guests will need to be purchased directly from the George Street Festival

website. Delegates can walk the short distance from the Delta Conference Centre to the George Street Festival. IMCC4 shuttles will not be running to the dorms after this event.

TUESDAY, 2nd AUGUST

Marine Movie: Great Bear Sea—First Nations & British Columbia Partner on Marine Plans

Details: 18:00–20:30 (18:00 Welcome drink, 18:30 curtains, 19:30 Q+A, 20:00 dessert/cash bar social), Rocket Bakery, 272 Water Street, St. John's
Pre-registration not required

The Great Bear Sea is a wild expanse of ocean where bears, wolves, whales and humans thrive in rich coastal ecosystems. The Great Bear Sea is also a place where worlds collide—a place full of historic conflicts and looming battles over ocean resources. Now, 18 First Nations and the Province of British Columbia have crafted marine plans to ensure a healthy ocean, economy, and communities on BC's coast. Enjoy delicious appetizers including sustainable seafood, vegan, and gluten-free delights, desserts, drinks, coffee, and cash bar. Watch Green Fire's new film, “The Great Bear Sea,” an inspiring and visionary story of the efforts to protect and sustainably manage some of the most biodiverse lands and waters on Earth. Told by First Nations, marine stakeholders, and the BC government, you'll meet the people and communities who are working to put the marine plans into action.

Q&A to follow the film with the filmmaker, Karen Meyer, and First Nations marine planning leaders, including Dallas Smith, President, Nanwakolas Council; Russ Jones, Hereditary Chief, Haida Nation & Project Manager of the Haida Oceans Technical Team; and Doug Neasloss, Resource Stewardship Director & Chief Councillor, Kitsoo Band.

Refreshments, including appetizers and beverages, will be served. Sandwiches, drinks, snacks, and other items from the bakery will also be available for purchase in the dining area. If you hope to purchase dinner, we suggest getting to the bakery early, before the event; sales may close before the IMCC4 Marine Movie event is over. Seating will be available on a first-come, first-served basis.

Delegates will need to walk the short distance between the Delta Conference Centre and Rocket Bakery.

Event Sponsor: Green Fire Productions





Student Activities Fundraiser & Social: IMCC4 Pub Trivia

Details: 18:30–22:30, Johnson Geo Centre,
175 Signal Hill Rd, St. John's
Pre-registration required

Welcome to the intersection of geology, science, and curiosity at the Johnson Geo Centre on Signal Hill! Just 'bout gutfounded? Get ready for an evening of food, drinks, music, pub trivia, and science! You're sure to have a great time meeting new friends and engaging in a little friendly competition. This event is a Student Activities fundraiser, but is open to students, non-students, and guests. Several vegetarian and vegan hors d'oeuvres will be served, as well as cheese and fruit platters. Participants will receive a drink ticket, and a cash bar will be available for those who wish to purchase extra drinks. The event will start with food and socializing, followed by team pub trivia. Music will start after trivia. Delegates can explore open exhibits of the Geo Centre any time during the event.

Shuttles will initially pick up delegates in front of the Delta Conference Centre and will run between the Delta, the Johnson Geo Centre, and the dorms throughout the event.

WEDNESDAY, 3rd AUGUST

Lunchtime Movie Matinee: "Sonic Sea"

Details: 13:15–14:15, The Delta Conference Centre Salon B
Pre-registration not required

Throughout the ocean, whales depend on sound to mate, find food, migrate, and defend against predators. A century ago the seas were silent, but now humans fill them with an unbearable cacophony – the sonic "bombs" of oil prospectors, the whirr of freight ships, the shrieks of military sonar – driving whales to death and disorientation. *Sonic Sea*, narrated by Rachel McAdams and featuring Sting, tells the story of Ken Balcomb, a former Navy officer who solved the tragic mystery of a mass stranding, and the global network of scientists working to limit our deadly clamor. Directed by Michelle Dougherty and Daniel Hinerfeld. Produced by Michelle Dougherty and Daniel Hinerfeld, Natural Resources Defense Council, Imaginary Forces in association with International Fund for Animal Welfare, and Diamond Docs.

IMCC4 Final Party featuring Solve for X

Details: 20:00–Late, Delta Conference Centre Ballroom
Pre-registration required

For the IMCC4 Final Party, the Delta Conference Centre ballroom will be split in two—the entertainment and party room and a room for quiet socializing. The entertainment and party room will feature the Solve for X science variety show—comedy and performance inspired by science. Solve for X shows feature musical acts, dance, storytelling, puppetry, and comedy that use science as their prompt. These performances aim to break down the barrier between science and the arts. There is an opportunity for select delegates to perform in the show (details below). During the show, the Solve for X host will also announce finalists and choose winners for an IMCC4 ocean tattoo contest. After Solve for X, a DJ will start spinning around 10:30pm. We plan to feature classical music throughout the evening in room two, providing a space for chatting and catching up. (Though this room will get louder when the DJ starts in room one.)

Many vegetarian and vegan hors d'oeuvres and platters will be available throughout the event, though we recommend getting food early. There will be time to get a plate before the entertainment begins.

Select delegates interested in participating in Solve for X will have the opportunity to workshop a performance with the Solve for X team prior to the closing party. If you're interested in participating on stage, please fill out the IMCC4 delegate Solve for X performance form.

THURSDAY, 4th AUGUST

OceansOnline Social at Yellow Belly Brewery

Details: 20:00–22:00, Yellow Belly Brewery, 288 Water St,
St. John's
Pre-registration not required

After a full day of OceansOnline facilitated discussions, presentations, and workshops, a social event for OceansOnline registrants will take place at Yellow Belly Brewery and Public House, the province's only gastropub. Originally constructed in 1725 and one of the oldest structures in North America, the Yellow Belly Brewery building is the place where the 'Great Fire of 1892' was finally extinguished. The gastropub boasts multiple fireplaces, original brickwork, wide plank flooring, and an open concept kitchen and brewhouse. Many vegetarian and vegan hors d'oeuvres and platters will be served during the event, and delegates can sample beers brewed at Yellow Belly. The social will also feature music and Team Ocean Family Feud—a team Family Feud-style relay game.

OceansOnline delegates will need to walk the short distance from the Delta Conference Centre to Yellow Belly Brewery.



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Society for Conservation Biology

THE SOCIETY FOR CONSERVATION BIOLOGY INVITES YOU TO THE 28TH INTERNATIONAL CONGRESS FOR CONSERVATION BIOLOGY

Join more than 2,000 conservation scientists, students, and decision makers including NGOs, executive directors, and project managers at the Cartagena de Indias Convention Center in the historic district of Cartagena and just steps from the Caribbean Sea.

ICCB IS THE LARGEST GLOBAL FORUM FOR CONSERVATION SCIENCE AND PRACTICE:

- Close to 2,000 contributed talks and posters
- Dozens of symposia
- Training sessions, short courses, workshops and roundtables
- Career Fair for students and early-career professionals
- Networking events and so much more
- A number of scholarships and travel grants available for students and developing country attendees



CARTAGENA
 UNESCO World Heritage coastal city.

COLOMBIA
 2nd most biodiverse country on Earth and home to ~10% of all known species, including as many as 340 endemic species.



Cartagena, Colombia



The golden poison dart frog is endemic to the Pacific coast of Colombia.



Volunteers at ICCB 2013. All onsite volunteers receive 50% discounts on conference registration.



Llama standing in Bolivar Plaza in Bogota, Colombia.



Plenary Speakers

All plenary talks will be given at the Delta Hotel and Conference Centre in St. John's, Newfoundland and Labrador (YYT).

SATURDAY, 30th JULY

Welcome to IMCC4

MICHELLE LARUE, PH.D.

Plenary Speech: *How new technologies are changing research and conservation in the Southern Ocean*



Michelle LaRue is a research ecologist at the University of Minnesota studying populations of polar vertebrates, including penguins, seals, and polar bears. After years of research that included distance sampling of white-tailed deer, habitat analysis for mountain lions, old growth forest inventory, and leading research for five Antarctic field seasons, Michelle earned her PhD in conservation biology at the University of

Minnesota in 2014. Her dissertation work included developing remote sensing methods to assess populations of penguins and seals, and ultimately resulted in the first global assessment of the two Antarctic penguin species. Michelle has continued this line of work and currently focuses on the biogeography, and effects of sea ice extent and variability on ice-dependent populations in the Antarctic, with implications for Southern Ocean conservation. You can follow Michelle on Twitter @drmmichellelarue.

JEAN WIENER, B.S.

Plenary Speech: *Empowering stakeholders when the public sector fails*



Born and raised in Haiti, **Jean Wiener** has worked on environmental issues in general, and on coastal and marine issues in Haiti in particular for over 23 years. In 1992, he founded Haiti's first coastal and marine environmental non-profit, the Fondation pour la Protection de la Biodiversité Marine (FoProBiM) and retains his position as the head of the

organization. As the director of FoProBiM, he specializes in coastal and marine sciences, community development, and environmental management. He has executed a wide range of projects including resource assessments, association building, environmental rehabilitation, community needs evaluations, as well as pure scientific research for institutions as diverse as the Ministry of Environment of Haiti, the UN (UNEP, UNDP, UNESCO, UNOPS), USAID, IDB, NOAA, and the OAS, to name but a few. He is also the national focal point in Haiti for the International Coral Reefs Initiative (ICRI), the Wider Caribbean Sea Turtle Network (WIDECASST), the Global Coral Reef Monitoring Network (GCRMN), NatureCaribe, and several International Union for the Conservation of Nature (IUCN) specialist groups. He has established contacts at all levels throughout most of Haiti and is often considered the national reference for all things coastal and marine. He has won environmental awards from Condé Nast, the Whitley Fund for Nature, the Erick Eckman Award (Haiti's first ever environmental award presented by the Minister of Environment and the President), and the Goldman Environmental Prize for Islands and Island Nations (2015). He holds a Bachelor's degree in biology from the University of Bridgeport in Connecticut, USA.



Plenary Speakers & Talks

MAX LIBOIRON, PH.D.

Plenary Speech: *Leveraging strategies from civic, citizen, and open science to make research matter*



Max Liboiron is an Assistant Professor at Memorial University of Newfoundland. Her research focuses on how harmful yet invisible threats from marine toxicants and plastics become visible in science and activism, and how these methods of representation relate to

action. Liboiron is founder and director of Civic Laboratory for Environmental Action Research (CLEAR), which creates citizen science technologies for environmental monitoring of plastic pollution. She is also managing editor of Discard Studies, a public online forum for audiences interested in research on waste and pollution. Prior to her position at Memorial, Liboiron was a postdoctoral fellow at both Northeastern University's Social Science Environmental Health Research Institute (SSEHRI) and with Intel's Science and Technology Center for Social Computing. She holds a Ph.D. in Media, Culture, and Communication from New York University. You can follow Max on Twitter @maxliboiron.

ASHA DE VOS, PH.D.

Plenary Speech: *Marine conservation is broken, and here is how we can fix it*



Asha de Vos is a Sri Lankan marine biologist, ocean educator, and pioneer of blue whale research within the Northern Indian Ocean. She is a National Geographic Emerging Explorer for 2016. She is the founder of Oceanswell and The Sri Lankan Blue Whale Project.

She is the first Sri Lankan to obtain a PhD in marine mammal research and established the first long-term study on blue whales of the Northern Indian Ocean. She has published several key research publications on Sri Lankan blue whales, which have led to this population being designated as a species in urgent need of conservation research by the International Whaling

Commission (IWC). Her pioneering work has been showcased internationally by Channel 7 Australia (2010), the BBC (2010), the New York Times (2012), CNN (2012), WIRED UK (2014), the New Scientist (2014), TED (2015) and Grist (2015). She is also a guest blogger for National Geographic. Asha is an invited member of the IUCN Species Survival Commission's Cetacean Specialist Group, a TED Senior Fellow, a Duke University Global Fellow in Marine Conservation, an Ocean Conservation Fellow at the New England Aquarium, a Pew Fellow in Marine Conservation, and a Young Global Leader of the World Economic Forum.

WEDNESDAY, 3rd AUGUST

Close of the IMCC4 Main Scientific Program:
The Dr. Ransom A. Myers Memorial Lecture

JULIA K. PARRISH, PH.D.

Plenary Speech: *Real people, science literacy, sense of place, and saving the world*



Julia K. Parrish is the Lowell A. and Frankie L. Wakefield Professor of Ocean Fishery Sciences at the University of Washington, where she also serves as Associate Dean for Academic Affairs in the College of the Environment. As Associate Dean, she helped bring two exciting efforts to increase inclusion in science into the College: Seattle MESA,

a pipeline program providing hands-on science, math, and engineering opportunities for middle and high school students; and the Doris Duke Conservation Scholar's Program at UW, a national summer program for undergraduates fusing the concerns of ecosystem conservation, equity and inclusion. Julia is a marine biologist, a conservation biologist, and a specialist in animal aggregation. For more than 25 years, Julia has conducted field research on seabirds, focused on the natural and human-caused factors causing population decline. Julia is also the Executive Director of the Coastal Observation and Seabird Survey Team (COASST), a 17 year old citizen science program responsible for training more than 3,000 participants to collect monthly data on the identity and abundance of beach-cast birds from northern California north to the Arctic Circle and west to



Plenary Speakers & Talks

the Commander Islands in Russia. With the goal of creating the definitive baseline against which the impacts of any near-shore catastrophe can be measured, COASST data have been used to assess the impacts of oil spills, harmful algal blooms, fishery bycatch, and a changing climate. In 1998, Julia was honored as a NOAA Year of the Oceans Environmental Hero by Vice President Al Gore for the development of the COASST project. In 2013, Julia was recognized by The White House Office of Science Technology Policy (OSTP) as a Champion of Change for her citizen science work with COASST. In 2015, COASST was cited by the OSTP and the National Science Foundation as an exemplary example of rigorous citizen science. She is an Elected Fellow of the American Ornithological Union, an Aldo Leopold Leadership Fellow and has been honored with the UW Distinguished Teaching Award for her excellence in the classroom. She received her undergraduate degree from Carnegie-Mellon University, her PhD from Duke University, where she studied the schooling behavior of fish, and was awarded a postdoctoral fellowship at UCLA.

THURSDAY, 4th AUGUST

OceansOnline Inauguration

ANDREW DAVID THALER, PH.D.

Plenary Speech: *Ocean outreach in an evolving online ecosystem*



Andrew David Thaler is a deep-sea ecologist and population geneticist who studies the consequences of human impacts on the biodiversity and connectivity of deep-sea hydrothermal vents. He completed his PhD in Marine Science and Conservation from Duke University, where, in addition to his research, he

launched the popular blog Southern Fried Science, now among the most visited marine science websites in the English language. He is currently a visiting scientist at the Virginia Institute of Marine Science where his work focuses on the genetic signals of population bottlenecks among endangered sharks, integrating low-cost, open-source robotic assets into research and conservation programs, and empowering a community of citizen oceanographers through Oceanography for Everyone. You can find him on Twitter @sfriedscientist.

EASKEY BRITTON, PH.D.

Plenary Speech: *Surfing for social change:
From moment to movements*



Easkey Britton is an internationally renowned professional surfer, artist, marine social scientist, and explorer from Ireland, with a Ph.D. in Environment and Society. She is a co-founder of the non-profit Waves of Freedom, one of the pillars of which is digital storytelling. Waves of Freedom uses the power of surfing as a creative medium for social change and women's empow-

erment in places like Iran and spear-headed the world's first global Surf + Social Good Summit in Bali. She is an honorary research fellow in Sport and Leisure Studies at the University of Waikato, New Zealand. She is best known as a big-wave surfer from Ireland, with a PhD in Environment and Society, who is channelling her passion for surfing into social change. Her parents taught her to surf when she was four years old and her life has revolved around the ocean ever since. A recent graduate from THINK's Creative School of Leadership, her work is deeply influenced by the ocean and the lessons learned pioneering women's big-wave surfing at spots like Mullaghmore, earning her a WSL Big Wave Award nomination. An inspirational public speaker, her work and unique connection to the ocean led her to being asked to talk at TEDx Dublin and she has presented her work at international conferences and published numerous book chapters and articles in peer-reviewed journals. Follow her on Twitter @easkeysurf.



Panel Discussions

Panel Discussions

TUESDAY, 2nd AUGUST

Solving Marine Conservation Problems Using All Available Tools

Organizers: S.M. Alexander, *National Socio-Environmental Synthesis Center/Stockholm Resilience Centre*; N. Bennett, *University of British Columbia/University of Washington*

ID: PD17

Details: 08:30–10:30, Salon D, The Delta Conference Centre

It has become de rigueur to claim that we need more interdisciplinary conservation science. Conservation solutions, it is argued, can be produced via a pluralistic approach—drawing on numerous natural and social science disciplines, along with their associated theories, methods, and tools. Yet, we are lacking in real-world examples of using interdisciplinary science to solve conservation problems. In this symposium, we aim to link the theory and conduct of interdisciplinary conservation science with policies and actions that will matter. The symposium will start with an informal panel of scientists who will reflect on their experiences and present examples of successful engagements with interdisciplinary conservation science. This will be then be followed by an interactive session whereby audience members will be invited to pitch real world conservation dilemmas to the panelists, asking them for insights on how to use all available tools to solve these problems. Our aim is to create a space for interdisciplinary exploration, dialogue, and problem solving using an innovative symposium format.

Transcending Cecil: Harnessing Public Outrage for Marine Conservation

Organizers: Andrew Wright, *George Mason University*; Mel Cosentino, *Wild Earth Foundation*; Naomi Rose, *Animal Welfare Institute*

ID: PD40

Details: 13:15–14:45, Salon C, The Delta Conference Centre

The death of Cecil the lion sparked massive public backlash against his hunter, while vaquita numbers dropped dangerously with little fanfare. Likewise, the Copenhagen zoo was villainised for euthanising Marius the giraffe while northern white rhino numbers quietly fell to just 3 animals. While some animal welfare organisations used these events to solicit donations and other actions, most conservation scientists floundered. Some tried, and failed, to redirect public interest towards bigger, albeit unrelated, problems (e.g., climate change). Some even, out of frustration, belittled those who were outraged. Education was also attempted, such as highlighting the destruction of suitable habitat for free-ranging giraffes. However, for the most part, the public did not focus on wider and related issues. The deaths of individual animals can bring attention to wildlife and habitat issues: a much-needed commodity in marine conservation, which typically lies beyond the public's daily experience. When public interest is peaked, strategies are needed for harnessing that interest for marine conservation. Channelling public energy and attention toward achieving wider conservation goals is crucial. By planning a response in advance of the next wildlife outrage, we can make the most of a bad situation. Should Migaloo the whale or Fungie the dolphin become the next Cecil, we may be able to leverage public outcry to make some advances on wider marine conservation issues. While we have no control over when or where the next Marius or Cecil will occur, conservation will benefit more if there is a plan in place for how we should react beforehand. This panel discussion will thus be open, with brief remarks from each panel member on the topic. These remarks will be followed by a free-flowing debate over the possible options open to marine and other conservation practitioners for nudging such individual-animal-focused concern into broader conservation directions (e.g., changing calls to shut down zoos to volunteering for a wildlife conservation organisation). We thus hope to develop a play-book for conservation scientists to refer to on occasions when specific wildlife events have captured the public interest. We expect to discuss strategies to channel such individual-focused anger and outrage into productive conservation endeavours.



Student Activities

SUNDAY, 31st JULY

Student Best Talk Awards Finalist Presentations

Details: 15:00–17:00, Salon B, Delta Conference Centre
Registration not required

This session will feature the presentations of finalists for the IMCC4 Student Awards. Presentations will be judged by a panel that includes members of the IMCC4 Student Activities Committee, IMCC Organizers, and SCB Marine Section board members. Students interested in having their abstracts considered for the Student Awards Presentations signed up through the IMCC4 abstract submission system.

FINALISTS:

Nur Arafah Dalmau: Designing a network of MPAs in a transboundary context: Baja California as the fifth region of California's MPAs

Amanda Holdman: Spatio-temporal patterns and ecological drivers of harbor porpoise (*Phocoena phocoena*) off the central Oregon coast prior to wave energy development

Jenn Burt: Marine protected area network design features that support resilient human-ocean systems: Applications for British Columbia, Canada

Rebecca Ross: Using larval dispersal models to answer questions about offshore marine protected area network connectivity

Nicola Zargarpour: Using underwater video to investigate the impact of invasive green crab (*Carcinus maenas*) on American lobster (*Homarus americanus*) catch efficiency

Nicola Okes: Impacts of urbanisation on the distribution, diet and health of the Cape clawless otter, South Africa

Julia Mason: A comparison of scientist and stakeholders perspectives on ocean research priorities

Elitza Germanov: Plastics on the menu: Microplastics are present in the feeding habitats of manta rays

MONDAY, 1st AUGUST

Conservation Conversations: Beyond Business Cards (Speed-Networking Event)

Details: 13:15–14:45, Salon B, Delta Conference Centre
Pre-registration required

Does the thought of interviews make your heart race? If asked why hire you, do you find yourself saying 'um' a lot? Come meet a diverse range of conservation professionals in a fast-paced environment while learning how to perfect your pitch, learning about the dos and don'ts of networking and ensuring a professional personal brand. This is a brown bag event, so students are encouraged to bring their own lunches.

TUESDAY, 2nd AUGUST

Take a Break and Enjoy Nature: Fort Amherst Hike for Students

Detail: 08:30–12:30, East Coast Trail: Fort Amherst and Gunners Cove (shuttle pick up @ the Delta)
Pre-registration required

This section of the East Coast Trail winds past former barracks, dams, beaver ponds and through a varied landscape. We will pick carefully across wet, overgrown bog, make our way through mixed deciduous stands, walk beneath coastal fir and spruce forest, and stroll across exposed heath and lichen gardens. The geological history of the Avalon can be read in the glassy rhyolite, quartz and pink feldspar clasts deposited by former glaciers. We will start our hike from the Blackhead Road access trail and hike to Gunners Cove to look out over Freshwater Bay (about 4km). Then we'll turn towards Fort Amherst and finish the hike climbing down from Flowers Point (just over 5km), taking in a beautiful view of Signal Hill across the Narrows as we finish. The hike is approximately 10km total. Participants are expected to be in a physical condition and have suitable clothing needed for the hike.

Expect to see: Pink lady's slipper, beaver, yellow-bellied flycatcher, ruby-crowned kinglet, northern waterthrush, humpback, minke and fin whales, and lots of berries (blueberries, crackerberries, marshberries, chokeberries, partridgeberries and blackberries)



Student Activities

Student Activities Fundraiser & Social: IMCC4 Pub Trivia

Detail: 18:30–21:00, Johnson Geo Centre, 175 Signal Hill Rd,
St. John's (shuttles will pick up from the Delta)
Pre-registration required

Welcome to the intersection of geology, science, and curiosity at the Johnson Geo Centre on Signal Hill! Just 'bout gutfounded? Get ready for an evening of food, drinks, music, pub trivia, and science! You're sure to have a great time meeting new friends and engaging in a little friendly competition. This event is a Student Activities fundraiser, but is open to students, non-students, and guests.

WEDNESDAY, 3rd AUGUST

Plenary Luncheon

Details: 13:15–14:45, Rocket Bakery, 272 Water Street,
St. John's (approx. 5–10 minute walk)
Pre-registration required

This lunch event honors our plenary speakers and offers students a chance to meet the speakers on a more personal level and learn more about their life contributions to the marine community in an informal setting. Food will not be provided, but lunch and other goodies can be purchased onsite at the awesome Rocket Bakery.



Short Courses

Introduction to Marxan and Marxan with Zones (3 days) or Marxan with Zones (1 day)

Offered by: PacMARA

Details: 09:00–17:00, July 27–29 or 29,
Memorial University, St. John's

Cost (3 days / 1 day): US\$450/US\$165 (student), US\$615/
US\$165 (non-students), Lunch and coffee breaks are
included.

Registration: Through IMCC4 online registration

Queries: Contact Norma Serra (nserra@pacmara.org)

The first two days will be dedicated to introduce Marxan using a two-zone conservation planning scenario, and learn how to generate the necessary input files, set and calibrate Marxan parameters, and interpret and visualize Marxan outputs. During the third day participants will learn the differences between Marxan and Marxan with Zones, and how to use this tool to solve a multi-zone planning exercise.

People with previous experience with Marxan or that have taken an Introduction to Marxan course in the past and interested in learning more about Marxan with Zones can register to the third day only. Prior experience with GIS is a prerequisite to participate in both components of this course.

About Marxan

Marxan is the most widely used conservation and resource use planning tool globally. It can recommend a network of areas for protection and other spatial management regimes in marine, terrestrial, freshwater, and a combination of systems. Developed by Ian Ball and Hugh Possingham from the University of Queensland, Australia, Marxan supports spatial prioritization by producing objective, transparent, and repeatable results. The software can facilitate smart decision-making that accounts for a broad range of considerations, stakeholders, and tradeoffs in a spatially and economically efficient manner.

About PacMARA

The Pacific Marine Analysis and Research Association (PacMARA) is a charitable organization of science and planning professionals dedicated to building and increasing capacity in marine and coastal planning in Canada and internationally. Our goal is to help promote sustainable prosperity through communication, coordination, and collaboration – ultimately linking science with decision making.





IMCC Field Trips

IMCC Field Trips

Puffin- and Whale-Watching Cruise with Gatherall's

Field trip operator: Gatherall's Puffin & Whale Watch

Times offered: July 28, 10:45–15:00 (includes travel time);
August 5, 07:30–11:45 (includes travel time)

Field trip fee: \$60 USD

Pick-up & drop-off: The Delta and the Memorial University dorms

Depending on the season, the Witless Bay Ecological Reserve offers an unparalleled opportunity to observe puffins & whales in their natural environment. Amongst the 2.5 million seabirds that nest on the islands of the Witless Bay Ecological Reserve, the islands are home to over 500,000 Atlantic Puffins—no wonder it's the best place to see them. The waters around Bay Bulls and the Reserve is a favourite feeding area for the annual migration of the Humpback Whales that make their way to the waters of Newfoundland each summer. The whales have chosen this area because of the abundance of food in the nearby waters—one of the many reasons that this makes this the absolute best place to take your tour.

The peak of the whale season here runs from mid-June through to mid-August. The Reserve is located at the end of Iceberg Alley. Our coastal scenery is beautiful year round and is a treat in and of itself. Our cruise offers an incredible opportunity to experience wondrous seascapes, mighty cliff faces & pounding surf. Of course it would be great if you could see everything in a single trip, but you must remember that there are times of the season are better than others and as with any wildlife tour, sightings are not guaranteed.

Each cruise is narrated by Gatherall's experienced professional crew. Their commentary is a lively and engaging mix of information about the natural and cultural heritage of our area. Their crew are only too happy to answer your questions or repeat information in case you didn't hear it the first time round. Their guides & crew are equipped with wireless microphones so that they can mix with all passengers throughout the tour—they try to meet each and every guest at some point throughout the cruise.

Celebrate the Protected Fishing Area of Petty Harbour-Maddox Cove

Field trip operator: Fishing for Success

Times offered: July 29, 08:30–13:30 (includes travel time);
August 4, 08:30–13:30pm (includes travel time)

Field trip fee: \$60 USD

Pick-up & drop-off: The Delta

Celebrate the Protected Fishing Area of Petty Harbour-Maddox Cove, with guided tours by Fishing for Success that include the wharf and fishing stage, the Petty Harbour Mini Aquarium, conservation talk with local fishermen and the Sierra Club, and try rowing wooden dories. Includes a locally caught sustainable seafood lunch.

Join Fishing for Success guides for a full morning of discovering the story of Petty Harbour-Maddox Cove and its Protected Fishing Area. Start the morning with a guided walking tour of the fishing wharf and the traditional fishing stages. Visit one of Canada's few catch and release aquariums—Petty Harbour Mini Aquarium. Maybe you'll stop for a coffee along the way! Then you'll spend the rest of the morning at the Island Rooms networking with the Sierra Club and local conservation-minded fishermen while you learn how to knit a net (and you keep what you knit!).

Next you'll share lunch and stories—a meal of fish (local & sustainably caught, of course)—with members of the partner conservation groups. Finally, learn about Fishing for Success programs to teach youth their unique fishing heritage from the young people themselves. And for the adventurous, a dory rowing lesson from youth ambassadors! All participants will receive a print copy of the "Ancient Rights" booklet that tells the history of the Petty Harbour-Maddox Cove Protected Fishing Area.

Fishing for Success is a not-for-profit and wishes to promote the conservation work of other organizations active in Petty Harbour-Maddox Cove. Proceeds from this field trip will benefit not just Fishing for Success and Mini Aquarium programs, but also a portion will go directly to the Sierra Club-Atlantic Chapter as a donation from Fishing for Success. Finally, there may be opportunities for delegates to purchase Fishing for Success or Mini Aquarium branded products following the field trip.

*Delegates can do both the Fishing for Success trips in one, but you must register and pay for both.



Experience the Fog Forest of Maddox Cove

Field trip operator: Fishing for Success

Times offered: July 29, 13:30–18:30 (includes travel time);
August 4, 13:30–18:30 (includes travel time)

Field trip fee: \$50 USD

Pick-up & drop-off: The Delta

Experience the Fog Forest of Maddox Cove with Fishing for Success, The Nature Conservancy and the East Coast Trail Association includes transportation to trails, guided hiking, refreshments, and a local berry dessert.

For generations, the residents of Petty Harbour-Maddox Cove walked to Town along beautiful pathways. Join The Nature Conservancy, East Coast Trail Association, and Fishing for Success guides as they lead you along heritage trails now called the Fog Forest. Be ready to see so many different sea birds from gulls to adorable puffins, watch the waters for whales and dolphins, and listen in the trees for warblers and sparrows. Don't forget to look near your feet! The path might be ripe with blueberries or chanterelles!

Of course, your guides will be telling stories! How did Hospital Rock earn its name? Or Killickstone Cove? And if you ask Leo about the cod-trap fishery, you'll get ever so many stories about berths and draws and the best kind of fish! When you can't take any more pictures, you'll go to Island Rooms and share a mug-up of tea and a traditional berry dessert.

Fishing for Success is a not-for-profit and wishes to promote the conservation work of other organizations active in Petty Harbour-Maddox Cove. Proceeds from this field trip will benefit not just Fishing for Success programs, but also a portion will go directly to the Nature Conservancy and East Coast Trail Association as a donation from Fishing for Success. Also, there may be opportunities for delegates to purchase Fishing for Success, Nature Conservancy & East Coast Trail branded products following the field trip.

*Delegates can do both the Fishing for Success trips in one, but you must register and pay for both.

Haunted Hike Walking Tours of St. John's

Times offered: July 29, 21:30–22:45

Field trip fee: \$10 USD

Pick-up & drop-off: The Delta (on foot)

Welcome traveller to St. John's, the City of Legends, and North America's oldest city. Perched on the sides of the hills

surrounding St. John's harbour, and often wreathed in the misty fog that drifts in off the North Atlantic, St. John's is steeped in history... and the paranormal... Dark alleys and laneways wind through the heart of the historic downtown area, and in the shadows lurk the shades of yesteryear.

Walking through the town, one is surrounded by the memories of public hangings, duels, and horrific murders, passing over forgotten cemeteries and unmarked graves, past buildings known to be visited by those who have passed over to the other side... Vengeful lovers, murdered soldiers, and mysterious fires await those who are brave enough to explore the secrets that lie in wait in St. John's darkest corners.

Take a Break and Enjoy Nature: Fort Amherst Hike for Students

Field trip operator: IMCC4 Student Activities Committee

Times offered: August 2, 08:30–12:30pm (includes travel time)

Field trip fee: \$20 USD

Pick-up & drop-off: The Delta

This field trip is ONLY open to students.

This section of the East Coast Trail winds past former barracks, dams, beaver ponds and through a varied landscape. We will pick carefully across wet, overgrown bog, make our way through mixed deciduous stands, walk beneath coastal fir and spruce forest, and stroll across exposed heath and lichen gardens. The geological history of the Avalon can be read in the glassy rhyolite, quartz and pink feldspar clasts deposited by former glaciers. We will start our hike from the Blackhead Road access trail and hike to Gunners Cove to look out over Freshwater Bay (about 4km). Then we'll turn towards Fort Amherst and finish the hike climbing down from Flowers Point (just over 5km), taking in a beautiful view of Signal Hill across the Narrows as we finish. The hike is approximately 10km total. Participants are expected to be in a physical condition needed for the hike. Pre-registration for this event is required.

Expect to see: Pink lady's slipper, beaver, yellow-bellied flycatcher, ruby-crowned kinglet, northern waterthrush, humpback, mike and fin whales, and lots of berries (blueberries, crackerberries, marshberries, chokeberries, partridgeberries and blackberries)

For further detail on the schedule and items to bring please refer to the IMCC4 website.



Presenter Information

Presenters

Symposium & Oral Presentations

Symposia presentation rooms will be equipped with a computer and data projector.

Please follow instructions listed on the IMCC4 website for uploading talks.

Talk Format: Symposium talks must be either 15 minutes or 30 minutes in length, with 3 minutes for discussion included in the presentation time. This time limit will be strictly enforced by session organizers to keep sessions in synchrony. Symposia will include discussion periods at the end according to the schedule for each session.

Full-length contributed oral presentations are limited to 15 minutes, which should comprise 12 minutes for actual presenting and 3 minutes for questions. This time limit will be strictly enforced by session moderators to keep concurrent sessions in synchrony.

At the end of each contributed session at IMCC4, 15 minutes are given for presenters to go into the audience and meet delegates and answer questions one-on-one. Presenters are expected to stay in the room to speak to delegates during this time. The session moderator will be responsible for time-keeping.

Speed Presentations

The speed presentation rooms will be equipped with a computer and a data projector.

Please follow instructions listed on the IMCC4 website for uploading talks.

Talk Format: Presenters will present their work as a 4-minute speed talk during the speed sessions. Please note: each speed talk is allotted 5-minutes to allow for transition to the next speaker, but speakers will only have 4 minutes to present.

During the speed talk, present key ideas and results, utilizing the full 4 minutes. There will be no time for discussion during your talk. Time will be set aside during each session for one-on-one discussions with delegates at the end of each speed session. The 4-minute time limit will be strictly observed.

After all the speed session presenters have given their talks, there will be 15 minutes at the end of each speed session for audience members to speak to them. Speakers should distribute

themselves throughout the room and are expected to remain in the room until the session ends. The session moderator will be responsible for time-keeping.

Poster Presentations

There will be a dedicated poster session and reception on Sunday, 31 July 2016, from 17:30 to 19:30 at the St. John's Convention Centre. Presenting authors are required to remain at their poster during the session.

All posters must be put up between 10:30 and 15:00 on 31 July and must be taken down by 20:00 on 31 July. Any posters that remain up after 20:00 on 31 July will have to be removed and discarded.

Please refer to the IMCC4 website for information on poster layout and design.

Focus Groups & Panel Discussions (including OceansOnline facilitated discussions)

Focus group and panel discussion rooms will be equipped with a computer and a data projector.

These sessions do not require the upload of presentations to use during discussions. Organizers may use any visuals they choose, or none at all. If organizers would like to use slides during the sessions, you may bring them on a personal USB flash drive to use in the room or upload slides according to the instructions outlined on the IMCC4 website.

Focus groups are meant for discussion, collaboration, brainstorming, etc. Panel discussions are meant for discussion among panel members and between panel members and the audience. Neither are meant to consist of a series of presentations.

OceansOnline Tools Presentations

The OceansOnline online tools presentation room will be equipped with a computer and a data projector.

Please follow instructions listed on the IMCC4 website for uploading talks.

OceansOnline online tools presentations are limited to 15 minutes, and presenters may use the full 15 minutes for presentations. Multiple presenters may be on stage and take part in each online tools presentation, but the 15-minute time limit will still be strictly enforced by OceansOnline organizers.



Moderators

Moderators are responsible for keeping time during oral and speed sessions to ensure synchrony between sessions. Moderators should determine if all speakers are present before the session begins. If a speaker does not show for his/her talk, moderators are not to move the next talk into the empty time slot in order to keep the session in sync with the schedule. Moderators can use that time for questions for presenters that have already presented. Presenters need to give their talks at the time designated in the schedule.

Oral Sessions

Oral talks are limited to 15 minutes: 12 minutes for the presentation, and 3 minutes for questions. Moderators will introduce the speaker and will notify the presenter after 10 minutes have elapsed (to let the speaker know there are 2 minutes left for presenting and 3 for questions), and then at 12 minutes (to let the speaker know the question period should begin). The moderator will stand up after 14 minutes have elapsed, giving the speaker 1 minute to wrap up all presentation material or to finish questions.

At the end of each contributed session at IMCC4, 15 minutes are given for presenters to go into the audience and meet delegates and answer questions one-on-one. Presenters are expected to stay in the room to speak to delegates during this time. The moderator should announce the 15-minute meet-and-greet is beginning at the end of the last talk in the session. Moderators should also announce when the session is officially over.

Symposia

The symposia organizers will act as moderators for their sessions, according to their symposium schedule.

Speed Talks

Moderators must keep strict time during the presentation portion of the speed talks, to ensure each speaker receives 4 minutes of presentation time. Moderators will introduce the speaker and notify the speaker when 3 minutes have elapsed (1 minute remaining) and then at 4 minutes. The moderator will then introduce the next speaker. Presentation slots have been scheduled for 5 minutes to allow time to transition to the next speaker. Presenters are not to be given 5 minutes to present. There will be no question period during the presentation portion of a speed session.

After all the speed session presenters have given their talks, there will be 15 minutes at the end of each speed session for audience members to speak to them. Speakers should distribute themselves throughout the room and are expected to remain in the room until the session ends. The moderator should announce the 15-minute meet-and-greet is beginning at the end of the last talk in the session. Moderators should also announce when the session is officially over.



Artists and Exhibitors

Newfoundland Artists

**DETAILS: 17:30–19:30, 31 July 2016,
St John's Convention Centre, Jr. Ballroom**

Preliminary list of exhibiting artists, more to be confirmed!

Caricatures and Digital Game Creation

ARTIST: Julie Lewis

Caricatures and custom video-game creation demonstration.

Fine Art Printmaking by Janet Davis

ARTIST: Janet Davis

Local prints.

Graham Blair Woodcuts

ARTIST: Graham Blair

Traditional woodcut prints printed on handmade Japanese papers.

The Green Cod Fine Woodworking and Marquetry / Ebénisterie d'art et Marqueterie

ARTIST: Denis Abrard

Wood carvings and wood inlays showing the beauty of aquatic animals.

Kumi Stoddart

ARTIST: Kumi Stoddart

Mixed media work with ink, watercolour, gouache, threads on handmade paper inspired by the natural beauty and the cultural heritage of the province. Unique, craft combining the traditions of Japanese and Newfoundland and Labrador.

Mer-Made

**ARTISTS: Natalie Sopinka, Victoria Howse,
Laura Wheeland, Brynn Devine**

Using a variety of materials, as diverse as the taxa we study, we create artistic pieces connected to Earth's lakes, rivers and oceans.

Michelle J. Jones NL Artist / Photographer / Jewelry Designer

ARTIST: Michelle J. Jones

Paintings, photographs and jewelry.

Quidi Vidi Pewter

ARTIST: Ray Cox

Hand-wrought pewter works, focussing on blending the natural color and feel of pewter with the unique culture, heritage and nature motifs of Newfoundland.

Shamrock Pottery and Fine Art

ARTIST: Peter Sobol

Art cards, prints and pottery based on original art and sculptures. Including worked based on life on the North Atlantic and the annual puffin rescue program.

Tall Trees Studio

ARTIST: Mitzi Smyth

Hand-crafted prints created with wood, lino and several other methods.

Yellow Rose

ARTIST: Anna Murphy

Hand dyed and printed home decor and accessories. Including cushions, journals and scarves.



Exhibitors

Fisheries & Marine Institutes of Memorial University

155 Ridge Road
St. John's, NL A1C 5R3 Canada
709-778-0544; FAX: 709-778-0672
www.mi.mun.ca

Canada's Fisheries and Marine Institute of Memorial University is a world-class centre of education, research and industrial training for the oceans industries. Through our Centre for Sustainable Aquatic Resources and Centre for Fisheries Ecosystems Research, we promote the sustainable development of aquatic resources, protection of marine and freshwater environments and conduct fisheries research on fish stocks and marine ecosystems.

Glover's Reef Research Station

P.O. Box 272
Dangriga, Belize
718-741-8156
<http://belize.wcs.org>

Glover's Reef Research Station (GRRS), operated by the Wildlife Conservation Society and located off the coast of Belize, supports research that seeks to address critical scientific issues related to conservation and management of marine areas, especially related to coral reef systems and MPAs. Since 1995, the station has provided a platform for scientists to conduct cutting-edge research at one of the Caribbean's most diverse coral reef systems.

Measuring the Effects of Catch Share Project

MRAG Americas, Inc.
65 Eastern Avenue, B2C
Essex, MA 01929 USA
978-768-3880
www.catchshareindicators.org

The Measuring the Effects of Catch Shares project provides access to the best available public data and unbiased scientific analysis on the Northeast Multispecies Sector Program and the West Coast Shorebased Individual Fishing Quota (IFQ) Program. Interactive charts and graphs allow users to explore changes before and during the catch share programs, accompanied by reader-friendly analyses of ecological, economic, and social trends in the fisheries. In addition, comprehensive background information describes the details of each catch share program, including historical context and interactive timelines.
www.CatchShareIndicators.org

SubC Imaging

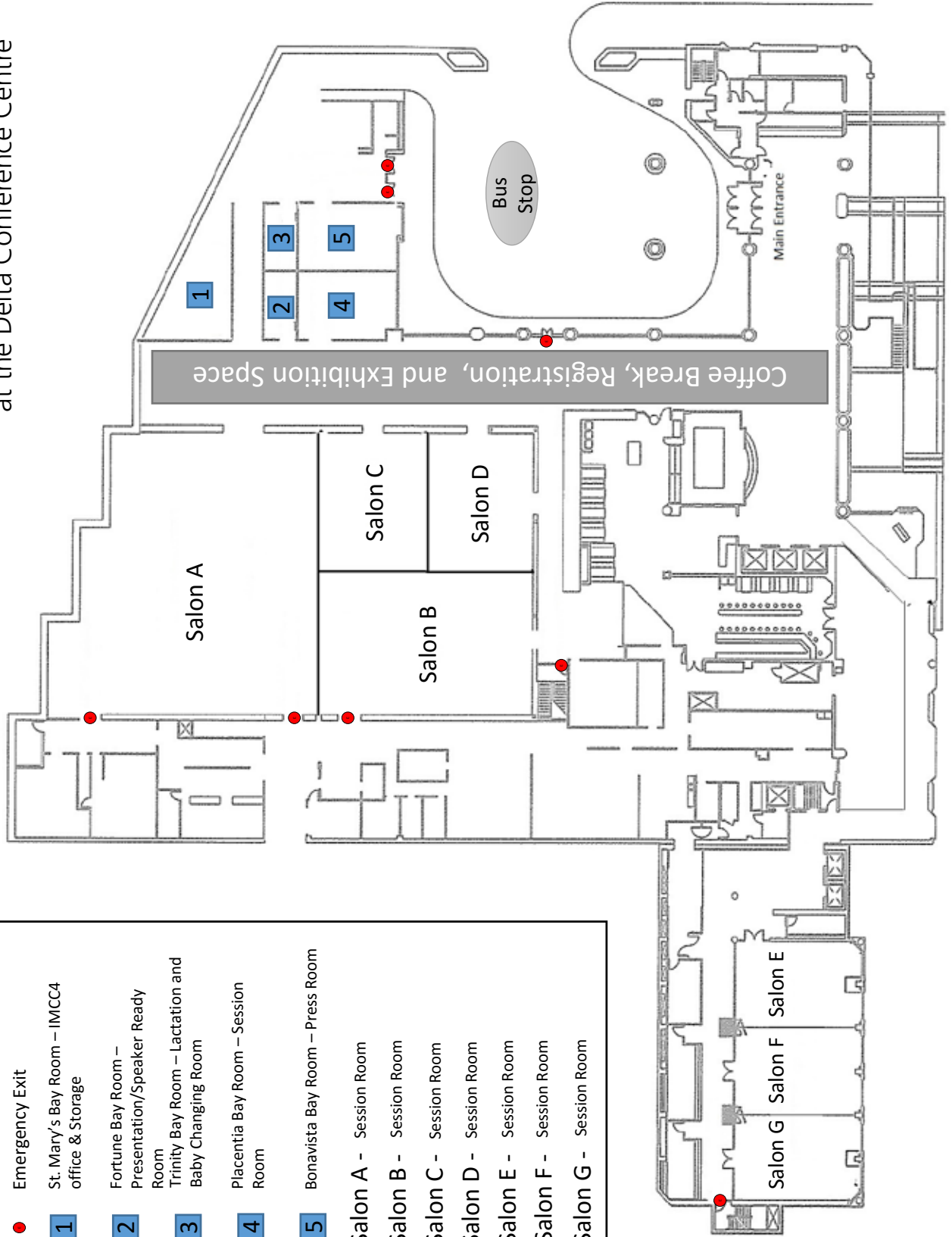
317 Memorial Drive
Clarendville, NL A5A 1R8
Tel: 709 702 0395
www.subcimaging.com

State of the art underwater imaging systems including Digital Stills, HD and UHD (4K) cameras, lighting and lasers for all ocean depths. Digital video recording and overlaying solutions for media management and streaming. Fully integrated and tested custom systems for client specific applications and custom engineering for client projects.

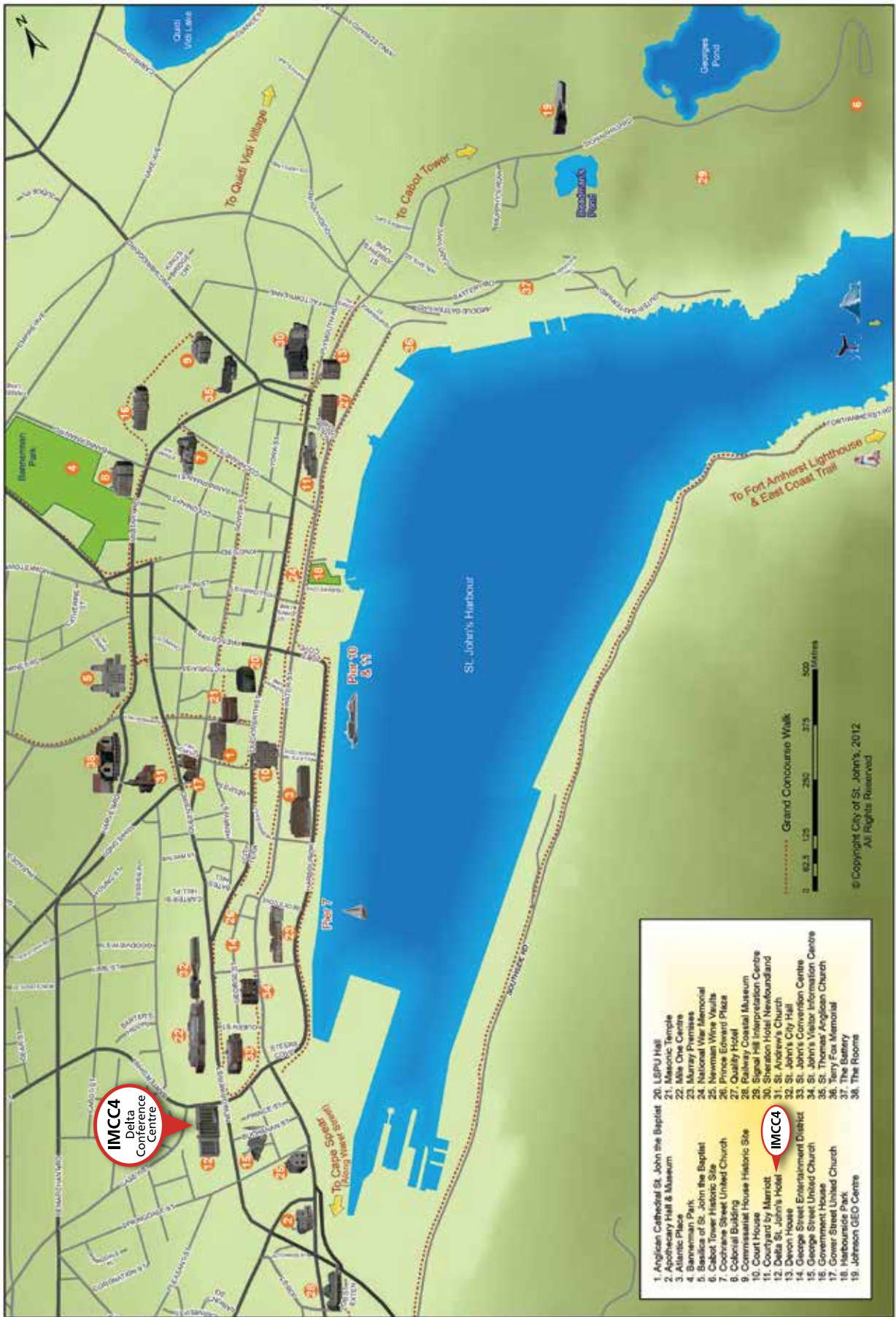
IMCC4 Floor Plan at the Delta Conference Centre

Legend

- Emergency Exit
- 1** St. Mary's Bay Room – IMCC4 office & Storage
- 2** Fortune Bay Room – Presentation/Speaker Ready Room
- 3** Trinity Bay Room – Lactation and Baby Changing Room
- 4** Placentia Bay Room – Session Room
- 5** Bonavista Bay Room – Press Room
- Salon A – Session Room
- Salon B – Session Room
- Salon C – Session Room
- Salon D – Session Room
- Salon E – Session Room
- Salon F – Session Room
- Salon G – Session Room



St. John's Visitor Map



Courtesy of the Tourism and Culture Division of the St. John's Department of Community Services.

4th International Marine Conservation Congress
Society for Conservation Biology Marine Section

Congress Schedule



Morning session — 8:30 A.M. to 10:30 A.M.



C8: CONTRIBUTED SESSION
EFFECTIVE MARINE CONSERVATION PLANNING 1

PLACENTIA BAY ROOM
Sunday, July 31, 08:30–10:30

- 08:30 Process and criteria for the identification of Important Marine Mammal Areas (IMMAs)**
Tetley, MJ*, *IUCN-MMPATF*; Notarbartolo di Sciara, G, *IUCN-MMPATF*; Hoyt, E, *IUCN-MMPATF*
- 08:45 Planning for dynamic process: a community-level surrogate strategy for species seasonal movements**
Heather Welch*, *NOAA NMFS*; Jennifer McHenry, *NOAA NMFS*
- 09:00 Global and regional priorities for marine biodiversity protection**
Van Houtan, Kyle S.*, *NOAA Fisheries, Pacific Islands Science Center*; Jenkins, Clinton N., *Instituto de Pesquisas Ecologicas*
- 09:15 Making reef management decisions through ecosystem health report cards & eco-audits in the Mesoamerican reef system**
Melanie McField, *Healthy Reefs for Healthy People Initiative*; Marisol Rueda*, *Healthy Reefs for Healthy People Initiative*; Ian Drysdale, *Healthy Reefs for Healthy People Initiative*; Ana Giró, *Healthy Reefs for Healthy People Initiative*; Roberto Pott, *Healthy Reefs for Healthy People Initiative*; Patricia Kramer, *Atlantic and Gulf Rapid Reef Assessment*
- 09:30 Delivering the dual mandate: Using spatial data to strike a balance between ecological protection and economic opportunity**
Pardy, Gary*, *Fisheries and Oceans Canada*; Gerhartz-Abraham, Adrian, *Fisheries and Oceans Canada*; King, Marty, *Fisheries and Oceans Canada*; Koropatnick, Tanya, *Fisheries and Oceans Canada*; Westhead, Maxine, *Fisheries and Oceans Canada*; Will, Elise, *Fisheries and Oceans Canada*
- 09:45 Marine epifauna matter: Application in ecosystem classification, assessment and marine protected area design in South Africa**
Makwela, MS*, *Student*; Franken, ML, *Collaborator*; Atkinson, LJ, *Supervisor*; Sink, KJ, *Supervisor*
- 10:00 Q&A Session**

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C18: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 1

SALON E ROOM
Sunday, July 31, 08:30–10:30

- 08:30 Are benthic assemblages in marine protected areas more resilient to climate change than those in fished areas?**
Sheehan, EV*, *Plymouth University Marine Institute*; Bridger, D, *Plymouth University Marine Institute*; Nancollas, SJ, *Memorial University of Newfoundland*; Holmes, L, *Plymouth University Marine Institute*; Attrill, MJ, *Plymouth University Marine Institute*
- 08:45 When fishers follow fish: governance challenges and social-ecological implications of geographical shifts in two northwest Atlantic fisheries**
Clark, EC*, *Duke University*; Dubik, BA, *Duke University*; Young, T, *Rutgers University*; Jones, SB, *Duke University*
- 09:00 Evidence for a trophic cascade on rocky reefs following sea star mass mortality in British Columbia**
Schultz, JA*, *Simon Fraser University; Vancouver Aquarium Coastal Ocean Research Institute*; Cloutier, RN, *Simon Fraser University*; Côté, IM, *Simon Fraser University*
- 09:15 “Farming oysters...to fight pollution?”: A stop-motion animation to explain nutrient bioextraction**
Lunstrum, Abby*, *NOAA*
- 09:30 Corals, canyons, and conservation: science based fisheries management decisions in the eastern Bering Sea.**
MacLean, SA*, *North Pacific Fishery Management Council*; Rooper, CN, *NOAA Alaska Fisheries Science Center*; Sigler, MF, *NOAA Alaska Fisheries Science Center*
- 09:45 Belize weed: The next big thing for fisheries.**
Robinson, JS*, *The Nature Conservancy*; Cruz, SJ, *The Nature Conservancy*; Martinez, AR, *The Nature Conservancy*
- 10:00 Diverging perceptions on human-use of large marine vertebrates and its impacts on conservation policies**
Acebes, JMV*, *Balyena.org*
- 10:15 Q&A Session**

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SY35: SYMPOSIUM
SEABIRD CONSERVATION PLANNING: DISTRIBUTION MODELING, RISK ASSESSMENT, AND EFFECTIVE CONSERVATION ACTIONS

SALON B ROOM
Sunday, July 31, 08:30–10:30

ORGANIZER(S):
Laura McFarlane Tranquilla, *Bird Studies Canada*; David Lieske, *Mount Allison University*; William Montevicchi, *Memorial University of Newfoundland*; April Hedd, *Memorial University of Newfoundland*; David Fifield, *Environment Canada*

Coastal and marine ecosystems are increasingly threatened by human activities, including commercial overfishing, release of contaminants, and development leading to habitat alteration and loss. Seabirds are integral components of marine ecosystems and are vulnerable to anthropogenic threats including chronic and catastrophic oil spills, competition for prey with commercial fisheries, and bycatch. Seabirds are also vulnerable to tourism and development activities that can lead to harmful interruption in feeding, breeding and migration behaviours, and exclusion from key sites.

This symposium will focus on assessing threats and vulnerabilities, to inform conservation priorities for seabirds in coastal and marine environments. Fundamental to this approach is sound spatio-temporal distribution information on both seabirds and seabird threats. Recent enhancements in seabird distribution information, as a result of year-round, multi-scale tracking of individual birds, improvements to at-sea survey methods, and predictive spatial models, are expected to contribute greatly to the discussion. Contributed papers will explore advances in distribution modeling for marine species, methods for identifying ecologically important areas and/or areas where risks from human-seabird conflict are elevated, and novel approaches for identifying, prioritizing, implementing and monitoring conservation actions that better address threats to seabirds and the marine ecosystems to which they belong.

08:30 Seabirds in the California current: Risk assessment, sensitivity, and conservation

Good, TP*, NOAA Fisheries; **Samhuri, JF**, NOAA Fisheries; **Sydesman, WJ**, Farallon Institute; **Jahnke, J**, Point Blue Conservation; **Feist, BE**, NOAA Fisheries; **Wilcox, C**, Commonwealth Scientific and Industrial Research Organisation (CSIRO)

08:45 Employing predictive spatial models for seabirds in the Labrador Sea to inform conservation planning

Fifield, David A.*, Environment and Climate Change Canada; **Hedd, April**, Environment and Climate Change Canada; **Avery-Gomm, Stephanie**, Environment and Climate Change Canada; **Robertson, Gregory J.**, Environment and Climate Change Canada; **Gjerdrum, Carina**, Environment and Climate Change Canada; **McFarlane Tranquilla, Laura**, Bird Studies Canada

09:00 Marine distribution of arctic seabirds over six decades: Changes and conservation applications

Wong, SNP*, Acadia University, Department of Biology, Wolfville, Canada; **Johansen, KL**, Aarhus University, Department of Bioscience, 4000 Roskilde, Denmark; **Lieske, DJ**, Mount Allison University, Department of Geography and Environment, Sackville, Canada; **Fifield, DA**, Environment Canada and Climate Change, Science and Technology, St. John's, Canada; **Hedd, A**, Environment Canada and Climate Change, Science and Technology, St. John's, Canada; **Gjerdrum, C**, Environment Canada and Climate Change, Canadian Wildlife Service, Dartmouth, Canada; **Boertmann, D**, Aarhus University, Department of Bioscience, 4000 R; **Merkel, FR**, Aarhus University, Department of Bioscience, 4000 R; **Mosbech, A.**, Aarhus University; **Mallory, ML**, Acadia University

09:15 How technological advances are improving our understanding of Arctic seabird distribution on multiple spatiotemporal scales

White, T, Carleton University; **Robertson, GJ***, Environment and Climate Change Canada; **Gilchrist, HG**, Environment and Climate Change Canada; **Mallory, ML**, Acadia University

09:30 Environmental emergency response for marine birds in Atlantic Canada: Recent enhancement through the World Class Tanker Safety Systems initiative

Ronconi, RA*, Environment and Climate Change Canada; **Gjerdrum, C**, Environment and Climate Change Canada

09:45 Mapping the “risk seascape”: Assessing the cumulative threats to colonial nesting seabirds in the marine environment

David Lieske*, Mount Allison University; **Laura MacFarlane Tranquilla**, Bird Studies Canada; **Robert Ronconi**, Bird Studies Canada; **Susan Abbott**, Bird Studies Canada

10:00 Land trusts and ocean compromises

Montevecchi WA*, Memorial University of Newfoundland

10:15 A simple rule of thumb for managing forage fisheries: Save one-third for the birds

Piatt, JF*, USGS Alaska Science Center

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**SY42: SYMPOSIUM
INCREASING THE UTILITY OF PREDICTIVE MODELS:
UNDERSTANDING MODEL TRANSFERABILITY**

**SALON G ROOM
Sunday, July 31, 08:30–10:30**

ORGANIZER(S):

Katherine Yates, Salford University; **Ana Martins Sequeira**, University of Western Australia

Effective planning and prioritisation of conservation actions requires an understanding of where conservation features of interest occur and how management actions may affect them. All too often, however, information on the distribution of biotic features is sparse or lacking. This is particularly true for marine environments, where the vastness of the oceans and the prohibitive costs associated with sampling limits data collection. For many locations, only abiotic and spatial data exist. In these situations transferable models, i.e., models developed for a particular place but which can provide useful information in other locations, could be of great utility. Despite transferability studies in terrestrial systems being relatively common, the model features that may enhance or detract from transferability are still not well understood. This symposium will focus on how best to build predictive models that are highly transferable and how to robustly assess transferability while showing new applications to marine systems. Researchers working on different aspects of transferability will show examples of where transferred models have performed well, even across large distances, and others where they have not. They will also present evidence for which factors seem to affect the predictive performance of transferred models in the marine environment. Joint session is to allow for more in-depth discussion, which will explore recent findings, highlight which are the immediate gaps, and discuss future research avenues.





08:30 Why we need transferable models of biodiversity
Sequeira, AMM, *University of Western Australia*; **Bouchet, P.J.**, *University of Western Australia*; **Peterson, E.E.**, *Queensland University of Technology*; **Mengersen, K.**, *Queensland University of Technology*; **Yates, K.L.**, *University of Salford*; **Caley, M.J.***, *Australian Institute of Marine Science*

08:45 Transferability of predictive models for coral reef fishes
Ana M.M. Sequeira*, *UWA Oceans Institute, School of Animal Biology and Centre for Marine Futures, University of Western Australia M470, 35 Stirling Highway, Crawley, Western Australia 6009, Australia*; **Camille Mellin**, *Australian Institute of Marine Science, PMB No.3, Townsville MC, Townsville, Queensland 4810.*; **M. Julian Caley**, *Australian Institute of Marine Science, PMB No.3, Townsville MC, Townsville, Queensland 4810.*

09:00 Assessing the transferability of biodiversity models across a temperate seascape
KL Yates*, *University of Salford, Manchester, UK, M5 4WX*; **MJ Caley**, *Australian Institute of Marine Science, PMB 3, Townsville, QLD 4810, Australia*; **JJ Meeuwig**, *Centre for Marine Futures, Oceans Institute and School of Animal Biology, University of Western Australia, Crawley, Western Australia, 6009*; **BT Radford**, *Australian Institute of Marine Science, UWA Oceans Institute, Crawley, WA 6009, Australia*; **C Mellin**, *Australian Institute of Marine Science, PMB 3, Townsville, QLD 4810, Australia*

09:15 Spatial transferability of habitat suitability models of *Nephrops norvegicus* among fished areas in the northeast Atlantic
Lauria, V*, *Ryan Institute, School of Natural Sciences, National University of Ireland, Galway, University Road, Galway, Ireland*; **Power, AM**, *Department of Zoology, School of Natural Sciences, Ryan Institute, National University of Ireland, Galway, University Road, Galway, Ireland*; **Lordan, C**, *Marine Institute, Rinville, Oranmore, Co. Galway, Ireland*; **Weetman, A**, *Marine Scotland Science, Marine Laboratory, Aberdeen, Scotland*; **Johnson, M**, *Ryan Institute, School of Natural Sciences, National University of Ireland, Galway, University Road, Galway, Ireland*

09:30 Model transferability: Lessons learnt and ways forward
Bouchet, PJ*, *University of Western Australia*; **Sequeira, AMM**, *University of Western Australia*

09:45 Panel Discussion

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SY45. SYMPOSIUM
 PERPETUAL MOTION: THE FUTURE OF ANIMAL
 MOVEMENT ECOLOGY IN MARINE CONSERVATION

SALON A ROOM
 Sunday, July 31, 08:30–10:30

ORGANIZER(S):

Matthew B. Ogburn, *Smithsonian Environmental Research Center*;
Frederick Whoriskey, *Ocean Tracking Network*; **Peter Leimgruber**,
Smithsonian Conservation Biology Institute

The uniquely dynamic marine environment forces the vast majority of animals to move within it during all or part of their lives to meet fundamental needs. Changes in movement patterns are among the first

adaptive responses of marine animals to anthropogenic ocean changes. Thus understanding variation in marine animal movement, its role in population dynamics and ecosystem structure, and how movements change over time are critical to marine conservation and spatial planning. Stories of animal movements are also powerful educational tools to explain the importance of the ocean to human well-being. Movement studies are providing new insights into the marine environment through recent technological and computational advances, and efforts at international networking are expanding. The field of movement ecology has the potential to bridge the historical divide between marine and terrestrial behavioral ecology and their application to conservation and management. This symposium, convened by the Smithsonian Institution (USA) and the Ocean Tracking Network (HQ at Dalhousie University, Canada), focuses on the critical research question “How can conservation strategies be implemented to maintain connectivity across taxa, habitats, and scales to ensure resilient marine communities.” It will seek to bridge the fields of marine and terrestrial animal behavior through case studies, syntheses, and exploration of future research directions.

08:30 Movement ecology as a unifying theme in marine and terrestrial conservation science
Harrison, A.L.*, *Smithsonian Conservation Biology Institute, Migratory Bird Center, National Zoological Park*

08:45 The technology and networks for tracking animal movements at sea.
Whoriskey, F.G.*, *Dalhousie University*

09:00 Animal movement analysis in space and time
Torres, LG*, *Department of Fisheries and Wildlife, Marine Mammal Institute, Oregon State University*; **Orben, RA**, *Department of Fisheries and Wildlife, Marine Mammal Institute, Oregon State University*; **Tolkova, I.**, *Applied Math and Computer Science Departments, University of Washington*; **Thompson, DR**, *National Institute of Water and Atmospheric Research Ltd.*

09:15 Challenges for conservation and management of coastal migratory species: Case studies from the Atlantic coast of North America
Ogburn, MB*, *Smithsonian Environmental Research Center*

09:30 Statistical methods for analyzing marine animal movement data
Mills Flemming, JE*, *Dalhousie University*; **Whoriskey, K**, *Dalhousie University*; **Auger-Methe, M**, *Dalhousie University*

09:45 Telemetry and fisheries management—the promise and the reality
Cooke, SJ*, *Carleton University*; **Nguyen, VM**, *Carleton University*; **Hinch, SG**, *UBC*; **Young, N**, *University of Ottawa*

10:00 Panel Discussion

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**SY48: SYMPOSIUM
CREATING ACTIONABLE SCIENCE: CONNECTING SCIENCE
AND PRACTICE THROUGH RESEARCHER-MANAGER
PARTNERSHIPS**

**SALON C ROOM
Sunday, July 31, 08:30–10:30**

ORGANIZER(S):

Angela Bednarek, *The Pew Charitable Trusts*; **Jennifer O’Leary**,
California Polytechnic University

This symposium will address practical options for making science more actionable for marine resource management. A promising solution is to directly connect those producing scientific tools and information with those who might use them. While this approach is gaining recognition, there is uncertainty about how best to structure these partnerships, as well as how to measure their impacts. This session will provide examples of researcher-resource manager partnerships followed by a discussion of best practices.

Presenters will describe a diverse set of case studies of partnerships intended to produce actionable science. Each presenter will describe the context that led to their partnership and lessons learned. Finally, we will moderate a discussion among the participants about other experiences in creating actionable science through researcher and manager partnerships. We hope by promoting a high level of interaction among participants, we can help contribute to a practical roadmap for making science matter for marine conservation efforts.

We will follow the symposium with a focus group that will delve into one of the emerging facets of research and user partnerships—citizen science. “One Fish, Two Fish: Building a Fishery Citizen Science Program in the U.S. South Atlantic to Improve Policy and Marine Ecosystem Health” will be held after the symposium. U.S. South Atlantic region is poised to benefit from feedback about their proposed “Fishery Citizen Science Program”.

08:30 Turning models into action: The ocean modeling forum
Francis, TB*, *University of Washington Tacoma*; **Levin, PS**,
NOAA Northwest Fisheries Science Center; **Punt, AE**, *University
of Washington*

**08:45 Transforming management of marine protected areas
in Kenya and Tanzania using an adaptive management
approach**
O’Leary, Jennifer*, *CA Sea Grant & California Polytechnic
State University*; **Tuda, Arthur**, *Kenya Wildlife Service,
University of Cadiz*

**09:00 One fish, two fish: Building a citizen science program to
improve fishery management**
Vonharten*, *South Atlantic Fishery Management Council*; **Leda
Dunmire**, *The Pew Charitable Trusts*

**09:15 Dynamic fisheries models and human livelihood:
mechanism to operationalize ecosystem-based fishery
management**
Cameron-Harp, MV*, *Arizona State University*; **Gerber, LR**,
Arizona State University

**09:30 Putting bite into international trade restrictions on sharks
and rays**

09:45 Panel Discussion
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**SY84: SYMPOSIUM
CITIZEN SCIENCE FOR COASTAL AND MARINE
CONSERVATION: CRITICAL REVIEW AND LESSONS LEARNED
ACROSS DIFFERENT PRACTICES, ECOSYSTEMS, AND
PERSPECTIVES**

**SALON D ROOM
Sunday, July 31, 08:30–10:30**

ORGANIZER(S):

John A. Cigliano, *Cedar Crest College*; **Heidi L. Ballard**, *University of
California, Davis*

Despite the fact that the use of citizen science in marine and coastal contexts is under-represented compared to its use in terrestrial and freshwater research and monitoring, there has been a rapid expansion of the use of citizen science for marine and coastal conservation. However, not all of these citizen science projects are appropriate, effective, efficient, or ethical. The newness and rapid expansion of the citizen science in marine and coast contexts has created a demand for the discussion of key issues and the development of best practices. The aim of this symposium is to demonstrate and analyze the utility and feasibility of doing marine and coastal citizen science for conservation, and by providing critical considerations (i.e., which questions and systems are best suited for citizen science) and recommendations for best practices for successful projects. We will accomplish this through presentations from natural and social scientists experienced with using citizen science to advance marine and coastal conservation. Presentations will include the use of citizen science for MPA monitoring, seabird and coastal conservation, climate change, and coral reef conservation, and on communication and trust building to the broader public. We will provide a synthesis of lessons across the cases, and then facilitate a discussion around the key challenges and strategies from presenters and audience members.

**08:30 An overview of citizen science for marine and coastal
conservation**
Cigliano, John A.*, *Cedar Crest College*; **Ballard, Heidi L.**,
University of California, Davis

08:45 Climate change and coastal systems
Cousins, JA*, *Earthwatch Institute*; **Huxham, M**, *Edinburgh
Napier University*; **Debbie, W**, *Earthwatch Institute*

**09:00 Citizen science informing ocean resource management in
California**
Meyer, Ryan M*, *California Ocean Science Trust*; **Sievanen,
Leila**, *California Ocean Science Trust*; **Meyer, Erin**, *California
Ocean Science Trust*

**09:15 Citizen science, coastal systems and Cassin’s Auklets:
Detecting the impacts of climate warming**
J.K. Parrish*, *COASST, UW*; **T. Jones**, *COASST, UW*; **N.
Bond**, *JISAO, UW*; **P. MacCready**, *Oceanography, UW*;
M. Hipfner, *Environment Canada*; **W. Peterson**, *NOAA-
Fisheries*; **K. Lindquist**, *BeachWatch, GFMNS*; **J. Lindsey**,
BeachCOMBERS, MBNMS

**09:30 Building citizen scientist trust in marine citizen science
projects using communication**
Hind, E*, *Manchester Metropolitan University*; **Ward-Paige, C**,
eOceans.org; **Pecl, G**, *University of Tasmania*





09:45 Patterns, lessons and strategies from across cases for marine and coastal citizen science for conservation
Ballard, HL*, *University of California, Davis*; **Cigliano, JA**, *Cedar Crest College*

10:00 Panel Discussion

SY97: SYMPOSIUM
CONSERVATION OF VULNERABLE MARINE ECOSYSTEMS: REGIONAL COMPARISON OF FISHERIES IMPACTS AND CONSERVATION SUCCESSES

SALON F ROOM
 Sunday, July 31, 08:30–10:30

ORGANIZER(S):

Evan Edinger, *Memorial University, St. John's, Canada*; **Pal Buhl-Mortensen**, *Institute of Marine Research, Bergen, Norway*; **Vonda Wareham**, *Fisheries and Oceans Canada*; **Susanna Fuller**, *Ecology Action Centre*

Conservation of Vulnerable Marine Ecosystems (VME's) vary widely among regions in their composition, fisheries impacts, and conservation actions. Cold-water corals were the poster-child of deep-water VME conservation, particularly in response to the expansion of deep-sea fisheries starting in the 1990's. Conservation focus The species of concern for VME's of cold-water coral conservation have expanded from the longest-lived reef-building scleractinians like *Lophelia pertusa* to a wide set of gorgonians, sea pens, soft corals and black corals. VME conservation efforts now include a range of sponges, erect bryozoans, seamount fauna, and hydrothermal vents. Conservation efforts for VME's have mostly focused on fisheries closures and gear restrictions. This session will compare the effects of fisheries on Vulnerable Marine Ecosystems among regions around the world, and will compare progress on conserving VME's among those regions. Particular emphasis will be placed on Arctic and Antarctic regions where decreasing summer sea ice extent is enabling expansion of fishing into previously inaccessible habitats. The session will seek to understand the common major impediments to further progress in conserving VME's, and to identify successful strategies for overcoming these obstacles.

08:30 Fisheries impacts on vulnerable marine ecosystems in Atlantic Canada and the eastern Canadian Arctic.
Edinger, EN*, *Memorial University*; **Wareham, VE**, *Fisheries and Oceans Canada*; **Buhl-Mortensen, P**, *Institute of Marine Research, Bergen, Norway*; **Gilkinson, KD**, *Fisheries and Oceans Canada*; **Neves, BdM**, *Memorial University*; **Fuller, SD**, *Ecology Action Centre, Nova Scotia*; **Miles, LL**, *Memorial University*; **Koen-Alonso, M**, *Fisheries and Oceans Canada*

08:45 Analysis of the overlap between fishing effort and significant benthic areas in Canada's Atlantic and eastern Arctic marine waters
Mariano Koen-Alonso*, *Fisheries and Oceans Canada (DFO)*; **Corinna Favaro**, *Fisheries and Oceans Canada (DFO)*; **Neil Ollerhead**, *Fisheries and Oceans Canada (DFO)*; **Hugues Benoit**, *Fisheries and Oceans Canada (DFO)*; **Hugo Bourdages**, *Fisheries and Oceans Canada (DFO)*; **Bernard Saint-Marie**, *Fisheries and Oceans Canada (DFO)*; **Margaret Treble**, *Fisheries and Oceans Canada (DFO)*; **Kevin J. Hedges**, *Fisheries and Oceans Canada (DFO)*; **Kennington E**; **Lirette C**; **King M**; **Coffen-Smout S**; **Murillo-Perez, J**; *Fisheries and Oceans Canada (DFO)*

09:00 Protecting glass sponges, *Vazella Pourtalesi*, on the Scotian Shelf: Science, policy and communication
Fenton, D, *Department of Fisheries and Oceans*; **Fuller, SD**, *Ecology Action Centre*; **Quigley, S***, *Department of Fisheries and Oceans*

09:15 Using fisheries observer data for vulnerable marine ecosystem conservation in Atlantic Canada
Wareham, VE*, *DFO*; **Edinger, EN**, *MUN*; **Baker, KD**, *Environment Canada*; **Fuller, SD**, *Ecological Action Centre*; **Gilkinson, KD**, *DFO*

09:30 Panel Discussion



COFFEE BREAK
 10:30–11:00

Late Morning session — 11:00 A.M. to 1:00 P.M.

C19: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 2

SALON E ROOM
 Sunday, July 31, 11:00–13:00

11:00 Spatio-temporal interaction between marine megafauna aggregation and fisheries in Solor waters, Indonesia: Implication for management and conservation
Putra, MIH*, *Reef Check Foundation Indonesia, Denpasar, Bali, Indonesia*; **Lewis, SA**, *The Manta Trust, Dorchester, Dorset, United Kingdom*

11:15 Tackling and communicating wicked problems in marine conservation using emulators of complex biological models
Neubauer, Philipp*, *Dragonfly Data Science*; **Richard, Yvan**, *Dragonfly Data Science*; **Abraham, Edward**, *Dragonfly Data Science*

11:30 Assessing sea turtle bycatch in the Ecuadorian small-scale gillnet fishery and trialing net illumination as a mitigation measure
Darquea, J*, *Institute of Oceanography, Ecuador Mundo Ecologico*; **Medina, R**, *Ecuador Mundo Ecologico*; **Alfaro-Sigueto, J**, *Prodelphinus*; **Mangel, J**, *Prodelphinus*

11:45 Adapting the fish forever global monitoring and evaluation methodology to the Brazil small-scale fisheries landscape
Carvalho, FM*, *Rare*; **Marone, E**, *Rare*; **Quintanilla, C**, *Rare*

12:00 Governance approaches linking sustainable fisheries and biodiversity conservation
Charles, Anthony*, *Saint Mary's University*; **Garcia, Serge**, *Fisheries Expert Group, IUCN Commission on Ecosystem Management*; **Rice, Jake**, *Department of Fisheries and Oceans Canada*

12:15 Quantifying fishers' catch rates: exploring recall bias in reporting time slices
Lindsay Aylesworth, *Institute of Oceans and Fisheries, the University of British Columbia*; **Ting-Chun Kuo***, *Institute of Oceans and Fisheries, the University of British Columbia*

12:30 The oceans atlas of human use: A geospatial support tool for integrated oceans and coastal management
Abbott, Melissa*, *Fisheries and Oceans Canada*; **Gullage, Mardi**, *Fisheries and Oceans Canada*

12:45 Q&A Session

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FG25: FOCUS GROUP
NEW HOPE FOR THE OCEAN: THE CONTRIBUTION OF RELIGIOUS-BASED ACTION TO MARINE CONSERVATION

SALON D ROOM
Sunday, July 31, 11:00–13:00

ORGANIZER(S):

Johns, David, *Portland State Uni; R&CBWG SCB; Marine Conservation Institute*; **McCarthy, Julie-Beth**, *Fisheries and Oceans Canada*; **Schaefer, Jame**, *Marquette University*; **Lorbiecki, Marybeth**, *Interfaith Oceans*

Science alone cannot protect and restore the oceans. It can only identify what steps must be taken. Others, working with scientists, must create stronger support for those steps, as Buddhists did to help ban Thai ivory trafficking. This example of cooperation among faith groups, science and secular NGOs shows potential. All religions include ethical systems that are increasingly concerned with biodiversity loss. Many have issued specific statements or initiated campaigns for the environment. Billions are adherents of these faiths. Most faith and conservation partnerships have focused on land issues, notwithstanding recognition of negative human impact on the oceans. Greater cooperation with faith groups has enormous potential for redressing the damage done to the oceans and preventing future damage. This focus group will examine from a variety of perspectives how religiously motivated institutions and communities can benefit marine conservation. Cases where religious institutions and communities have led or played a role in marine conservation will be analyzed; partnerships between religiously motivated and secular groups will be examined for factors which help or hinder success; and questions for research and interim guidelines for creating effective partnerships and joint advocacy will be identified. The session contributes to the IMCC's theme by exploring how science-based goals can be linked with a variety of world views. Questions 47, 50, 64 and 66 are addressed.

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FG43: FOCUS GROUP
INCREASING THE UTILITY OF PREDICTIVE MODELS: UNDERSTANDING MODEL TRANSFERABILITY

SALON G ROOM
Sunday, July 31, 11:00–13:00

ORGANIZER(S):

Dr. Katherine Yates, *Salford University*; **Dr. Ana Martins Sequeira**, *University of Western Australia*; **Dr. Julian Caley**, *Australian Institute of Marine Science*; **Phil Bouchet**, *University of Western Australia*; **Prof. Kerrie Mengersen**, *Queensland University of Technology*; **Ben Fitzpatrick**, *Queensland University of Technology*

Large areas of the oceans are poorly sampled and are likely to remain so for the foreseeable future. However, planning conservation and management actions requires an understanding of the spatial distribution of features of interest. Thus, it is often desirable to make predictions for areas in which data is lacking. In these cases transferable models would be of substantial value; that is if a model developed for a particular location could be used to make useful predictions at other locations. Little research has focused on model transferability in the marine environment and the features that may enhance or detract from model transferability are still not well understood. Following on from the symposium of the same title, this focus group will explore model transferability. Organised around a series of key questions, this session will be divided into a mix of small group discussions and open debates. Participants will be offered the opportunity to contribute to a written output from the focus group. Light refreshments will be provided.

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FG46: FOCUS GROUP
BUILDING A FISHERY CITIZEN SCIENCE PROGRAM IN THE U.S. SOUTH ATLANTIC TO IMPROVE MANAGEMENT AND POLICY

SALON C ROOM
Sunday, July 31, 11:00–13:00

ORGANIZER(S):

Dunmire, L, *The Pew Charitable Trusts*; **Duval, M**, *North Carolina Department of Environmental Quality-Division of Marine Fisheries*; **Bonney, R**, *Cornell Lab of Ornithology, Cornell University*; **Hartig, B**, *Commercial Fisherman, Florida*; **Vonharten, A**, *South Atlantic Fishery Management Council*

The U.S. South Atlantic Fishery Management Council has grappled for years with the challenge of providing timely and robust science to support decision making despite limited resources, over 70 species to manage, and a complex and diverse ecosystem. These data shortcomings and the resulting scientific uncertainties complicate management and often lead to offers from fishermen to provide their vessels as research platforms, collect samples, and record their own observations to help "fill the gaps".

Recognizing constituents' desire to get involved, the necessity of good program design, and the benefits of decreasing uncertainty, the Council is now developing a comprehensive fishery citizen science program. It will host a January 2016 workshop in collaboration with citizen science practitioners from the Citizen Science Association with 75 invited members of the science, fishing, and management communities.





This focus group will share lessons learned from the process and seek input from marine science, conservation, and management professionals to inform a white paper written by the organizers on how to build a fishery citizen science program that enhances existing data collection, research, and monitoring efforts. The material presented during this session will provide examples of how researchers, resource managers, and users can partner to create actionable science. The resulting white paper will be presented to the Council and made publicly available.

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**SY23: SYMPOSIUM
USING MARKETING TO TACKLE THE CHALLENGE OF
BEHAVIOUR CHANGE**

SALON A ROOM
Sunday, July 31, 11:00–13:00

ORGANIZER(S):

Diogo Verissimo, *Rare/Georgia State University*; **Andrew Wright**, *George Mason University*; **A. Mel Cosentino**, *Wild Earth Foundation*; **Emma McKinley**, *University of Chichester*; **Kevin Green**, *Rare*; **Kathleen Piffold**, *Independent Consultant*

All major threats to the marine environment are driven by human behavior. The SCB Marine Section list of critical research questions to the advancement of marine conservation recognizes this by including several questions on the ability of conservation practitioners to drive sustainable behaviors. Recently there has been increasing interest in research on influencing human behavior. However, many fundamental challenges remain, especially with regard to the way these efforts are implemented. Many of these challenges have long been faced by marketing professionals, making this field a rich resource for those seeking to conserve marine environments. This Symposium aims to connect scientists with marketing professionals to convey their experiences with tackling some of the key challenges around behavior change. It will also showcase how marketing principles and concepts can improve conservation outreach efforts. It will bring together a diverse set of speakers from academia and the non-profit and business sectors, it will also bring in marketing professionals from outside the environmental field. We hope this will help conservation practitioners build on the lessons learned in other fields, such as public health, where the use of marketing concepts has been much more widespread. Marine scientists will be exposed to a wealth of experiences and knowledge from the marketing field that will help understand and leverage behavior change to address issues in the marine realm.

11:00 Entertainment-Education radio drama promotes sustainable fisheries in Belize

Sean Southey*, *PCI Media Impact, CEO*; **Ralna Lewis**, *WCS, Assistant Country Director Belize*

11:15 Using behavioral determinants to reduce nitrogen pollution: How Tampa Bay residents chose fun instead of fertilizer

Isaac, Sara*, *SalterMitchell/Marketing for Change*

11:30 Defining and testing your marketing messages
Norman, Kathleen*

11:45 An evolving approach to behavior change for conservation: From theory to practice and back again
Sadowsky, Brooke*, *Rare*; **Green KM**, *Rare*; **Brezner, T**, *Rare*; **Jabs, A**, *Rare*

12:00 Does it work for biodiversity? Experiences and challenges in the evaluation of social marketing campaigns

Verissimo, Diogo*, *Rare/Georgia State University*

12:15 How social marketing has improved public health practice: lessons for conservation

Lefebvre, RC*, *socialShift*

12:30 Q&A Session

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**SY28: SYMPOSIUM
PUTTING TIPPING POINTS SCIENCE INTO PRACTICE IN
SOCIAL-ECOLOGICAL SYSTEMS: STORIES OF SUCCESS,
STUMBLING BLOCKS, AND HOPE**

SALON B ROOM
Sunday, July 31, 11:00–13:00

ORGANIZER(S):

Carrie Kappel, *National Center for Ecological Analysis and Synthesis (NCEAS)*

In marine social-ecological systems, one plus one does not always equal two. Awareness is growing among marine scientists and managers that small changes in stressors can lead to disproportionately large changes, or tipping points, in marine ecosystems and the human communities they support. We have seen small changes oceanic pressures lead to fishery collapse with sizable impacts on local communities. Once healthy coral reefs are now overtaken by algae. These observations are not new. Many scientists have studied the complex dynamics of marine ecosystems. However, the uptake of past science to foster positive change on the water has been slow. We are working to change that. Engaging at the interface of marine science, communication, and management, a growing group of researchers has taken up the charge of bringing science to bear on the management of ecosystems prone to tipping points. This session will highlight stories from the field and desk as scientists and managers work together to make tipping points science matter on the water. Each story will feature a particular challenge in incorporating this science into management, from the realms of ecology, governance, economics, and cultural values, and the progress being made to overcome these stumbling blocks. We will highlight how innovative tools and partnerships are helping to translate complex science into tangible and effective decision tools to help managers anticipate, avoid, or recover from tipping points.

11:00 No smoking gun? The potential roles of people, place, and environment in the loss of a portfolio effect

Stier, AC*, *University of Washington*; **Shelton, AO**, *Conservation Biology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic & Atmospheric Administration, Seattle, WA*; **Samhuri, JF**, *Conservation Biology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic & Atmospheric Administration, Seattle, WA*; **Feist, BE**, *Conservation Biology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic & Atmospheric Administration, Seattle, WA*; **Levin, PS**, *Conservation Biology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic & Atmospheric Administration, Seattle, WA*

11:15 Implications of spatial and temporal tipping points in herring populations on cultural practices and identity in Haida Gwaii, British Columbia

*Poe, Melissa R.**, University of Washington, Washington Sea Grant; *McNeill, Daniel*, Gwaii Haanas Parks Canada; *Levin, Phillip S.*, NOAA Northwest Fisheries Science Center

11:30 Incorporating tipping points science into decision-making takes relationships and time

*Thorpe, Hilary**, Gwaii Haanas, Parks Canada; *Rigg, Catherine*, Haida Oceans Technical Team; *Jones, Russ*, Haida Oceans Technical Team; *Gladstone, Ernie*, Archipelago Management Board, Parks Canada; *Boyko, Cindy*, Archipelago Management Board, Council of the Haida Nation

11:45 Integrating the concept of tipping points into US Federal fisheries management

*Levin, Phillip**, NOAA Fisheries

12:00 Tipping points and ecosystem-based management in Hawaii

*Donovan, MK**, University of Hawaii at Mānoa; *Selkoe, KA*, National Center for Ecological Analysis and Synthesis, UC Santa Barbara; *Kappel, CV*, National Center for Ecological Analysis and Synthesis, UC Santa Barbara; *Kittinger, JN*, Conservation International Hawaii; *Oleson, KL*, University of Hawaii at Mānoa; *White, C*, California Polytechnic State University; *Friedlander, AM*, University of Hawaii at Mānoa, National Geographic Society

12:15 Improving the catchability of snow crab—A study investigating their behavior in response to artificial lights

*Nguyen, K.Q**, Marine Institute; *Winger, P.D*, Marine Institute; *Morris, C*, Fisheries and Ocean Canada

12:30 Highlighting and expanding opportunities for application of tipping points science within existing US law and policy

*Erickson, AL**, Center for Ocean Solutions, Stanford University; *Kelly, RP*, School of Marine and Environmental Affairs, College of the Environment, University of Washington; *Mease, LA*, Center for Ocean Solutions, Stanford University

12:45 Q&A Session

SY33: SYMPOSIUM

CONSERVATION AND STEWARDSHIP IN SMALL-SCALE FISHERIES: PRACTICES AND LESSONS FROM AROUND THE WORLD

SALON F ROOM
Sunday, July 31, 11:00–13:00

ORGANIZER(S):

Whitty, TS, Scripps Institution of Oceanography; *Chuenpagdee, R*, Memorial University of Newfoundland, St. John's

The importance of small-scale fisheries to food security, livelihoods, and well-being of millions of people globally is highly recognized. However, their interactions, both positive and negative, with ecosystems and the resulting implications for conservation are not thoroughly understood. Research generally focuses on the negative impacts of these fisheries on ecosystems, rather than on the positive roles these fisheries could play in conservation and stewardship. Ecological impacts of small-scale fishing, while not always thoroughly researched, are considered to be high. This presumption frequently

leads to decisions about conservation that not only affect the viability of small-scale fishing communities, but also impede their participation as stewards of resources and marine ecosystem. This session calls for (1) studies that illustrate impacts of small-scale fishing in ecosystems, and (2) examples of how small-scale fisheries contribute to improving resource sustainability and ocean health, as well as lessons about stewardship practices that they engage in. Ultimately, the session aims to broaden the discourse about the role of small-scale fisheries in marine conservation, based on empirical evidence, and to engage in discussion about marine resource governance that enables contribution of small-scale fisheries in conservation and stewardship as a means to address global concerns in marine ecosystems.

11:00 So what if closures are temporary and voluntary? A case of snow crab fisheries in Newfoundland

*Olson, Kim**, Memorial University, NL; *Chuenpagdee, Ratana*, Memorial University, NL

11:15 Reconstructing stewardship: Local conservation practices and principles in Alaska's small-scale fisheries

*Rachel Donkersloot**, Alaska Marine Conservation Council; *Courtney Carothers*, School of Fisheries and Ocean Sciences

11:30 Autonomous actions to restore damaged corals by Onna Village Fishery Cooperative producing significant impacts on coastal social ecological systems

*Tetsu Sato**, Research Institute for Humanity and Nature; *Shigeru Yanaka*, Tottori University

11:45 An interdisciplinary approach to study long-term coastal exploitation at Holbox Island in the North coast of Quintana Roo, Mexico

*Rubio-Cisneros, N**, Centro de Investigación y de Estudios Avanzados (CINVESTAV), Unidad Mérida; *Herrera-Silveira, J*, Centro de Investigación y de Estudios Avanzados (CINVESTAV), Unidad Mérida; *Moreno-Baez, M*, Independent Researcher; *Saenz-Arroyo, A*, El Colegio de la Frontera Sur (ECOSUR), San Cristobal, Chiapas; *Rissolo, D*, University of California, San Diego; *Glover, J*, Department of Anthropology, Georgia State University; *Gotz, C*, Facultad de Ciencias Antropológicas, Universidad Autónoma de Yucatán; *Morales-Ojeda, S*, Centro de Investigación y de Estudios Avanzados (CINVESTAV), Unidad Mérida

12:00 Social networks and transitions to co-management in Jamaican marine reserves and small-scale fisheries

*Alexander, SM**, National Socio-Environmental Synthesis Center Stockholm Resilience Centre; *Armitage, D*, University of Waterloo; *Charles, A*, St. Mary's University

12:15 Small scale fisheries stewardship meet big planning: towards a participatory spatial management in Brazil

*Vila-Nova, DA**, Projeto Babitonga Ativa; *Herbst, D*, Universidade Federal de Santa Catarina; *Gerhardinger, LC*, Universidade da Região de Joinville; *de Carvalho, FG*, Universidade da Região de Joinville

12:30 Small-scale fisheries stewardship in a changing world: lessons from behavioral economics

*Finkbeiner, E**, Stanford University; *Micheli, F*, Stanford University; *Cardenas, JC*, Universidad de los Andes; *Vasquez, L*, Comunidad y Biodiversidad; *Perafan, CA*, EcoSur; *Saenz, A*, EcoSur

12:45 Panel Discussion



**SY6: SYMPOSIUM
HUMAN DIMENSIONS OF CONSERVATION IN THE
CARIBBEAN: LESSONS FOR MARINE AND COASTAL WORK
IN SMALL ISLAND STATES AND OTHER UNDERSERVED
REGIONS**

**PLACENTIA BAY ROOM
Sunday, July 31, 11:00–13:00**

ORGANIZER(S):

Samantha Oester, *George Mason University*; **Christine Gleason**, *George Mason University*; **Chris Parsons**, *George Mason University*; **Edward Hind**, *Manchester Metropolitan University*

Human dimensions of conservation in the Caribbean: Lessons for marine and coastal work in small island states and other under-served regions. Small island states are relatively remote, vulnerable to environmental fluctuations, and generally small in size. Despite varying histories of economic realities of small island states of the Caribbean, they face many similar challenges. Several small island states of the Caribbean suffer from vast marine and coastal issues, as well as widespread poverty. The socio-economic aspects of marine and coastal conservation are as salient as natural science. Combined with vulnerable tropical island ecosystems, Caribbean nations face numerous environmental threats from human activities that negatively impact people. In this symposium, foreign researchers working in small island states of the Caribbean, as well as researchers and stakeholders from these nations, will present the human dimensions of marine and coastal conservation. These dimensions include poverty and socio-economics, education, sustainable development and harvesting, research and monitoring, community-based environmental

management, climate change mitigation, human-wildlife conflict, and marine reserves. The need for increased research collaboration within and between countries will be emphasized. Hard-fought lessons with global applicability will be discussed.

- 11:00 Introduction given by Edd Hind, Manchester Metropolitan University**
- 11:15 Coastal conservation in a small island developing state: The case of Haiti**
Oester, SR*, *George Mason University*
- 11:30 Grassroots and governments: Bringing Haiti’s seas back to life.**
Jean Wiener*, *FoProBiM*
- 11:45 How to manage a management system: lessons learned from whale conservation in the Dominican Republic**
Christine M. Gleason*, *Environmental Science and Policy Department, George Mason University, Fairfax, Va. USA*
- 12:00 Inspiring marine citizenship in small island developing states**
Nikita Shiel-Rolle*, *Young Marine Explorers*
- 12:15 Diving dangerously: Exploring human wellbeing and resource trade-off of extreme dive profiles in a Caribbean dive fishery.**
Winkler, N*, *Marine Affairs Program, Dalhousie University*
- 12:30 Panel Discussion and Q&A**

Lunch Activities — 1:00 P.M. to 3:00 P.M.

**WS37: WORKSHOP
APPROACHES TO CONSERVE FAR-RANGING SPECIES IN A
CHANGING ENVIRONMENT**

**SALON B ROOM
Sunday, July 31, 13:15–14:45**

ORGANIZER(S):

Aliki Panagopoulou, *The Leatherback Trust, Monterey Bay, California*; **Mariana M.P.B. Fuentes**, *Earth, Ocean and Atmospheric Science, Florida State University, Tallahassee, FL 32306, United States*; **Sara M. Maxwell**, *Old Dominion University, Norfolk, VA*

Anthropogenic pressures have led to the decline of many large marine vertebrate populations, which after thriving in the world’s oceans for millions of years, face a number of challenges to survive in the 21st century. Exploitation of the world’s oceans, which provide key foraging, breeding and developmental habitats and migratory corridors is now thought to be at record levels and ocean pollution (including plastic, oil and endocrine disrupting chemicals) appears to be increasing at a vast rate. Rapid human population growth and increases in the demand for seafood has led to overfishing with concurrent increases in the bycatch of non-target species. Further, predicted climate change is expected to impact populations of large marine vertebrates, affecting distribution, behavior, reproduction and demographics. Large marine vertebrate species such as cetaceans and sea turtles, which exhibit long-range migrations and are dependent on diverse marine habitats, are thought to be particularly vulnerable to

these threats. In order to successfully protect these species, managers must use an array of scientific approaches to address challenges and apply the acquired knowledge to design holistic, flexible and dynamic conservation approaches and strategies. The aim of this symposium is to showcase how novel approaches in marine science and interdisciplinary research can be applied to enhance the conservation of far-ranging marine species in this changing environment.

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**WS15: WORKSHOP
USING A PENCILFISH TO WRITE WHALES:
COMMUNICATING CONSERVATION AND SCIENCE
THROUGH POETRY AND SHORT FICTION**

**SALON C ROOM
Sunday, July 31, 13:15–14:45**

ORGANIZER(S):

Samantha Oester, *George Mason University*; **Stephanie Januchowski-Hartley**, *Laboratoire Evolution et Diversité Biologique, Université Paul Sabatier, Toulouse, France*; **Anna Zivian**, *Ocean Conservancy*; **Natalie Sopinka**, *Great Lakes Institute for Environmental Research*

Engaging, compelling communication about science and conservation requires diverse techniques and platforms, including academic, digital, and more traditional art forms like poetry and fiction. There is growing interest in expanding and integrating different communication

methods to broaden the reach of science and conservation. Exploring the range of techniques and platforms we use to communicate science and conservation can help us synthesize and convey complex information; promote new ways of looking at issues; touch people's emotions; and create a celebratory atmosphere (sensu Curtis et al. 2012). Our workshop thus has three main goals: (1) to introduce participants to different techniques and platforms for communicating science and conservation through poetry and short fiction; (2) to teach terminology and highlight techniques for enhancing creative writing about science and conservation; and (3) to demonstrate how participants can use creative writing to communicate their own or others' research, work, and studies. Poetry and short fiction in particular are ideal for imparting complex information: they evoke emotion, rhythmic wording is memorable, and messages have to be concise. Organizers will present their own experiences and different approaches to inspire writing, provide engaging exercises to help participants explore poetry and short fiction as a way to communicate, and offer participants an opportunity to workshop and present their own writing.

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CONSERVATION MARKETING WORKING GROUP MEMBERS MEETING

SALON A ROOM
Sunday, July 31, 13:15–14:45

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SEA STORIES: TALES FROM THE FIELD

LSPU HALL, 3 VICTORIA STREET, ST. JOHN'S
Sunday, July 31, 13:15–14:45

ORGANIZER(S):

Stephanie Green, Kirsten Grorud-Colvert, Heather Mannix

- Ticket price: FREE and Open to the Public
- Pre-registration is not available

Every scientist has a story to tell. Whether it's a day of adventure in the field or a shining moment of discovery, story can help make your science come alive. Come hear marine conservation scientists tell their stories and learn how elements of storytelling can help you effectively communicate your own research. This special event will feature a blend of oral storytelling and personal accounts from the scientists who participated in a pre-IMCC4 storytelling workshop. This event takes place on the main stage, LSPU Hall, St. John's Resource Center for the Arts. This event is open to the public, so the St. John's community can enjoy the performances of the scientist storytellers. Seats will be available on a first-come, first-served basis. Join us to hear inspiring tales of marine conservation science in action!

Delegates who wish to attend Sea Stories will need to walk the short distance from The Delta Conference Centre to LSPU Hall.

Event Sponsor: Canadian Science Publishing



Afternoon session — 3:00 P.M. to 5:00 P.M.

C1: CONTRIBUTED SESSION
CLIMATE, OCEAN ACIDIFICATION, AND THE CHANGING OCEANS 1

SALON A ROOM
Sunday, July 31, 15:00–17:00

15:00 Thinking and acting at a different scale: what actions can marine protected areas take to lessen impacts from climate change?
Brock, Robert J.*, NOAA National Marine Protected Areas Center

15:15 Deep water corals thriving under the high temperature and salinity regime of the Northern Red Sea
Qurban, MA*, King Fahd University of Petroleum & Minerals; **Krishnakumar, PK**, King Fahd University of Petroleum & Minerals; **Joydas, TV**, King Fahd University of Petroleum & Minerals; **Manikandan, KP**, King Fahd University of Petroleum & Minerals; **Ashraf, TTM**, King Fahd University of Petroleum & Minerals

15:45 The threat of tropical dead zones to coral reefs
Altieri, AH*, Smithsonian Tropical Research Institute; **Harrison, SB**, Smithsonian Tropical Research Institute; **Seemann, J**, Smithsonian Tropical Research Institute; **Collin, R**, Smithsonian Tropical Research Institute; **Diaz, RJ**, Virginia Institute of Marine Science; **Knowlton, N**, National Museum of Natural History, Smithsonian Institution

15:30 A test of global versus local disturbance as causes of coral reef decline in the western Arabian Gulf
Krishnakumar, P.K.*, King Fahd University of Petroleum & Minerals; **Qurban, M.A.**, King Fahd University of Petroleum & Minerals; **Lindo T.L.**, King Fahd University of Petroleum & Minerals; **Joydas, T.V.**, King Fahd University of Petroleum & Minerals; **Al-Abdulkader, K.**, Environmental Protection Department, Saudi Aramco; **Lyn, J.Y.**, King Fahd University of Petroleum & Minerals; **Raboui, L.**, King Fahd University of Petroleum & Minerals; **Roa-Ureta, R.**, King Fahd University of Petroleum & Minerals

16:00 Post-glacial climate velocity predicts diversity in Indo-Pacific reef-building corals
Sbrocco, EJ*, National Evolutionary Synthesis Center, Duke University

16:15 Responses of macrobenthic communities to hypersaline and high temperature conditions: An example from the Arabian Gulf
Joydas, TV*, King Fahd University of Petroleum and Minerals; **Qurban, MA**, King Fahd University of Petroleum and Minerals; **Krishnakumar, PK**, King Fahd University of Petroleum and Minerals; **Rabaoui, L**, King Fahd University of Petroleum and Minerals; **Manikandan, KP**, King Fahd University of Petroleum and Minerals; **Ashraf, TTM**, King Fahd University of Petroleum and Minerals; **Saji, AP**, King Fahd University of Petroleum and Minerals; **Lopez, M**, King Fahd University of Petroleum and Minerals



16:30 Bright spots in the resilience of marine ecosystems to climatic disturbances
O’Leary, Jennifer*, *CA Sea Grant & California Polytechnic State University*; **Micheli, Fiorenza**, *Stanford University’s Hopkins Marine Station*; **Airoldi, Laura**, *Università di Bologna*;
Boch, Charles, *Monterey Bay Aquarium Research Institute*;
De Leo, Giulio, *Stanford University’s Hopkins Marine Station*;
Elahi, Robin, *Stanford University’s Hopkins Marine Station*;
Ferretti, Francesco, *Stanford University’s Hopkins Marine Station*; **Graham, Nicholas**, *Lancaster University*; *Litvin, S.Y.*, *Stanford University*; **Low N.H.**, *Stanford University*; **Lummiss, S.**, *University of California Santa Cruz*; **Nickols, K.J.**, *California State University Monterey Bay*; **Wong, J.**, *Università di Bologna*

16:45 Q&A Session

**C5: CONTRIBUTED SESSION
 COMMUNICATING MARINE CONSERVATION**

**SALON C ROOM
 Sunday, July 31, 15:00–17:00**

15:00 Can boaters create a wave of change?
Brown, SM*, *Sailors for the Sea*

15:15 Using expert elicitation to estimate the impacts of plastic pollution on marine wildlife
Mallos, NJ*, *Ocean Conservancy*; **Wilcox, C**, *CSIRO*;
Leonard, GH, *Ocean Conservancy*; *Hardesty, BD*, *CSIRO*

15:30 Understanding what people know about ocean acidification: testing ocean acidification as a policy frame for reducing carbon emissions
Max Mossler*, *School of Marine and Environmental Affairs*;
Ann Bostrom, *Evans school of Public Policy and Governance*;
Ryan Kelly, *School of Marine and Environmental Affairs*

15:45 The ecosystem services approach as a tool to improve stakeholder engagement in marine management
Friedrich, LA*, *Centre for Marine and Coastal Policy, School of Marine Science and Engineering, Plymouth University*; **Glegg, G**, *Centre for Marine and Coastal Policy, School of Marine Science and Engineering, Plymouth University*; **Fletcher, S**, *UNEP World Conservation and Monitoring Centre, Cambridge and Centre for Marine and Coastal Policy Research, School of Marine Science and Engineering, Plymouth University*

16:00 The role of Mid-Atlantic Ocean Data Portal in supporting ocean planning
Lathrop, Richard G.*, *Rutgers University*; **Odell, Jay**, *The Nature Conservancy*; **MacDonald, Tony**, *Monmouth University*;
Bognar, John, *Rutgers University*; **Trimble, Jim**, *Rutgers University*; **Bruce, Chris**, *The Nature Conservancy*; **Crichton, Gwynn**, *The Nature Conservancy*; **Seminara, Drew**, *EcoTrust*

16:15 Q&A Session

**C9: CONTRIBUTED SESSION
 EFFECTIVE MARINE CONSERVATION PLANNING 2**

**PLACENTIA BAY ROOM
 Sunday, July 31, 15:00–17:00**

15:00 Connectivity and origin of green sea turtles in Ecuador and Galápagos: Redefining regional Management Units for conservation in the Southeast Pacific.
Valdés-Uribe, JA*, *Universidad San Francisco de Quito, Colegio de Ciencias Biológicas y Ambientales*; **Peña, M**, *Museo de Zoología, Escuela de Biología, Pontificia Universidad Católica del Ecuador*; **Muñoz, JP**, *Universidad San Francisco de Quito, Galápagos Science Center & Fundación Equilibrio Azul*; **Heidemeyer, M**, *Centro de Investigación en Biología Celular y Molecular CIBCM, Universidad de Costa Rica*; **Torres, O**, *Museo de Zoología, Escuela de Biología, Pontificia Universidad Católica del Ecuador*; **Chaves, J**, *Universidad San Francisco de Quito, Colegio de Ciencias Biológicas y Ambientales & Universidad San Francisco de Quito, Galápagos Science Center, Puerto Baquerizo Moreno*

15:15 Capacity development: should it be done for achieving MPA management effectiveness?
Widodo, H.H.W.*, *Diponegoro University and Coral Triangle Center*; **Suardana, N.**, *Coral Triangle Center*

15:30 Developing a rapid vulnerability assessment tool for marine protected areas in North America
Simms, J*, *Fisheries and Oceans Canada*; **Robidoux, L**, *Commission for Environmental Cooperation*; **Wenzel, L**, *National Oceanic and Atmospheric Administration*; **Vis, C**, *Parks Canada*

15:45 Variable indirect effects of sea otter recovery on adult rocky reef fish in British Columbia, Canada
Silberg, JN*, *Simon Fraser University*; **Salomon, AK**, *Simon Fraser University*

16:00 Spatio-temporal patterns of sediment distribution along near-shore coral reefs
Otaño-Cruz, Abimarie*, *University of Puerto Rico, Department of Environmental Science, Graduate Program*; **Montañez-Acuña, Alfredo**, *Department of Natural and Environmental Resources*; **Torres-Lopez, Valeria**, *University of Puerto Rico, Department of Social Sciences*; **Hernández-Delgado, Edwin**, *University of Puerto Rico, Center for Applied Tropical Ecology and Conservation*

16:15 Building capacity for participatory marine stewardship in Central America
Chelsea Combest-Friedman, *NOAA*; **Jose Luis Bonilla***, *Fauna & Flora International*

16:30 Q&A Session

C20: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 3

SALON E ROOM
Sunday, July 31, 15:00–17:00

15:00 Octopus stock assessment in southwestern Madagascar
Daniel Raberinary*, *Dorctor at Marine Biology Toliara*; MARA
Edouard Remanevy, *Professor at Marine Biology Toliara*

**15:15 Eco-labelling and conservation: How marine stewardship
council fisheries work to mitigate impacts on benthic
habitats**
Gorham, TM*, *Marine Stewardship Council*; Good, S, *Marine
Stewardship Council*; Lefebure, R, *Marine Stewardship Council*;
Longo, C, *Marine Stewardship Council*

**15:30 Reduced growth in wild juvenile sockeye salmon infected
with sea lice**
Godwin, S.G.*, *Simon Fraser University*; Dill, L.D., *Simon
Fraser University*; Krkosek, M., *University of Toronto*;
Reynolds, J.D., *Simon Fraser University*

**15:45 Fishing effort redistribution in response to area closures:
Predicted impact on endangered species bycatch in an
estuarine gill net fishery**
Hoos, LA*, *North Carolina State University*; Buckel, JA, *North
Carolina State University*; Boyd, JB, *North Carolina Division
of Marine Fisheries*; Loeffler, M, *North Carolina Division of
Marine Fisheries*; Lee, LM, *North Carolina Division of Marine
Fisheries*

**16:00 Human footprint, habitat refuges, and conservation
priorities for open ocean vertebrates**
Tom Bech Letessier*, *IOZ, ZSL*; David Mouillot, *Université
de Montpellier*; Jessica Meeuwig, *University of Western Australia*

**16:15 Linking MPA science to action: Baseline monitoring of the
social impacts of MPAs in eastern Indonesia**
Mohebalian, P.M.*, *World Wildlife Fund-US, Washington,
District of Columbia*; Estradivari, *World Wide Fund for Nature
-Indonesia, Jakarta*; Glew, L., *World Wildlife Fund-US,
Washington*

**16:30 Assessing exploitation of Nassau grouper spawning
aggregations and the impact of a closed season through
fisher interviews and landings data**
Calosso, MC*, *Department of Environment and Maritime
Affairs*; Claydon, JAB, *Department of Environment and
Maritime Affairs*

16:45 Q&A Session
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C30: CONTRIBUTED SESSION
MARINE POLICY 1

SALON F ROOM
Sunday, July 31, 15:00–17:00

**15:00 Space for conservation: Negotiating oceans governance in
Bermuda and the Sargasso Sea**
Acton, Leslie*, *Duke University*; Campbell, Lisa, *Duke
University*

**15:15 White sturgeon in jeopardy: Gauging the law and policy
currents**
Shane R. Belbin*, *Marine & Environmental Law Institute,
Schulich School of Law, Dalhousie University*; David L.
VanderZwaag, *Marine & Environmental Law Institute, Schulich
School of Law, Dalhousie University*

**15:30 The effects of sea otter (*Enhydra lutris*) recovery on food
web dynamics**
Pang, GH*, *School of Resource and Environmental Management,
Simon Fraser University*; Cooper, AB, *School of Resource and
Environmental Management, Simon Fraser University*; Salomon,
AK, *School of Resource and Environmental Management, Simon
Fraser University*

**15:45 Making science matter in policy and law: partnering legal
and policy research with current science to create better
coastal management**
Wyman, Julia*, *Marine Affairs Institute at Roger Williams
University School of Law/Rhode Island Sea Grant Legal Program*

**16:00 Getting legal traction for British Columbia's new science-
based marine spatial plans**
Nowlan, L*, *West Coast Environmental Law*

**16:15 Global assessment of the governance effectiveness of
large-scale MPAs**
Davies, T.E.*, *University of Victoria*; Ban, N.C., *University
of Victoria*; Aguilera, S.E, *University of Miami*; Brooks, C.,
Stanford University; Cox, M., *Dartmouth College*; Epstein,
G., *University of Waterloo*; Evans, L.S., *University of Exeter*;
Maxwell, S., *Old Dominion University*; Nenadovic, M., *Duke
University*

**16:30 Graying of the fleet in Alaska fisheries: Defining the prob-
lem, assessing solutions**
Rachel Donkersloot*, *Alaska Marine Conservation Council*;
Courtney Carothers, *School of Fisheries and Ocean Sciences*

16:45 Q&A Session
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C33: CONTRIBUTED SESSION
MARINE TOURISM

SALON G ROOM
Sunday, July 31, 15:00–17:00

**15:00 Seals, glaciers, and boats: Science-based management
and detection of population impacts amid multi-scale
environmental variability**
Jansen, JK*, *Marine Mammal Laboratory, AFSC, NOAA*;
Jensen, AS, *Protected Resources Division, Alaska Regional Office,
NMFS, NOAA*

**15:15 Assessment of vessel disturbance to foraging gray whales
(*Eschrichtius robustus*) along the Oregon Coast to inform
sustainable ecotourism**
Sullivan, Florence*, *Geospatial Ecology of Marine Megafauna
Lab, Department of Fisheries and Wildlife, Oregon State
University*; Torres, Leigh, *Geospatial Ecology of Marine
Megafauna Lab, Department of Fisheries and Wildlife, Oregon
State University*





- 15:30 **The role of shark dive based tourism in restoring fish diversity in protected coral reef communities**
McKeon, MG*, *Columbia University*; Drew, JA, *Columbia University*
- 18:00 **Dive tourism development to enhance transboundary conservation and ecological connectivity between Thailand and Myanmar**
Manopawitr, P*, *University of Victoria*; Dearden, P, *University of Victoria*; Plang-ngan, P, *Department of National Park, Wildlife and Plant Conservation*; Phongsuwan, N, *Department of Marine and Coastal Resources*
- 16:00 **The Blackfish Effect—Citations, hearings, permits, and bills in the face of changing public opinion on captive cetaceans**
Parsons, ECM, *George Mason University*; Rose, NA*, *Animal Welfare Institute*
- 16:15 **Human dimensions of whale shark provisioning in Oslob, Philippines**
Dearden, P*, *University of Victoria*; Ziegler, JA, *University of Victoria*; Silberg, JN, *Large Marine Vertebrates Research Institute Philippines*; Ponzo, A, *Large Marine Vertebrates Research Institute Philippines*
- 16:30 **Q&A Session**

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C38: CONTRIBUTED SESSION
STUDENT BEST TALK FINALISTS

SALON B ROOM
Sunday, July 31, 15:00–17:00

- 15:00 **Designing a network of MPAs in a transboundary context: Baja California as the fifth region of California's MPAs**
Dalmau, N.A.*, *IIO y Facultad de Ciencias Marinas, UABC*; Torres-Moye, G., *Facultad de Ciencias Marinas, UABC*; Seinger, G., *Facultad de Ciencias Marinas, UABC*; Montaña-Moctezuma, G., *IIO, UABC*
- 15:15 **Spatio-temporal patterns and ecological drivers of Harbor Porpoise (*Phocoena Phocoena*) off the central Oregon Coast prior to wave energy development**
Holdman, AK*, *Marine Mammal Institute, Department of Fisheries and Wildlife, Oregon State University, Newport, Oregon, USA*; Haxel, JH, *Cooperative Institute for Marine Resources Studies, Oregon State University, Newport, Oregon, USA*; Klinck, H, *Bioacoustics Research Program, Cornell Lab of Ornithology, Cornell University, Ithaca, NY, USA*; Torres, LG, *Marine Mammal Institute, Department of Fisheries and Wildlife, Oregon State University, Newport, Oregon, USA*
- 15:30 **Marine protected area network design features that support resilient human-ocean systems: Applications for British Columbia, Canada**
Burt, JM*, *Simon Fraser University*; Atkins, P, *University of Victoria*; Latham, E, *University of Victoria*; Beck, M, *University of Victoria*; Salomon, AK, *Simon Fraser University*; Ban, NC, *University of Victoria*
- 15:45 **Using larval dispersal models to answer questions about offshore marine protected area network connectivity**
Ross, RE*, *Plymouth University, UK*; Nimmo-Smith, WAM, *Plymouth University, UK*; Howell, KL, *Plymouth University, UK*

- 16:00 **Using underwater video to investigate the impact of invasive green crab (*Carcinus maenas*) on American lobster (*Homarus americanus*) catch efficiency.**
Zargarpour, N*, *Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute of Memorial University of Newfoundland.*; Best, K, *Centre for Fisheries Ecosystem Research, Fisheries and Marine Institute of Memorial University of Newfoundland.*; McKenzie, CH, *Northwest Atlantic Fisheries Centre, Fisheries and Oceans Canada*; Favaro, B, *Fisheries and Marine Institute of Memorial University of Newfoundland*
- 16:15 **Impacts of urbanization on the distribution, diet and health of the Cape clawless otter, South Africa.**
Nicola Okes*, *University of Cape Town*; Justin O'Riain, *University of Cape Town*
- 16:30 **A comparison of scientist and stakeholders perspectives on ocean research priorities**
Julia Mason*, *Stanford University*; Murray Rudd, *Emory University*
- 16:45 **Plastics on the menu: Microplastics are present in the feeding habitats of manta rays**
Germanov, ES*, *Murdoch University, Marine Megafauna Foundation*; Marshall, AD, *Marine Megafauna Foundation*; Hendrawan, IG AD, *Udayana University*; Loneragan, NR, *Murdoch University*

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FGD: IMCC DIVERSITY SERIES FOCUS GROUP
DIVERSITY IN CONSERVATION AND THE CREATION OF A MARINE DIVERSITY NETWORK

SALON D ROOM
Sunday, July 31, 15:00–17:00

ORGANIZER(S):
Luli Martinez, *University of California-Santa Cruz*; John Cigliano, *Cedar Crest College*; Nicola Smith, *Simon Fraser University*; Mel Cosentino, *Wild Earth Foundation*

In recent years, it has been recognized that diversity increases the effectiveness of research and innovation in the science realm. Diversity can be broadly defined as inclusion, no matter the country of origin, cultural roots, religion, gender, or special abilities. The more diverse the group of people, the better the science. The Marine Section of the Society for Conservation Biology and the International Marine Conservation Congress are keen to embrace diversity and favor the inclusion of people from all over the world to share ideas and to collaborate, with the ultimate aim to increase the impact of our science in the conservation of the oceans and their biodiversity. A fundamental aspect to maintain a diverse group of people focused in marine conservation is the creation of a network that facilitates the communication and collaboration among those involved. This focus group seeks a deep insight to this respect to find ways to develop the network and most importantly to keep it active and nourished with the contributions of the members. We aim to answer: What is the best strategy to build a Marine Diversity Network? Which tools can be used to keep it active?

Poster session — 7:30 P.M. to 9:00 P.M.

P: POSTER SESSION & RECEPTION

CONVENTION CENTER JR. BALLROOM
Sunday, July 31, 17:30–19:30

- P.1 Changing land-sea interaction: An example from the conservation of Kenyan coral reefs**
Mwachireya, SA*, Kenya Marine & Fisheries Research Institute
- P.2 Meeting Aichi Target 11: Equity considerations in marine protected areas design**
Hill, Lowine Stella*, Department of Bioresource Engineering, McGill University, Macdonald Campus, 21111 Lakeshore Road, Sainte-Anne-de-Bellevue QC H9X 3V9, Canada; Adamowski, Jan, Department of Bioresource Engineering, McGill University, Macdonald Campus, 21111 Lakeshore Road, Sainte-Anne-de-Bellevue QC H9X 3V9, Canada; Johnson, Jodi Ann, 2 United Nations Environment Programme Caribbean Environment Programme, 14-20 Port-Royal Street, Kingston, Jamaica
- P.3 Science outreach and education: Getting students excited about the oceans and science**
Goff, Patrick*, Beaumont Middle School
- P.4 Nematodes distribution and community structure in *Rhizophora mucronata* forest, Mida creek-Kenya**
Waweru B. W.*, Kenya Marine and Fisheries Research Institute; Agnes Muthumbi W., University of Nairobi; Okuku E.O., Kenya Marine and Fisheries Research Institute
- P.5 The study of global environmental change on fish sturgeon conservation in the coastal urban of Caspian Sea**
Haddadi Moghaddam, K*, PhD student, International Sturgeon Research Institute
- P.7 The evolution of spatial scale for oceans governance in the Newfoundland Labrador region**
Park, L.E.*, Fisheries and Oceans Canada; Noble, L, Fisheries and Oceans Canada
- P.8 Newfoundland and Labrador marine protected areas: An illustration in effective citizen participation in marine conservation**
Janes, Jennifer*, Fisheries and Oceans Canada; Thorne, Blair, Fisheries and Oceans Canada
- P.9 The cetaceans of Cameroon: A preliminary check-list**
Dr. Isidore Ayissi*, CERECOMA, Specialized Research Center for Marine Ecosystems, c/o Institute of Agricultural Research for Development, P.O. Box 219, Kribi, Cameroon; Dr. Gabriel Hoinsoudé Segniagbeto, 4 Département de Zoologie et de Biologie Animale, Faculté des Sciences, Université de Lomé, Togo; Dr. Koen Van Waerebeek, 5 Conservation and Research of West African Aquatic Mammals (COREWAM), c/o Department of Marine and Fisheries Science, University of Ghana, P.O. Box LG 99, Legon, Ghana
- P.10 Risk perception and management of the Sacramento-San Joaquin Delta Levee System**
Pam Rittelmeyer*, University of California Santa Cruz; Zdravka Tzankova, Vanderbilt University; Ellen Hines, San Francisco State University
- P.11 Feeding partitioning in an assemblage of demersal-neritic elasmobranchs in the Central Coast off Peru**
Silva-Garay, D.L*, Center for Conservation and Sustainability, Smithsonian Conservation Biology Institute, National Zoological Park, Washington, D.C., USA; Vélez-Zuazo, X., Center for Conservation and Sustainability, Smithsonian Conservation Biology Institute, National Zoological Park, Washington, D.C., USA; Ramírez, J.G., Instituto de Ciencias del Mar de Barcelona, CSIC-ICM; Pacheco, A.S., CENSOR Laboratory, Instituto de Ciencias Naturales Alexander von Humboldt, Universidad de Antofagasta, Antofagasta, Chile
- P.12 Social perspectives of small scale fishermen in Sri Lanka**
Mackay, M*, University of Tasmania; Wilson, M, University of Edinburgh; Hall, C, University of Stirling
- P.13 Feeding in deep-sea sponges: influence of abiotic and biotic factors**
Robertson, L.M.*, Department of Biology, Memorial University, St. John's NL, Canada; Hamel, JF, Society for Exploration and Valuing of the Environment (SEVE), Portugal Cove-St. Phillips, NL, Canada; Mercier, A., Department of Ocean Sciences, Memorial University, St. John's NL, Canada
- P.14 Physiological responses of *Carcinus maenas* acclimated to a tidal emersion cycle**
Nancollas, S.J*, Department of Ocean Sciences, Memorial University of Newfoundland, St. John's, NL, Canada; McGaw, I.J., Department of Ocean Sciences, Memorial University of Newfoundland, St. John's, NL, Canada
- P.15 #NYSeafood: Species diversity patterns as seen through the lenses of ethnicity and income across Manhattan**
Drew, JA*, Columbia University; McGimpsey, CN, Columbia University; Iyengar, N, Columbia University; Huang, C, Columbia University; Sardelis, S, Columbia University; Dooner, A, Columbia University; Hanson, J, Columbia University; Minich, T, Columbia University; Evans, CM; Flores, W; Kao, BH; Martinelli, MM; Pellicore, BS; Salazar Estrada, AE; Seigny, LM; Snyder, RA; Tam, V—Columbia University
- P.17 Socioeconomic impact of capture and sale of *Sylla serrata* in Metuge community**
Offman, S.*, CEPAM; Nhamuhuco, T., CEPAM; Cuamba, E., CEPAM
- P.18 Rebuilding Canada's fisheries for long-term prosperity: A case for transparency, policy action and science-based decision-making**
Robert Rangeley*, Oceana Canada; Stephanie Boudreau, Oceana Canada; Rachelle Young, Oceana Canada; Lesley Wilmot, Oceana Canada; Josh Laughren, Oceana Canada
- P.19 Determining the diet composition of the recovering US grey seal (*Halichoerus grypus*) population using a pup whisker stable isotope analysis**
Lerner, JE*, University of New England; Ono, K, University of New England



- P.20 Heavy metal contamination and its ecological impacts in some reefs of the western and eastern part of the Zanzibar Channel**
Ilomo, OO*, *University of Dar es Salaam*; **Muzuka, ANN**, *Nelson Mandela African Institute of Science and Technology*; **Machiwa, JF**, *University of Dar es Salaam*
- P.21 Structural uncertainty and data limited ecosystem-based management of the Georges Bank social-ecological system**
Wildermuth, RP*, *University of Massachusetts Dartmouth*; **Fay, G**, *University of Massachusetts Dartmouth*; **Gaichas, S**, *NFMS Northeast Fisheries Science Center*
- P.22 Describing the source and biochemical composition of detritus in Saco Bay, Maine, using stable isotopes and fatty acid biomarkers**
Both, AC*, *University of New England*; **Brady, DC**, *University of Maine*; **Byron, CJ**, *University of New England*; **Costa-Pierce, B**, *University of New England*; **Mayer, LM**, *University of Maine*; **Parrish, CC**, *Memorial University*
- P.23 Quantifying marine mammal spatial and temporal vocalization patterns in the Bering Sea to inform conservation management in a changing climate**
Sardelis, S*, *Columbia University*; **Antunes, R**, *Wildlife Conservation Society*; **West, L**, *Columbia University*; **Robards, M**, *Wildlife Conservation Society*; **Southall, B**, *Southall Environmental Associates, Inc.*; **Stafford, K**, *University of Washington*; **Rosenbaum, H**, *Wildlife Conservation Society*
- P.24 Implementation of the Galway Statement on Atlantic Ocean cooperation: Early success of contrasting national strategies**
Anderson, M.R.*, *Fisheries and Oceans Canada*; **Caetano, A.T.**, *European Commission*; **Davison, K.**, *Fisheries and Oceans Canada*; **Dickey-Collas, M.**, *International Council for Exploration of the Seas*; **Link, J.**, *National Oceanic and Atmospheric Administration*; **Schaefer, T.**, *National Oceanic and Atmospheric Administration*; **Snelgrove, P.**, *Memorial University of Newfoundland*
- P.25 The big four: solving the connectivity mystery of the UK's four largest marine protected areas**
Robinson, J*, *National Oceanography Centre, Southampton*; **Popova, EE**, *National Oceanography Centre, Southampton*; **Yool, A**, *National Oceanography Centre, Southampton*; **Srokosz, MA**, *National Oceanography Centre, Southampton*
- P.26 The trade of Mobulid rays in northern Peru**
Ayala, L.*, *Peruvian Association for the Conservation of Nature-APECO*; **Romero, M.**, *Ricardo Palma University*
- P.27 An assessment of the behavioral responses of echinoderms to the combined effects of hydrostatic pressure and ocean acidification**
Ammendolia, J*, *Department of Ocean Sciences, Memorial University, St. John's, NL, Canada*; **Hamel, JF**, *Society for Exploration and Valuing of the Environment, Portugal Cove-St. Philips, NL, Canada*; **Mercier, A**, *Department of Ocean Sciences, Memorial University, St. John's, NL, Canada*
- P.28 Comparing artisanal fishermen knowledge and other information sources about state of resources in Southeastern Pacific**
Ayala, L.*, *Laboratorio de Modelamiento de Sistemas Ecológicos Complejos. Programa de Doctorado en Ciencias Aplicadas con mención en Sietemas Marino Costeros. Universidad de Antofagasta-Chile*; **Ortiz, M.**, *Laboratorio de Modelamiento de Sistemas Ecológicos Complejos. Programa de Doctorado en Ciencias Aplicadas con mención en Sietemas Marino Costeros. Universidad de Antofagasta-Chile*
- P.29 Lionfish impact in St. Kitts, West Indies: what are they eating?**
Erika Brigante*, *researcher, RUSVM*; **Brian Magnier**, *researcher*; **Mark Freeman**, *researcher, adviser, professor, RUSVM*
- P.30 An innovative institutional decision-making framework for the preservation of ecosystems health and resilience**
Marco F. Falcetta, *PROGES Consulting*; **Fabio Attorre***, *Sapienza University of Rome*; **Edoardo Scepi**, *PROGES Consulting*; **Alessandra Vanzella-Khouri**, *UNEP CEP*; **Karen McDonald-Gayle**, *UNEP CEP*; **Mauro Ghirotti**, *Italian Agency for Development Cooperation*; **Alfredo Guillet**, *Sapienza University of Rome*; **Georgina Bustamante**, *Caribbean Marine Protected Area Management (CaMPAM) Network and Forum*
- P.31 Informing MPAs and gear modifications for a threatened Central West African sea turtle species using satellite tracking**
Dawson, T.M.*, *Old Dominion Univeristy*; **Witt, M.J.**, *University of Exeter*; **Formia, A.**, *Wildlife Conservation Society*; **Agamboue, P.D.**, *Wildlife Conservation Society*; **Asseko, G.M.**, *Agence Nationale des Peches et de l'Aquaculture*; **Boussamba, F.**, *Agence Nationale des Parcs Nationaux*; **Du Plessis, P.**, *Liambissi Foundation*; **Fay, J.M.**, *Wildlife Conservation Society*; **Kouerey, C.**, *Wildlife Conservation Society*; **Mabert, B.D.K.**, *Centre National de Donnees et de l'information Oceanographique (CNDIO)*; **Manfoumbi, J.C.**, *Ibonga APCE*; **Ndanga, I.**, *Wildlife Conservation Society*; **Nzegoue, J.**, *Wildlife Conservation Society*; **Sounguet, G.P.**, *Aventures Sans Frontieres Gabon*; **Maxwell, S.**, *Old Dominion University*
- P.32 An integrated approach to design a network of marine reserves in the Midriff Islands (Gulf of California) considering stakeholder preferences**
Maria del Mar Mancha-Cisneros*, *Ecology, Evolution and Environmental Science, School of Life Sciences, Arizona State University, Tempe, AZ, USA*; **Alvin N. Suárez-Castillo**, *Comunidad y Biodiversidad, A.C., Guaymas, Son, México*; **Jorge G. Álvarez-Romero**, *ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, QLD, Australia*; **Adrian Munguia-Vega**, *PANGAS Science Coordination, Comunidad y Biodiversidad A.C., Guaymas, Sonora, México*; **Maria Beger**, *ARC Centre of Excellence for Environmental Decisions, School of Biological Sciences, The University of Queensland, Brisbane, QLD, Australia*; **Maria Jose Espinosa-Romero**, *Comunidad y Biodiversidad, A.C., Guaymas, Son, México*; **Jorge Torre-Cosío**, *Comunidad y Biodiversidad, A.C., Guaymas, Son, México*; **Leah R. Gerber**, *Ecology, Evolution and Environmental Science, School of Life Sciences, Arizona State University, Tempe, AZ, USA*
- P.33 Using vocal dialects to assess the population structure of Bigg's killer whales in western Alaska**
Sharpe, DL*, *Alaska Pacific University*; **Wade, PR**, *NOAA Fisheries, Alaska Fisheries Science Center*; **Castellote, M**, *NOAA Fisheries, Alaska Fisheries Science Center*; **Cornick LA**, *Alaska Pacific University*

- P.34** Integrated research, management and conservation for sustainable fishing regions within dynamic marine ecosystems
Carruthers, EH*, *FFAW*
- P.35** Changes in juvenile Atlantic halibut distribution and connectivity through decades of fisheries exploitation in the Northwest Atlantic
Boudreau, SA*, *Oceana Canada; Shackell, NL, Fisheries and Oceans Canada; den Heyer, CE, Fisheries and Oceans Canada; Carson, S, Dalhousie University*
- P.36** Temporal variation in right whale (*Eubalaena glacialis*) population indices and vocalizations measured concurrently in Roseway Basin.
Delphine Durette-Morin*, *Dalhousie University; Kimberley Davies, Dalhousie University; Hilary Moors-Murphy, BIO; Hansen Johnson, Dalhousie University; Christopher Taggart, Dalhousie University*
- P.37** Effect of pH on development of corals, *Acropora millepora* and *Pocillopora damicornis*
Chavanich, S*, *Chulalongkorn University; Chinfak, N, Chulalongkorn University; Lalitpattarakit, W, Chulalongkorn University; Jandang, S, Chulalongkorn University; Khokiattiwong, S, Phuket Marine Biological Center; Viyakarn, V, Chulalongkorn University*
- P.38** DNA fingerprinting of dried seahorse samples collected from Hong Kong market
Chan, TY, *School of Life Sciences, Chinese University; Lim, SK, School of Life Sciences, Chinese University; Chan, KM*, School of Life Sciences, Chinese University*
- P.39** Potential changes in feeding behaviors and parasites of Antarctic fish on the East Ongul Island and King George Island, Antarctica
Viyakarn, V*, *Chulalongkorn University; Chavanich, S, Chulalongkorn University; Kuanui, P, Chulalongkorn University; Nomura, D, National Institute of Polar Research; Watanabe, K, National Institute of Polar Research; Pongpiachan, S, National Institute of Development Administration; Chen, B, Polar Research Institute of China*
- P.40** Behavioral thermoregulation and trade-offs in juvenile lobster, *Homerus americanus*
Nielsen TV*, *Memorial University of Newfoundland; McGaw IJ, Memorial University of Newfoundland*
- P.41** Biotechnological approach to conserve horseshoe crabs through sea ranching practices
Pati, S*, *Horseshoe Crab Research Laboratory, Department of Biosciences and Biotechnology, Fakir Mohan University, Odisha, India; Chinnari, S, Horseshoe Crab Research Laboratory, Department of Biosciences and Biotechnology, Fakir Mohan University, Odisha, India; Biswal, GC, Horseshoe Crab Research Laboratory, Department of Biosciences and Biotechnology, Fakir Mohan University, Odisha, India; Dash, BP, Horseshoe Crab Research Laboratory, Department of Biosciences and Biotechnology, Fakir Mohan University, Odisha, India; Chatterji, A, Malkolaj Institute of Marine Studies, Goa, India*
- P.42** Impacts of ecotourism on conservation and resource management at local and global scales
Cisneros-Montemayor, AM*, *The University of British Columbia*
- P.43** Assessment of aquatourism potentials of Agbokim Waterfalls in Cross River State of Nigeria
Ojo, Dr. S.O.*
- P.44** Exploring a place-based approach for developing realistic geovisualizations for collaborative coastal management
Newell, RG*, *University of Victoria; Canessa, R, University of Victoria*
- P.45** Social perception of the humpback whale (*Megaptera novaeangliae*) in Mazatlán, Sinaloa, México
Villanueva-Patracá, L*, *Facultad de Ciencias, Universidad Nacional Autónoma de México; Pompa-Mansilla, S, Fuego Verde S.C; García-Gutiérrez, I, Fuego Verde S.C.*
- P.46** Fathoming Baselines: Monitoring strategy evaluation to identify priorities for sea turtle monitoring to enhance conservation
Piacenza, SE*, *Oregon State University; Richards, PR, NOAA Southeast Fisheries Science Center; Heppell, SS, Oregon State University*
- P.47** DEBRIS: Creatively engaging local conservation while building a global response to plastic pollution on a platform that bridges art and science
Lee Lee*, *Artist*
- P.48** Attaining sustainable conservation of marine resources in an overpopulated coastal megacity: A case of Lagos metropolis, Nigeria.
Adewumi, Ibukun J.*, *University of the Azores; Olajuyigbe, Ayo E., Federal University of Technology, Akure; Marco, Garrido C., University of Sevilla*
- P.49** New directions and initiatives for coastal and ocean governance: Development of ocean policies in selected countries in East and Southeast Asia
Cheryl Rita Kaur*, *Maritime Institute of Malaysia (MIMA)*
- P.50** Loggerhead Marinelifelife Center's Project SHIELD global partnerships for responsible tourism.
Cutt, Tommy, *Loggerhead Marinelifelife Center; Fox, Demi*, Loggerhead Marinelifelife Center*
- P.51** Trophic ecology as a key tool for the conservation of deep-sea resources: an integrated study in the North-West Atlantic.
Parzanini, C*, *Department of Ocean Sciences, Memorial University, St. John's, NL, Canada; Parrish, CC, Department of Ocean Sciences, Memorial University, St. John's, NL, Canada; Hamel, JF, Society for Exploration and Valuing of the Environment, Portugal Cove-St. Philips, NL, Canada; Mercier, A, Department of Ocean Sciences, Memorial University, St. John's, NL, Canada*
- P.52** Floating cages: New methods for culture and seaweeds management in Indonesia
Kasim, M*, *Faculty of Fishery and Marine Sciences, Halu Oleo University, Indonesia; Mustafa, A, Faculty of Fishery and Marine Sciences, Halu Oleo University, Indonesia; Muzuni, M, Faculty of Mathematic and Natural Sciences, Halu Oleo University, Indonesia; Jalil, W, Faculty of Fishery, Dayanu Iksanuddin University, Baubau, Southeast Sulawesi, Indonesia*
- P.53** Extension strategies: Tools for promoting Sea Turtle conservation in Nigeria
Ajulo, AA*, *Cape Peninsula University of Technology, Cape*



Town, South Africa, Nigerian Institute for Oceanography and Marine Research, Victoria Island, Lagos state, Nigeria; **Lategan, FS**, Cape Peninsula University of Technology, Cape Town, South Africa

P.54 Individual-based analysis evidences dynamic functional roles of marine fishes

Castagnino, Fabio*, Center for Conservation Education and Sustainability, Smithsonian Conservation Biology Institute, Lima, Peru; **Alegre, Ana**, Instituto del Mar del Perú, Lima, Peru; **Ramirez, John G.**, Instituto de Ciencias del Mar de Barcelona, Barcelona, Spain; **Alonso, Alfonso**, Center for Conservation Education and Sustainability, Smithsonian Conservation Biology Institute, Washington, DC; **Velez-Zuazo, Ximena**, Center for Conservation, Education and Sustainability, Smithsonian Conservation Biology Institute, Lima, Peru

P.55 Demographic and fishing gear studies of artisanal fisher-folks in coastal communities of Ondo State, Nigeria

Akinwumi, FO*, Department of Animal and Environmental Biology, Adekunle Ajasin University, Akungba-Akoko

P.56 An evaluation of the floating cage system for eastern oyster *Crassostrea virginica* aquaculture production in the northern Gulf of Mexico

Gamble, Curtis*, University Center of the Westfords

P.57 Nearshore larval retention in upwelling systems: Implications for marine management

Erin V. Satterthwaite*, University of California, Davis, Bodega Marine Laboratory; **Steven Morgan**, University of California, Davis, Bodega Marine Laboratory; **Julio Harvey**, Monterey Bay Aquarium Research Institute; **John Ryan**, Monterey Bay Aquarium Research Institute; **Robert Vrijenhoek**, Monterey Bay Aquarium Research Institute

P.58 Conservation challenges in urban seascape: A case study from metropolis Mumbai, West Coast of India

Apte, Deepak*, Director; **Manakadan, Ranjit**, Asst. Director; **Narawade, Sujit**, Project Scientist; **Pitale, Reshma**, Research Scientist; **Pednekar, Nishigandha**, EA-Director, HR

P.59 Can a parasite create zombie (crabs) and facilitate another crab invasion?

Freeman, AS*, Adelphi University; **Kulins, S**, Adelphi University; **Blakeslee, AMH**, Eastern Carolina University; **Fowler, A**, South Carolina DMR

P.61 Coral species distribution patterns along environmental gradients revealed through species traits

Toni Mizerek*, Macquarie University; **Joshua Madin**, Macquarie University; **Shari Gallop**, Macquarie University; **Will Morris**, University of Melbourne

P.62 Have Wifi? Start Exploring! Live broadcast expeditions on E/V Nautilus: engaging and educating a new global generation of scientists

Cook, M*, Ocean Exploration Trust; **Fundis, A**, Ocean Exploration Trust

P.63 Creating a Blue Belt of large marine reserves in the UK Overseas Territories—why and how science matters

Koldewey, HJ*, Zoological Society of London; **Clover, CRH**, Blue Marine Foundation; **Gahan, A**, Sanicroft; **Hall, J**, RSPB; **Mackenzie, W**, Greenpeace UK; **Moore, M**, Marine Conservation Society; **Moscrop, A**, Pew Charitable Trusts; **Llewellyn, F**, Marine Reserves Coalition

P.64 Biogeographical Patterns of Reef Fish Communities in the Saudi Arabian Red Sea

Roberts, MB*, University of California Santa Cruz, King Abdullah University of Science and Technology; **Jones, GP**, Australian Research Council Centre of Excellence for Coral Reef Studies, and College of Marine and Environmental Sciences James Cook University; **McCormick, MI**, Australian Research Council Centre of Excellence for Coral Reef Studies, and College of Marine and Environmental Sciences James Cook University; **Munday, PL**, Australian Research Council Centre of Excellence for Coral Reef Studies, and College of Marine and Environmental Sciences James Cook University; **Neale, S**, Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University; **Thorrold, S**, Biology Department, Woods Hole Oceanographic Institution; **Robitzch, V**, King Abdullah Science and Technology; **Berumen, ML**, King Abdullah Science and Technology

P.65 Determining maternal reproductive strategies of Atlantic salmon, *Salmo salar*, through color analysis of eggs

Palm-Flawd, B*, Biology Department, Memorial University, Newfoundland Canada; **Penney, HD**, Biology Department, Memorial University, Newfoundland Canada; **Stein, T**, Biology Department, Memorial University, Newfoundland Canada; **Purchase, CF**, Biology Department, Memorial University, Newfoundland Canada

P.66 The application of marine biodiversity offsetting in Australia

Holly Niner*, University College London; **Craig Styan**, University College London; **Peter Jones**, University College London

P.67 Addressing the challenge of bait intensive fisheries: Can alternative baits work in the Barents Sea snow crab fishery?

Araya, T.*, Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute, Memorial University of Newfoundland; **Olsen, L.**, SINTEF; **Rindahl, L.**, SINTEF; **Larsen, R.**, University of Tromsø; **Winger, P.D.**, Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute, Memorial University of Newfoundland

P.68 From data to decisions: packaging marine biodiversity data into solutions for decision-makers

Martin, CS, UNEP World Conservation Monitoring Centre; **Weatherdon, LV***, UNEP World Conservation Monitoring Centre; **Despot-Belmonte, K**, UNEP World Conservation Monitoring Centre; **Wetzel, FT**, Museum für Naturkunde; **Regan, E**, The Biodiversity Consultancy; **Fletcher, S**, UNEP World Conservation Monitoring Centre

P.69 Can invasive European green crab, *Carcinus maenas*, be controlled?: Testing depletion trapping

Therriault, TW*, Fisheries and Oceans Canada; **Duncombe, L**, Royal Roads University

P.70 Links between human conflict and marine ecosystem health

Cisneros-Montemayor, AM*, The University of British Columbia; **Lam, VWY**, The University of British Columbia; **Reygondeau, G**, The University of British Columbia; **Swartz, W**, The University of British Columbia; **Ota, Y**, The University of British Columbia



P.71 A framework for an environmental risk assessment along the Mid-Atlantic Ridge

Turner, PJ*, Duke University Marine Lab, Nicholas School of the Environment; **Smith, AJ**, Duke University; **Van Dover, CL**, Duke University Marine Lab, Nicholas School of the Environment

P.72 Size-at-age trends in Northwest Atlantic ground fish and implications for stock assessment

Schilpp, Liberty L.*, UMASS Dartmouth, Dept. of Fisheries Oceanography; **Fay, Gavin**, UMASS Dartmouth, Dept. of Fisheries Oceanography; **Miller, Timothy J.**, NOAA Fisheries, Woods Hole

P.73 Magellanic penguins conservation efforts—enhancing blood sampling

Morais, JB*, Laboratório de Patologia Clínica-Centro de Ciências Agroveterinárias, CAV-UDESC-Av. Luís de Camões, 2090-Conta Dinheiro, Lages-SC-88520-000-Brazil; **Volpato, J**, Laboratório de Patologia Clínica-Centro de Ciências Agroveterinárias, CAV-UDESC-Av. Luís de Camões, 2090-Conta Dinheiro, Lages-SC-88520-000-Brazil; **Costa, A**, Laboratório de Patologia Clínica-Centro de Ciências Agroveterinárias, CAV-UDESC-Av. Luís de Camões, 2090-Conta Dinheiro, Lages-SC-88520-000-Brazil; **Kolesnikovas, C**, Centro de Triagem de Animais Silvestres, CETAS Rodovia João Gualberto Soares, 17000 Entrada do Parque Estadual do Rio Vermelho-Florianópolis-SC-88060-000-Brazil; **Souza, MF**, Centro de Triagem de Animais Silvestres, CETAS Rodovia João Gualberto Soares, 17000 Entrada do Parque Estadual do Rio Vermelho-Florianópolis-SC-88060-000-Brazil; **Saito, ME**, Laboratório de Patologia Clínica-Centro

de Ciências Agroveterinárias, CAV-UDESC-Av. Luís de Camões, 2090 -Conta Dinheiro, Lages-SC-88520-000-Brazil

P.74 Temporal variation in right whale (*Eubalaena glacialis*) population indices and vocalizations measured concurrently in Roseway Basin.

Delphine Durette Morin*, Dalhousie University; **Kimberley Davies**, Dalhousie University; **Hansen Johnson**, Dalhousie University

P.75 Social licence of marine systems: Improving community knowledge and engagement in local marine industries using citizen science

Kelly, Rachel*, University of Tasmania

P.76 Benthic habitat mapping of Smith Sound, Newfoundland, to characterize the refuge of a recovering fish stock

Macpherson, K*, Geography Department, Memorial University of Newfoundland; **Devillers, R**, Geography Department, Memorial University of Newfoundland; **Edinger, E**, Geography and Biology Department, Memorial University of Newfoundland; **Fisher, J**, Marine Institute of Memorial University of Newfoundland

P.78 Impacts of global climate change on coastal tourism in the Inner Gulf of Thailand

Samsuvan, W*, Ramkhamhaeng University; **Yeemin, T**, Ramkhamhaeng University; **Suebpa, W**, Ramkhamhaeng University; **Sutthacheep, M**, Ramkhamhaeng University; **Sangmanee, K**, Ramkhamhaeng University; **Niamsiri, R**, Ramkhamhaeng University



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Morning session — 8:30 A.M. to 10:30 A.M.

C21: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 4

SALON G ROOM
Monday, August 1, 08:30–10:30

08:30 Building a tool kit to assess reproductive performance of commercially exploited broadcast spawners inside and outside no-take zones

Bayer, SR*, *University of Maine*; **Wahle, RA**, *University of Maine*; **Brady, DC**, *University of Maine*; **Jumars, PA**, *University of Maine*

08:45 A scientific approach to reducing the entanglement of right whales, and other marine wildlife, in Canadian commercial fishing gear

Sean Brilliant*, *Canadian Wildlife Federation*; **Tonya Wimmer**, *WWF-Canada*; **Robert Rangeley**, *WWF-Canada*; **Christopher Taggart**, *Dalhousie University*

09:00 Early evidence from the Chagos marine reserve sets baselines for tuna protection

Curnick, DC*, *Zoological Society of London / University College London*; **Ferretti, F**, *Stanford University*; **Koldewey, HJ**, *Zoological Society of London*; **Jones, KE**, *University College London / Zoological Society of London*; **Kemp, K**, *Zoological Society of London*; **Collen, B**, *University College London*

09:15 Tracking global fishing from space

Boerder, Kristina*, *Dalhousie University*; **Worm, Boris**, *Dalhousie University*

09:30 Alternate stable states in coupled fishery-aquaculture systems

Orobko, MK*, *University of Toronto, Department of Ecology & Evolutionary Biology*; **Krkošek, M**, *University of Toronto, Department of Ecology & Evolutionary Biology*; **Molnár, PK**, *University of Toronto Scarborough, Department of Biological Sciences*

09:45 Factoring natural disasters into small-scale fisheries' management

Claydon, JAB*, *Department of Environment & Maritime Affairs, Turks & Caicos Islands Government*; **Calosso, MC**, *Department of Environment & Maritime Affairs, Turks & Caicos Islands Government*

10:00 Q&A Session

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SY12: SYMPOSIUM
ENVIRONMENTAL EFFECTS OF MARINE RENEWABLE ENERGY

SALON C ROOM
Monday, August 1, 08:30–10:30

ORGANIZER(S):

Marie-Lise Schläppy, *University of the Highlands and Islands, UK*; **Anna Redden**, *Acadia University, Canada*; **Andrea Copping**, *Laboratory, Washington, USA*

Nations are interested in decreasing their reliance on fossil fuels and energy coming from nuclear sources. A portfolio of renewable low-carbon energy sources can help to fill the gap in energy for the future. Marine Renewable Energy (MRE) can be a key part of that portfolio for coastal nations. MRE devices harvest energy from tides, waves, ocean currents, as well as differentials in temperature and salinity in the oceans. Tidal and wave devices are presently the most advanced of these technologies. However, the responsible deployment and operation of these devices requires that we understand the potential environmental effects, which range from direct interactions with marine animals, to changes in habitats, and estuarine circulation. We don't understand most of these potential effects, and the lack of deployed and operational arrays of MRE devices prevents scientists from testing their effects hypotheses. To allow array development while ensuring that the precautionary principle is maintained for the environment and existing uses, effects hypotheses must rely on interactions observed at and near single devices. This symposium will allow speakers active in this research area to provide a synopsis on the state of the science on effects of MRE devices on marine mammals, fish, birds and benthic communities. The conference themes addressed are: Marine Energy, Marine Policy, and Effective Marine Conservation Planning.

08:30 The effects of marine renewable energy: What do we know?
Marie-Lise Schläppy*, *University of the Highlands and Islands*

08:45 Biological modeling, thresholds, and distributional indicators for environmental monitoring at Marine Renewable Energy Sites

Horne, JK*, *University of Washington*; **Linder, HL**, *University of Washington*; **Wiesebron, LE**, *University of Washington*

09:00 Biofouling of marine renewable energy devices; the good, the bad and the ugly.

Loxton, JL*, *Environmental Research Institute, University of the Highlands and Islands*; **Nall, C**, *Environmental Research Institute, University of the Highlands and Islands*; **Machado, I**, *WavEC, Portugal*

09:15 Linking behaviour and habitat: Predicting potential effects of tidal-stream renewable energy developments on seabirds
Wade, HM*, *Marine Scotland Science*; **Masden, EA**, *University of the Highlands and Islands*; **Jackson, AC**, *Cornwall College*; **Waggitt, JJ**, *Bangor University*; **Robbins, AMC**, *Scottish Natural Heritage*; **Scott, BE**, *University of Aberdeen*; **Furness, RW**, *MacArthur Green*



09:30 Tidal races and turbines in the Bay of Fundy: Implications for marine life and the challenges in assessing risk of interaction

Redden, AM*, Acadia University; **Broome, JE**, Acadia University; **Keyser, FM**, Acadia University; **Morrison, K**, Acadia University; **Porskamp, P**, Acadia University; **Stokesbury, MJW**, Acadia University; **Bradford, R**, Fisheries and Oceans Canada; **Wood, J**, SMRU Consulting

09:45 Winter presence and temperature-related diel vertical migration of Striped Bass (*Morone saxatilis*) in an extreme high flow area of the Bay of Fundy

Keyser, FM*, Acadia Centre for Estuarine Research; **Broome, JE**, Acadia Centre for Estuarine Research; **Bradford, RG**, Fisheries and Oceans Canada; **Sanderson, B**, Acadia Centre for Estuarine Research; **Redden, AM**, Acadia Centre for Estuarine Research

10:00 Panel Discussion

SY14: SYMPOSIUM
GOVERNANCE FOR MARINE CONSERVATION ACROSS THE
LAND-SEA INTERFACE

SALON E ROOM
Monday, August 1, 08:30–10:30

ORGANIZER(S):
Pittman, J, Department of Environment and Resource Studies, University of Waterloo; **Armitage, D**, Department of Environment and Resource Studies, University of Waterloo

There are many marine conservation approaches (e.g., marine protected areas [MPAs]) currently being used at the land-sea interface in the face of changing conditions. However, many of these approaches are unable to meet conservation objectives for three reasons. First, these approaches typically do not occur at scales that encompass land-sea interactions. For example, MPAs usually have limited jurisdiction over land uses that may damage or threaten marine habitat. Second, many approaches are often inflexible across a range of scales (e.g., spatial, temporal). Inflexibility limits capacity to adapt or transform in relation to changing stresses. Third, some approaches suffer from issues of legitimacy that can serve to alienate local communities. Local communities are crucial for advancing conservation, and they are typically more engaged if conservation programs match their expectations of fair process and perceptions of beneficial outcomes. The lens of governance can illuminate ways of improving marine conservation efforts to deal with the challenges mentioned above. The purpose of this session is to examine the role of governance—including effective ways of linking decision making and marine science—in advancing marine conservation at the land-sea interface. The intent is to identify, from a range of cases, middle-range propositions regarding the elements and configurations of effective governance for conservation at the land-sea interface to address rapidly changing social-ecological conditions.

08:30 Governance for coastal-marine conservation across the land-sea interface
Pittman, Jeremy*, University of Waterloo; **Armitage, Derek**, University of Waterloo

08:45 Governing complex commons at the interface of marine-terrestrial systems
Nayak, PK*, University of Waterloo, Canada

09:00 Integrated cross-realm planning: A decision-makers' perspective
Álvarez-Romero, Jorge G.*, James Cook University; **Adams, Vanessa M.**, University of Queensland; **Pressey, Robert L.**, James Cook University; **Douglas, Michael**, University of Western Australia; **Dale, Allan P.**, James Cook University; **Augé, Amélie A.**, James Cook University; **Ball, Derek**, Wild Mob; **Childs, John**, National Environmental Research Program, Northern Australia Hub; **Michael Digby, Rebecca Dobbs, Niilo Gobius, David Hinchley, Ian Lancaster, Mirjam Maughan, Ian Perdrisat**

09:15 A risk analysis of the wider governance system affecting outcomes in the Great Barrier Reef
Allan, Dale*, The Cairns Institute, James Cook University; **Vella, Karen**, Griffith School of Environment, Griffith University Gold Coast Campus; **Pressey, Robert**, Australian Research Council Centre of Excellence for Coral Reef Studies; **Brodie, Jon**, Australian Centre for Tropical Freshwater Research; **Gooch, Margaret**, Great Barrier Reef Marine Park Authority; **Potts, Ruth**, Griffith School of Environment, Griffith University Gold Coast Campus; **Eberhard, Rachel**, Science and Engineering Faculty, Queensland University of Technology

09:30 Fishing livelihoods as key to marine protected areas
Charles, Anthony*, Saint Mary's University; **Westlund, Lena**, Food and Agriculture Organization of the United Nations; **Bartley, Devin**, Food and Agriculture Organization of the United Nations; **Fletcher, W.J.**, Department of Fisheries, Western Australia; **Garcia, Serge**, Fisheries Expert Group, IUCN Commission on Ecosystem Management; **Govan, Hugh**, LMMA Network & WCPA Marine-Melanesia; **Sanders, Jessica**, Food and Agriculture Organization of the United Nations

09:45 Approaching coastal marine resource use, management and governance at seascape scales
Breckwoldt, Annette*, Leibniz Center for Tropical Marine Ecology

10:00 Panel Discussion

SY73: SYMPOSIUM
INTEGRATED SCIENCE AND MANAGEMENT SOLUTIONS
FOR DATA-LIMITED AND LOW GOVERNANCE FISHERIES

SALON F ROOM
Monday, August 1, 08:30–10:30

ORGANIZER(S):
Kendra Karr, Environmental Defense Fund; **Rod Fujita**, Environmental Defense Fund; **Jake Kritzer**, Environmental Defense Fund

Most small-scale fisheries lack data about the health of fish populations, giving managers very limited information on which to base management measures. In turn, most of these fisheries appear to be under performing with respect to conservation, the amount of food they can produce, the amount of money they can generate, and the quality of the livelihoods they can support. Rights-based management systems have often been effective at maintaining sustainable yields. However, in many fisheries today there is a perception that stocks



Monday

cannot be assessed without large amounts of data and complex models. Since many fisheries generate limited data, they remain unassessed and ineffectively managed—and often, not managed at all, continuing to under performance or even collapse. Research and experience show that establishing secure fishing rights with science-based limits on catch, empowers fishermen to become stewards of the resource and is key to long-term sustainability. However, stock assessment appears to be an obstacle for small-scale fisheries that generate insufficient data to conduct formal stock assessments. Poor governance and lack of capacity to design, implement, and enforce management measures is another major obstacle. Fortunately, there are tools designed to empower on-the-ground partners to address the challenges these fisheries are facing and develop solutions that support more fish in the water, more food on the plate and more prosperous communities.

08:30 Identifying pathways to integrating science and management solutions for a sustainable and productive ocean

Kendra Karr*, *Environmental Defense Fund*; **Jake Kritzer**, *Environmental Defense Fund*; **Rod Fujita**, *Environmental Defense Fund*

08:45 Lessons learned in fisheries management: case study of SOS Pesca project in Cuba

Whittle, Dan*, *Environmental Defense Fund*; **Garcia, Elisa**, *Ministerio de la Industria Alimentaria*; **Puga, Rafael**, *Centro de Investigaciones Pesqueras*; **Valle, Servando**, *Centro de Investigaciones Pesqueras*; **Kritzer, Jake**, *Environmental Defense Fund*; **Moreno, Orestes**, *Centro Nacional de Áreas Protegidas*; **Kendra, Karr**, *Environmental Defense Fund*; **Miller, Valerie**, *Environmental Defense Fund*

09:00 Virtuous cycles produced in fisheries management actions, even with limited information and low governance: A case study from the Gulf of California, Mexico

Gonzalez-Cuellar, OT*, *Sociedad de Historia Natural Niparajá, A.C.*; **Hudson, AH**, *Sociedad de Historia Natural Niparajá, A.C.*; **Rodríguez-Van Dyck S**, *Sociedad de Historia Natural Niparajá, A.C.*; **Plomozo-Lugo T**, *Sociedad de Historia Natural Niparajá, A.C.*

09:15 Management meets science: the case of gulf corvina, a small scale fishery in the Gulf of California, Mexico

Ortiz-Rodríguez Rafael, *Environmental Defense Fund de México A.C.*; **Licón, Héctor**, *Environmental Defense Fund de México A.C.*; **Stavrinsky, Aristóteles***, *Environmental Defense Fund de México A.C.*; **Villanueva-Aznar, Cristina**, *Environmental Defense Fund de México A.C.*; **Fraire Cervantes, José**, *Environmental Defense Fund de México A.C.*; **Rodríguez Harker, Laura**, *Environmental Defense Fund de México A.C.*

09:30 Designing and implementing TURF-Reserve Systems in the Philippines

Mancao, R.*, *Rare*; **Guirjern, J.**, *Rare*; **Litsinger, E.**, *Environmental Defense Fund*; **Fujita, R.**, *Environmental Defense Fund*

09:45 Innovative fisheries management systems are being used in Belize to secure the sustainability of fisheries and generate growth in the fisheries sector

Wade, Beverly*, *Belize Fisheries Department*; **Gongora, Mauro**, *Belize Fisheries Department*; **Carcamo, Ramon**,

Belize Fisheries Department; **Epstein, Larry**, *Environmental Defense Fund*; **Granados, Pablo**, *Rare*; **Maaz, Julio**, *Wildlife Conservation Society*; **Foley, James Robert**, *Toledo Institute for Development and Environment*

10:00 Panel Discussion

SY77: SYMPOSIUM

MEASURING MARINE PROTECTED AREA ESTABLISHMENT AT THE CONTINENTAL SCALE: A CASE STUDY OF MARINE CONSERVATION IN CANADA, USA AND MEXICO

SALON B ROOM

Monday, August 1, 08:30–10:30

ORGANIZER(S):

Sabine Jessen, *Canadian Parks and Wilderness Society*; **Lance Morgan**, *Marine Conservation Institute*

Marine species and ecosystems do not obey geopolitical boundaries. The oceans of Canada, Mexico and the United States are intimately linked by migratory species, oceanographic features, and shared resources. Action, or inaction, on one side of a political border has far-reaching consequences. Scientific guidelines for MPA network planning stress the importance of planning at ecosystem scales. However the designation, management and measurement of MPAs is still inconsistent between countries making alignment and collaboration challenging.

The Canadian Parks and Wilderness Society, Marine Conservation Institute and The Nature Conservancy have worked on marine protected area establishment in Canada, the US and Mexico, respectively and are now joining forces to conduct a critical analysis of progress in MPA establishment across the North American continent. This analysis will also address the challenges of measuring MPAs, providing recommendations to scientists, planners and decision-makers to increase consistency in the design and measurement of MPAs, and to provide clear and consistent messaging to the general public.

This symposium will review and discuss the results of this analysis, exploring key lessons-learned and pending questions from North America and explore comparisons of large-scale conservation progress in other regions. Participants from governments, stakeholder groups and academia will provide the political, scientific and social context for the discussion.

08:30 MPA establishment in the Canada, Mexico and the USA: A trans-boundary approach to conservation

Sabine Jessen*, *Canadian Parks and Wilderness Society*; **Juan Bezaury**, *The Nature Conservancy*; **Lance Morgan**, *Marine Conservation Institute*

08:45 Towards a North America marine protected area network—details matter.

Morgan, Lance*, *Marine Conservation Institute*

09:00 From campaigns to compliance: measuring marine protected area implementation and protection on the water

Pike, Beth P.*, *Marine Conservation Institute*; **Moffitt, Russell A.**, *Marine Conservation Institute*; **Morgan, Lance E.**, *Marine Conservation Institute*

09:15 Advancing marine protected areas in Canada

Chute, Christie*, *Fisheries and Oceans Canada*



09:30 Collecting and analysing marine protected areas at a global scale: Successes and challenges.
Naomi Kingston, *UNEP-WCMC*; **Brian MacSharry**, *UNEP-WCMC*; **Marine Deguignet**, *UNEP-WCMC*; **Lauren Weatherdon***, *UNEP-WCMC*

09:45 Towards a North America marine protected area network—details matter.
Morgan, Lance E.*, *Marine Conservation Institute*

10:00 Q&A Session

SY81: SYMPOSIUM
IMPROVING CORAL REEF SCIENCE OUTREACH: CURRENT IMPEDIMENTS AND SOLUTIONS

SALON D ROOM
Monday, August 1, 08:30–10:30

ORGANIZER(S):

Clare Fieseler, *University of North Carolina at Chapel Hill*; **John A. Cigliano**, *Cedar Crest College*

Coral reefs are in severe decline from anthropogenic stressors. Despite a high level of coral reef science including conservation-oriented work, the impact of science on management decisions is not sufficient. The goal of this symposium is to pinpoint and discuss the disconnect between science generation and management. The focus will be knowledge sharing and translation between scientists and those involved in management. The symposium will present the results of a survey of scientists, managers, NGOs, appointed participatory management committees, etc., involved in coral reef management around the world, soliciting expert opinions on the impediments to effective knowledge sharing of coral reef science for conservation. This presentation will be followed by contributed presentations that will be preferably based on case studies, and discuss causes affecting knowledge sharing and translation including communication strategies, stakeholder perceptions, science-management partnerships, technologies, and tools designed to increase the impact of evidence-based assessments. While impediments are likely to vary locally, we aim at identifying chronic patterns emerging at either regional or global scale. Additional contributions, or highlighting successful experiences, or current challenges are welcome. Symposium output will be a peer-reviewed publication of the survey results with an interpretation informed by quantitative ranking, representative case studies, and attendee discussion occurs in the subsequent focus group. Therefore attendees are encouraged to participate in the composite session (Symposium + Focus Group) and, optionally, an informal lunch following. This symposium and the focus group immediately following are hosted by SCB's newly formed Coral Reef Working Group.

08:30 Regulation of fishing and coastal development increases ecological resilience to climate change on Caribbean reefs
Jackson, JBC*, *Smithsonian Institution*; **Donovan, MK**, *University of Hawaii at Manoa*

08:45 Marine conservation in the Saudi Arabian Red Sea: challenges and opportunities
Khalil, MT, *King Abdullah University of Science and Technology*; **Tietbohl, MD***, *King Abdullah University of Science and Technology*; **Berumen, ML**, *King Abdullah University of Science and Technology*

09:00 Improving long-term coral reef monitoring in the Wider Caribbean region: initial GCRMN-Caribbean accomplishments
Belmont, Julie, *SPAW-RAC*; **Maréchal, Jean-Philippe**, *Nova Blue Environment*; **Torres, Ruben**, *Reef Check Dominican Republic*; **Marisol Rueda Flores**, *Healthy Reefs for Healthy People Initiative**

SY83: SYMPOSIUM

ADVANCES IN TOOLS AND APPROACHES IN MARINE SPATIAL PLANNING TO ACHIEVE MARINE CONSERVATION GOALS

SALON A ROOM
Monday, August 1, 08:30–10:30

ORGANIZER(S):

Natalie Ban, *University of Victoria*; **Mandy Lombard**, *Nelson Mandela Metropolitan University*

Improving the management of the oceans requires advances in scientific research and approaches, and spatially-explicit tools to support conservation goals and develop comprehensive marine plans. Marine spatial planning (MSP) is a political process that addresses ecological, conservation, social and economic objectives with stakeholder consultation and spatial allocation of uses and activities. One of the goals of MSP may be to propose new marine protected areas or other forms of marine protection in the context of other ocean uses, requiring the evaluation of trade-offs. The science and practice of developing and using technical and spatial tools for MSP processes and achieving marine conservation goals has been progressing since the beginning of MSP, including more explicit consideration of ecosystem services and quantifying cumulative effects. This symposium highlights recent advances with examples from on-going marine planning efforts. This Symposium directly addresses question #58 about marine spatial planning, and #43 about ecosystem services. Through elaboration of interdisciplinary tools, techniques and approaches developed to inform MSP, this symposium will show that Marine Science Matters in developing science-based strategies and policies to advance marine conservation and engage stakeholders. This Symposium will identify ongoing challenges in these fields based on the experiences of the speakers and from those in attendance or participating via social media.

08:30 Community-academic research partnerships to support MSP implementation: example from British Columbia, Canada
Ban, Natalie C*, *University of Victoria*; **Frid, Alejandro**, *Central Coast Indigenous Resource Alliance*

08:45 Examining trade-offs among ecosystem services informs coastal planning
Wood, S*, *University of Washington*; **Arkema, K**, *Stanford University*; **Verutes, G**, *Stanford University*; **Silver, J**, *Stanford University*; **Wyatt, K**, *Stanford University*; **Fisher, D**, *Stanford University*; **Guerry, A**, *Stanford University*; **Ruckelshaus, M**, *Stanford University*; **Griffin, R**, *Stanford University*; **Rogers, L**, *National Oceanic and Atmospheric Administration*; **Guannel, G**, *The Nature Conservancy*



Monday

09:00 Managing shellfish aquaculture and nature-based tourism in BC's Great Bear Sea
Jacob, AL*, *University of Victoria*; **Ban, NC**, *University of Victoria*; **Cripps, K**, *Central Coast Indigenous Resource Alliance; Darimont CT, University of Victoria*; **Silver, JM**, *Natural Capital Project*; **Wood, SA**, *Center for Creative Conservation*

09:15 Maps that matter: spatial science for marine conservation and management in South Africa
Sink, K.*, *South African National Biodiversity Institute*; **Lombard, A.T.**, *Nelson Mandela Metropolitan University*; **Holness, S.**, *Nelson Mandela Metropolitan University*; **Malebu, T.**, *South African National Biodiversity Institute*; **Livingstone, T.**, *Ezemvelo KZN Wildlife*

09:30 Marine spatial planning makes room for offshore aquaculture in crowded coastal waters
Lester, SE*, *Florida State University*; **White, C**, *California Polytechnic University*; **Stevens, JM**, *California Polytechnic University*; **Gentry, RR**, *University of California Santa Barbara*; **Kappel, CV**, *University of California Santa Barbara*; **Bell, TW**, *University of California Santa Barbara*; **Maue, CC**, *Stanford University*; **Simons, R**, *University of California Santa Barbara*; **Gaines SD, Costello C, Washburn L**, *Univ. of California Santa Barbara*

09:45 Using ecosystem services for tourism to inform marine spatial planning in Seychelles
Smith, JL*, *TNC Canada*; **Wood, SA**, *Natural Capital Project*; **Tingey, R**, *Spatial Support Systems*

10:00 Assessing and quantifying pelagic ecosystem services for marine spatial planning: challenges, opportunities and way forward
Vera Agostini*, *The Nature Conservancy*; **Lida Teneva**, *Conservation International*; **Glaudy Perdanahardja**, *The Nature Conservancy*

10:15 Q&A Session

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COFFEE BREAK
 10:30-11:00

Late Morning session — 11:00 A.M. to 1:00 P.M.

C10: CONTRIBUTED SESSION
EFFECTIVE MARINE CONSERVATION PLANNING 3
SALON F ROOM
 Monday, August 1, 11:00-13:00

11:00 Financing conservation on the ground: A partnership model for Palau and beyond
Andrew, Wayne*, *OneReef Worldwide Stewardship*; **Parissenti, Liz**, *OneReef Worldwide Stewardship*; **Hideyos, Surech**, *OneReef Worldwide Stewardship*

11:15 Adaptive social impact management for marine protected areas
Kaplan-Hallam, Maery*, *Institute for Resources, Environment and Sustainability, University of British Columbia*; **Bennett, Nathan**, *1. Institute for Resources, Environment and Sustainability, University of British Columbia & 2. School of Marine and Environmental Affairs, University of Washington*; **Satterfield, Terre**, *Institute for Resources, Environment and Sustainability, University of British Columbia*

11:30 Spatial planning for estuarine biodiversity persistence in relation to climate change
Costa, MDP*, *Centre for Biodiversity and Conservation Science, The University of Queensland*; **Possingham, HP**, *Centre for Biodiversity and Conservation Science, The University of Queensland*; **Muelbert, JH**, *Instituto de Oceanografia, Universidade Federal do Rio Grande*

11:45 The Grenadines network of marine protected areas: An example of civil society leadership
Orisha Joseph*, *Sustainable Grenadines Inc (SusGren)*; **Martin Barriteau**, *Sustainable Grenadines Inc (SusGren)*

12:00 Linking passage, habitat quality and rangewide survival, new approaches for conservation of river herring
Bowden, Alison*, *The Nature Conservancy*; **Borggaard, Diane**, *National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office*; **Gahagan, Ben**, *MA Division of Marine Fisheries*

12:15 Reef restoration meets reef conservation: proposing coral gardening as a MPA management tool
Montoya-Maya, PH*, *Meaningful Diving, Cali, Colombia & Nature Seychelles, Mahe, Seychelles*

12:30 Q&A Session

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C23: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 5
SALON G ROOM
 Monday, August 1, 11:00-13:00

11:00 Caught in the same net: Investigating complex relationships between sea turtles and small-scale fisheries
Panagopoulou, A*, *Drexel University, BEES Department & ARCHELON the Sea Turtle Protection Society of Greece*; **Melelis, Z.A.**, *University of Northern British Columbia, Canada*; **Margaritoulis, D.**, *ARCHELON, the Sea Turtle Protection Society of Greece*; **Spotila, J.R.**, *Drexel University, BEES Department*

11:15 Characterizing shark fishing in the Chagos archipelago and implications for reconstructing community baselines.
Ferretti, F.*, *Stanford University*; **Curnick, D.**, *University College London*; **Block, B.**, *Stanford University*

11:30 Effects of open ocean mussel farming on ecosystem services
Bridger, DR*, *Plymouth University*; **Sheehan, EV**, *Plymouth University*; **Attrill, MJ**, *Plymouth University*

11:45 Managing the nature and culture of oysters in the Chesapeake Bay
Freitag, Amy*, *VASG/NCBO*; **Hartley, Troy**, *VASG*; **Vogt, Bruce**, *NCBO*

12:00 A rapid approach for identifying potential marine climate change refugia: A case study in Canada's Pacific marine ecosystems
Ban, SS*, *Independent*; **Alidina, HM**, *WWF-Canada*; **Okey, TA**, *University of Victoria*; **Gregg, RM**, *EcoAdapt*; **Ban, NC**, *University of Victoria*

12:15 Enhancing multi-stakeholders fisheries management in Pohnpei, FSM
Eugene Joseph*, *Conservation Society of Pohnpei*

12:30 Markets, opportunities and risks: An ethnography on Gir Somnath's bag net fishery in India.
Biswal, RL*, *University of Manitoba*; **Johnson, D**, *University of Manitoba*

12:45 Q&A Session

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FG103: FOCUS GROUP
EVALUATING AND MONITORING THE MARINE BUSHMEAT CRISIS: INTEGRATING SOCIAL SCIENCE

SALON E ROOM
Monday, August 1, 11:00–13:00

ORGANIZER(S):

T. Collins, *Wildlife Conservation Society, New York*; **A.M. Cosentino**, *SCB Marine Section and Animal Welfare Institute, Washington DC*; **L.J. Porter**, *SCB Asia Section*; **E.C.M. Parsons**, *SCB Marine Section and Dept of Environmental Science & Policy, George Mason University, Fairfax, Virginia*

Many international conservation treaty bodies, such as the Convention on Migratory Species and the International Whaling Commission, have 'Marine bushmeat' as a priority. 'Marine bushmeat' can be defined as the products derived from wild marine mammals and other marine megafauna (e.g., sea turtles) that are used for human consumption, for fishing bait and/or other uses (e.g., pharmaceutical, traditional uses). The meat and other body parts being obtained through illegal or unregulated hunts, and from animals found stranded (dead or alive) or accidentally caught in fishing gears. The global scale of the issue remains currently unknown. The proposed Focus Group follows on from a workshop held alongside the Conservation Asia 2016 meeting (co-organised by the SCB Asia Section) and aims to:

1. Review arising issues and concerns with respect to marine bushmeat, with a special focus on marine mammals, and introduce the "toolkit" developed at the Conservation Asia workshop. This toolkit is a suite of methods to better map the distribution and assess levels of marine bushmeat globally.
2. Discuss ways in which social science can be better utilised to gain information on the scale of marine bushmeat, both in terms of takes and trade.

3. Discuss case studies where solutions have been found to reduce or eliminate the use of marine bushmeat.
4. Discuss strategies to better bring the concerns about this issue to international conservation and treaty organizations.

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FG27: FOCUS GROUP
MAXIMIZING THE MARINE CONSERVATION VALUE OF RAMSAR, THE WETLANDS CONVENTION

SALON B ROOM
Monday, August 1, 11:00–13:00

ORGANIZER(S):

Vincent, ACJ, *Project Seahorse, Institute for the Oceans and Fisheries, UBC*; **Bestbier, RX**, *Project Seahorse, Institute for the Oceans and Fisheries, UBC*

In this focus group we will explore how far Ramsar, the Convention on Wetlands of International Importance, can be stretched to help protect marine biodiversity. We will investigate the existing relationships between Ramsar and the ocean. We will probe Ramsar's application and applicability as far into the ocean as it allows. We aim to identify new opportunities to improve, expand and add Ramsar sites to include more ocean spaces and species. Ramsar provides the framework for conservation and wise use of wetlands and their resources—through local and national actions and international cooperation. To date Ramsar's 169 member countries have named a total of 2218 Wetlands of International Importance (> 2,141,311 km²). Wetlands include coastal areas such as marshes, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, reservoirs, and salt pans. We have come to assume that the wetland definition is limited to freshwater and coastal wetlands but it can clearly be applied to the ocean in a far broader sense. Such sites can include marine waters up to six meters depth and the coastal zones next to wetland sites, but the full potential of this remains untapped. Also, Ramsar has proven willing to revise its guidelines, perhaps since it is not a UN convention. There has, however, been no clear analysis of Ramsar's role in the ocean—which we hope to address at this focus group.

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FG61: FOCUS GROUP
ADDRESSING KNOWLEDGE GAPS: MAKING CORAL REEF SCIENCE MATTER TO THE PUBLIC

SALON D ROOM
Monday, August 1, 11:00–17:00

11:00–13:00 and 15:00–17:00
(lunch break from 13:00–15:00)

ORGANIZER(S):

Katherine Cummings, *Florida Fish and Wildlife Conservation Commission*; **John A. Cigliano**, *Cedar Crest College*; **Dominique Pelletier**, *French Research Institute for Exploitation of the Sea*; **Clare Fieseler**, *University of North Carolina at Chapel Hill*

As threats to coral reefs increase in severity, new and more complex science helps expand our understanding. Climate change, ocean acidification, overfishing, and other human stressors have motivated a growing field of conservation-oriented scientific studies. Yet, it is well



recognized that the impact of new coral reef science on conservation planning and management decisions is not sufficient. Building on a complementary symposium immediately prior, this focus group invites scientists, managers, and participants to coral reef management to discuss two collaborative outputs that begin to address this gap. First, the organizers will collect additional information from attendees for a new publication proposed during the prior symposium. The purpose is to 1) determine case studies which illustrate globally significant impediments to science impact on management but have not yet been collated, and 2) collect additional feedback on the interpretation of a new expert survey about impediments. Second, the organizers will facilitate a structured discussion about solutions for better connecting science and coral reef management. Participants are invited to propose strategies (i.e. scholarly, media, engagement) for the SCB's newly formed Coral Reef Working Group for future collecting, analyzing or sharing of data about improving science-management pathways.

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**SY63: SYMPOSIUM
MAKING KNOWLEDGE MATTER: INCORPORATING
TRADITIONAL AND LOCAL KNOWLEDGE INTO MARINE
ASSESSMENTS AND MANAGEMENT**

**SALON A ROOM
Monday, August 1, 11:00–13:00**

**ORGANIZER(S):
Francis, Tessa B, *University of Washington Tacoma*; Levin, Phillip S, *NOAA Fisheries***

Marine conservation managers, policy makers and researchers must confront complex social-ecological systems (SES) where we lack historical baselines and robust data, and, consequently face high uncertainty. There are a number of conventional scientific techniques and tools available to overcome some of these hurdles. Nonetheless, in many places, these challenges persist. Therefore, for marine science to “matter” to conservation planning and management, the definition of “science” must be expanded upon to include traditional and local knowledge (TLK). Doing so will increase understanding, change our perspective of uncertainty, and inform strategies for effective conservation. Successful conservation must bring multiple sources and types of knowledge to the management processes. However, to do so requires the effective connection of locally collected or held knowledge to formal management processes, and this requires bridging gaps of culture, language, and process. This session will focus on using TLK alongside conventional science in the service of conservation management. The presentations will describe work that is diverse across marine systems, knowledge base and governance structure, and include using TK in models, viability analyses and ecosystem indicators, in fisheries and conservation management and assessment.

11:00 Introduction

11:15 Integrating local and traditional knowledge with fisheries science to understand ecological change in the North Pacific
Beaudreau, AH*, *University of Alaska Fairbanks, School of Fisheries and Ocean Sciences*; **Chan, M**, *University of Alaska Fairbanks, School of Fisheries and Ocean Sciences*

11:30 The importance of social movements in overcoming barriers to integrating traditional and local knowledge into contemporary management
Ayers, AL*, *Pacific Islands Fisheries Science Center/University of Hawaii*

11:45 Quantifying resilience of a social-ecological system to guide transformation in fisheries governance
Salomon, AK*, *Simon Fraser University*; **Quinlan, A**, *Resilience Alliance*; **Pang, G**, *Simon Fraser University*; **Vazquez-Vera, L**, *Simon Fraser University*

12:00 Haida Gwaii herring: Traditional knowledge and sustainability issues
Russ Jones*, *Council of the Haida Nation*

12:15 Integrating traditional and local ecological knowledge into the quantitative assessment of forage fish populations and ecosystems
Levin, Phillip*, *NOAA Fisheries*; **Francis, Tessa**, *University of Washington*

12:30 Panel Discussion

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**SY9: SYMPOSIUM
THE IMPACT OF OVERFISHING AND CLIMATE CHANGE ON
FOOD SECURITY AND HUMAN NUTRITION**

**SALON C ROOM
Monday, August 1, 11:00–13:00**

**ORGANIZER(S):
Golden, Christopher D., *Harvard School of Public Health*; Seto, Katherine, *UC Berkeley Department of Environmental Science, Policy, and Management***

Globally, approximately 2 billion people in impoverished areas alone depend on subsistence fisheries to meet their basic nutrient requirements. Global fisheries are a pillar of human nutrition as a source of protein and calories and, more importantly, as a source of critical micronutrients like iron, zinc, omega-3 fatty acids, and vitamins. Preliminary studies indicate that marine fish consumption may comprise significant portions of protein, caloric, iron, zinc, vitamin A, vitamin B12 and fatty acid intake for low-income populations with little market access. The future of human nutrition is tied to the fate of our global fisheries, a risky prospect given uncertainties surrounding fisheries governance and environmental trajectories of fish stocks. In this session, we will present a series of methods and case studies that describe current work to understand the ways in which overfishing and climate change will directly impact the distribution and abundance of fisheries and subsequently, human food security and nutrition. Our research explores the following three topics: 1) the current role of fish and other seafood in maintaining macro and micro-nutrient nutrition for populations around the world; 2) the effects of overfishing and climate change on global fish stocks and distribution; and 3) the ways that changes in fish stocks may affect human nutrition and food security.

11:00 An overview of the role of overfishing and climate change in affecting human nutrition and food security
Golden, CD*, *Harvard T.H. Chan School of Public Health*; **Vaitla, B**, *Harvard T.H. Chan School of Public Health*; **Allison, EH**, *University of Washington*; **Myers, SS**, *Harvard T.H. Chan School of Public Health*

- 11:15 Future projections of global and regional marine fisheries catches**
Vicky Wing Yee Lam*, *Nippon Foundation-Nereus & Sea Around Us, University of British Columbia*; **William Wai Lung Cheung**, *Nippon Foundation-Nereus Program & Changing Oceans Research Unit, University of British Columbia*; **Rashid Sumaila**, *Fisheries Economics Research Unit, University of British Columbia*; **Gabriel Reygondeau**, *Nippon Foundation-Nereus Program & Changing Oceans Research Unit, University of British Columbia*; **Andrés M. Cisneros-Montemayor**, *Nippon Foundation-Nereus Program, University of British Columbia*; **Wilf Swartz**, *Nippon Foundation-Nereus Program, University of British Columbia*
- 11:30 Global Expanded Nutrient Supply (GENuS) Model: Measuring how fish contributes globally to diets, nutrition and health**
Smith, MR*, *Harvard T.H. Chan School of Public Health*; **Golden, CD**, *Harvard T.H. Chan School of Public Health*; **Vaitla, B**, *Harvard T.H. Chan School of Public Health*; **Guth, S**, *Harvard University Center for the Environment*; **Bertalan, M**, *Harvard University Center for the Environment*; **Myers, SS**, *Harvard T.H. Chan School of Public Health*

- 11:45 From marine ecosystem transformation to human nutritional outcomes: insights from Bangladesh**
Vaitla, Babu*, *Harvard University*; **Chen, Oai Li**, *University of Arkansas-Pine Bluff*; **Lam, Vicky**, *University of British Columbia*; **Golden, Christopher**, *Harvard University*
- 12:00 Projected scenarios for coastal First Nations' fisheries catch potential under climate change: implications for management and food security**
Weatherdon, LV*, *UNEP World Conservation Monitoring Centre*; **Ota, Y**, *NF-UBC Nereus Program*; **Jones, MC**, *Changing Ocean Research Unit, Institute for the Oceans and Fisheries*; **Close, DA**, *Aboriginal Fisheries Research Unit, Institute for the Oceans and Fisheries*; **Cheung, WWL**, *NF-UBC Nereus Program*
- 12:15 Food security in a globalized fishery: Lessons from coastal Ghana**
Seto, KL*, *University of California at Berkeley*
- 12:30 Q&A Session**

Lunch Activities — 1:00 P.M. to 3:00 P.M.

WS94: WORKSHOP
THE SCIENCE OF CONSERVATION COMMUNICATION: EFFECTIVE OUTREACH THROUGH THE MEDIA
SALON A ROOM
Monday, August 1, 13:15–14:45
ORGANIZER(S):
Edward Hind, *Manchester Metropolitan University*; **David Shiffman**, *University of Miami*; **Eilidh Gilbert**, *Johns Hopkins University*

The importance of science communication has been known for decades, but communication needs to be effective to be successful. Communication-savvy scientists and communication professionals will speak on the importance of conservation communication, effective science communication and tips on working with the media. In this workshop, scientists, journalists, editors and writers will give the inside scoop on effectual and powerful communication through the media. The panel will also discuss how to connect with and build relationships with publications. The workshop will end with a panel discussion on common interview pitfalls, as well as a question-and-answer session.

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WS16: WORKSHOP
LOCAL ACTION, GLOBAL LEARNING: SHARING BLUE SOLUTIONS
SALON C ROOM
Monday, August 1, 13:15–14:45
ORGANIZER(S):
Korting, Janina, *GIZ*; **Fischborn, Marie**, *IUCN*

Across our planet ocean, a multitude of inspiring “blue solutions” exist, which successfully help overcome challenges to sustainable development and human wellbeing in the marine and coastal realm. Yet, how can we ensure successful models, tools, approaches or processes can be scaled and replicated? This requires inter-sectorial and cross-regional knowledge transfer as well as mutual learning. Such an innovative approach to sharing solutions is one of the key areas of action of the Blue Solutions Initiative. As part of that effort, the Blue Solutions Initiative highlights inspiring experiences on an online platform, the “Solutions Explorer” that features not only marine and coastal experiences but also success stories related to protected areas gathered through IUCN’s Panorama Initiative. This workshop will introduce participants to the online platform “Solutions Explorer” and include an introduction that enables participants to understand the options this platform offers to better share knowledge as well as an interactive element in which participants experience how this existing knowledge can be used to design new solutions to challenges. This aims to connect people and knowledge in networks, build relationships around tested solutions, build innovation competency, and document solutions. Finally, we will discuss options for engagement and contribution to the initiative and the global solutions exchange platform with the participants. Please bring your laptop/tablet.

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SAC: IMCC4 STUDENT ACTIVITIES COMMITTEE WORKSHOP
CONSERVATION CONVERSATIONS: BEYOND BUSINESS
CARDS (SPEED-NETWORKING EVENT)

SALON B ROOM
Monday, August 1, 13:15–14:45

WS69: WORKSHOP
COMMUNICATING YOUR SCIENCE WORKSHOP: AN
INTRODUCTION TO THE MESSAGE BOX

SALON E ROOM
Monday, August 1, 13:15–14:45

ORGANIZER(S):
Heather Mannix, COMPASS

Effective communication with peer and non-peer audiences requires the mastery of two essential and interrelated skills: 1) knowing your audience, and 2) clearly conveying the “so what” of your science. In this 90-minute workshop led by COMPASS, you will learn how to think about your audience’s needs, and practice pulling relevant

messages from your own research. You will learn to use a tool called the Message Box to sharpen your ability to distill your complex knowledge into the key messages that can engage audiences such as journalists, policymakers, or others who are not subject matter experts. Peer-to-peer exercises offer opportunity to practice delivering your message, as well as to give and receive feedback.

TYPOLOGIES OF GLOBAL DEPENDENCE ON FISH FOR FOOD
AND LIVELIHOODS MEETING/FOCUS GROUP

SALON F ROOM
Monday, August 1, 13:15–14:45

CORAL REEF WORKING GROUP LUNCH MEETING

SALON D ROOM
Monday, August 1, 13:15–14:45

Afternoon session — 3:00 P.M. to 5:00 P.M.

C2: CONTRIBUTED SESSION
CLIMATE, OCEAN ACIDIFICATION, AND THE CHANGING
OCEANS 2

SALON A ROOM
Monday, August 1, 15:00–17:00

15:00 **A climate change vulnerability framework for Corales del Rosario y San Bernardo, National Natural Park, Colombia**
Toline, CA*, *US National Park Service*; **Bejarano, AC**, *Research Planning, Inc*; **Zarza-Gonzalez, E**, *Parque Nacionales Naturales de Colombia*; **Cogollo, K**, *Parque Nacionales Naturales de Colombia*; **Horsman, J**, *Research Planning, Inc*.

15:30 **Spatial structure of crabs and fish in a traditional fisheries management area: case of Lancang Island, Kepulauan Seribu**
Syamsul B Agus*, *Bogor Agricultural University*; **Adriani Sunuddin**, *Bogor Agricultural University*; **Nimmi Zulfainarni**, *Bogor Agricultural University*; **Tarlan Subarno**, *Bogor Agricultural University*; **Aditya H Nugraha**, *Bogor Agricultural University*; **Jihad**, *Bogor Agricultural University*; **Rosdyani Rachmi**, *Bogor Agricultural University*

15:30 **Combining relevant research and public opinion to provide management options for the harvest of a non-indigenous seaweed in British Columbia**
Pawluk, KA*, *University of Victoria*

15:45 **The effects of climate change on larval dispersal and connectivity in British Columbia**
Daigle, RM*, *University of Toronto and McGill University*; **Guichard, F**, *McGill University*; **Fortin, MJ**, *University of Toronto*

16:00 **Biodiversity of pelagic copepods on the decrease in the Indian Ocean an assessment from the past four decades**
Rosamma Stephen*, *National Institute of Oceanography*; **Radhika, R**, *NSS College, Changanassery*; **Rashiba, A.P**, *Farook College, Calicut*

16:15 **Where the wild things will be: predicting future seabird hotspots in the California Current System**
Dick, DM*, *Oregon State University and Point Blue Conservation Science*; **Jahncke, J**, *Point Blue Conservation Science*; **Nur, N**, *Point Blue Conservation Science*; **Howar, J**, *Point Blue Conservation Science*; **Zamon, JE**, *NOAA Fisheries, Northwest Fisheries Science Center*; **Ainley, DG**, *H. T. Harvey and Associates*; **Morgan, K**, *Canadian Wildlife Service, Environment Canada*; **Ballance, LT**, *NOAA Fisheries, Southwest Fisheries Science Center*; **Hyrenbach, D**, *Hawaii Pacific University*

16:30 **Q&A Session**

C6: CONTRIBUTED SESSION
CONSERVATION AT THE LAND-SEA INTERFACE

ROOM E ROOM
Monday, August 1, 15:00–17:00

15:00 **Anguillid eels—Conserving marine species in freshwater**
Matthew Gollock*, *Zoological Society of London*

15:15 **Lessons learned over 20 years of cooperative management in Gwaii Haanas**
Gladstone, Ernie*, *Archipelago Management Board, Parks Canada*; **Thorpe, Hilary**, *Gwaii Haanas, Parks Canada*

15:30 What is more important to seagrass conservation: marine or terrestrial protection? An archipelago wide demonstration of land to sea impacts on seagrass meadows
Quiros, TEA*, *University of California Santa Cruz*; **Croll, D**, *University of California Santa Cruz*; **Tershy, B**, *University of California Santa Cruz*; **Fortes, MD**, *University of the Philippines, Marine Science Institute*; **Raimondi, P**, *University of California Santa Cruz*

15:45 Fish excretion as a driver of reef primary production
Francis, FTY*, *Earth to Ocean Research Group, Department of Biological Sciences, Simon Fraser University*; **Burnaby, BC**, *Canada, V5A 1S6*; **Côté, IM**, *Earth to Ocean Research Group, Department of Biological Sciences, Simon Fraser University, Burnaby, BC, Canada, V5A 1S6*

16:00 Utilization of habitats as substitutes of biodiversity for well-organized island conservation planning
Ssenyondo, M.M.*, *Regional Climate Change Support Initiative (RCCSD)-Rakai, Uganda*; **Namuddu, R**, *Grassland International Consult(GIC), Kampala, Uganda*; **Nalubega, R**, *Makerere University, Kampala, Uganda*

16:15 Utilizing a voluntary certification program to encourage sea turtle stewardship and minimize the negative impacts of tourism in St. Kitts and Nevis, West Indies
Ramirez, SD*, *Ramapo College of NJ, St. Kitts Sea Turtle Monitoring Network*; **Stewart, KM**, *St. Kitts Sea Turtle Monitoring Network, Ross University School of Veterinary Medicine, Wider Caribbean Sea Turtle Conservation Network*; **Wiener, EM**, *Ramapo College of NJ*; **Stein, JT**, *Wildlife Friendly Enterprise Network*; **Padhy, S**, *Ramapo College of NJ*; **Eckert, KL**, *Wider Caribbean Sea Turtle Conservation Network*; **Vasishth, A**, *Ramapo College of NJ*

16:30 Heart stress in African penguins in the face of climate change
Tubbs, NC*, *Percy Fitzpatrick Institute, University of Cape Town, Cape Town, South Africa*; **Pichegru, L**, *Percy Fitzpatrick Institute, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa*; **Ryan, PG**, *Percy Fitzpatrick Institute, University of Cape Town, Cape Town, South Africa*; **Green, JA**, *School of Environmental Sciences, University of Liverpool, Liverpool, United Kingdom*

16:45 Q&A Session

C11: CONTRIBUTED SESSION
 EFFECTIVE MARINE CONSERVATION PLANNING 4

SALON F ROOM
 Monday, August 1, 15:00–17:00

15:00 Designing a network of MPAs in a transboundary context: Linking Baja California with California's MPAs
Dalmau, NA*, *Facultad de Ciencias Marinas y IIO, UABC*; **Torres-Moye, G**, *Facultad de Ciencias Marinas, UABC*; **Seinger, G**, *Facultad de Ciencias Marinas, UABC*; **Montaño-Moctezuma, G**, *IIO, UABC*

15:15 Administrative strategies to marine conservation in Buvuma Island
Dembe, S.J.*, *Green World Uganda (GWU)-Masaka, Uganda*; **Ddungu, R.M.**, *Millennium Environmental Research Alliance (MERA)-Mubende, Uganda*; **Mukangango, S**, *Makerere University, Kampala, Uganda*

15:30 Investigating the association connecting poverty, marine protected area management, and the use of annihilate fishing equipment in Uganda
Ssemambo, N*, *Crusade for Environmental Awareness Agency (CREAA)-Kyotera, Uganda*; **Nakonde, I**, *Rural-Urban Change Initiative (RUCI), Kampala, Uganda*; **Muyiyi, C**, *Makerere University, Kampala, Uganda*

15:45 Socio-economic variables that influence fishers' willingness to leave a retrogressing fisheries sector
Nalubega, R*, *Global Initiative Uganda (GIU)- Kalisizo, Uganda*; **Ssemwanga, S**, *Global Initiative Uganda (GIU)- Kalisizo, Uganda*; **Kayemba, W**, *Rakai Community Development Trust (RACDET)-Rakai, Uganda*; **Nakanwagi, F**, *Makerere University, Kampala, Uganda*

16:00 The use of ocean gliders to characterize North Atlantic right whale spatiotemporal distributions and habitat associations on Canada's Atlantic coast
Fox, CH*, *Dalhousie University, University of Victoria*; **Davies, KTA**, *University of Victoria, Dalhousie University*; **Johnson, H**, *Dalhousie University, Woods Hole Oceanographic Institute*; **Burnham, R**, *University of Victoria*; **Taggart, CT**, *Dalhousie University*

16:15 Mapping the biology of the deep sea to support spatial management efforts
Howell, K.L.*, *Plymouth University*; **Brunner, O.**, *Plymouth University*; **Davies, J.S.**, *Plymouth University*; **Piechaud, N.**, *Plymouth University*; **Ross, R.**, *Plymouth University*

16:30 Using vessel monitoring system data to map commercial fishing activity in relation to vulnerable marine ecosystems in Newfoundland and Labrador waters
Favaro, C*, *Fisheries and Oceans Canada*; **Ollerhead, N**, *Fisheries and Oceans Canada*; **Koen-Alonso, M**, *Fisheries and Oceans Canada*

16:45 Q&A Session

C24: CONTRIBUTED SESSION
 FISHERIES, AQUACULTURE AND THE OCEANS 6

SALON G ROOM
 Monday, August 1, 15:00–17:00

15:00 Fisheries, trade history and aquaculture of the sea cucumber *Cucumaria frondosa*
Gianasi, BL*, *Memorial University*; **Hamel, JF**, *Society for the Exploration & Valuing of the Environment (SEVE)*; **Mercier, A**, *Memorial University*

15:15 Alaskan Inuit food security conceptual framework: How to assess the Arctic from an Inuit perspective
Behe, Carolina*, *Inuit Circumpolar Council-Alaska*



- 15:30 Human dimensions of large marine protected areas: Developing a community of practice**
Gray, NJ*, *University of Guelph*; **Bennett, N**, *University of British Columbia*
- 15:45 The invisible walking fishers: gleaning, gender, food security, and marine spatial management**
Danika Kleiber*, *Independent Researcher*
- 16:00 Diving into the unknown: A global review of dive fisheries and their implications for conservation and development**
Bassett, HR*, *University of Washington*; **Winkler, N**, *Dalhousie University*; **Chin, W**, *UCLA Hyperbaric Medical Center*; **Allison, EH**, *University of Washington*
- 16:15 Performance of catch-only models at providing management guidance for unassessed data-limited fish stocks**
Jessica C Walsh*, *School of Resource and Environmental Management, Simon Fraser University*; **Sean C Anderson**, *School of Aquatic and Fishery Sciences, University of Washington and Northwest Fisheries Science Center*; **Cóilín Minto**, *Marine and Freshwater Research Centre, Galway-Mayo Institute of Technology*; **Ernesto Jardim**, *European Commission Joint Research Center, Institute for the Protection and Security of the Citizen, Maritime Affairs Unit*; **James T. Thorson**, *Fisheries Resource Assessment and Monitoring Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration*; **Olaf P. Jensen**, *Department of Marine & Coastal Sciences, Rutgers University*; **Catherine Longo**, *Marine Stewardship Council*; **Jamie Afferbach**, *National Center for Ecological Analysis and Synthesis, University California Santa Barbara*

16:30 Q&A Session

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**C35: CONTRIBUTED SESSION
 PARTICIPATION IN MARINE CONSERVATION SCIENCE (E.G. CITIZEN AND INDIGENOUS SCIENCE) 1**

**SALON C ROOM
 Monday, August 1, 15:15–17:15**

- 15:15 ‘Nempung Cama’ the local democracy way to support marine conservation implementation in Savu Sea National Marine Park**
Fadly, Rynal May*, *The Nature Conservancy-Indonesia Marine Program*; **Paulus, Chaterina Augusta**, *University of Nusa Cendana NTT-Indonesia*; **Rusydi**, *University of Muhammadiyah Kupang-Indonesia*
- 15:30 Knowledge exchange and stakeholder engagement to benefit marine conservation**
Ferguson, LB*, *Oregon State University*
- 15:45 Utilizing citizen science to analyze causative factors of marine debris and to develop more effective conservation strategies**
Allison Schutes*, *Ocean Conservancy*; **Nicholas Mallos**, *Ocean Conservancy*; **George Leonard**, *Ocean Conservancy*; **Chris Wilcox**, *CSIRO Climate Adaptation Flagship*; **Denise Hardesty**, *CSIRO Climate Adaptation Flagship*

- 16:00 Collaborative eco-cultural clam garden restoration: Bringing people back into seascapes to advance marine conservation**
Augustine, Skye*, *Northwest Indian College*; **Cardinal, Nathan**, *Parks Canada-Gulf Islands National Park Reserve*
- 16:15 Global microplastic pollution: a volunteer driven study**
Barrows, Abigail, *College of the Atlantic*; **Walenga, Jenna***, *Adventurers and Scientists for Conservation*; **Kautz, Mike**, *Adventurers and Scientists for Conservation*
- 16:30 Can citizen science help protect elasmobranch species? A case study from Tubbataha Reefs Natural Park, Palawan, Philippines**
Murray, R, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*; **Conales, S**, *Tubbataha Management Office, Puerto Princesa, Palawan, Philippines*; **Araujo, G**, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*; **Snow, S**, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*; **Labaja, J**, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*; **Leyland, J**, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*; **Ziegler, JA***, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*; **Ponzo, A**, *Large Marine Vertebrates Research Institute Philippines, Jagna, Bohol, Philippines*

16:45 Q&A Session

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**S39: SPEED SESSION 1
 SALON B ROOM
 Monday, August 1, 15:00–17:00**

- 15:00 Marine biosecurity in the Galapagos Marine Reserve**
Inti Keith*, *Charles Darwin Foundation/University of Dundee*; **Terry Dawson**, *University of Dundee*; **Ken Collins**, *University of Southampton*
- 15:05 Multidisciplinary project to decipher humpback whale populations off the Saint-Pierre-et Miquelon islands: a means to define better conservation plans**
Detcheverry, C, *FNE SPM*; **Adam, O**, *Neuro SI, Université Paris Sud*; **Jung, JL**, *BioGeMME, Université de Brest*; **Lawson, J**, *Fisheries and Oceans Canada*; **Detcheverry, J**, *FNE SPM*; **Etcheberry, R**, *FNE SPM*; **Urtizberea, F**, *FNE SPM*; **Detcheverry, M***, *FNE SPM*
- 15:10 Public knowledge and perceptions towards dolphins and dolphin conservation**
Denham, Whitney*, *Student*
- 15:15 Integrating technology, local fishers, scientists and government in marine research and resource management.**
Jiménez Esquivel, V*, *Centro para la Biodiversidad Marina y la Conservación, A.C.*; **López-Sagástegui, C**, *University of California Riverside*; **Cota Nieta, JJ**, *Centro para la Biodiversidad Marina y la Conservación, A.C.*; **Mascareñas Osorio, I**, *Centro para la Biodiversidad Marina y la Conservación, A.C.*
- 15:20 Finding the focus of your conservation outreach**
Wright, A.J.*, *George Mason University*; **Norman, K.**

- 15:25 Measuring the impact of invasive terrestrial predators on endangered marine fauna- an examination of small Indian mongoose diet in the Caribbean**
deHart, PAP*, Virginia Military Institute; Powers, KE, Radford University
- 15:30 Two approaches to community engagement in conservation: case studies of collaboration from New Zealand**
Andres, EE*, Conservation Leadership Through Learning, Colorado State University; Reese, NL, Conservation Leadership Through Learning, Colorado State University; Crowl Conservation
- 15:35 Identification of Eelgrass (*Zostera marina*) habitat and ecological status in St. Mary's Bay, Nova Scotia, Canada**
Nesime Askin, PhD*, Oceanographic Environmental Research Society (OERS); Roland LeBlanc, Salmon River Salmon Association; Michael Belanger, Oceanographic Environmental Research Society (OERS); Carin Wittnich, DVM, University of Toronto, Oceanographic Environmental Research Society (OERS)
- 15:40 Spatial distribution and behavior mediate surface pollutant exposure risk in a nearshore seabird, the Brown Pelican**
Lamb, J.S.*, Clemson University; Jodice, P.G.R., South Carolina Cooperative Fish and Wildlife Research Unit
- 15:45 Coastal blue carbon ecosystems: a win-win-win for conservation, coastal resilience, and climate mitigation**
Eastwood, Erin*, U.S. National Oceanic and Atmospheric Administration; Sutton-Grier, Ariana, U.S. National Oceanic and Atmospheric Administration
- 15:50 Arguments, requirements and processes towards net gain compensation for adverse effects from marine renewable developments within marine protected areas**
Kyriazi, Z*, Gent University, Maritime Institute and Marine Biology Research Group; Lejano, R, New York University, Environmental Education Program; Maes, F, Gent University, Maritime Institute; Degraer, S, Royal Belgian Institute of Natural Sciences
- 15:55 Managing mangrove ecosystem services through collaborative research in the Magdalena-Almejas Bay lagoon complex in Mexico**
Cota Nieto, J.J.*, Centro para la Biodiversidad Marina y la Conservación A.C.; Jiménez Esquivel, V., Centro para la Biodiversidad Marina y la Conservación A.C; Mascareñas Osorio, I., Centro para la Biodiversidad Marina y la Conservación A.C.
- 16:00 Discussing the value of collaboration between community-based and multi-disciplinary organizations using examples from marine plastic pollution research**
Smith, Ariel*, Bluenose Coastal Action Foundation; Nodding, Brooke, Bluenose Coastal Action Foundation; Peddle, Sheldon, ACAP Humber Arm; Moore, Greg, ACAP Humber Arm
- 16:05 Crowdsourcing to conservation: Using divers' observations to delineate priority conservation areas for reef sharks and rays**
Annabel Westell*, eOceans; Heike Lotze, Dalhousie University; Christine Ward-Paige, eOceans

- 16:10 Identifying citizen science best practices for MPA management**
Hauptfeld, Rina*, Colorado State University
- 16:20 Scientific technologies built by and for citizen scientists to monitor marine plastics**
Liboiron, Max*, Memorial University of Newfoundland
- 16:25 Credible high seas governance**
Thiele, Torsten*, LSE Institute of Global Affairs
- 16:30 Ecosystem boundary of adjacent water of St. Martins Island using coral habitats as a surrogate**
Haque, AB*, Lecturer, Dept Of Zoology, DU
- 16:35 Conservation status of Ganges River dolphin in Nepal**
Paudel, S*, Marine Mammal Research, Aarhus University, Denmark; Teilmann, J, Marine Mammal Research, Aarhus University, Denmark
- 16:40 Q&A Session**

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FGD1: IMCC DIVERSITY SERIES FOCUS GROUP
PROMOTING THE PARTICIPATION OF WOMEN AT SCIENCE CONFERENCES

PLACENTIA BAY ROOM
Monday, August 1, 15:00–17:00

ORGANIZER(S):
Stephanie Sardelis, Columbia University; Joshua Drew, Columbia University; Samantha Oester, George Mason University; Luli Martinez, University of California-Santa Cruz; John Cigliano, Cedar Crest College

Representation of women in science has increased over the past two decades. Approximately 60% of Master's recipients and up to 48% of PhD recipients are women (West and Curtis, 2006; Redden, 2007; Ceci et al., 2014). Yet, women occupy less than 40% of jobs in biology, chemistry and physics, and only 25% of STEM jobs overall (Beede et al., 2011). The "leaky-pipeline" effect occurs when a gender filter removes women from the academic stream and exclusively allows men to progress (Blickenstaff, 2005; Stout et al., 2011). This imbalance is a consequence of academia culture, which regrettably harbours gender biases against women (Rosser, 2004; Sugimoto et al., 2013; West et al., 2013). Gender biases range from social exclusion due to stereotypes to unequal distribution of promotions, awards, and tenure (Yentsch and Sindermann, 2013). The glass ceiling effect is where progress is limited by inequality in salary and opportunities, contributing to unequal ratios of recognized women to men (Addressi et al., 2012). A scientist's level of recognition is related to their citations, awards, and the perceived value of their research (Jones et al., 2014). One solution is to increase the visibility of women, so they have a greater influence on junior female scientists and to help eliminate the misconception that women are less competent scientists than men. Symposia allow speakers to present in a prestigious venue and thus reduce negative gender schema. In this focus group, we plan to discuss a recent study on the participation of women in organizing science conferences and in conference symposia. We will also discuss reducing barriers to conference participation for women by facilitating travel, making conferences child-friendly, and promoting women to organize sessions. Additionally, we will discuss other factors that may influence the visibility of women at science conferences and how increasing visibility can impact women in science outside of conferences.



Morning session — 8:30 A.M. to 10:30 A.M.

C12: CONTRIBUTED SESSION
EFFECTIVE MARINE CONSERVATION PLANNING 5

SALON G ROOM
Tuesday, August 2, 08:30–10:30

08:30 Can multi-use marine protected areas address both conservation and fisheries goals?

Gall, S.C.*, Plymouth University; **Sheehan, E.V.**, Plymouth University; **Clark, S.**, Devon & Severn Inshore Fisheries and Conservation Authority; **Robbins, T.**, Devon & Severn Inshore Fisheries and Conservation Authority; **Attrill, M.A.**, Plymouth University; **Rodwell, L.D.**, Plymouth University

08:45 How to achieve conservation outcomes at scale: An evaluation of scaling principles

Battista, W*, Environmental Defense Fund; **Tourgee, A.**, Environmental Defense Fund; **Wu, C.**, Environmental Defense Fund; **Fujita, R.**, Environmental Defense Fund

09:00 Species' traits and the design of marine reserve networks

D'Aloia, CC*, University of Toronto; **Daigle, RM**, UQAR; **Côté, IM**, Simon Fraser University; **Curtis, JMR**, Department of Fisheries & Oceans; **Guichard, F**, McGill University; **Fortin, MJ**, University of Toronto

09:15 Cumulative effects of Chinook salmon abundance and toxicants on reproductive success of Southern Resident Killer Whales

Wasser, SK*, University of Washington, Seattle; **Lundin, JI**, Northwest Fisheries Science Center, Seattle; **Johri, S**, University of Washington, Seattle

09:30 Wanted or not? Attitudes towards invasive lionfish in the Mexican Caribbean

Malpica-Cruz L.*, Simon Fraser University, ECOCIMATI A.C.; **Smith N.S.**, Simon Fraser University; **Wolfgang H.**, Simon Fraser University; **Côté, IM**, Simon Fraser University

09:45 Q&A Session

FG29: FOCUS GROUP
FISHING THE SMALL: MAKING SURE THERE IS ENOUGH FOOD FOR ALL

SALON F ROOM
Tuesday, August 2, 08:30–13:00

ORGANIZER(S):

Sigrud Kuehnemund, Lead Specialist-Oceans, WWF-Canada; **Aurelie Cosandey-Godin**, Senior Specialist-Oceans, WWF-Canada; **Mariano Koen-Alonso**, Ecosystems Research Scientist, DFO-Newfoundland and Labrador; **Pierre Pepin**, Ecosystems Research Scientist, DFO-Newfoundland and Labrador; **Jason Simms**, Resource Manager (Pelagics), DFO-Newfoundland and Labrador; **Rodolphe Devillers**, Associate Professor, Department of Geography, Memorial University of Newfoundland; **Bill Montevecchi**, University Research Professor, Ocean

Sciences, Memorial University of Newfoundland; **Sam Andrews**, PhD Candidate, Marine Conservation, University of Victoria

It is well recognized that forage species—those small, abundant, and highly productive species—play a key role in marine ecosystems, providing the main pathway for energy to flow from plankton to predators, including fish, birds, and mammals. With a few exceptions worldwide, current management of forage fish fisheries have focused on maintaining targeted population without explicitly addressing their ecological role. Natural mortality rates of these species may fluctuate quickly with changes in predator's biomass and environmental conditions and often can surpass largely the amounts harvested by fisheries. A main task to the advancement of an ecosystem based fisheries management of these species is to explicitly account for the foraging needs of top predators. However, to which degree and how remains a topic of discussions and is one of the 71 critical questions identified by the SCB Marine Section. WWF-Canada proposed a focus group on the subject with an emphasis on Canadian ecosystems. From the Pacific Eulachon importance as a food source to first-nations, to herring supporting commercial and recreational fisheries in the Maritimes, to capelin rolls rallying crowds in Newfoundland—these small fish are important to many: ecologically, socially and economically. With this focus group, we seek to bring together national and international experts, policymakers, and practitioners to identify crosscutting priorities to advance ecosystem-based fisheries management of forage species in Canada.

FG85: FOCUS GROUP
CANADA'S POLICIES ON MARINE SPECIES AT RISK, PAST AND FUTURE

SALON E ROOM
Tuesday, August 2, 08:30–10:30

ORGANIZER(S):

Vincent, ACJ, The University of British Columbia; **Reynolds, JD**, Simon Fraser University; **Baum, JK**, University of Victoria; **Favaro, B**, Memorial University; **Côté, IM**, Simon Fraser University; **Fuller, S**, Ecology Action Centre

This focus group will generate vital collective action for marine species at risk in Canada. We will explore Canada's history with, and help define Canada's future for, marine species at risk. Our focus group wonderfully supports the conference theme of Making Science Matter, drawing on science to change policy. Canada has a history of overlooking, opposing, and sometimes protecting marine species, as three examples illustrate. First, Canada takes out blanket Reservations to defer its responsibilities for marine and all other species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Second, most marine fish species that are evaluated by the Committee on the Status of Wildlife in Canada (COSEWIC) as at-risk are rejected for protection under Canada's Species at Risk Act (SARA). Third, many species slip through the net of legal protection. This has led to worrying trends in the status of



Canada's marine species. The focus group will allow participants to explore the challenges for marine species at risk and develop ideas to help create the political and policy changes needed to provide better support for Canada's marine life. We will then take these ideas forward to effect change in Canada's use of policy instruments for marine species conservation.

SY59: SYMPOSIUM

MARINE PLANNING IN CANADA: RESULTS AND LESSONS FROM THE MARINE PLANNING PARTNERSHIP FOR THE NORTH PACIFIC COAST (MAPP)

SALON A ROOM

Tuesday, August 2, 08:30–10:30

ORGANIZER(S):

Smith, JL, *TNC Canada*; **Kilburn, F**, *MaPP*; **Byington, J**, *MaPP*

Marine spatial planning (MSP) is usually a process led by governments or a specific organization, with public and stakeholder engagement, designed to achieve specified objectives and improve decision making in ocean and coastal environments. In this symposium, presentations will focus on sharing the results of a recently completed 4-year long planning process in the North Pacific Coast of Canada. In "Making Science Matter", the Marine Planning Partnership used over 275 spatial data layers as well as spatially-explicit Marxan outputs, ecosystem services models for tourism and recreation, climate change vulnerability models and habitat vulnerability models to inform the marine spatial plans for 102,000 km² of Canada's Pacific Ocean. Science, First Nations knowledge and local knowledge were integral in the development of four sub-regional plans and one regional plan in 2015 including zoning for a diversity of uses and activities and area-specific management considerations. This symposium will provide a rare opportunity for conference delegates to hear from all four sub-regional planning teams and the government partnership, describing how different types of knowledge were used to develop marine spatial plans that have been approved and are now being implemented by the provincial and 18 First Nations governments in British Columbia.

08:30 Integrating first nations culture and governance with science and policy in BC marine planning

Smith, Dallas*, *Nanwakolas Council*; **Bones, John**, *Nanwakolas Council*

08:45 Zoning in a multi-jurisdictional marine space—a spatial framework for integrated marine resource management in Canada's North Pacific Coast

Short, Charlie*, *Prov of BC Ministry of Forest Lands and Natural Resource Operations*; **Topelko, Karen**, *Prov of BC Ministry of Forest Lands and Natural Resource Operations*; **Bones, John**, *Nanwakolas Council*; **Diggon, Steve**, *Coastal First Nations—Great Bear Initiative*

09:00 Planning for the Central Coast—The role of traditional and place-based knowledge in marine planning

Heidt, Aaron*, *Central Coast Indigenous Resource Alliance*; **Cripps, Ken**, *Central Coast Indigenous Resource Alliance*; **Neasloss, Doug**, *Central Coast Indigenous Resource Alliance*

09:15 Marine planning partnership: Planning for the North Coast—Navigating marine management amidst a surge in industrial development

Paul, Maya*, *North Coast Skeena First Nations Stewardship*

Society; **Paul, Allison**, *North Coast Skeena First Nations Stewardship Society*; **Outhet, Craig**, *North Coast Skeena First Nations Stewardship Society*

09:30 Haida Gwaii marine planning: Community connections and cross-scale linkages

Rigg, Catherine*, *Council of the Haida Nation*; **Jones Russ**, *Council of the Haida Nation*; **Molly Clarkson**, *Council of the Haida Nation*

09:45 Successes, lessons learned and implementing the Marine Plan Partnership (MaPP)—Reflecting on a marine spatial planning process in British Columbia, Canada

Topelko, Karen*, *Province of BC Ministry of Forests Lands and Natural Resource Operations*; **Short, Charlie**, *Province of BC Ministry of Forests Lands and Natural Resource Operations*; **Bones, John**, *Nanwakolas Council*; **Diggon, Steve**, *Coastal First Nations—Great Bear Initiative*

10:00 Q&A Session

SY76: SYMPOSIUM

TECHNOLOGY AND CITIZEN SCIENCE: HOW OPEN-SOURCE SOLUTIONS ARE REVOLUTIONIZING DATA COLLECTION AND ANALYSIS

SALON C ROOM

Tuesday, August 2, 08:30–10:30

ORGANIZER(S):

Jacob Levenson, *Bureau of Ocean Energy Management*

High quality, long-term data is essential to marine conservation but no researcher can traverse the vast distances required to study the marine environment consistently and without gaps. Citizen science can close those gaps. Open source technology is transforming the way citizen scientists can contribute to natural resource management. Social media, collecting geospatially accurate data through mobile devices, and improved tools and sensor networks allow organizations to streamline data collection and provide qualified data easily. This has led to a dramatic transformation in engaging citizen scientists.

This symposium explores the latest in open source tools and resources for engaging citizen scientists and creative methods for disseminating data. Organizations seek accurate, reliable, cost-effective data collection systems using mobile technology, and open hardware enables anyone to build tools. This boom in citizen science exponentially increases data available to resource managers, challenging data management and effective data dissemination. The scientific community has extensively discussed relying on untrained citizens to collect data sufficiently reliable for scientific research and conservation management. This concern is addressed through basic data collection training, evaluating citizen science dataset limitations, and the careful interpretation of data and comparative studies using well-established techniques (e.g. telemetry) to validate citizen science datasets.

08:30 One step forward, two steps back: Assessing citizen science data quality when technology exceeds capacity

Ward-Paige, Christine*, *eOceans/Dalhousie University*

08:45 Flukebook: Enabling research and management of cetaceans over biologically relevant scales

Gero, S*, *Aarhus University*; **Levenson, J**, *Oceans Forward*



09:00 Whale sharks join the Internet of things
Dove, Alistair*, *Georgia Aquarium*; **Bandharangshi, Prateep**,
Awesomesauce Inc.; **Webb, D. Harry**, *Georgia Aquarium*

SY78-1: SYMPOSIUM
**MAKING MARINE SCIENCE MATTER TO PEOPLE: SHARING
 EXPERIENCES (INTERNATIONAL PERSPECTIVES)**

SALON B ROOM
Tuesday, August 2, 08:30–11:00

ORGANIZER(S):
Bussièrès, Véronique, *Concordia University*; **Lalancette, Annie**,
Concordia University

It is now generally accepted that indigenous peoples and other local communities have a crucial role to play in marine and coastal conservation and resource management: they are often the primary resource users, hold valuable knowledge about local ecosystems, are the most affected by environmental changes and policies and are well-positioned to monitor them. In many parts of the world, local communities are building the capacity to influence and even drive research agendas; yet many challenges remain to building effective partnerships between local peoples, scientists, managers and decision-makers. This symposium will bring together pairs of presentations focusing on similar topics (e.g., fisheries management, protected areas, threatened species, marine hunting, and marine pollution) from different geographic locations. The goal is to highlight lessons learned in terms of strategies used to foster collaboration, challenges encountered as well as benefits for communities and in terms of conservation outcomes. This symposium will be combined with the focus group Making Marine Science Matter to People: Steps forward during which participants will build on the panel presentations to develop a white paper aimed at relevant Canadian governmental agencies involved in coastal and marine resource management.

**08:30 Coastal community engagement and collaboration
 in marine conservation, hazard response and climate
 adaptation: insights from three global research initiatives**
Charles, Anthony*, *Saint Mary's University*

**08:45 The Transoceanic Canal against indigenous peoples:
 Challenges to marine and coastal conservation in the Rama
 Territory (Nicaragua)**
Gonzalez, M*, *York University*

**09:00 Can exclusive fishing zones sustain artisanal fisheries?
 Lessons from the artisanal fishery in Northern Chocó,
 Colombia**
Viviana Ramirez-Luna*, *Fundación SQUALUS, Colombia*

**09:15 Competing voices: Indigenous perspectives and
 conventional fisheries management in the Torres Strait
 tropical rock lobster fishery**
Annie Lalancette*, *Concordia University*; **Monica Mulrennan**,
Concordia University

**09:30 Toward communicative space: A maritime agora of
 backrooms and thoroughfares**
Tam, Chui-Ling*, *University of Calgary*

09:45 Panel Discussion

PD17: PANEL DISCUSSION
**SOLVING MARINE CONSERVATION PROBLEMS USING ALL
 AVAILABLE TOOLS**

SALON D ROOM
Tuesday, August 2, 08:30–10:30

ORGANIZER(S):
S.M. Alexander, *National Socio-Environmental Synthesis Center/
 Stockholm Resilience Centre*; **N. Bennett**, *University of British
 Columbia/University of Washington*

PANELISTS:

- *Stefan Gelcich, CAPES, Pontificia Universidad Católica*
- *Lisa Campbell, Duke University*
- *Phillip Levin, NOAA Fisheries*
- *Larry Crowder*
- *Anne Solomon*
- *Melinda Agapito*

It has become de rigueur to claim that we need more interdisciplinary conservation science. Conservation solutions, it is argued, can be produced via a pluralistic approach—drawing on numerous natural and social science disciplines, along with their associated theories, methods, and tools. Yet, we are lacking in real-world examples of using interdisciplinary science to solve conservation problems. In this symposium, we aim to link the theory and conduct of interdisciplinary conservation science with policies and actions that will matter. The symposium will start with an informal panel of scientists who will reflect on their experiences and present examples of successful engagements with interdisciplinary conservation science. This will be then be followed by an interactive session whereby audience members will be invited to pitch real world conservation dilemmas to the panelists, asking them for insights on how to use all available tools to solve these problems. Our aim is to create a space for interdisciplinary exploration, dialogue, and problem solving using an innovative symposium format.



COFFEE BREAK
10:30–11:00



Late Morning session — 11:00 A.M. to 1:00 P.M.

C13: CONTRIBUTED SESSION EFFECTIVE MARINE CONSERVATION PLANNING 6

SALON G ROOM
Tuesday, August 2, 11:00–13:00

11:00 Contributions of perceptions to evidence-based marine conservation and management

Bennett, Nathan J.*, 1. School of Marine and Environmental Affairs, University of Washington & 2. Institute for Resources, Environment and Sustainability, University of British Columbia; **Alexander, Steven**, 1. National Socio-Environmental Synthesis Center, University of Maryland & 2. Stockholm Resilience Centre, Stockholm University, Sweden; **Klain, Sarah**, Institute for Resources, Environment and Sustainability, University of British Columbia; **Pittman, Jeremy**, Environmental Change and Governance Group, University of Waterloo

11:15 Developing a genetic toolkit to inform marine protection and spatial planning

Kershaw, F*, Natural Resources Defense Council; **Rosenbaum, HC**, Wildlife Conservation Society

11:30 Management arrangements and governance in Colombian marine protected areas

Luisa F. Ramírez*, University Wilfrid Laurier; **Scott Slocombe**, University Wilfrid Laurier

11:45 Thirty years of change in pressure on the Australian marine environment.

Dunstan, PK*, CSIRO Oceans and Atmosphere; **Downie, R**, CSIRO Oceans and Atmosphere; **Fuller, M**, CSIRO Oceans and Atmosphere

12:00 Habitat mapping and contribution to biodiversity conservation of a small Canadian no-take MPA.

Howse, V*, Department of Biology, Memorial University of Newfoundland, St. John's, NL, Canada; **Novaczek, E**, Department of Geography, Memorial University of Newfoundland, St. John's, NL, Canada; **Pretty, C**, Department of Geography, Memorial University of Newfoundland, St. John's, NL, Canada; **Devillers, R**, Department of Geography, Memorial University of Newfoundland, St. John's, NL, Canada; **Edinger, E**, Department of Geography and Biology, Memorial University of Newfoundland, St. John's, NL, Canada

12:15 The need for comprehensive tradeoffs assessments to evaluate MPA network design effectiveness: the case of the Scotian Shelf bioregion, Canada.

Gerhartz-Abraham, A*, Marine Affairs Program, Dalhousie University, Canada; **Westhead, M**, Fisheries and Oceans Canada, Bedford Institute of Oceanography, Canada

12:30 Prioritizing seascape connectivity in conservation using network analysis.

Engelhard, SL*, Australian Rivers Institute—Coast & Estuaries, and School of Environment, Griffith University, Gold Coast, Qld 4222, Australia; **Huijbers, CM**, Australian Rivers Institute—Coast & Estuaries, and School of Environment, Griffith University, Gold Coast, Qld 4222, Australia; **Stewart-Koster, B**, 2 Australian Rivers Institute, Griffith University, Nathan, Qld

4111, Australia; **Olds, AD**, School of Science and Engineering, University of the Sunshine Coast, Maroochydore DC, Qld 4558, Australia; **Schlacher, TA**, School of Science and Engineering, University of the Sunshine Coast, Maroochydore DC, Qld 4558, Australia; **Connolly, RM**, Australian Rivers Institute—Coast & Estuaries, and School of Environment, Griffith University, Gold Coast, Qld 4222, Australia

12:45 Q&A Session

C17: CONTRIBUTED SESSION ESTUARY AND COASTAL RESTORATION

SALON E ROOM
Tuesday, August 2, 11:00–13:00

11:00 A proposed modified structural complexity index: Application for mangrove conservation and management in the Philippines

Gianan, Eunice Lois*, Ateneo de Manila University; **Castro, Kayla Marie**, Ateneo de Manila University; **Garcia, Ma. Carmela**, Ateneo de Manila University; **Salmo, Severino**, Ateneo de Manila University

11:15 Collaborative research in the National Estuarine Research Reserves, building bridges to increase the impact of science for ecosystem services conservation

Christine Feurt*, Wells National Estuarine Research Reserve

11:30 Geographic variation in functional responses of a cosmopolitan invasive predator

Howard, BR*, Department of Biological Sciences, Earth to Ocean Research Group, Simon Fraser University; **Barríos-O'Neill, D**, Queen's University Belfast; **Alexander, ME**, School of Science and Sport, University of the West of Scotland; **Dick, JTA**, School of Biological Sciences, Institute for Global Food Security, Queen's University Belfast; **Côté, IM**, Department of Biological Sciences, Earth to Ocean Research Group, Simon Fraser University; **Robinson, T**, Centre for Invasion Biology, Department of Botany and Zoology, Stellenbosch University; **Therriault, TW**, Fisheries and Oceans Canada, Pacific Biological Station

11:45 The forgotten reef builders: aquaculture-raised giant clam restoration in the wild

Frias-Torres, S*, Smithsonian Marine Station, Florida, USA

12:00 Locally managed marine protected area (MPA) at St. Martin Island, Bangladesh

M. Zahirul Islam*, Marinelife Alliance

12:15 Fecal coliform indicator trends in the Puget Sound: Rain or restoration?

Hamilton, Lindsey*, Washington State Department of Health; **Berbells, Scott**, Washington State Department of Health; **Sullivan, Lawrence**, Washington State Department of Health; **Snyder, Jean**, Washington State Department of Health



12:30 Using underwater video to optimize trapping and capture efficiency of the invasive green crab in Newfoundland, Canada
Bergshoeff, JA*, *MSc Marine Biology Student, Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute of Memorial University of Newfoundland*; **McKenzie, CH**, *Research Scientist, Fisheries and Oceans Canada, Northwest Atlantic Fisheries Centre*; **Best, K**, *Fishery Technologist, Centre for Fisheries and Ecosystems Research, Fisheries and Marine Institute of Memorial University of Newfoundland*; **Favaro, B**, *Instructor, School of Fisheries, Fisheries and Marine Institute of Memorial University of Newfoundland*

12:45 Q&A Session

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C25: CONTRIBUTED SESSION
 FISHERIES, AQUACULTURE AND THE OCEANS 7

SALON D ROOM
 Tuesday, August 2, 11:00–13:00

11:00 Aquaculture as a solution for protecting endangered marine species: When does farming versus enhancement yield the strongest conservation benefit?
Rebecca R. Gentry*, *Bren School of Environmental Science and Management, University of California Santa Barbara*; **Steven D. Gaines**, *Bren School of Environmental Science and Management, University of California Santa Barbara*

11:15 The race against fishing resources in the Coromandel Coast of Tamil Nadu, India
Subramanian Balaraman*, *Our Sea Our People*

11:30 Market-based incentives can improve global seafood sustainability
McDonald, SL*, *Monterey Bay Aquarium, Seafood Watch*; **Hudson, E**, *Monterey Bay Aquarium, Seafood Watch*; **Ma, C**, *Monterey Bay Aquarium, Seafood Watch*; **Max, L**, *Monterey Bay Aquarium, Seafood Watch*; **Norden, W**, *Monterey Bay Aquarium, Seafood Watch*; **Pelc, R**, *Monterey Bay Aquarium, Seafood Watch*; **Roberts, S**, *Monterey Bay Aquarium, Seafood Watch*; **Tucker, L**, *Monterey Bay Aquarium, Seafood Watch*; **Wilding, S**, *Voorhees, T*, *Monterey Bay Aquarium, Seafood Watch*

11:45 Size-maturity indicators in Queen conch (*Lobatus gigas*) of Port Honduras Marine Reserve, Belize: Strengthening fisheries management and sustainability
Foley, JR*, *Science Director, Toledo Institute for Development and Environment*

12:00 Cetacean strandings in the Canadian maritime provinces, 1990–2014
Wimmer, Tonya*, *Marine Animal Response Society*; **Reid, Andrew**, *Marine Animal Response Society*; **Daoust, Pierre-Yves**, *Canadian Wildlife Health Cooperative*; **McAlpine, Donald**, *New Brunswick Museum*

12:15 Determining threat status for data limited fisheries based on catch-only stock assessment models
Weir, Lauren*, *Simon Fraser University*; **Cooper, Andrew**, *Simon Fraser University*; **Connors, Brendan**, *ESSA Consulting*

12:30 Small-scale, big stake: Adaption and vulnerability of small-scale small pelagic fisheries to global changes
Muntoni, M*, *Department of Geography, Memorial University of Newfoundland, Canada*; **Chuenpagdee, R**, *Department of Geography, Memorial University of Newfoundland, Canada*

12:45 Q&A Session

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**FG44: FOCUS GROUP
 CONNECTING SCIENCE WITH THE CONSERVATION OF LARGE MARINE PROTECTED AREAS: GAPS AND OPPORTUNITIES**

SALON A ROOM
 Tuesday, August 2, 11:00–13:00

ORGANIZER(S):
Tom B Letessier, *Zoological Society of London*; **Heather Koldewey**, *Zoological Society of London*; **Enric Sala**, *National Geographic*; **Jessica Meeuwig**, *University of Western Australia*; **Barbara Block**, *Stanford University*; **Angelo Villagomez**, *Pew*; **Charles Clover**, *Blue Marine Foundation*; **Nai'a Lewis**, *Big Ocean Network*

There has been global attention on a number of new large marine MPAs in recent years. This focus group will aim to identify gaps in scientific knowledge relating to the current implementation of large MPAs, discuss how these are being tackled by existing research programs and how effectively science is informing their management and conservation. The conversation will focus around the following topics

1. What impedes the effective enforcement of large-scale marine protected areas, and what technological advances could change this?
 2. How effectively do large MPAs protect mobile species of fisheries importance, e.g. tunas and sharks?
 3. What standardised scientific monitoring methods can be applied across all large MPAs to inform their conservation and management?
 4. Large MPAs are primarily implemented along territorial boundaries, that may not respond to a strong scientific rationale, especially for mobile species. What scientific and political barriers need to be addressed in order to change this?
 5. What socio-ecological research is necessary to reduce the incentives for illegal, unregulated and unreported activities?
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**SY51: SYMPOSIUM
 BEYOND ENGAGEMENT: TURNING CITIZEN SCIENCE FINDINGS INTO CONSERVATION AND POLICY ACTION**

SALON C ROOM
 Tuesday, August 2, 11:00–13:00

ORGANIZER(S):
Caitlin Birdsall, *Vancouver Aquarium Marine Science Centre*; **Scott Finestone**, *Project Seahorse*; **Tessa Danelesko**, *Vancouver Aquarium Marine Science Centre*

Often regarded as an outreach and engagement tool, citizen science has grown to become a powerful, cost-effective and increasingly popular way for scientists to enlist the help of the public to collect



and report large amounts of useful data. Efforts to turn marine citizen science into action, however, face several hurdles. Issues around data quality, quantity and reliability, participant consistency, and preconceived ideas about citizen science credibility can present daunting challenges. In this symposium we will go beyond the “how to” of creating a citizen science project to look at projects around the globe that have overcome such challenges and successfully used citizen science as a means to further understanding and support action. Through a combination of presentations and a facilitated panel discussion, we will utilize a diverse group of projects as our case studies to explore the tools and strategies used by citizen science projects to achieve significant contributions to marine science, conservation and policy throughout the world.

11:00 Introduction

11:15 The California coastal bioblitz: Working with existing networks to scale science and conservation
Johnson, RJ*, *California Academy of Sciences*; **Young, AN**, *California Academy of Sciences*

11:30 Conserving cetaceans and sea turtles through citizen science on Canada’s pacific coast
Danelesko, TL*, *Vancouver Aquarium*; **Birdsall, CF**, *Vancouver Aquarium*

11:45 Engaging marine users to log and report ghost gear
Kavanagh, Lynn*, *World Animal Protection*

12:00 Citizen action is helping save Philippines seahorses and their seas
Apale, C*, *Project Seahorse, ZSL Philippines*; **Koldewey, HJ**, *Project Seahorse, Zoological Society of London*; **Vincent, ACJ**, *Project Seahorse, Institute for the Oceans and Fisheries, The University of British Columbia*

12:15 Commercial fishermen as citizen scientists: Southeast Alaska sperm whale avoidance project
Jan Straley, *University of Alaska Southeast*; **Victoria O’Connell***, *Sitka Sound Science Center*; **Joe Liddle**, *University of Alaska Southeast*; **Aaron Thode**, *Scripps Institution of Oceanography*; **Lauren Wild**, *Sitka Sound Science Center*; **Linda Behnken**, *Alaska Longline Fishermens Association*; **Dan Falvey**, *Alaska Longline Fishermens Association*; **Chris Lunsford**, *National Marine Fisheries Service*

12:30 Panel Discussion

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FG2: IMCC4 FOCUS GROUP
 RESEARCH QUESTIONS CRITICAL TO THE
 ADVANCEMENT OF MARINE CONSERVATION
 (UPDATING THE 71 QUESTIONS)

PLACENTIA BAY ROOM
 Tuesday, August 2, 11:00–13:00

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**SY78-2: SYMPOSIUM
 MAKING MARINE SCIENCE MATTER TO PEOPLE: SHARING
 EXPERIENCES (CANADIAN PERSPECTIVES)**

**SALON B ROOM
 Tuesday, August 2, 11:00–13:00**

Organizer(s):
Bussièrès, Véronique, *Concordia University*; **Lalancette, Annie**, *Concordia University*

It is now generally accepted that indigenous peoples and other local communities have a crucial role to play in marine and coastal conservation and resource management: they are often the primary resource users, hold valuable knowledge about local ecosystems, are the most affected by environmental changes and policies and are well-positioned to monitor them. In many parts of the world, local communities are building the capacity to influence and even drive research agendas; yet many challenges remain to building effective partnerships between local peoples, scientists, managers and decision-makers. This symposium will bring together pairs of presentations focusing on similar topics (e.g., fisheries management, protected areas, threatened species, marine hunting, and marine pollution) from different geographic locations. The goal is to highlight lessons learned in terms of strategies used to foster collaboration, challenges encountered as well as benefits for communities and in terms of conservation outcomes. This symposium will be combined with the focus group Making Marine Science Matter to People: Steps Forward during which participants will build on the panel presentations to develop a white paper aimed at relevant Canadian governmental agencies involved in coastal and marine resource management.

11:00 Meaningful partnerships between Federal scientists and Indigenous peoples lead to effective research programs and policy development
Caines, S*, *Qalipu Mi’kmaq First Nations Band*; **Strickland, J**, *Qalipu Mi’kmaq First Nations Band*; **Matheson, M**, *Fisheries and Oceans Canada*; **McKenzie, CH**, *Fisheries and Oceans Canada*; **Rose, S**, *Qalipu Mi’kmaq First Nations Band*

11:15 Responding to environmental decline in eastern James Bay: Collaborative approaches in indigenous knowledge and trans-disciplinary research
Scott, Colin*, *McGill University*

11:30 Speaking for salmon, speaking for themselves: First nations engagement in the Cohen Commission (2009–2012)
Clarkson, Molly*, *University of British Columbia*

11:45 Protected areas at the land-sea interface: Lessons for collaboration, the case of the Wemindji Protected Areas Project
Bussièrès, Véronique*, *Concordia University, Department of Geography, Planning and Environment*; **Mulrennan, Monica E.**, *Concordia University, Department of Geography, Planning and Environment*

12:00 Panel Discussion

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Lunch Activities — 1:00 P.M. to 3:00 P.M.

**WS86: WORKSHOP
MAKING YOUR MARINE SCIENCE MATTER: OPTIMIZE THE
REAL-WORLD IMPACT OF YOUR WORK**

**SALON A ROOM
Tuesday, August 2, 13:15–14:45**

ORGANIZER(S):
John Davis, OpenChannels; Nick Wehner, OpenChannels

This workshop will instruct marine scientists on how to optimize the real-world impact of their work. Based on 15+ years of insights from OpenChannels, MPA News, MEAM, and related media, this workshop will provide tips on:

1. Improving your writing for your intended audience(s)
2. Creating better data visualization for optimal uptake
3. Sharing data and research with your peers
4. Creating a website to publicize your work
5. Harnessing media to disseminate your work to practitioners

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**WS36: WORKSHOP
BUILDING A CAREER IN OCEAN SCIENCE AND
CONSERVATION**

**SALON B ROOM
Tuesday, August 2, 13:15–14:45**

ORGANIZER(S):
Andrew Lewin, Spatial-Conserve Inc.

This workshop is designed to contribute to the professional development of young marine conservationists that are searching for a career in Marine Science and Conservation. The job market in 2015 is a tough one. Funding to science and conservation is low and paying, full time jobs are few and far between. Combined with the fact that there are more marine scientists and conservationists graduating every year, finding a job is even more difficult.

This workshop is designed to help students and recent graduates apply a strategy to plan their careers in Marine Science and Conservation. The workshop will consist of technical and non-technical tips that will help students focus on 1 or 2 career paths, which will allow for job seekers to put together a better application as they are more focused in a specific field rather than a more general approach. Job seekers can apply to one or two positions and take the time to customize their application for those positions increasing their chances of getting an interview.

The strategies and tips offered in this workshop will provide job seekers with the necessary tools to confidently pursue a career in Ocean Conservation.

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**PD40: PANEL DISCUSSION
TRANSCENDING CECIL: HARNESSING PUBLIC OUTRAGE
FOR MARINE CONSERVATION**

**SALON C ROOM
Tuesday, August 2, 13:15–14:45**

ORGANIZER(S):
Andrew Wright, George Mason University; Mel Cosentino, Wild Earth Foundation; Naomi Rose, Animal Welfare Institute

- PANELISTS:*
- *Andrew Wright, George Mason University*
 - *Naomi Rose, Animal Welfare Institute*
 - *Andrew Thaler, Southern Fried Science*

The death of Cecil the lion sparked massive public backlash against his hunter, while vaquita numbers dropped dangerously with little fanfare. Likewise, the Copenhagen zoo was villainised for euthanising Marius the giraffe while northern white rhino numbers quietly fell to just 3 animals. While some animal welfare organisations used these events to solicit donations and other actions, most conservation scientists floundered. Some tried, and failed, to redirect public interest towards bigger, albeit unrelated, problems (e.g., climate change). Some even, out of frustration, belittled those who were outraged. Education was also attempted, such as highlighting the destruction of suitable habitat for free-ranging giraffes. However, for the most part, the public did not focus on wider and related issues. The deaths of individual animals can bring attention to wildlife and habitat issues: a much-needed commodity in marine conservation, which typically lies beyond the public's daily experience. When public interest is peaked, strategies are needed for harnessing that interest for marine conservation. Channelling public energy and attention toward achieving wider conservation goals is crucial. By planning a response in advance of the next wildlife outrage, we can make the most of a bad situation. Should Migaloo the whale or Fungie the dolphin become the next Cecil, we may be able to leverage public outcry to make some advances on wider marine conservation issues. While we have no control over when or where the next Marius or Cecil will occur, conservation will benefit more if there is a plan in place for how we should react beforehand. This panel discussion will thus be open, with brief remarks from each panel member on the topic. These remarks will be followed by a free-flowing debate over the possible options open to marine and other conservation practitioners for nudging such individual-animal-focused concern into broader conservation directions (e.g., changing calls to shut down zoos to volunteering for a wildlife conservation organisation). We thus hope to develop a play-book for conservation scientists to refer to on occasions when specific wildlife events have captured the public interest. We expect to discuss strategies to channel such individual-focused anger and outrage into productive conservation endeavours.

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Afternoon session — 3:00 P.M. to 5:00 P.M.

C3: CONTRIBUTED SESSION

CLIMATE, OCEAN ACIDIFICATION, AND THE CHANGING OCEANS 3

SALON A ROOM

Tuesday, August 2, 15:00–17:00

15:00 Too abundant to be ignored: Biodiversity and mechanisms of stability of eastern Canadian rhodolith beds

Belanger, D*, *Department of Biology, Memorial University of Newfoundland, St. John's, NL, Canada, A1B 3X9*; **Gagnon, P**, *Department of Ocean Sciences, Memorial University of Newfoundland, St. John's, NL, Canada, A1C 5S7*

15:15 The animal forests as carbon sinks: an overlooked ecosystem service

Martina Coppari, *Environmental Science and Technology Institute, Universitat Autònoma de Barcelona, SPAIN*; **Andrea Gori**, *Ecology Department, Universitat de Barcelona, SPAIN*; **Sergio Rossi***, *Environmental Science and Technology Institute, Universitat Autònoma de Barcelona, SPAIN*

15:30 A systematic review and meta-analysis on the behavioral responses of wild marine mammals to man-made sounds: synthesis and recommendations for the future

Gomez, Catalina*, *Department of Fisheries and Oceans, St. John's, Newfoundland and Labrador, Canada*; **Lawson, Jack W.**, *Department of Fisheries and Oceans, St. John's, Newfoundland and Labrador, Canada*; **Buren, Alejandro**, *Department of Fisheries and Oceans, St. John's, Newfoundland and Labrador, Canada*; **Wright, Andrew J.**, *George Mason University, United States*; **Tollit, Dominic**, *SMRU Consulting North America, Vancouver, British Columbia, Canada*; **Lesage, Véronique**, *Fisheries and Oceans Canada, Mont-Joli, Quebec, Canada*

15:45 Relative contributions of biodiversity and environment to seafloor ecosystem functioning

Belley, R*, *Memorial University, Departments of Biology and Ocean Sciences*; **Snelgrove, PVR**, *Memorial University, Departments of Biology and Ocean Sciences*

16:00 Can reef fish learn to fear an invasive predator?

Berchtold, AE*, *Simon Fraser University*; **Côté, IM**, *Simon Fraser University*

16:15 Invasive, non-native and nuisance species: Investigating the potential for future spread using high resolution climate projections

Townhill, BL*, *Cefas*; **Dye, S**, *Cefas*; **Jones, M**, *University of Cambridge*; **Tinker, J**, *Met Office Hadley Centre*; **Simpson, S**, *University of Exeter*; **Stebbing, P**, *Cefas*; **Pinnegar, JK**, *Cefas*

16:30 Building benefits for birds and people: Ashton Lagoon restoration phase II

Martin Barriteau*, *Sustainable Grenadines Inc (SusGren)*

16:45 Q&A Session

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C7: CONTRIBUTED SESSION

CULTURE AND THE MARINE ENVIRONMENT

SALON F ROOM

Tuesday, August 2, 15:00–17:00

15:00 Political instability: Implications for marine resource management in Egypt

Hopkins, CR*, *University of Glasgow*; **Bailey, DM**, *University of Glasgow*

15:15 Ecosystem Services—An Inuit perspective

Daniel, RAG*, *self*; **Behe, C**, *Inuit Circumpolar Council Alaska*

15:30 Stakeholder perspectives and MPA governance: a case study of Isla Lobos de Tierra in northern Peru

Lainez del Pozo, D*, *University College London*

15:45 A wellbeing analysis of fishers in a Brazilian coastal shantytown

Gillam, C.*, *Saint Mary's University, Halifax, NS*; **Charles, A.**, *Saint Mary's University, Halifax, NS*

16:00 What if women had a seat on the marine policy boat? Gender, cultural identity and one country's efforts to achieve Aichi Biodiversity Targets 6+11.

McDonald, Anne*, *Sophia University Graduate School of Global Environmental Studies*

16:15 Reducing illegal fishing using behavior change interventions

Battista, W, *Environmental Defense Fund*; **Fraire, J**, *Environmental Defense Fund*; **Romero, R**, *Environmental Defense Fund*; **Fujita, R***, *Environmental Defense Fund*

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C14: CONTRIBUTED SESSION

EFFECTIVE MARINE CONSERVATION PLANNING 7

SALON G ROOM

Tuesday, August 2, 15:00–17:00

15:00 Evaluation of ecological effectiveness of marine partially protected areas based on regulations

Zupan, M*, *MARE-Marine and Environmental Sciences Centre, ISPA-Instituto Universitário, Rua Jardim do Tabaco 34, 1149-041, Lisboa, Portugal*; **Fragopoulou, E**, *Centre of Marine Sciences, CCMAR, University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal*; **Claudet, J**, *National Center for Scientific Research (CNRS), CRIOBE, USR 3278 CNRS-EPHE-UPVD, 66860 Perpignan, France*; **Erzini, K**, *Centre of Marine Sciences, CCMAR, University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal*; **Horta e Costa, B**, *Centre of Marine Sciences, CCMAR, University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal*; **Gonçalves, EJ**, *MARE-Marine and Environmental Sciences Centre, ISPA-Instituto Universitário, Rua Jardim do Tabaco 34, 1149-041, Lisboa, Portugal*





- 15:15 A new regulation-based classification system for marine protected areas**
Horta e Costa, B*, *Centre of Marine Sciences, CCMAR, University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal*; **Claudet, J**, *National Center for Scientific Research (CNRS), CRIOBE, USR 3278 CNRS-EPHE-UPVD, 66860 Perpignan, France*; **Franco, G**, *MARE-Marine and Environmental Sciences Centre, ISPA-Instituto Universitário, Rua Jardim do Tabaco 34, 1149-041, Lisboa, Portugal*; **Erzini, K**, *Centre of Marine Sciences, CCMAR, University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal*; **Caro, A**, *National Center for Scientific Research (CNRS), CRIOBE, USR 3278 CNRS-EPHE-UPVD, 66860 Perpignan, France*; **Gonçalves, EJ**, *MARE-Marine and Environmental Sciences Centre, ISPA-Instituto Universitário, Rua Jardim do Tabaco 34, 1149-041, Lisboa, Portugal*
- 15:30 Trends in baleen whale habitat use in offshore wind energy areas: Effective coastal marine planning and conservation in the mid-Atlantic bight**
D.P. Salisbury*, *Bioacoustics Research Program, Cornell University, Ithaca NY, USA*; **K.B. Hodge**, *Bioacoustics Research Program, Cornell University, Ithaca NY, USA*; **B.J. Estabrook**, *Bioacoustics Research Program, Cornell University, Ithaca NY, USA*; **J.T. Tielens**, *Bioacoustics Research Program, Cornell University, Ithaca NY, USA*; **J. Wingfield**, *Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD, USA*; **H. Bailey**, *Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD, USA*; **A.R. Rice**, *Bioacoustics Research Program, Cornell University, Ithaca NY, USA*
- 15:45 Keeping our eyes on the prize of sustained recovery through post-delisting monitoring of the eastern distinct population segment of steller sea lion**
Rotterman, L.M.*, *Protected Resources Division, Alaska Region, National Marine Fisheries Service, NOAA*
- 16:00 GIS-based, participative multiple-criteria decision analysis for the marine and coastal management areas off western Newfoundland, Canada**
Rebecca D.E. Brushett*, *MA-Candidate in Environmental Policy. Graduate Student with the Environmental Policy Institute; Memorial University of Newfoundland (Grenfell Campus)*
- 16:15 Responsible pier initiative**
Cutt, Tommy*, *Loggerhead Marinelifelife Center*; **Fox, Demi**, *Loggerhead Marinelifelife Center*
- 16:30 Steering to the right course: Present and future of MPA governance in Cuba**
Gerhartz, J.L.*, *Marine Conservation Consultant, Cuba*; **Pina, F.**, *Research Center for Coastal Ecosystems, Cuba*; **Figueredo, T.**, *Research Center for Coastal Ecosystems, Cuba*; **Gerhartz-Abraham, A.**, *Dalhousie University, Canada*
- 16:45 Q&A Session**
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- C36: CONTRIBUTED SESSION
PARTICIPATION IN MARINE CONSERVATION SCIENCE
(E.G. CITIZEN AND INDIGENOUS SCIENCE) 2**
- SALON D ROOM
Tuesday, August 2, 15:15–17:15**
- 15:00 Improving long-term coral reef monitoring in the wider Caribbean region: Initial GCRMN-Caribbean accomplishments**
Belmont, Julie*, *SPAW-RAC*; **Maréchal, Jean-Philippe**, *Nova Blue Environment*; **Torres, Ruben**, *Reef Check Dominican Republic*
- 15:30 Using citizen science data to protect endangered species and manage fisheries in the Upper Gulf of California, Mexico**
Lopez-Sagastegui, Catalina*, *University of California Riverside*; **Mascareñas-Osorio, Ismael**, *Centro para la Biodiversidad Marina y la Conservación A.C.*; **Jimenez-Esquivel, Victoria**, *Centro para la Biodiversidad Marina y la Conservación A.C.*; **Girón-Nava, Alfredo**, *Scripps Institution of Oceanography*; **Johnson, Andrew**, *Scripps Institution of Oceanography*; **Aburto-Oropeza, Octavio**, *Scripps Institution of Oceanography*
- 15:45 Local communities in marine conservation science in Madagascar**
Rabearisoa, A*, *Conservation International Madagascar*
- 16:00 Strategies to engage frivolous fisher communities in management and conservation marine measures**
Mbidde, R*, *Uganda Environmental Volunteers for Service (UEVS), Masaka, Uganda*; **Mujimba, S**, *Environmental Research Agency (ERA), Mukono, Uganda*; **Natukwasa, A**, *Faculty of Social Sciences, Makerere University, Kampala, Uganda*
- 16:30 Acquiring and retaining active participation within a constituent-based tagging program**
Katz, AM*, *The Billfish Foundation*; **DiNicola, DS**, *University of Miami*; **Chaibongsai**, *The Billfish Foundation*
- 16:45 Q&A Session**
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- S40: SPEED SESSION 2**
- SALON C ROOM
Tuesday, August 2, 15:00–17:00**
- 15:00 Eat it to beat it? Assessing human consumption of invasive lionfish (*Pterois spp.*) for developing a national management strategy in Belize**
Krening, Phil, *Colorado State University*; **Sabattis, Julie***, *Colorado State University & Blue Ventures*; **Solomon, Jennifer**, *Warner College of Natural Resources at Colorado State University*; **Martin, Kelly**, *College of Business at Colorado State University*; **Teel, Tara**, *Warner College of Natural Resources at Colorado State University*; **Jennifer Chapman**, *Blue Ventures*; **Marc Fruitema**, *Blue Ventures*
- 15:05 Quantifying relative vulnerability and cumulative effects at a regional scale in British Columbia's north coast**
Sharlene Shaikh*, *WWF-Canada*; **Selina Agbayani**, *WWF-Canada*; **James Casey**, *WWF-Canada*; **Mike Ambach**, *WWF-Canada*

- 15:10 Improving capacity for coral reef fisheries management in Micronesia through social marketing and behavior change Campaigns**
Guilbeaux, Michael*, *Rare; Fread, Vanessa, Rare; Kostka, William, Micronesian Conservation Trust*
- 15:15 Mapping ocean wealth for the Caribbean: A Coastal restoration tool that maximizing nature's benefits to people**
Schill, SR*, *The Nature Conservancy*; **Byrne, J.**, *The Nature Conservancy*; **Roth, L.**, *The Nature Conservancy*; **Knowles, J.**, *The Nature Conservancy*
- 15:20 Preservation of indigenous cultures and languages to safeguard the Arctic**
Harcharek, Qaiyaan*, *North Slope Borough Wildlife Department*
- 15:25 Mangroves conservation: A molecular approach**
Sahu, SK*, *Sun Yat-Sen University*; **Kathiresan, K.**, *Annamalai University*
- 15:30 Benchmarking fishery transition towards sustainability**
Oloruntuyi, O*, *Marine Stewardship Council*; **Norbury, H.**, *Marine Stewardship Council*
- 15:35 How can fishermen's knowledge inform marine protected area monitoring? Perspectives from California**
Leila Sievanen*, *California Ocean Science Trust*
- 15:40 Perceived socio-economic benefits of invasive lionfish jewellery production in the Caribbean and the implications for lionfish control.**
Fruitema, Marc L., *Blue Ventures Conservation*; **Karp, Phil***, *Blue Ventures Conservation*; **Chapman, Jennifer K.**, *Blue Ventures Conservation*; **Spencer, Erin**, *Independent*
- 15:45 Social network analysis as a fishery sustainability metric**
Robbins, M*, *UC Davis*
- 15:50 Saving the ocean through saving schemes—new approaches to financially and ecologically sustainable marine protected areas in developing countries**
Hill, N., *Zoological Society of London*; **Blanco, A.**, *Zoological Society of London*; **Apurado, R.**, *Zoological Society of London*; **Daneshpay, F.**, *Zoological Society of London*; **Khoo, J.**, *Interface*; **Turner, M.**, *Interface*; **Patel, S.**, *Zoological Society of London*; **Koldewey, H***, *Zoological Society of London*
- 15:55 Policy and reality, are regulations regarding antifouling paints reflected in actual use?**
Egardt, J*, *Dept. Biological and Environmental Sciences, Gothenburg University*; **Nilsson, P.**, *Dept. Marine Sciences, Gothenburg University*
- 16:00 Non-breeding distribution and at-sea behaviour of Bermudan origin white-tailed tropicbirds (*Phaethon lepturus catesbyi*) in the North Atlantic**
Mejias, MA*, *Memorial University*; **Madeiros, J.**, *Bermuda Conservation Services*; **Wingate, DB.**, *Bermuda Conservation Services (retired)*; **Wiersma, YF.**, *Memorial University*
- 16:05 Citizens/communities reducing nitrogen pollution in Indian River Lagoon, Florida**
Moir, Rob*, *Ocean River Institute*

- 16:10 Population matrix model for green crabs (*Carcinus maenas*)**
Gehrels, H*, *University of Prince Edward Island*; **Cox, R.**, *Atlantic Veterinary College*; **Quijon, P.**, *University of Prince Edward Island*

16:20 Q&A Session

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**C44: CONTRIBUTED SESSION
 ESTUARY AND COASTAL RESTORATION 2 AND
 CONSERVATION AT THE LAND-SEA INTERFACE 2**

**SALON E ROOM
 Tuesday, August 2, 15:00–17:00**

- 15:00 An alternative policy for the conservation of the world's largest deltaic mangrove forest, the Sundarban**
Paul, S*, *Agencia Nacional de Investigación e Innovación, Uruguay*
- 15:15 Future fish—How Londoners are securing a future for Thames Fish through citizen science.**
Debney, AJ*, *Zoological Society of London*; **Pecorelli, J.**, *Zoological Society of London*
- 15:30 Management of a marine invasive species: Can trapping control abundances and reverse impacts of European green crab (*Carcinus maenas*) in Newfoundland?**
Matheson, Kyle*, *Fisheries and Oceans Canada*; **McKenzie, Cynthia H.**, *Fisheries and Oceans Canada*; **Caines, Scott.**, *Qalipu Mi'kmaq Organization*; **Baker, Jackie.**, *Fish, Food and Allied Workers Union*; **Street, Dwan.**, *Fish, Food and Allied Workers Union*; **Stickland, Jonathan.**, *Qalipu Mi'kmaq Organization*
- 15:45 It all runs out to sea: Water quality and coastal management through the eyes of land-use planning professionals.**
Williams, Lindsey C.*., *University of New Hampshire*; **Grimm, Curt.**, *University of New Hampshire*
- 16:00 Artificial light on water attracts turtle hatchlings during their nearshore transit**
Thums, M*, *Australian Institute of Marine Science*; **Whiting, S.D.**, *Department of Parks and Wildlife*; **Reisser, J.**, *The Ocean Cleanup Foundation*; **Pendoley, K.L.**, *Pendoley Environmental*; **Pattiaratchi, C.B.**, *University of Western Australia*; **Proietti, M.**, *Universidade Federal do Rio Grande*; **Hetzel, Y.**, *University of Western Australia*; **Fisher, R.**, *Australian Institute of Marine Science*; **Meekan, M.G.**, *Australian Institute of Marine Science*
- 16:15 Oil sands and the marine environment: Current knowledge and future challenges**
Green, SJ*, *Oregon State University*; **Demes, K.**, *Simon Fraser University*; **Arbeider, M.**, *Simon Fraser University*; **Palen, WJ.**, *Simon Fraser University*; **Salomon, AK.**, *Simon Fraser University*; **Sisk, TD.**, *Northern Arizona University*; **Webster, M.**, *Simon Fraser University*; **Ryan, ME.**, *Simon Fraser University*

16:30 Q&A Session

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FG79: FOCUS GROUP
MAKING MARINE SCIENCE MATTER TO PEOPLE: STEPS
FORWARD

SALON B ROOM
Tuesday, August 2, 15:00–17:00

ORGANIZER(S):

Bussières, Véronique, *Concordia University*; **Lalancette, Annie**,
Concordia University

With the world’s largest coastline (250, 000 km) and the second largest continental shelf, Canada finds itself in a privileged position to contribute towards achieving international marine conservation targets. Aboriginal peoples have a key role to play in this, as they are the customary stewards of a large proportion of this territory and are at the forefront of environmental changes affecting it. Effective and equitable marine/coastal management and conservation thus requires close collaboration between policy-makers, resource managers and aboriginal peoples. Building on the sharing of experiences in the Symposium Making Marine Science Matter to People, this focus group will discuss policy recommendations in the wider context of reconciliation between First Nations and other Canadians. It will bring together community representatives, their academic partners from various disciplines (e.g., geography, anthropology, political science), NGO representatives as well as marine conservation practitioners together to work on developing a white paper to be presented to Canadian governmental agencies involved in marine and coastal resource management. The main discussion question will be: “How can we promote effective partnerships between indigenous peoples, marine scientists and policy makers to improve the status of marine and coastal environments while respecting indigenous peoples’ rights as well as aspiration to maintain their role as stewards of the land and sea?”

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FGD5-1: IMCC DIVERSITY SERIES FOCUS GROUP
CONFERENCE ACCESSIBILITY, HARASSMENT, AND CODES
OF CONDUCT

PLACENTIA BAY ROOM
Tuesday, August 2, 15:00–17:00

ORGANIZERS:

Brett Favaro, *Memorial University*; **Samantha Oester**, *George Mason University*; **Tracey Woodbury**, *Society for Human Resource Management*; **Edward Hind**, *Manchester Metropolitan University*; **John Cigliano**, *Cedar Crest College*; **Leslie Cornick**, *Alaska Pacific University*; **Luli Martinez**, *University of California-Santa Cruz*

Harassment, bullying, and intimidation are pervasive problems in science. Recent high-profile articles in scientific journals and popular media have drawn attention to cases of abuse, and scholarly research has shown that these cases are far too common. Conferences are critical to the communication, conduct, and implementation of conservation science, and so making these spaces safe and accessible is absolutely necessary. As organizers of IMCC4, we built a code of conduct to guide delegate behaviour. We designed this code—and the consequences for violating it—with input from experts in inclusivity and human resources to make the conference accessible and safe. In this FG, we will discuss the need for conference codes of conduct, and will argue that all science conferences should adopt similar policies. In addition, we will discuss some of the misconceptions that people have about how to craft and implement codes of conduct. We will also discuss the importance of conference codes of conduct in welcoming diverse delegates.

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Morning session — 8:30 A.M. to 10:30 A.M.

C26: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 8

SALON G ROOM
Wednesday, August 3, 08:30–10:30

- 08:30 Forecasting the American lobster fishery in the Gulf of Maine and Southern New England: Trouble on the horizon?**
Oppenheim, NG*, *Maine Sea Grant*; **Wahle, RA**, *University of Maine*; **Brady, DC**, *University of Maine*
- 08:45 A review of the impacts of fisheries on open-ocean ecosystems**
Crespo, GO*, *Duke University*; **Dunn, D**, *Duke University*
- 09:00 Collaborative, interdisciplinary and participatory research to fill data gaps in management of small boat fisheries**
Dwan Street, MA, MMS*, *Fish, Food and Allied Workers*; **Erin H. Carruthers, Ph. D**, *Fish, Food and Allied Workers*
- 09:15 Evaluating the impacts of single species fishery regulations on multiple species in the guided recreational fishing sector in Alaska, U.S.A.**
Maggie Nga Chan*, *University of Alaska Fairbanks*; **Anne Beaudreau**, *University of Alaska Fairbanks*; **Philip Loring**, *University of Saskatchewan*
- 09:30 What can experience with past ecological surprises tell us about future conservation? Insights from the Bay of Fundy, Canada**
Filbee-Dexter, K*, *Dalhousie University*; **Symons, C**, *University of California San Diego*; **Pittman, J**, *University of Waterloo*; **Alexander, S**, *National Socio-Environmental Synthesis Center*; **Burke, M**, *McGill University*; **Haig, H**, *University of Regina*
- 09:45 The impact of scientific uncertainty on delayed rebuilding of overfished stocks: A case study using New England groundfish**
Wiedenmann, John*, *Department of Ecology, Evolution, and Natural Resources, Rutgers University*; **Jensen, Olaf**, *Department of Marine and Coastal Science, Rutgers University*
- 10:00 Managing for fishing capacity reduction in artisanal fisheries: Do vessels interrelations matter?**
Alencastro, Liliana*, *Escuela Superior Politécnica del Litoral*; **Larkin, Sherry**, *University of Florida*
- 10:15 Q&A Session**

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C45: CONTRIBUTED SESSION
CULTURE AND THE MARINE ENVIRONMENT 2

PLACENTIA BAY ROOM
Wednesday, August 3, 08:30–10:30

- 08:30 Quantifying public support for ecologically regenerative renewable energy: Sizeable willingness to pay for offshore wind farms that boost biodiversity**
Klain, S.C.*, *University of British Columbia*; **Chan, K.M.A.**, *University of British Columbia*; **Satterfield, T.**, *University of British Columbia*
- 08:45 The Gilbert Bay marine protected area, Southern Inuit of Labrador, and continuing efforts to save the golden cod (*Gadus morhua*) in NunatuKavut**
Nash, PA*, *NunatuKavut Community Council*
- 09:00 Catching the right fish: A toolbox to reduce marine mammal bycatch in developing countries**
Ellen Hines*, *Romberg Tiburon Center for Environmental Studies*; **Rebecca Lewison**, *San Diego State University*; **Chalatip Junchumpoo**, *Dept of Marine and Coastal Resources, Thailand*; **Duc Hoang Minh**, *Southern Institute of Ecology, Vietnam*; **Vu Long**, *Vietnam Marine Mammal Network*; **Cindy Peter**, *University Malaysia Sarawak*; **Marjolaine Caillat**, *Romberg Tiburon Center for Environmental Studies*; **Gregg Verutes**, *Natural Capital Project, Stanford University*
- 09:15 Indigenous women and fishing in Torres Strait, northern Australia.**
Mulrennan, ME*, *Concordia University*
- 09:30 Ethical implications of climate change on small, vulnerable nations: Perspectives of the world religions**
Jame Schaefer, PhD*, *Marquette University*
- 09:45 Q&A Session**

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SY20: SYMPOSIUM
MAKING BAD BETTER: ADVANCEMENTS IN TRAWL FISHERIES RESEARCH AND MITIGATION

SALON E ROOM
Wednesday, August 3, 08:30–10:30

ORGANIZER(S):
Sarah Foster, *Project Seahorse, Institute for the Oceans and Fisheries, UBC*; **Amanda Vincent**, *Project Seahorse, Institute for the Oceans and Fisheries, UBC*

This symposium aims to highlight advancements in our understanding of the impacts of trawl fisheries and how they can be better managed, seeking commonalities in process that can provide insight into how to better manage even the worst examples. One of the greatest challenges facing both fisheries management and marine conservation today is how to regulate and therefore reduce the impact of the world's bottom trawl fisheries. Bottom trawling is a very common fishing



practice in much of the world, providing (with dredging) about a quarter of the world's fish catch and half of the invertebrates. Many of the world's bottom trawl fisheries are far from well-managed, particularly in areas such as southeast Asia where they are sustained only by perverse subsidies. Making matters worse, many of the trawls are working to extract any and all life, without discretion or distinction. Solutions to this global problem seem untenable, but researchers have made considerable process in understanding the extent and impact of trawl fisheries, as well as approaches and methods for mitigating impact. This symposium will bring together these stories—on biomass fishing, trawl impacts on threatened species, as well as recent advancements in understanding impact and mitigation—seeking insight into how to improve practices in the rest of the world.

08:30 Addressing annihilation trawling and associated environmental and human rights abuses

Vincent.ACJ*, *Project Seahorse, Institute for the Oceans and Fisheries, The University of British Columbia*; **Foster, SJ**, *Project Seahorse, Institute for the Oceans and Fisheries, The University of British Columbia*

08:45 Small bycatch rates of an unusual small fish taxon add up to big numbers

Lawson, J.M., *Project Seahorse, Institute for the Oceans and Fisheries, UBC*; **Foster, S.J.***, *Project Seahorse, Institute for the Oceans and Fisheries, UBC*; **Vincent, A.C.J.**, *Project Seahorse, Institute for the Oceans and Fisheries, UBC*

09:00 Scale effects on the estimate of global trawling footprint on seabed ecosystems

Amaroso, R, *University of Washington*; **Kaiser, MJ***, *Bangor University*; **Hilborn, R**, *University of Washington*; **Jennings, S**, *CEFAS*

09:15 Sea-scape effects of commercial trawling on seabed communities

JG Hiddink*, *Bangor University*; **R Hilborn**, *UW*; **KM Hughes**, *Bangor University*; **M Sciberras**, *Bangor University*; **B Kneafsey**, *Bangor University*; **C Szostek**, *Bangor University*; **RA McConnaughey**, *NOAA*; **JS Collie**, *Uni Rhode Island*

09:30 Comparative fishing to evaluate the viability of an aligned footgear designed to reduce seabed impacts

Munden, JG, *Memorial University*; **Winger, PD**, *Memorial University*; **Nguyen, TX***, *Memorial University*; **Grant, SM**, *Memorial University*; **Legge, G**, *Memorial University*

09:45 Small-scale fisheries and marine stewardship: A case-study of the southeast Alaska trawl closure

Behnken, Linda, *Alaska Longline Fishermen's Association*; **Moore, Willow***, *Alaska Longline Fishermen's Association*

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 SY31: SYMPOSIUM
 CONNECTING THEORY AND PRACTICE TO ADVANCE
 MARINE CONSERVATION SCIENCE AND OUTCOMES

SALON C ROOM
 Wednesday, August 3, 08:30–10:30

ORGANIZER(S):
Siegel, KJ, *University of California, Santa Barbara*; **Clemence, M**, *University of California, Santa Barbara*

Making marine science relevant for policy and management depends on the bi-directional linkages between scientific theory and practice.

Scientists develop theory and help resource managers, policy makers, and conservation practitioners apply it; the results of these management interventions can in turn yield new insights for scientists, informing the next generation of theory and scientific inquiry. While there has been considerable attention paid to the challenges of communicating science to policy makers and conservation practitioners in order to inform their on-the-ground decisions, there has been less focus on connecting practitioners to scientists for the purpose of extracting insights from practical application to advance underlying scientific theory. In this session, we will bring together scientists and practitioners to engage at both ends of this knowledge exchange, provide case studies where this bi-directional learning has been put into practice, and highlight the synergistic benefits for both science and management.

08:30 'Think-and-do tanks': Building boundary organizations to connect the science and practice of marine conservation

Siegel, KJ*, *Sustainable Fisheries Group, University of California, Santa Barbara*

08:45 Down from the Ivory Tower: Improving science and management through dialogue

Grorud-Colvert, Kirsten*, *Oregon State University*

09:00 Fish forever: How conservation and management sciences reconcile in implementing robust TURF-Reserve systems

Granados, P.*, *Rare, Fish Forever*

09:15 Tackling ocean tipping points: an experiment in science-to-action

Kappel, Carrie V.*, *National Center for Ecological Analysis and Synthesis*

09:30 Science to action: Reflections from the field

Fujita, Rod*, *Environmental Defense Fund*

09:45 Which scientific results do practitioners seek most?

Research that makes a difference in marine conservation policy
Stiles, M.L.*, *Oceana*; **Geers, T.M.**, *Oceana*

10:00 The form and function of linking policy and science: The devil is in the details

Erickson, AL*, *Center for Ocean Solutions, Stanford University*

10:15 Q&A Session

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SY41: SYMPOSIUM
 SHARK & RAY CONSERVATION 2.0: THREADING THE
 NEEDLE ON SCIENCE, CONSERVATION, AND POLICY INTO
 THE NEXT DECADE

SALON B ROOM
 Wednesday, August 3, 08:30–10:30

ORGANIZER(S):
Rick MacPherson, *Pelagia Consulting*

Sharks and their flat relatives the rays remain some of the most iconic yet globally threatened marine species. The past decade has witnessed a tremendous uptick in elasmobranch science, management options, conservation interventions, and policy action. Tempting though it may be to construct a narrative of data, planning, and collaboration driving much of current elasmobranch conservation, the reality might be closer to one of conservation gains despite infighting, acrimony,



obstructionism, and divergent priorities. Imagine what wins might have been accomplished through better alignment. This symposium proposes to convene thought leaders in contemporary shark and ray science, conservation, as well as decision makers to reflect on past gains, warts and all, to identify not only success factors but where opportunities were missed. Importantly, panelists will collectively look forward to how the next decade of elasmobranch conservation strategy can galvanize global attention, break through the status quo of current approaches, and propose a landscape of conservation that matches the urgency and realities of the preservation of charismatic species.

08:30 The role of non-expert activists in shark conservation
Shiffman, David S*, *University of Miami*

08:45 Elasmobranch conservation policy: Assessing results, needs, and perceptions to enhance future effectiveness
Fordham, S.V.*, *Shark Advocates International*

09:00 The science of saving sharks
Heupel, Michelle*, *Australian Institute of Marine Science*

09:15 Is it feasible to monitor and regulate the international trade in shark products, including shark fins?
Abercrombie, DL*, *Abercrombie & Fish*

09:30 Bridging the gap between research and policy
Fernando, D*, *Linnaeus University, Sweden; The Manta Trust, UK; Blue Resources, Sri Lanka*

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**SY70: SYMPOSIUM
 FISHERIES MANAGEMENT IN AN ERA OF CLIMATE
 CHANGE: A LOOK AT EASTERN NORTH AMERICA**

**SALON F ROOM
 Wednesday, August 3, 08:30–10:30**

**ORGANIZER(S):
 Rebecca Goldberg, Pew Charitable Trusts**

Climate change challenges fisheries managers. Species ranges, carrying capacity, recruitment, and other population and marine community attributes are already shifting as water temperatures, oxygen levels, pH, and other physical ocean characteristics change. Moreover, traditional management methodologies may be inadequate; for example, traditional stock assessment methods assume that there are no long term trends in the physical environment.

This symposium will examine the fisheries impacts of warming waters along the east coast of North America and consider current and potential management responses. Changes in ocean temperature vary from Canada and New England, where warming waters have had a marked impact, to the south Atlantic, which currently appears relatively unaffected. Speakers will discuss observed shifts in fisheries ranges and altered ecological interactions that appear to result from climate change, such as reduced prey availability for seabird predators. Presenters will also address management and policy approaches to sustain fisheries and fishing communities, such as ecosystem based fisheries management. The session will conclude with discussion of topics such high priority scientific questions, management dilemmas, and implications for both biodiversity and people. This symposium will contribute to the theme of making marine science matter, because it will consider the application of actionable marine science to climate adaptation in fisheries.

08:30 Recent changes in the diet and survival of Atlantic Puffin chicks in the face of climate change and commercial fishing in mid-coast Maine, USA

Kress, Stephen*, *National Audubon Society*; **Shannon, Paula**, *National Audubon Society*; **O’Neal, Christopher**, *Synovus*

08:45 NOAA Fisheries Climate Science strategy to address the impacts of changing climate on fisheries and coastal communities: Application in the Northwest Atlantic
Link, JS*, *NOAA Fisheries*; **Hare, JA**, *NOAA Fisheries*; **Saba, VS**, *NOAA Fisheries*; **Gaichas, S**, *NOAA Fisheries*; **Griffis, R**, *NOAA Fisheries*

09:00 Mapping fisheries and environmental change in a policy landscape
Matthews, KA*, *Oceana*

09:15 Climate influences on Newfoundland and Labrador’s fisheries ecosystem dynamics
Fisher, JAD*, *Memorial University of Newfoundland*

09:30 Impact of temperature change over three timescales on fisheries and fisheries management in the Gulf of Maine
Pershing, AJ*, *Gulf of Maine Research Institute*; **Mills, KE**, *Gulf of Maine Research Institute*; **Le Bris, A**, *Gulf of Maine Research Institute*

09:45 Projecting fisheries range shifts along the US east coast: Sources of uncertainty and management implications
Morley, JW*, *Rutgers University*; **Pinsky, ML**, *Rutgers University*; **Selden, RL**, *Rutgers University*; **Batt, RD**, *Rutgers University*

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**SY80: SYMPOSIUM
 INFORMAL LEARNING AND OCEAN CONSERVATION:
 SCIENCE LITERACY IN AND OUT OF THE CLASSROOM**

**SALON A ROOM
 Wednesday, August 3, 08:30–10:30**

**ORGANIZER(S):
 Jake Levenson, Oceans Forward; Marissa Fox, Oceans Forward;
 Chelsie Archibald, Oceans Learning Partnership**

Engaging K-12 and adult students about the importance of the ocean, the very life support system of our planet, presents a unique challenge. We are all connected to and depend on the sea, yet the ocean seems distant to many and others simply take it for granted. For this reason, increasing ocean literacy is essential for effective marine conservation. This symposium will discuss the best methods for addressing existing gaps in ocean conservation, including developing successful partnerships between academia and informal or experiential learning institutions. This symposium will also examine case studies that have successfully engaged students, teachers and coastal communities in conducting ocean science, and describe interactive activities focused on conserving protected species and improving collective climate and ocean literacy. Finally, this symposium will explore and share innovative solutions to evaluating the effectiveness of these programs while ensuring local education standards are exceeded.



08:30 Experiential, boat-based programs as a tool to bring ocean literacy to students and teachers in Newfoundland and Labrador

Archibald, CA*, *Oceans Learning Partnership*

08:45 Live underwater broadcasting: An innovative solution to engage students in marine conservation topics: A case study
Irvine, M*, *Fish Eye Project*; Gauthier, M, *Fish Eye Project*

09:00 Creating a culture of science in coastal communities
Busch, Lisa *, *Sitka Sound Science Center*; Straley, Jan, *University of Alaska Southeast*

09:15 Experiential learning and lasting conservation action in Dominica, West Indies
Errol Harris, *Dominica Sea Turtle Conservation Organization, Dominica*; Verna De Jean Frederick, *Maune Jaune Primary School, Dominica*; Heather Hughes, *Gates Intermediate School, USA*; Jacob Levenson*, *Oceans Forward, USA*; Bob Cooper, *Oceans Forward, USA*; Megan Anderson, *National Aquarium, USA*; Kara Mahoney-Robinson, *New England Aquarium, USA*

09:30 Getting your hands wet: Bringing together marine ecotourism and ocean conservation in Newfoundland and Labrador
Johannes A Negrijn*, *Retired*

09:45 Beyond the lecture hall: Ocean literacy and #SciComms at sea
Novaczek, E*, *Memorial University of Newfoundland*

10:00 Q&A Session

SY90: SYMPOSIUM
CONSERVING THE OTHER 50% OF THE WORLD: STATUS AND OPPORTUNITIES IN AREA-BASED MANAGEMENT BEYOND NATIONAL JURISDICTION

SALON D ROOM
Wednesday, August 3, 08:30–10:30

ORGANIZER(S):
Daniel Dunn, *Duke University*; Telmo Morato, *University of the Azores*; Steve Fletcher, *UNEP-WCMC*

For over half of Earth's surface, the open ocean and deep seas in areas beyond national jurisdiction (ABNJ), no comprehensive mechanism exist to conserve biodiversity. Driven by swelling market demand and new technologies, the human footprint in the high seas increasingly threatens marine biodiversity (Ramirez-Llodra et al. 2011; Merrie et al. 2014). This has led to repeated calls for the conservation of areas beyond national jurisdiction (Van Dover et al., 2011; Barbier et al., 2014). This past June, the UNGA adopted a resolution to establish a Preparatory Committee (PrepCom) to begin negotiations on a new legally-binding instrument for the conservation and sustainable use of marine biological diversity beyond national jurisdictions. This consensus resolution marks both the culmination of a herculean 10-year effort to bring the topic to the floor of the UNGA and, at the same

time, the first step in a larger process. The negotiations that will ensue over the next two years will set the stage for the conservation of biodiversity for the other 50% of the planet and represent an enormous opportunity to inform conservation policy and effect change. In this workshop we will examine the status and opportunities for conservation of ABNJ by reviewing new scientific findings and current sectoral efforts to conserve biodiversity. We will synthesize this information and consider how it can inform a new instrument and how the new instrument may affect existing competent authorities.

08:30 Scanning the future of biodiversity beyond national jurisdiction: emergent challenges and implications
Fletcher, S*, *UNEP-WCMC*; Fletcher, R, *UNEP-WCMC*; Eassom, A, *UNEP-WCMC*; Chiba, S, *UNEP-WCMC*; Tittensor, D, *UNEP-WCMC*; Vinales, J, *University of Cambridge*; Barritt, E, *University of Cambridge*; Gjerde, K, *IUCN*; Hazin, C; Lascelles, B; *Birdlife International*

08:45 The ISA's APEIs and work towards a Mid-Atlantic Ridge strategic environmental management plan for deep-sea mining
Johnson, DE*, *Seascope Consultants Ltd*

09:00 Results, implications and future directions of the first intergovernmentally sanctioned effort to describe ecological or biologically significant areas (EBSAs)
Halpin, Patrick*, *Marine Geospatial Ecology Lab, Duke University*

09:15 Will Canada resume a leadership role in protecting areas beyond national jurisdiction?
Fuller, SD*, *Ecology Action Centre*; Diz, Daniela, *University of Edinburgh*

09:30 The call for MPAs in areas beyond national jurisdiction: identifying real needs and false assumptions
Dunn, DC*, *Duke University*; Gjerde, KM, *Wycliffe Management/MIDAS*

09:45 Conserving the other 50% of the world: status and opportunities in area-based management beyond national jurisdiction
Morato, T.*, *MARE University of the Azores*; Dunn, D.C., *Duke University*; Fletcher, S., *UNEP-WCMC*

10:00 Designing a global ocean observing system for the biological and ecosystem components of the world oceans
Bax, N.*, *CSIRO*; Simmons, S., *Marine Mammal Commission*; Miloslavich, P., *Universidad Simon Bolivar*; Appeltans, W., *UNESCO / IODE office of IOC*

10:15 Q&A Session



COFFEE BREAK
10:30–11:00

Late Morning session — 11:00 A.M. to 1:00 P.M.

C27: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 9

SALON G ROOM
Wednesday, August 3, 11:00–13:00

11:00 Assessment of North Atlantic right whale (*Eubalaena glacialis*) distribution, habitat use and threats in the Mid-Atlantic region

Good, C.P.*, *Duke University*; **Garrison, L.P.**, *NOAA Southeast Fisheries Science Center*; **McLellan, W.A.**, *University of North Carolina Wilmington*; **Kenney, R.D.**, *University of Rhode Island*; **Knowlton, A.R.**, *New England Aquarium*; **Cole, T.V.N.**, *NOAA Northeast Fisheries Science Center*; **Palka, D.L.**, *NOAA Northeast Fisheries Science Center*; **Landry, S.**, *Provincetown Center for Coastal Studies*

11:15 Evaluating biodiversity targets in marine ecosystems: a fuzzy logic framework

Cisneros-Montemayor, AM*, *The University of British Columbia*; **Cheung, WWL**, *The University of British Columbia*

11:30 Behavioral responses of snow crab to seismic exploration

Morris, Corey*, *Fisheries and Oceans Canada*; **Cote, David**, *Amec Foster Wheeler and Memorial University of Newfoundland*

11:45 Improving cod pots for Newfoundland & Labrador fisheries

Meintzer, P*, *Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute of Memorial University of Newfoundland, PO Box 4920, St. John's NL, A1C 5R3*; **Walsh, P**, *Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute of Memorial University of Newfoundland, PO Box 4920, St. John's NL, A1C 5R3*; **Favaro, B**, *Centre for Sustainable Aquatic Resources, Fisheries and Marine Institute of Memorial University of Newfoundland, PO Box 4920, St. John's NL, A1C 5R3*

12:00 Behavioral interactions between the American lobster (*Homarus americanus*) and the invasive green crab (*Carcinus maenas*)

Rayner, G*, *Memorial University of Newfoundland*; **McGaw, IJ**, *Memorial University of Newfoundland*

12:15 Conservation implications from population genetics study of three exploited groupers in the Indo-Pacific

Ka Yan Ma, *Simon F. S. Li Marine Science Laboratory, School of Life Sciences, The Chinese University of Hong Kong, Hong Kong Special Administrative Region*; **Yvonne Sadovy de Mitcheson**, *School of Biological Sciences, Swire Institute of Marine Science, University of Hong Kong, Hong Kong Special Administrative Region*; **Ka Hou Chu***, *Simon F. S. Li Marine Science Laboratory, School of Life Sciences, The Chinese University of Hong Kong, Hong Kong Special Administrative Region*

12:30 Q&A Session

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C15: CONTRIBUTED SESSION
EFFECTIVE MARINE CONSERVATION PLANNING 8

SALON F ROOM
Wednesday, August 3, 11:00–13:00

11:00 Assessing marine habitat maps sensitivity to variable selection and data quality

Lecours, V*, *Department of Geography, Memorial University, Newfoundland and Labrador, Canada*; **Devillers, R**, *Department of Geography, Memorial University, Newfoundland and Labrador, Canada*; **Brown, CJ**, *Nova Scotia Community College, Nova Scotia, Canada*; **Lucieer, VL**, *Institute for Marine and Antarctic Studies, University of Tasmania, Australia*; **Edinger, EN**, *Department of Geography and Department of Biology, Memorial University, Newfoundland and Labrador, Canada*

11:15 Continental-scale models of pelagic fish hotspots: Using geomorphometry as a conservation planning tool for mobile predators in Western Australia

Bouchet, PJ*, *University of Western Australia*; **Meeuwig, JJ**, *Centre for Marine Futures, University of Western Australia*; **Huang, Z**, *Geoscience Australia*; **Letessier, TB**, *Zoological Society of London*; **Nichol, SL**, *Geoscience Australia*; **Caley, MJ**, *Australian Institute of Marine Science*; **Watson, RA**, *Institute of Marine and Antarctic Studies, University of Tasmania*

11:30 Understanding stewardship and its role at the interface between small-scale fisheries and conservation

Whitty, T.S.*, *Center for Marine Biodiversity and Conservation, Scripps Institution of Oceanography*

11:45 Combining community engagement and tracking technology to characterize fishers' behaviors to facilitate more effective marine spatial planning efforts

Kristian Metcalfe, *Centre for Ecology and Conservation, College of Life and Environmental Sciences, University of Exeter, Penryn Campus, Penryn, Cornwall, TR10 9FE, UK*; **Tim Collins**, *Wildlife Conservation Society (WCS), Marine Program, Bronx, NY, 12 10460, U.S.A.*; **Dominic Tilley**, *Centre for Ecology and Conservation, College of Life and Environmental Sciences, University of Exeter, Penryn Campus, Penryn, Cornwall, TR10 9FE, UK*; **Rachel A. Turner**, *Environment and Sustainability Institute, University of Exeter, Penryn, Cornwall, TR10 9FE, UK*; **Hilde VanLeeuwe**, *Wildlife Conservation Society (WCS), Congo Program, 151 Avenue du General de Gaulle, B.P. 14537 Brazzaville, Republic of Congo*; **Matthew J. Witt***, *Environment and Sustainability Institute, University of Exeter, Penryn, Cornwall, TR10 9FE, UK*; **Brendan J. Godley**, *Centre for Ecology and Conservation, College of Life and Environmental Sciences, University of Exeter, Penryn Campus, Penryn, Cornwall, TR10 9FE, UK*

12:00 To cull or not to cull an invasive predator? It depends . . .

Smith, NS*, *Simon Fraser University*; **Green, SJ**, *Oregon State University*; **Akins, JL**, *Reef Environmental Education Foundation*; **Miller, S**, *Cape Eleuthera Institute*; **Côté, IM**, *Simon Fraser University*

Wednesday

12:15 A moving target: marine protected area conservation of reef sharks
Heupel, MR*, *Australian Institute of Marine Science*; Espinoza, M, *Universidad de Costa Rica*; Simpfendorfer, CA, *James Cook University*

12:45 Q&A Session
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**C31: CONTRIBUTED SESSION
MARINE POLICY 2**

**SALON C ROOM
Wednesday, August 3, 11:00–13:00**

11:00 Design: Data disconnect—How shifting baselines and imprecise objectives complicate environmental evaluation
Swasey, JS*, *MRAG Americas, Inc.*; Iudicello, SM, *Iudicello Consulting*; Taylor, P, *Waterview Consulting*

11:15 Canada and the conservation of marine species at risk: Paper promises, paltry progressions
VanderZwaag, David L.*, *Dalhousie University*; Hutchings, Jeffrey A., *Dalhousie University*

11:30 Governing coastal-marine systems—insights from a social-ecological network perspective
Alexander, SM*, *National Socio-Environmental Synthesis Center/ Stockholm Resilience Centre*; Bodin, O, *Stockholm Resilience Centre*

11:45 Measuring what we value: The utility of mixed methods approaches for incorporating values into marine social-ecological system management.
Murray, GD*, *Duke University Marine Lab*; D’Anna, L, *University of North Carolina*; MacDonald, P., *University of Waterloo*

12:00 Multidisciplinary market analysis to tackle the snapper jigsaw puzzle
Cawthorn, D.M.*, *University of Salford*; Mariani, S., *University of Salford*; Di Muri, C., *University of Salford*

12:15 Filling the gap of sustainable marine and coastal ecosystem governance initiatives: The space science and technology ingredient
Joel, N. Kamdoum*, *University of the Azores, Azores, Portugal*; Joseph, O. Akinyede, *Centre for Space Research and Applications (CESRA), Federal University of Technology, Akure, Nigeria*

12:30 Cumulative human impacts on the world’s marine ecosystems: Which spatial patterns are robust?
Stock, A*, *Stanford University*; Micheli, F, *Stanford University*

12:45 Q&A Session
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**C34: CONTRIBUTED SESSION
OCEAN SCIENCE TECHNOLOGY AND CONSERVATION
ENGINEERING**

**SALON E ROOM
Wednesday, August 3, 11:00–13:00**

11:00 The emerging role of sustainable marine mega-infrastructures for diversity conservation: The case of PERU LNG marine terminal
Velez-Zuazo, X*, *Smithsonian Conservation Biology Institute*; Alonso, A, *Smithsonian Conservation Biology Institute*; Casaretto, C, *Hunt LOC*; Dallmeier, F, *Smithsonian Conservation Biology Institute*; Franke, I, *Museo de Historia Natural, UNMSM*; Ledesma, K, *Smithsonian Conservation Biology Institute*; Ramirez, JG, *Instituto de Ciencias del Mar de Barcelona, CSIC-ICM*; Tasso, V, *OceanSnell, S.L.*; Franke, I;

11:15 Cameras and seals: Quantifying effects of human disturbance
Heaney, W.J.*, *University of Exeter*; Witt, M.J., *University of Exeter*; Hawkes, L., *University of Exeter*; Bicknell, A., *University of Exeter*

11:30 Safeguarding livelihoods in the Galápagos
Verutes, Gregg*, *Stanford University*; Fisher, Dave, *Stanford University*; Silva, Eddy, *World Wildlife Fund*

11:45 Communities in Action: Understanding the links of coastal communities, marine conservation and livelihoods through a web-based global mapping tool and database
Menafrá, Rodrigo, *Saint Mary’s University*; Charles, Anthony*, *Saint Mary’s University*

12:00 Environmental DNA as a tool for marine biodiversity assessment and monitoring
Bakker, J*, *University of Salford, School of Environment & Life Sciences*; De Menezes, AB, *University of Salford, School of Environment & Life Sciences*; Wangenstein, OS, *University of Salford, School of Environment & Life Sciences*; Chapman, DD, *Stony Brook University, School of Marine and Atmospheric Sciences*; Guttridge, TL, *Bimini Biological Field Station*; Hertler, H, *School for Field Studies Center for Marine Resource Studies, South Caicos Turks and Caicos Islands*; Buddo, D, *The University of the West Indies, at Mona, Jamaica / Discovery Bay Marine Laboratory and Field Station*; Mariani, S, *University of Salford, School of Environment & Life Sciences*

12:15 Measuring the increasing effects of shipping noise on marine mammals near Port Metro Vancouver, British-Columbia, Canada
David Hannay*, *JASCO Applied Sciences*; Xavier Mouy, *JASCO Applied Sciences*; Ildar Urazghildiiev, *JASCO Applied Sciences*; Tom Dakin, *Ocean Networks Canada*; Orla Robinson, *Port Metro Vancouver*; Pierre-Alain Mouy, *BITS*

12:30 Satellite tracking reef manta rays (*Manta alfredi*) in the world’s largest manta ray sanctuary
Sianipar, AB*, *Conservation International*; Erdmann, MV, *Conservation International*; Lewis, S, *Manta Trust*; Mambrasar, R, *Conservation International*; Setyawan, E, *University of Tasmania*

12:45 Q&A Session
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C37: CONTRIBUTED SESSION
PARTICIPATION IN MARINE CONSERVATION SCIENCE
(E.G. CITIZEN AND INDIGENOUS SCIENCE) 3

SALON A ROOM
Wednesday, August 3, 11:00–13:00

11:00 How can we utilize 10 million scuba divers as citizen scientists?

Akkaynak, Derya*, *University of Haifa & Interuniversity Institute of Marine Sciences, Eilat*

11:15 Piloting participatory smartphone mapping of intertidal fishing grounds and resources in northern Mozambique: opportunities and future directions

Paul, Sophie A. L.*, *University of Edinburgh, School of Geosciences, James Hutton Road, Edinburgh, EH9 3FE, Scotland, UK*; **Wilson, A. Meriwether W.**, *University of Edinburgh, School of Geosciences, James Hutton Road, Edinburgh, EH9 3FE, Scotland, UK*; **Cachimo, Rachide**, *Associação do Meio Ambiente, Rua 12, Casa 872 Pemba, Cabo Delgado, Mozambique*; **Riddell, Michael A.**, *Bioclimate Research and Development, UN House, 4 Hunter Square, Edinburgh, EH1 1QW, Scotland, UK*

11:30 On the utility of large-scale participative information system for a better understanding of the role of small-scale fisheries in stewardship

Rocklin, D*, *Memorial University of Newfoundland*; **Chuenpagdee, R.**, *Memorial University of Newfoundland*

11:45 Fishermen's willingness to pay for fisheries management in Ethiopia

Meti Takele, M*, *Zeway fisheries resources research center*

12:00 An individual based model of fisher behaviour for management scenario prediction in the Isle of Man scallop fishery

Shepperson, J*, *Bangor University*; **Murray, L.**, *Bangor University*; **Mackinson, S.**, *Centre for Environment, Fisheries and Aquaculture Science*; **Bell, E.**, *Centre for Environment, Fisheries and Aquaculture Science*; **Kaiser, M.**, *Bangor University*

12:15 Making waves: building the legitimacy of marine citizen science for data applications

Loder, J.*, *Reef Check Australia*; **Done, T.**, *Australian Institute of Marine Science*; **Roelfsema, C.**, *University of Queensland*; **Bauer, A.**, *Reef Check Australia*; **Salmond, J.**, *Reef Check Australia*; **Schläppy, ML.**, *University of the Highlands and Islands*

12:30 Q&A Session

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FG102: FOCUS GROUP
WHITE-BEAKED DOLPHIN CONSERVATION STATUS IN THE
NW ATLANTIC: UNDERSTANDING KNOWLEDGE GAPS AND
RECOMMENDATIONS FOR FUTURE RESEARCH

PLACENTIA BAY ROOM
Wednesday, August 3, 11:00–13:00

ORGANIZER(S):

Chiara Giulia Bertulli, *University of Iceland*; **Michael J. Tetley**,
IUCN Joint SSC-WCPA Marine Mammal Protected Areas Task Force

(By Invitation Only) The white-beaked dolphin is an endemic species of cold temperate and sub-arctic North Atlantic waters. The species is considered to have a conservation status favorable across most of its range. However, recent assessments of the NE Atlantic range describe potential impacts from climate change, habitat and prey depletion, noise and chemical pollution and bycatch in fisheries, which may negatively affect the long-term survival of white-beaked dolphins. Genetic surveys (mainly sampling NE Atlantic animals) found a very low nucleotide diversity making this species highly vulnerable. Information compiled for the Convention on Migratory Species also indicated a knowledge gap on white-beaked dolphins in the NW Atlantic, making assessments of Conservation Status across the species range difficult. The purpose of the proposed Focus Group of experts attending the IMCC is to 1) determine what information may already be available but not yet collated for this species in its NW Atlantic range 2) provide recommendations on the drafting of a research strategy to enhance international collaboration on white-beaked dolphin research for the NW Atlantic region and 3) feedback knowledge on the potential status in its NW Atlantic range to the CMS and IUCN Red List for future North Atlantic scale assessments of the species conservation status.

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FG93: FOCUS GROUP
YES, BUT IS IT CONSERVATION? HOW DO YOU MEASURE
IF MARINE CONSERVATION HAS BEEN A SUCCESS?

SALON D ROOM
Wednesday, August 3, 11:00–13:00

ORGANIZER(S):

E.C.M. Parsons, *Department of Environmental Science & Policy, George Mason University*; **R. MacPherson**, *Pelagia Consulting*; **S. Oester**, *Department of Environmental Science & Policy, George Mason University*; **A. Villagomez**, *Pew Charitable Trusts*; **D. Verissimo**, *RARE*

What exactly does “doing conservation” science mean? By definition, conservation involves the preservation or restoration of natural ecosystems. In other words, if the conservation intervention is successful then the ecosystem should reflect a better state. Marine conservation is populated with individuals engaged in science, education, social marketing, economics, resource management, and policy. How are we measuring our impact? How do we know that the ecosystems we direct conservation upon are “better” or at the very least “less worse”? Especially when the marine conservation community has such a diverse array of disciplines, from conservation social scientists to marine toxicologists, ecologists, oceanographers and science communications. Counting the number of individuals of a captive bred species might be considered “conservation”, but if they cannot be released back into their wild habitat, is it really? Is simply publishing a paper on an endangered species/habitat ever really “conservation”? How does one measure a project’s impact when it is just a small cog in a larger conservation machine? How does one measure the conservation impact of an outreach campaign—you may have a million retweets but does this translate to conservation? Conservation: does this word really mean what you think it means? This workshop seeks to discuss these questions and develop a way to measure less tangible ways of measuring conservation effectiveness.

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SY60: SYMPOSIUM
SCIENCE-BASED MANAGEMENT OF SUSTAINABLE MARINE
TOURISM IN SOUTHEAST ASIA

SALON B ROOM
Wednesday, August 3, 11:00–13:00

ORGANIZER(S):

Yeemin, T, *Marine Science Association of Thailand*; **Vo, ST**, *Institute of Oceanography Vietnam*; **Nanola, CL**, *University of the Philippines Mindanao*; **Sutthacheep, M**, *Ramkhamhaeng University*

Southeast Asia (SEA) has high productive marine ecosystems, especially coral reefs, with their rich biodiversity providing great ecological services to coastal communities. Marine tourism is one of those valuable services that contributes economic benefits to the countries in this region. The marine tourism among SEA countries has been developing over the past decades in order to comply with growing demand of marine tourism. However, rapid development of marine tourism with improper management may cause severe negative impacts on marine ecosystem health and biodiversity. Besides, natural disturbances of global climatic change, such as elevated seawater temperature, also exacerbate those impacts. Since coastal tourism is strongly dependent upon the ecosystem health, maintaining the ecosystem services is greatly important to ensure sustainability of coastal tourism sector. Science plays an important role as a knowledge base to understand ecosystem and how to sustain their functions while collaborations help gather stakeholders to work harmoniously and enhance effective sustainable tourism management. In this symposium, scientists and managers working in SEA countries are gathered to present their recent insights from its management, monitoring and conservation focusing on coastal ecosystems and tourism. Several lessons learned from this region, including capacity enhancement for monitoring and research, community-based management, sustainable tourism will be highlighted.

11:00 The influences and role of co-management on optimized of conservation area and its utility as marine ecotourism destination: Case of Bunaken National Park

Janny Dirk Kusen*, *Faculty of Fisheries and Marine Sciences, Sam Ratulangi University, Manado, Indonesia*; **Bet El Silisna Lagarene**, *Tourism Dept., Manado State Polytechnic, Manado, Indonesia*

11:15 Assessing the recreation carrying capacity for sustainable tourism in marine national parks in the Andaman Sea
Yeemin, T*, *Ramkhamhaeng University*; **Plangngan, P**, *Department of National Park, Wildlife and Plant Conservation*; **Klinthong, W**, *Ramkhamhaeng University*; **Putthayakool, J**, *Ramkhamhaeng University*; **Thummasan, M**, *Ramkhamhaeng University*; **Sutthacheep, M**, *Ramkhamhaeng University*

11:30 Development of island tourism: A hot issue in managing coastal resources in south Vietnam
Vo, ST*, *Institute of Oceanography Vietnam*

11:45 Promoting sustainable tourism management and lessons learned from the Eastern Gulf of Thailand
Sutthacheep, M*, *Ramkhamhaeng University*; **Yeemin, T**, *Ramkhamhaeng University*; **Ruangthong, C**, *Department of National Parks, Wildlife and Plant Conservation*; **Seubpala, W**, *Ramkhamhaeng University*; **Pengsakun, S**, *Ramkhamhaeng University*; **Samsuvan, W**, *Ramkhamhaeng University*

12:00 Reef fish assemblages in fished areas with MPAs in tourist and non-tourist destination sites in Southern Mindanao, Philippines
Nanola Jr., CL*, *University of the Philippines Mindanao*; **Muallil, RN**, *Mindanao State University-Tawitawi*

12:15 Contribution of small-scale fisheries to tourism development in the Western Gulf of Thailand
Pengsakun, S*, *Ramkhamhaeng University*; **Yeemin, T**, *Ramkhamhaeng University*; **Suebala, W**, *Ramkhamhaeng University*; **Sutthacheep, M**, *Ramkhamhaeng University*; **Lawang, B**, *Ramkhamhaeng University*; **Chamchoy, C**, *Ramkhamhaeng University*

12:30 Panel Discussion

Lunch Activities — 1:00 P.M. to 3:00 P.M.

WS72: WORKSHOP
17 WAYS TO WIN AT MARINE SCIENCE COMMUNICATION

SALON D ROOM
Wednesday, August 3, 13:15–14:45

ORGANIZER(S):

Lucy Anderson, *Marine Stewardship Council*; **Steve Rocliffe**, *Blue Ventures*; **Sarika Cullis-Suzuki**, *David Suzuki Foundation*

As pressures on global marine resources continue to grow, the need to engage policymakers, funders and members of the public with marine conservation issues becomes ever more important. But in a crowded marketplace, how can we ensure that these urgent messages are heard? In this innovative and fast paced workshop, we distill the essence of effective marine science communication into 17 practical steps. Our expert facilitators will use before and after examples to demonstrate

how anyone can easily improve the impact of marine science stories be they visual, verbal or written.

Dr. Lucy Anderson, Science Communications Manager at the Marine Stewardship Council shares practical tips on how the use of accessible science writing and powerful imagery can convert previously impenetrable technical reports into engaging communications tools.

Dr. Steve Rocliffe, Outreach Manager for Blue Ventures Conservation and data designer explains how to tell better visual stories with data to dramatically boost the impact of academic posters, presentations and infographics.

Dr. Sarika Cullis-Suzuki, researcher, environmentalist and television presenter discusses how powerful storytelling, inspiring characters and effective media engagement can be a persuasive tool to motivate the public to take action on ocean issues.

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LUNCHTIME MOVIE MATINEE:
SONIC SEA
SALON B ROOM
Wednesday, August 3, 13:15–14:45

IMCC4 STUDENT ACTIVITIES COMMITTEE EVENT:
STUDENT PLENARY LUNCHEON
ROCKET BAKERY ROOM (Offsite)
Wednesday, August 3, 13:15–14:45

SCB MARINE MEMBERS MEETING
SALON E ROOM
Wednesday, August 3, 13:15–14:45

Afternoon session — 3:00 P.M. to 5:00 P.M.

FGD5-2: IMCC4 DIVERSITY FOCUS GROUP SERIES
CULTURAL AND RELIGIOUS DIVERSITY IN MARINE SCIENCE
PLACENTIA BAY ROOM
Wednesday, August 3, 15:00–17:00

ORGANIZER(S):

Luli Martinez, *University of California-Santa Cruz*

Human behavior and perceptions are shaped according to the cultural values and religious beliefs, to a great extent. Both have played a major role in the use of species and resources and in the dominance of humans in the natural world. In fact, 80% of the population worldwide is influenced by religion on a daily basis, being population growth a clear consequence. Although negative effects on nature have been documented, religion and culture may also have a strong influence in conservation. The designation of sacred sites as protected areas or the maintenance of animal populations because of their cultural services are just some of the examples. This focus group seeks an open discussion about how the religious and cultural values have influenced the use and conservation of the oceans and their resources. In a positive way, we want to answer: Under which circumstances the influence of religions and traditions have had a positive impact on the management, use and conservation of the marine species? What lessons can we learn and how can we take advantage of those cultural values to change human perceptions about our role and duties with the ocean?

C28: CONTRIBUTED SESSION
FISHERIES, AQUACULTURE AND THE OCEANS 10

SALON G ROOM
Wednesday, August 3, 15:00–17:00

15:00 An in-situ study of impacts of fish traps on coral reefs in Mu Ko Chang, Thailand
Suebpa, W*, *Interdepartment of Environmental Science, Graduate School, Chulalongkorn University, Bangkok, Thailand*;
Yeemin, T, *Marine Biodiversity Research Group, Department of Biology, Faculty of Science, Ramkhamhaeng University, Thailand*; **Chuenpagdee, R**, *Department of Geography, Faculty of Arts, Memorial University, Canada*; **Pengsakun, S**, *Marine Biodiversity Research Group, Department of Biology, Faculty of*

Science, Ramkhamhaeng University, Thailand; **Samsuvan, W**, *Marine Biodiversity Research Group, Department of Biology, Faculty of Science, Ramkhamhaeng University, Thailand*; **Nititamyoung, C**, *Department of Marine Science, Chulalongkorn University, Bangkok, Thailand*; **Juntarashote, K**, *Department of Fisheries Management, Faculty of Fisheries, Kasetsart University, Bangkok, Thailand*

15:15 Combining fishermen's knowledge with habitat and oceanographic data to locate and evaluate gray meat outbreaks in Atlantic sea scallops

Inglis, SD*, *University of Massachusetts-Dartmouth, SMAST*; **Georgianna, D**, *University of Massachusetts-Dartmouth, SMAST*; **St. Martin, K**, *Rutgers University, Department of Geography*; **Stokesbury, KDE**, *University of Massachusetts-Dartmouth, SMAST*

15:30 Geospatial tools for artisanal fisheries co-management in Uruguay: benefits and challenges

Dracott, K*, *University Centre of the Westfjords, University of Akureyri, Iceland*; **Trimble, M**, *Center for Marine Studies, Federal University of Parana, Brazil*

15:45 The World Surfing Reserve system: Comparative analysis of an integrated approach to common-pool marine resource governance

Reineman, DR*, *Stanford University*; **Strong-Cvetich, N**, *Save The Waves Coalition*

16:00 The Lyme Bay experimental potting project

Rees, A.*, *Plymouth University Marine Institute*; **Sheehan, E.V.**, *Plymouth University Marine Institute*; **Attrill, M.J.**, *Plymouth University Marine Institute*

16:15 Study of environmental safety of floating nets for sardinella catching

Sohou, Z.*, *Benin Fisheries and Oceanological Research Institute (IRHOB)*; **Hinvi, C.L.**, *University of Abomey-Calavi, Republic of Benin*; **Guidi, T.C.**, *University, Lokossa Technology Institute, Republic of Benin*; **Semassou, C.**, *University of Abomey-Calavi, Republic of Benin*; **Fiogbe, E.D.**, *University of Abomey-Calavi, Republic of Benin*



Wednesday

16:30 Understanding fishing strategies on small-scale fishers: Insights for fisheries management in data-poor situations
Saldaña-Millan, A*, *Centro de Investigación y de Estudios Avanzados del IPN*; **Salas, S**, *Centro de Investigación y de Estudios Avanzados del IPN*; **Arce-Ibarra, M**, *El Colegio de la Frontera Sur*; **Torres-Irineo, E**, *CONACYT Research Fellow, Unidad Multidisciplinaria de Docencia e Investigación, Facultad de Ciencias, Universidad Nacional Autónoma de México*

16:45 Q&A Session

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C4: CONTRIBUTED SESSION
CLIMATE, OCEAN ACIDIFICATION, AND THE CHANGING OCEANS 4

SALON E ROOM
Wednesday, August 3, 15:00–17:00

15:00 DNA-based monitoring of marine mammal biodiversity and population structure
Jung, JL*, *BioGeMME, Université de Brest*; **Lambert, A**, *BioGeMME, Université de Brest*; **Jezequel, MD**, *BioGeMME, Université de Brest*; **Decker, C**, *BioGeMME, Université de Brest*

15:15 NW Atlantic population structure and gene flow in the European Green Crab: an update on its dynamic invasion front and implications for the future
Blakeslee, April*, *East Carolina University*; **DiBacco, Claudio**, *Fisheries and Oceans Canada*; **Bradbury, Ian**, *Fisheries and Oceans Canada*; **Roman, Joe**, *University of Vermont*

15:30 Assessing and fostering adaptive capacity to climate change in coastal communities
Charlotte K. Whitney*, *University of Victoria*; **Natalie C. Ban**, *University of Victoria*; **Nathan Bennett**, *University of British Columbia and University of Washington*

15:45 Advancing the conservation of whales and their habitats on the Scotian Shelf using remote sensing from autonomous platforms
Davies, KTA*, *Dalhousie University*; **Johnson, H**, *Dalhousie University*; **Moor-Murphy, H**, *Fisheries and Oceans Canada*; **Martin, B**, *JASCO Applied Sciences*; **Taggart, CT**, *Dalhousie University*

16:00 The impact of environmental factors on capelin behavior during the spawning migration
Wassermann, SN*, *Trinity College Dublin*; **McGinty, N**, *Mount Allison University*; **Olafsdottir, A**, *MARICE, University of Iceland*; **Marteinsdottir, G**, *MARICE, University of Iceland*

16:15 Community-driven research & environmental stewardship addressing cumulative impacts of hydroelectric developments on sea ice ecology in Hudson Bay
Heath, JP*, *The Arctic Eider Society*; **Arragutainaq, L**, *Sanikiluaq Hunters and Trappers Association*

16:30 Q&A Session

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C16: CONTRIBUTED SESSION
EFFECTIVE MARINE CONSERVATION PLANNING 9

SALON F ROOM
Wednesday, August 3, 15:00–17:00

15:00 Who are they and how are they using it?: A look at the social system of Singapore's first marine park
Zhang Jie*, *National University of Singapore*; **Jesse Hastings**, *National University of Singapore*; **Jacelyn Tan Sing Yee**, *National University of Singapore*; **Judy Goh**, *National University of Singapore*; **Carl Grundy-Warr**, *National University of Singapore*

15:15 Food patches as drivers of biodiversity patterns in infaunal communities in Barkley methane hydrates, a potential energy source
Companyà-Llovet, N*, *Memorial University of Newfoundland*; **Snelgrove, PVR**, *Memorial University of Newfoundland*

15:30 Interactions among stressors and their importance for marine conservation
Isabelle Cote*, *Simon Fraser University*; **Emily Darling**, *Wildlife Conservation Society*; **Christopher Brown**, *Griffith University*

15:45 Pelagic thresher sharks (*Alopias pelagicus*) risk travelling across borders to use a grass-roots conservation area in the Philippines
Simon P. Oliver*, *University of Chester*; **Thomas Grothues**, *Rutgers University Marine Field Station*; **Amie Williams**, *University of St Andrews*; **Zoe Mayo**, *University of Liverpool*; **Voltaire Cerna**, *The Thresher Shark Research and Conservation Project*; **Medel Silvosa**, *The Thresher Shark Research and Conservation Project*; **Matthew Reed**, *Evolution Dive Resort*; **Gary Cases**, *Project Sharklink*

16:00 Assessing the impact of marine renewable energy infrastructure using cameras: scale, time and statistical power
Bicknell, AWJ*, *University of Exeter*; **Godley, BJ**, *University of Exeter*; **Sheehan, EV**, *Plymouth University*; **Doherty PD**, *University of Exeter*; **Witt, MJ**, *University of Exeter*

16:15 Q&A Session

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C29: CONTRIBUTED SESSION
MARINE FOOD SECURITY

SALON D ROOM
Wednesday, August 3, 15:00–17:00

15:00 Monitoring through a food security lens
Whiting, Denali*, *Independent/Inuit Circumpolar Council*; **Behe, Carolina**, *Inuit Circumpolar Council-Alaska*

15:15 St. Lawrence Island traditional management of walrus: Management rooted in conservation
Metcalf, Vera*, *Eskimo Walrus Commission*

15:30 Adapting to change in the Yukon-Kuskokwim region of Alaska using our traditional management and indigenous knowledge
Korthius, Vivians*, *Association of Village Council Presidents*



15:45 From fisheries management to conservation: A role for periodic closures of fast-reproducing species?
Stephen Roccliffe*, *Blue Ventures Conservation*

16:00 The use of mosquito nets in artisanal fisheries: A global perspective
Short, RE*, *Imperial College London*; Gurung, R, *Imperial College London*; Hill, N, *Zoological Society of London*; Rowcliffe, M, *Institute of Zoology*; Milner-Gulland, EJ, *University of Oxford*

16:15 Inuit have followed traditional management practices, applying a food security lens, which has sustained the people and the environment for time immemorial
Brower, Harry*, *North Slope Borough Wildlife Department*

16:30 Human illness and environmental sustainability around Lake Victoria, Kenya
Fiorella, KJ*, *Atkinson Center for a Sustainable Future, Cornell University*; Milner, EM, *University of California, Berkeley*; Hickey, MD, *University of California, San Francisco*; Salmen, CR, *University of Minnesota*; Mattah, B, *Organic Health Response*; Omollo, DO, *Organic Health Response*; Fernald, LCH, *University of California, Berkeley*; Brashares, JS, *University of California, Berkeley*

16:45 Q&A Session

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C32: CONTRIBUTED SESSION
MARINE POLICY 3

SALON C ROOM
Wednesday, August 3, 15:00–17:00

15:00 Marine biodiversity beyond borders: Update on UN agreement under development
Gjerde, KM*, *Wycliffe Management/IUCN*

15:15 Effective transboundary marine conservation: Is compliance with international treaties the only way?
Mackelworth, P*, *Blue World Institute*; Holcer, D, *Croatian Natural History Museum*; Fortuna, CM, *Italian National Institute for Environmental Protection and Research*

15:30 How effectively and equitably managed are the world's MPAs?
Gill, DA*, *National Socio-Environmental Synthesis Center (SESYNC), Annapolis, Maryland 21401 USA*; Luc Hoffmann Institute, *Gland, Switzerland*; Fox, HE, *Fox Conservation LLC, Washington DC, USA*; Mascia, MB, *Conservation International, Arlington, Virginia 22202 USA*; Ahmadia, G, *World Wildlife Fund US, Washington DC 20037 USA*; Barnes, M, *Natural Resources and Environmental Management, University of Hawaii at Manoa/Centre for Excellence in Environmental Decisions, University of Queensland, Australia*; Coad, L, *CIFOR-Center for International Forestry Research, University of Oxford, Oxford, UK*; Craigie, I, *ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia*; Darling, E, *Wildlife Conservation Society, Washington DC 20001 USA*; Free, C, *Rutgers University*; Geldmann, J, *Center for Macroecology, Evolution and Climate, Natural History Museum of Denmark, University of Copenhagen*; Glew, L, *World Wildlife Fund US*; Holst, S, *NOAA Coral Reef Conservation Program*; Jensen, O, *Rutgers University*; Lester, S, *University of California, Santa*

Barbara; Mumby, P, *School of Biological Sciences, University of Queensland*; Thomas, H, *UNEP-World Conservation Monitoring Centre*; White, A, *Indo-Pacific Division, The Nature Conservancy*; Whitmee, S, *CBER-University College London*; Woodley, S, *WCPA-SSC Joint Task Force on Biodiversity and Protected Areas, International Union for the Conservation of Nature (IUCN)*

15:45 Tracking the rationality of marine protected areas governance implementation—Cultural theory perspectives
Abdul Halik*, *Jacobs University Bremen and Leibniz Center for Tropical Marine Ecology (ZMT) Bremen*

16:00 Managing natural resources in a changing world: Developing an ecosystem approach to environmental impact assessment
Bosyk, JR*, *Bureau of Ocean Energy Management*; Cody, M, *Bureau of Ocean Energy Management*; Levenson, J, *Bureau of Ocean Energy Management*

16:15 Taking a dose of our own medicine: Implementing conservation policy for marine fishes
Aylesworth, L.*, *Project Seahorse, University of British Columbia*; Foster, S.F, *Project Seahorse, University of British Columbia*; Vincent, A.C.J., *Project Seahorse, University of British Columbia*

16:30 Developed a successful novel protocol to induce spawning of American eel (*Anguilla rostrata*) for meeting market demand as well as conservation
Jonathan Pinkhasov*, *Kingsborough Community College of CUNY*; Z.M.G. Sarwar Jahangir, *Kingsborough Community College of CUNY*; Alex Dean, *Kingsborough Community College of CUNY*; Jason Meyer, *Kingsborough Community College of CUNY*

16:45 Q&A Session

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C42: CONTRIBUTED SESSION
CONSERVATION AND MANAGEMENT OF THE ARCTIC AND ANTARCTIC

SALON B ROOM
Wednesday, August 3, 15:00–17:00

15:00 The impact of the loss of buoyant Antarctic Toothfish on Weddell seals in the Ross Sea
Salas, L*, *Point Blue Conservation Science*; Nur, N, *Point Blue Conservation Science*; Ainley D, *H.T. Harvey and Associates Ecological Consultants*; Burns, J, *University of Alaska, Anchorage*; Rotella, J, *Montana State University, Bozeman*; Ballard, G, *Point Blue Conservation Science*

15:15 Collateral damage to marine and coastal ecosystems by 19th century American whalers
Drew, JA*, *Columbia University*; López, EL, *Columbia University*; Gill, Lucy, *Columbia University*; McKeon, M, *Columbia University*; Miller, N, *Columbia University*; Steinberg, M, *Columbia University*; Shen, C, *Columbia University*

15:30 Past and ongoing changes in the distribution of the Northeast Atlantic harp seal (*Pagophilus groenlandicus*) population in relation to climate change



Malgorzata Pilot*, *School of Life Sciences, University of Lincoln, UK*; **Cameron Brown**, *School of Life Sciences, University of Lincoln, UK*; **Anne Kirstine Frie**, *Institute of Marine Research, Tromsø, Norway*

15:45 Building the circumpolar community of practice: highlighting the Beaufort Sea Partnership
Parker, C, *World Wildlife Fund Canada*; **Snow, Kate***, *Fisheries and Oceans Canada*

16:00 Baited camera estimates of local diversity and Greenland shark (*Somniosus microcephalus*) abundance within the Lancaster Sound region
Devine, Brynn M*, *Centre for Fisheries Ecosystems Research, Fisheries and Marine Institute of Memorial University of Newfoundland*; **Wheeland, Laura J**, *Centre for Fisheries Ecosystems Research, Fisheries and Marine Institute of Memorial University of Newfoundland*; **Fisher, Jonathan AD**, *Centre for Fisheries Ecosystems Research, Fisheries and Marine Institute of Memorial University of Newfoundland*

16:15 The first winter at sea: a critical growth period for Atlantic salmon
Palm-Flawd, B*, *Memorial University, Newfoundland*; **Cotter, D**, *Marine Institute, Ireland*; **Thomas, K**, *Galway-Mayo Institute of Technology, Ireland*; **O'Maoiléidigh, N**, *Marine Institute, Ireland*; **Brophy, D**, *Galway-Mayo Institute of Technology, Ireland*; **Purchase, CF**, *Memorial University, Newfoundland*

16:30 Q&A Session

C46: CONTRIBUTED SESSION
COMMUNICATING MARINE CONSERVATION 2 AND PARTICIPATION IN MARINE CONSERVATION SCIENCE 4

SALON A ROOM
Wednesday, August 3, 15:00–17:00

15:00 Loggerhead Marineline Center's Project SHIELD: Global partnerships for responsible tourism
Fox, Demi*, *Loggerhead Marineline Center*; **Cutt, Tommy**, *Loggerhead Marineline Center*

15:15 Research to align conservation and seafood production: exploring the potential and barriers of offshore aquaculture expansion
Froehlich, HE*, *National Center for Ecological Analysis & Synthesis*; **Gentry, RR**, *University of California, Santa Barbara*; **Halpern, BS**, *University of California, Santa Barbara*

15:30 Advocacy and activism are not dirty words—how activists can better help conservation scientists
Parsons, E.C.M.*, *George Mason University*

15:45 Harnessing data and information for knowledge and action: Best practices to link science, management, and stakeholders through strategic communication
Taylor, PH*, *Waterview Consulting*

16:00 Using marketing to tackle the challenge of behavior change: Lessons from 45 years of public health experiences
Lefebvre, Craig*, *socialShift*

16:15 Q&A Session

Wednesday

Duke



NICHOLAS SCHOOL OF THE
ENVIRONMENT

DUKE ENVIRONMENTAL LEADERSHIP PROGRAM

nicholas.duke.edu

All-day session — 8:30 A.M. to 5:30 A.M.

FG62: FOCUS GROUP
MARINE SPATIAL PLANNING IN PRACTICE: SHARING
EXPERIENCE AND DEVELOPING GUIDANCE

SALON F ROOM
Thursday, August 4, 08:30–17:30

ORGANIZER(S):
Ole Vestegaard, *UNEP*; **Steve Fletcher**, *UNEP-WCMC*; **Ilona Porsche**, *GIZ*

Marine spatial planning (MSP) is widely recognized as an approach to facilitate the conservation and sustainable use of resources and ecosystem services through the careful planning of coastal and ocean space. Increasingly, MSP is the framework in which MPAs are designated and managed therefore understanding effective MSP practice is an important contribution to effective marine conservation. A key defining factor of MSP is its attempt to reconcile multiple sectoral development objectives and activities using a spatial approach. MSP initiatives vary in their composition, yet many face similar challenges, particularly during the MSP implementation phase. This focus group will adopt an evidence-driven approach, using practical lessons from existing MSP experiences, to identify enabling factors that underpin successful MSP implementation in a range of ecological, social and economic contexts. Key questions to be explored during the workshop include: 1) What are the challenges and constraints that managers and policy-makers experience in MSP implementation? 2) What elements of the MSP planning phase are most important in ensuring effective implementation? and 3) What are the capacity development priorities to support effective MSP. Anyone with an interest in MSP is invited to attend this focus group to share their experiences and views.

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FG64: FOCUS GROUP
DEVELOPING ROBUST CRITERIA FOR THE GLOBAL OCEAN
REFUGE SYSTEM (GLORES)

SALON G ROOM
Thursday, August 4, 08:30–17:30

ORGANIZER(S):
Lance Morgan, *Marine Conservation Institute*; **Ratana Chuenpagdee**, *Memorial University Newfoundland*; **Rodolphe Devillers**, *Memorial University Newfoundland*; **Leslie Cornick**, *Alaska Pacific University*; **Lida Teneva**, *Conservation International*; **Daniel Dunn**, *Duke University*; **Sara Maxwell**, *Old Dominion University*; **Callum Roberts**, *York University*

The Global Ocean Refuge System (GLORES) is a science based initiative designed to catalyze strong protection for 30% of the ecosystems in each marine biogeographic region of the world’s oceans by 2030. It is a strategic way to safeguard marine ecosystems and will enable humans to recover marine life. Protecting places where viable marine populations can survive is the most cost-effective tool for conserving marine life. Effective, strongly protected areas will maintain and recover living things whose interactions drive humankind’s largest life life-support system, and provide a strategic protein reserve for the future. Marine Conservation Institute is working with a growing circle of partners to create the Global Ocean Refuge System, a new strategy to incentivize humans to provide safe havens for marine life as climate changes and oceans acidify. At IMCC 3 in Glasgow, we hosted a workshop and presented a conceptual framework for scoring Global Ocean Refuges based on the scientific literature. In the last 2 years, we have refined these criteria and would like to present a more detailed scoring framework for Global Ocean Refuges to the IMCC 4 participants in St. Johns, Newfoundland and seek their feedback. This workshop will provide marine conservation biologists the opportunity to help shape a conservation strategy based on their science and research—allowing them the opportunity to make their science, matter.

OceansOnline

Morning session — 8:30 A.M. to 10:30 A.M. • 11:00 A.M. to 12:00 P.M.

OO: OCEANSONLINE WELCOME
AND OPENING PLENARY SESSION

SALON A ROOM
Thursday, August 4, 08:30–10:30

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OOFD104:
MARINE PLANNING CONCIERGE: A TOOL TO INCORPORATE
NATURE’S VALUE INTO PLANNING

SALON B ROOM
Thursday, August 4, 11:00–12:00

ORGANIZER(S):
Gregg Verutes, *Stanford University*; **Spencer Wood**, *University of Washington*; **Robert Griffin**, *Stanford University*; **Allison Besch**, *Duke University*



The demand is growing for information about benefits that nature provides to people (“ecosystem services”) in planning and decision-making. Several proposed frameworks guide current science-based ocean planning (Kittinger et al. 2014, Ehler & Douvère 2009, Day 2008), many of which suggest incorporating ecosystem services and risk to habitats as elements of planning (Arkema et al. 2015, Koehn et al. 2013). Technical tools within such frameworks can help add scientific rigor and transparency to spatial planning processes, but there is confusion over what they do and how they can be linked.

Stanford University and collaborators have designed an interactive tool to make it easier to learn about, get inspired by, and implement marine planning. Just like the concierge in the lobby of a hotel, we’ve organized lots of information with the aim of helping practitioners get what they need. The Marine Planning Concierge (msp.naturalcapitalproject.org) shares existing science-based approaches, technical information, and tools in a generalized spatial planning framework.

This session will highlight current advances in research and science-policy engagements that are beginning to bridge the gaps between marine science knowledge and action. We intend to bring together a diverse group of participants to discuss results of innovative interdisciplinary collaborations among scientists, government agencies, planners and managers and that are integrating marine science into decisions.

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**OOFD106: FACILITATED DISCUSSION
A WAVE OF OCEAN OPTIMISM: HOW AND WHY
WE SHOULD TALK ABOUT SUCCESS IN MARINE
CONSERVATION**

**SALON C ROOM
Thursday, August 4, 11:00–12:00**

ORGANIZER(S):
Teoh, Marianne, *Fauna & Flora International-Cambodia*; **Knowlton, Nancy**, *Sant Chair for Marine Science, National Museum of Natural History, Smithsonian Institution*; **Andrews, Samantha**, *Memorial University of Newfoundland*

#OceanOptimism, a Twitter initiative launched in June 2014, has spread widely as a flag for stories reporting progress in solving marine conservation challenges. Reaching over 50 million Twitter users since it’s inception, #OceanOptimism has inspired an international outpouring of marine conservation success stories. It represents a movement to create new narrative of hope for our oceans, by sharing solutions and stories of success in a world too often focused on ‘doom and gloom’ ocean news. Rather than sweeping the issues and challenges facing the ocean and conservation efforts under the carpet, #OceanOptimism seeks to reframe conversations from the negative, towards conversations focusing on positive action that can result in solutions. A challenge for #OceanOptimism is highlighting progress and conservation success without promoting inertia to action. Through an open discussion, we will explore how and why we should balance documenting decline with promoting positivity, seeking to understand how positive messaging can be effective at promoting action and support for marine conservation. Why should we talk about success in marine conservation? How do fear-based narratives compare with optimistic messaging in driving action? Will balancing the bad news with good, and the problems with solutions, motivate people to act? How can we ensure that communicating progress and

positivity won’t promote ignorance of the challenges and further action needed?

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**OOFD109: FACILITATED DISCUSSION
EXISTING OPPORTUNITIES: USING SOCIAL MEDIA
AND PROFESSIONAL SOCIETIES TO FOSTER MARINE-
FRESHWATER CONSERVATION COLLABORATIONS**

**SALON D ROOM
Thursday, August 4, 11:00–12:00**

ORGANIZER(S):
Januchowski-Hartley, Stephanie R., *Universite Paul Sabatier*

Marine and freshwater ecosystems are highly connected both naturally and with regards to human uses and disturbances. Why then do marine and freshwater conservation scientists seem to not be so connected when it comes to research? It seems that few research institutions or programs have overcome this disconnection. How then can marine and freshwater conservation scientists better come together to solve common problems? In this facilitated discussion we will identify and discuss existing opportunities for marine and freshwater scientists to build collaboration as well as stronger community via social media and professional societies.

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**OOFD91: FACILITATED DISCUSSION
INFORMING REGIONAL OCEAN PLANNING: DEVELOPMENT
OF AN ONLINE REGIONAL OCEAN ASSESSMENT TO
SUPPORT DECISION-MAKING UNDER THE U.S. NATIONAL
OCEAN POLICY**

**SALON E ROOM
Thursday, August 4, 11:00–12:00**

ORGANIZER(S):
Taylor, P H, *Waterview Consulting*; **Shumchenia, Emily**, *E&C Enviroscope*

Effective delivery of accurate, relevant scientific information to policy and management decision-makers and stakeholders is essential. The process of determining what information is needed and how best to deliver it can be daunting, whether focusing on a local, regional, or national scale. Under U.S. Ocean Policy, the National Ocean Council recommended regional assessments of the ocean ecosystem and ocean uses to guide ocean planning. We produced an online Regional Ocean Assessment (ROA) that supports and informs ocean planning in the U.S. Mid-Atlantic. The ROA is part of a process led by the Mid-Atlantic Regional Planning Body, which comprises 8 federal agencies, 6 states, tribes, and the Mid-Atlantic Fishery Management Council. Implementing the ROA occurred over a short timeframe and involved extensive planning, coordination, research, writing, design, and technical development. We distilled, synthesized, and translated the best available information on ocean uses and resources, focusing on regional planning goals. We developed an innovative approach to deliver the ROA in an engaging and dynamic digital format that is updated easily and maximizes impact and utility. The result is a user-friendly, targeted tool that offers a model for delivering science to stakeholders and decision-makers. This facilitated discussion will explore lessons learned from this project and others, and will identify approaches that can be applied in future efforts.

OOFD26: FACILITATED DISCUSSION
LIVE UNDERWATER BROADCASTING AS AN EDUTAINMENT
TOOL TO COMMUNICATE MARINE CONSERVATION TOPICS

SALON B ROOM
Thursday, August 4, 12:00–13:00

ORGANIZER(S):
Mike Irvine, *Fish Eye Project*; **Maeva Gauthier**, *Fish Eye Project*

Real-time interactions with marine environments have the potential to improve the delivery of marine science and conservation topics when compared to traditional approaches. Research suggests that live underwater broadcasting provides an engaging presentation of marine environments and encourages students to pursue marine science careers. In addition, online web streaming can facilitate direct discussions between students and scientists. Fish Eye Project has been providing live underwater shows allowing students to see, hear, talk and share with scuba divers, inquiring about the various marine environments they are observing. These kinds of interactions promote ocean literacy. Live underwater broadcasting give students the opportunity to explore and discover the richness of the ocean, motivating students to potentially engage in ocean stewardship.

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OOFD52: FACILITATED DISCUSSION
AVOIDING THE PESSIMISM TRAP

SALON C ROOM
Thursday, August 4, 12:00–13:00

ORGANIZER(S):
Sarah Keartes, *Earth Touch News Network*; **Jason Goldman**, *Freelance Journalist*

Conservationists are often hammered with bad news—and it can be exhausting. Experienced wildlife journalists Jason Goldman and Sarah Keartes will lead a discussion on how to avoid bad news fatigue/maintain mental health, as well as how to frame hard-hitting conservation topics to keep from depressing your audience. Climate change, ocean acidification, species decline, trophic cascades, poaching ... how do you communicate developments in these areas without pushing people away? By covering these topics creatively, you may find your audience is more responsive!

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OOFD110: FACILITATED DISCUSSION
DESIGNING A HUB FOR INTERNATIONAL MARINE
RESEARCH COLLABORATIONS IN SMALL ISLAND STATES

SALON D ROOM
Thursday, August 4, 12:00–13:00

ORGANIZER(S):
Edward Hind, *Manchester Metropolitan University*; **Samantha Oester**, *George Mason University*

Recent UN policy statements urge improved collaboration between foreign and local scientists working on marine conservation issues in small island states. The reasoning for these statements are the

short- to intermediate-term need for foreign technical assistance in addressing local marine conservation needs. Given the fact that small island states are disproportionately affected by the impacts of climate change, ocean acidification, and overfishing, the need is substantial. The statements have been backed by the calls of scientists themselves, including those collaborating within the structures of the Society for Conservation Biology. Yet, significant barriers to collaboration exist, many of which can be attributed to the lack of stable forums for scientists to interact. Logistical issues, particularly financial constraints experienced by small island state scientists, inhibit the regular face-to-face meeting of potential collaborators. Scientists and policymakers have proposed an online networking platform or ‘meeting’ place as the potentially most stable solution to the collaboration issue. Technical and institutional support for a platform exists, but what that platform should look like is unclear. In this facilitated discussion, we invite your suggestions on how the platform should be constructed. Ideas on how it might support the exchange of technical expertise, funding frameworks, and communication are welcome, as are further concepts.

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OOFD111: FACILITATED DISCUSSION
EXPLORING EFFECTIVE MARINE SCIENCE COMMUNICATION
IN THE DIGITAL REALM

SALON E ROOM
Thursday, August 4, 12:00–13:00

ORGANIZER(S):
Lisa D. Tossey, *Self*

Science communication often suffers from numerous pitfalls including jargon, complexity, a general lack of (science) education of the audience, and short attention spans. Delaware Sea Grant, with its mission of “science serving the Delaware coast,” has been taking on these challenges through innovative approaches using emerging digital technologies. These have included its 15 Second Science video series, which deliver complex marine science topics with visually stimulating footage and succinct audio in short, mobile-friendly episodes, and exploration of smartphone-based virtual reality educational offerings on deep-sea science with the Center for Dark Energy Biosphere (C-DEBI) Investigations. Let’s discuss how to make the most out of digital platforms, such as online video, for scientific outreach, and best practices for planning, producing, distributing, and evaluating related educational content.



Lunch Activities — 1:15 P.M. to 2:45 P.M.

**OOWS38: WORKSHOP
COMMUNICATING MARINE SCIENCE AND CONSERVATION
THROUGH PODCASTING**

**SALON B ROOM
Thursday, August 4, 13:15–14:45**

*ORGANIZER(S):
Andrew Lewin, Spatial-Conserve Inc.*

The internet has provided marine scientists and conservationists with online tools to connect us with the public via blogs, social media (Facebook, Twitter, Google+), video (YouTube and Vimeo and audio (podcasting). This workshop will focus on the benefits of using podcasting as a communication tool and the technical aspects of getting up and running with podcasts.

The workshop will have a brief presentation; discuss the technical specifications required for podcasts (microphones, software, etc.); and, provide a strategy to increase the number of downloads across all podcasting platforms.

There will be plenty of time for questions on how to create one’s own podcast for marine science and conservation communication.

I started and host my own podcast (and will launch 2 more podcasts before the conference)—The Speak Up For Blue Podcast—and will share my knowledge and experience with the attendees.

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**OOWS56: WORKSHOP
STORYBOARDING: A GUIDE TO CREATING A VISUALLY
CAPTIVATING SCIENCE DOCUMENTARY**

**SALON C ROOM
Thursday, August 4, 13:15–14:45**

*ORGANIZER(S):
Jacqueline-Remy Orvis, Interdisciplinary*

This workshop is designed to educate the marine science community regarding the process of storyboarding, a platform used to process or translate a three-dimensional world into a framed two-dimensional plot. Storyboarding can assist researchers in visualizing on paper how they need to film their expeditions. The expectation is that participants will have this skill upon conclusion of the workshop and use it to create their own films.

If a tree falls in the woods, and no one is around, does it make a sound? Likewise, if no one knows your research, then it cannot fulfill its potential. The best way to make marine science matter is to make people care, and there is an audience who will care about any project if it is framed properly. In turn, when the people care, funding will follow, and most importantly, so will the policymakers.

Film is the best medium to reach people as a mass: it’s fun, it’s easy to ingest, and it can trend if done correctly, engaging and captivating audiences. Additionally, the era of social media has provided direct conduits into public eyes. But before introducing a film to social media, you need to learn how to produce a film. Storyboarding is the first step in that process: in translating marine science research and conservation efforts for the public to understand and become passionate about.

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**OOWS19: WORKSHOP
CURATING STORIES OF SUCCESS: BEST PRACTICES &
PLATFORMS FOR STORIES OF #OCEANOPTIMISM**

**SALON E ROOM
Thursday, August 4, 13:15–14:45**

*ORGANIZER(S):
Nancy Knowlton, Sant Chair for Marine Science, Smithsonian National Museum of Natural History; Emily Frost, Ocean Portal, Smithsonian National Museum of Natural History*

Since the beginning of the ocean conservation movement, “doom and gloom” has been the dominant narrative. The media and even scientists themselves contribute to this via an ever more depressing string of reports on overfishing, pollution, invasive species, global warming and ocean acidification. While documenting problems and building public awareness of these problems is important, the continuing nearly exclusive focus on bad news and scary messaging has backfired because it has led to a sense of hopelessness-apaty rather than action. Moreover, the preoccupation with catastrophe ignores the growing number of genuine successes that we have had in protecting and restoring ocean ecosystems.

This workshop will bring together participants that are interested in “Making Marine Science Matter” through communicating ocean success stories online. The workshop will help to expand and strengthen alliances and partnerships with others working with ocean conservation solutions, and to provide participants with practical skills and a richer theoretical understanding of generating marine conservation successes through the process of curating solutions. We will discuss research that has shown that audiences are more likely to respond to and share compelling positive stories that arouse awe rather than negative stories that stimulate sadness, pull from a diversity of environmental communications approaches and what the best online platforms are for sharing these stories.



Afternoon session — 3:00 P.M. to 4:00 P.M.

**OOFD87: FACILITATED DISCUSSION
IN THIS AGE OF REDUCING CLIMATE FOOTPRINTS, WHAT
WOULD THE IDEAL *VIRTUAL* MARINE CONFERENCE
LOOK AND FEEL LIKE, AND HOW CAN WE MAKE IT
HAPPEN?**

**SALON B ROOM
Thursday, August 4, 15:00–16:00**

ORGANIZER(S):

John Davis, *OpenChannels*; **Nick Wehner**, *OpenChannels*

Some of the most valuable information at in-person conferences like IMCC is what’s shared in the hallways and over meals: fortuitous conversations that spark new ideas and collaborations. That spontaneous face-to-face interaction with a large group of peer professionals is not easy to replicate online at this time. However, tools for distance knowledge-sharing are advancing rapidly, and they offer their own unique set of strengths. In this era of climate change awareness and shrinking travel budgets, this discussion will explore the future of virtual conferences and how they and in-person meetings can best complement one another—for the good of the field and the environment. The discussion will examine the state of the art in online distance learning and collaboration tools, including examples from OpenChannels and Duke’s Environmental Leadership Program as well as emerging virtual and augmented reality tools. This will open to a group discussion on what an ideal virtual marine conference could entail and what such a conference must include to be worthwhile. The discussion will conclude by exploring how to facilitate more virtual conferences in marine science and conservation.

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**OOFD68: FACILITATED DISCUSSION
BRINGING FISHERMEN TO THE TABLE: THE USE OF
COMBINED TOOLS TO FACILITATE GLOBAL ENGAGEMENT
AND SECURE LONG-TERM PARTICIPATION**

**SALON C ROOM
Thursday, August 4, 15:00–16:00**

ORGANIZER(S):

Campbell, Maria S, *Plymouth University, UK*; **Hartwell, Laurence**, *Penryn College, UK*; **Hind, Edward J**, *Manchester Metropolitan University, UK*; **Lilley, Richard J**, *Cardiff University, UK*; **Burrow, Katrina**, *Mindfully Wired Communication, UK*

An idea was mooted by Lawrence Hartwell (ex-trawler skipper and science communicator) of @ThroughTheGaps before the finale of the European Project Gap2; a conference to bring scientists, stakeholders and policy makers together (<http://gap2.eu/gap2-international-symposium-2015>). Unfortunately due to constraints the conference attendance was capped at 120 people. When considering a lot of commercial fishermen (from both developed and developing countries) cannot attend these kinds of events, the idea was born to bring the conference to the fishermen (After all, without the fishermen, there is

no participatory research). To this end, the use of ‘Bambuser’ (<http://bambuser.com>) to stream the conference live, alongside dedicated individuals to translate the speakers main points on the chat function, to post to social media, and answer questions and field questions to speakers was undertaken. A conference that was capped at 120 attendees, reached over 400. Lawrence set up a dedicated station in one of the UK’s largest fishing ports, Newlyn, and fishermen could join in on whatever aspect of the meeting they wanted to be part of, and thus contribute to the conference. How can we make marine science matter if we do not allow all stakeholders/actors to be present in this dialogue? We must be better at using technology that facilitates stakeholder engagement and enables co-ownership: Critical if we are to encourage active participation in marine conservation and to support evidence based decision-making.

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**OOFD107: FACILITATED DISCUSSION
MAKING WAVES INLAND: THE CHALLENGES FOR OCEAN
LITERACY IN LAND-LOCKED LOCATIONS**

**SALON D ROOM
Thursday, August 4, 15:00–16:00**

ORGANIZER(S):

Samantha Andrews, *CaNOE Communications Working Group*; **Kat Middleton**, *CaNOE Communications Working Group*

Surrounded by the ocean on three of its four borders, and with an economic exclusive zone (EEZ) spanning some 2.9 million km², Canada plays a major role in the conservation and sustainable use of the marine environment. For the 7 million people that live in Canada’s coastal areas, the ocean is a significant feature in many of their lives, be it for the extractive uses on which so many coastal communities depend or non-extractive uses that provide benefits to human health and wellbeing. Alongside most of the World’s ocean, Canada’s waters have seen degradation from human activities such as overfishing, coastal habitat modification, and pollution from upstream and in the air.

Fostering understanding and stewardship of the ocean among the Canadian public is vital for establishing and maintaining a healthy ocean. There is a dire need for better marine education for the 28 million Canadians who live inland and in remote locations—especially those in central Canada. But how can we help Canadians learn about their influence on the ocean and the ocean’s influence on them? How can we increase ocean literacy in Canada? We want people to learn about the ocean in a way that inspires and motivates positive action for this vital Canadian ‘ecosystem’ as well as the global ocean. Since we cannot bring everyone to the ocean, we must bring the ocean to as many people as possible. If used correctly internet-based tools can play a vital role in advancing ocean literacy throughout Canada.

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OOFD75: FACILITATED DISCUSSION
HAPPYWHALE: MARINE MAMMAL PHOTO
IDENTIFICATION ON A GLOBAL SCALE THROUGH WEB-
BASED CITIZEN SCIENCE

SALON E ROOM
Thursday, August 4, 15:00–16:00

ORGANIZER(S):

Ted Cheeseman, *Animal.us*; **Ken Southerland**, *Animal.us*; **Peter Stevick**, *Allied Whale/College of the Atlantic*; **Tom Fernald**, *Allied Whale/College of the Atlantic*; **Erin Falcone**, *Cascadia Research Collective*; **John Calambokidis**, *Cascadia Research Collective*

Good citizen science should address questions of research or conservation interest, meaningfully engage the public, and harness ‘the crowd’ to provide data where it would otherwise be impossible or impractical. We present Happywhale.com, a global scale web platform for individual photo identification marine mammal studies using images contributed by well equipped and conservation motivated citizen

scientists. Piloted in the Antarctic during the 2015–2016 austral summer, Happywhale cost effectively uses public contributed images, crowdsourced image management, and automated image processing to engage participation and assess otherwise insufficiently known marine mammal populations. In the Antarctic, tour vessels account for approximately 600 transits of the Southern Ocean per austral summer, regionally the majority of shipping traffic. These waters are home to minimally studied, formerly heavily exploited marine mammal populations dealing with climate change and potential resource competition from a rapidly growing krill industry. Happywhale provides a simple public interface overlaying a complex image management system; we effectively turn ship transits into quality citizen science marine mammal surveys of poorly documented marine mammal-rich environments. Photo ID contributions from citizen scientists aboard approximately 100 participating voyages during the 2015–2016 austral summer are expected to result in over 10,000 images contributed and an estimated 1000 unique identified sightings.

Late Afternoon session — 4:00 P.M. to 5:00 P.M.

OOFD108: FACILITATED DISCUSSION
BALANCING SCIENCE COMMUNICATION AND SCIENCE:
ACHIEVING EFFECTIVE OUTREACH WHEN IT’S NOT IN
YOUR JOB DESCRIPTION

SALON B ROOM
Thursday, August 4, 16:00–17:00

ORGANIZER(S):

Susan vonThun, *MBARI*

With advances in technology rapidly changing the way we understand and navigate our world, effective science communication has never been more important. Helping the public realize the impacts humans have on the environment is critical as we face increasing threats to the ocean such as climate change, ocean acidification, habitat destruction, pollution, and overfishing. Social media has emerged as a tool that makes it possible to reach thousands, even millions of people, with relative ease, but how can scientists leverage their stretched resources to reach these massive new audiences? The passion scientists have for their research is key to sparking public attention as to why marine science matters, but many scientists struggle with the time consuming undertaking of regularly engaging audiences to build a following and influence the masses. In the ever-changing world of social media, how do you choose which social media platform is most effective for the task? In this session, we will discuss how to play to your strengths with science communication, work proactively with communications departments, and how to best balance time spent on outreach versus research.

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OOFD113: FACILITATED DISCUSSION
COLLABORATIVE WEB APPS FOR THE SCIENTIFIC
COMMUNITY AND PARTICIPATORY DECISION-MAKING IN
MARINE RESOURCE MANAGEMENT

SALON C ROOM
Thursday, August 4, 16:00–17:00

ORGANIZER(S):

Grace Goldberg, *University of California Santa Barbara*; **Will McClintock**, *University of California Santa Barbara*

The web is a powerful tool for improving shared access to information, with well-designed web-based applications providing tools to generate, engage with and collaborate around marine science and conservation specifically. For participatory science-based marine resource management, web apps like SeaSketch (<http://www.seasketch.org>), developed by the McClintock Lab at the University of California Santa Barbara, allow a diverse set of audiences to participate in data-driven design of marine spatial plans. Just within the research community, web apps have the potential to push science forward more efficiently and allow researchers to leverage the progress of their peers. The Oceans Collaborative is an emerging partnership between the Wildlife Conservation Society, the World Wildlife Fund and UCSB, with the purpose of bringing together scientists and technologists to collaboratively develop open-source web apps for marine science, conservation and decision-making. In this session we will introduce existing and envisioned software tools. We will hold an open discussion around (1) barriers in the scientific community to collaborating via web-based platforms, (2) rewards and challenges engaging stakeholders and resource managers in exploring data and analytics through interactive web apps, (3) the value of standardization of platforms versus providing configurable tools to meet diverse needs, (4) issues of scalability and sustainability for cloud-based software services, and more.

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**OOFD65: FACILITATED DISCUSSION
 INSTAGRAM IS THE NEW IMAX EXPERIENCE:
 COMMUNICATING OCEAN SCIENCE THROUGH
 EXPERIENTIAL SOCIAL MEDIA CAMPAIGNS**

**SALON D ROOM
 Thursday, August 4, 16:00–17:00**

ORGANIZER(S):

Katherine Middleton, *Laurentian University, Science Communication Graduate Program*

Ensuring the protection of a healthy ocean involves effective environmental policies, which rely on a knowledgeable and engaged public. Unfortunately, the majority of the public has a limited knowledge of the ocean and low levels of ocean literacy. Better public understanding of the ocean is essential for establishing a greater push for ocean conservation, and resolving critical issues that threaten it. Research has shown that personal experiences can significantly enhance learning. For people who do not live near the coast, informal learning environments like aquariums, science centres and museums can provide that first-hand connection. But these learning opportunities are often not available to everyone, especially inland and remote populations. Fortunately, science learning opportunities are rapidly growing and changing, particularly the seemingly infinite array of digital media available online. Due to the accessible and ubiquitous nature of the internet, it is now possible to create a highly connected learning experience for citizens around the world. Visually-focused social media platforms like Instagram use videos and images to connect people in real-time. Instagram shows significant potential as an effective science communication tool for improving ocean literacy, particularly for inland and remote populations. Like miniature interactive IMAX experiences, Instagram posts catch audiences in fleeting moments and

can be used to draw them deeper into science communication. In this presentation and facilitated discussion, delegates will learn about emerging online tools, including Instagram, that have great potential as experiential digital science communication tools. There will also be a quick tutorial on using and posting to Instagram, including do's and don'ts using relevant examples. Participants are encouraged to download to app prior to the discussion.

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**OOFD105: FACILITATED DISCUSSION
 CREATING ONLINE SCIENTIST-TEACHER-STUDENT
 PARTNERSHIPS**

**SALON E ROOM
 Thursday, August 4, 16:00–17:00**

ORGANIZER(S):

Patrick Goff, *Science Educator (Middle School)*; **Keni Rienks**, *Science Educator (High School)*

There are many secondary school teachers who would love to work with scientists, and many scientists who are willing to help teachers and their students. Let's figure out how to bring these parties together while being respectful of their time and workload. This discussion will be aimed to better understand how partnerships can be developed between scientists and teachers/students. We will explore and share ways to use online tools and social media outlets to collaborate, give advice, talk with and help be a mentor to a group of students. One goal is to establish and maintain an active pool and community of participants of science and education both in attendance at the conference as well as outreach after the conference ends.

Evening session & event — 5:00 P.M. to 10:00 P.M.

OTP: ONLINE TOOLS PRESENTATIONS

**SALON A ROOM
 Thursday, August 4, 17:00–18:00**

17:00 Running the gauntlet: Regional movement patterns of *Manta alfredi* through a complex of parks and fisheries
Elitza Germanov, *Marine Megafauna Foundation, Murdoch University*; **Andrea Marshall**, *Marine Megafauna Foundation*

17:15 Measuring effects of catch shares: A user-friendly online dashboard of ecological, economic, social and governance data for managers and stakeholders
Taylor, PH, *Waterview Consulting*; **Swasey, JH**, *MRAG Americas*; **Iudicello, S**, *Iudicello and Associates Environmental Consulting*

17:30 MPAtlas.org—The online tool for tracking meaningful marine protection
Lance Morgan, *Marine Conservation Institute*; **Russell Moffitt**, *Marine Conservation Institute*; **Beth Pike**, *Marine Conservation Institute*

17:45 The northeast ocean data portal—A decision support tool for ocean planning in the northeast U.S.
Longley-Wood, K, *SeaPlan*; **Napoli, N**, *Northeast Regional Ocean Council*; **Lipsky, A**, *SeaPlan*; **Knee, K**, *RPS ASA*; **Shmookler, R**, *RPS ASA*; **Martin, D**, *NOAA*; **Shumchenia, E**, *NROC*

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**OCEANSONLINE SOCIAL
 AT YELLOW BELLY BREWERY**

**OFFSITE ROOM
 Thursday, August 4, 20:00–22:00**

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