

**CANADIAN OCEAN SCIENCE NEWSLETTER  
LE BULLETIN CANADIEN DES SCIENCES DE L'OcéAN**

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## Citizen Science in the Salish Sea Marine Survival Project

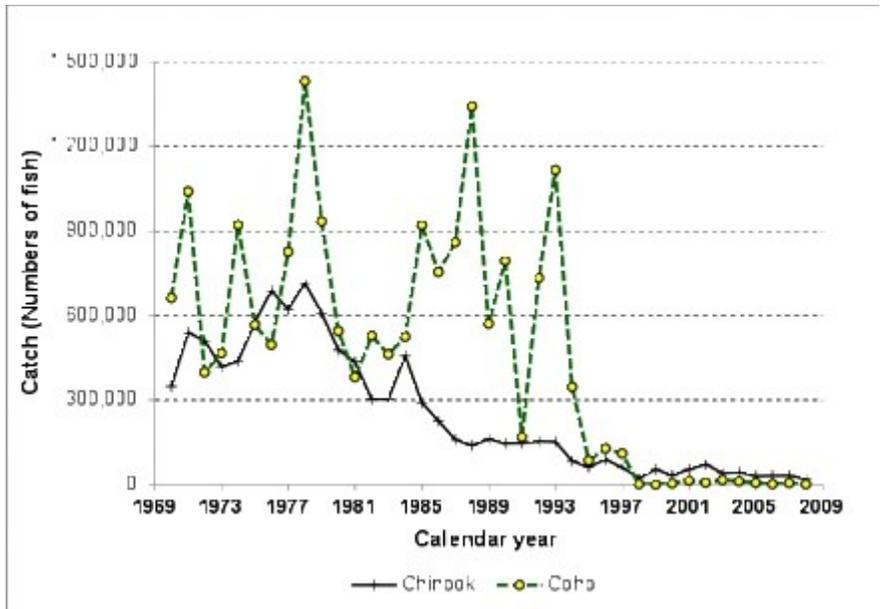
([www.marinesurvivalproject.com](http://www.marinesurvivalproject.com))

**Brian E. Riddell and Isobel A. Pearsall**, Pacific Salmon Foundation, 300 – 1682 West 7<sup>th</sup> Avenue, Vancouver, B.C. Canada V6J 4S6 ([www.psf.ca](http://www.psf.ca))

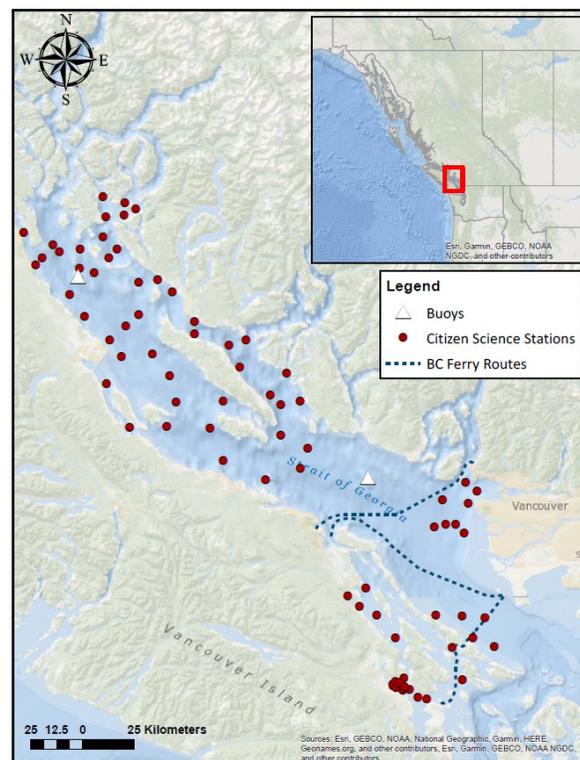
The Salish Sea is an inland sea in British Columbia and Washington State, which includes the Strait of Georgia, Puget Sound, and the Juan de Fuca Strait. The Salish Sea Marine Survival Project (SSMSP) is an ecosystem-based, international science program to understand the annual determinants of salmon production in the Salish Sea (2014 – 2018).

During the 1980s and early 1990s, the largest recreational fishery in British Columbia was in the Strait of Georgia and provided an estimated \$750 Million revenue annually to communities. A similarly important fishery occurred within Puget Sound. Catch varied between years but these fisheries were social and cultural components of the west coast life every year; until the late 1980s for Chinook salmon and mid-1990s for Coho salmon. The Chinook decline is complicated by a number of changes in regulation but the disappearance of Coho salmon between 1994 and 1995 was (and remains) a mystery. In 1998 the retention of Coho salmon by commercial and recreational gears was stopped in southern B.C.; but the production of Coho salmon did not increase over time as expected. While scientists in the Department of Fisheries and Oceans tried to initiate studies to explain this change, no significant programs were really undertaken until the late 2000s as reported by Masson and Perry (2013). Unfortunately, the mystery remained as few studies of salmon production were included.

The SSMSP is the most comprehensive research program to examine the determinants of salmon production within the Salish Sea. Studies were designed to examine ‘bottom up’ control of the annual biological oceanography and food supply supporting juvenile Pacific salmon; and ‘top down’ control including predation, hatchery production, contaminants, habitats, and pathogens. The fundamental difference between the SSMSP and previous efforts was that we attempted to study the ecosystem all at once for an intensive but short study period ... put simply, we tried to study everything, everywhere, all at the same time. In each year of research, over 30 projects were conducted and coordinated with the other projects in Canada and the United States.



One of the major challenges in this effort was how to sample the biological oceanography of this complex marine area. DFO research cruises gather data a few times a year, but it was important to sample at a much higher resolution in time and space for the purposes of this project. Our “Citizen Science Program” was originally proposed by Dr. Eddy Carmack, a retired scientist from the Institute of Ocean Sciences (IOS), Sidney. His concept was the creation of a “mosquito fleet” with retirees or interested persons working as citizen scientists, collecting information in different areas of the Strait of Georgia on the same days each week over a period of months. In this manner the entire Strait could be fully sampled within a day, providing data at a spatial and temporal resolution that has not been realized or possible before. The main objectives of the Citizen Science program were to examine how changes in ocean temperatures, oxygen content, salinity, and nutrients impact the food web from phytoplankton to zooplankton all the way up to the juvenile salmon. Other areas of interest were to determine the prevalence of harmful algal blooms throughout the Strait of Georgia, the timing and propagation of the spring bloom throughout the Strait as well as to provide useful data to other SSMSP scientists to assist in hypothesis testing.



*Citizen Science Sampling Coverage in the Strait of Georgia, British Columbia, including routes for instrumented BC ferries and locations of Environment Canada buoys*

The Pacific Salmon Foundation (PSF) implemented the program in February 2015, with all vessel operators fully trained to carry out the program on the first “shakedown” cruises. Volunteer boats sample out of 10 locations: Sechart/Madeira Park, Campbell River, Galiano, Baynes Sound, Cowichan Bay, Lund, Powell River, Nanaimo/Qualicum, Steveston, and Ladysmith. BC Ferries crossing between Nanaimo and Vancouver are also outfitted to collect oceanographic data and provide information for what would otherwise have been a gap in coverage in the middle of the Strait. In addition, our program added fluorometers and nitrate sensors to Environment Canada moorings in the Strait of Georgia to provide continuous data on water properties.

Along with the CTD profiles they take water samples for nutrients dissolved in the seawater and these samples are analysed back in the lab. Nutrients are used to identify water from certain sources (like rivers), to diagnose the limiting factors for growth of plankton and track the movement of water masses. Water samples are also collected and analysed for phytoplankton species as well as presence of any harmful algal blooms. A few crews have also collected zooplankton. The citizen scientist-collected data provides insight on how the type and availability of phytoplankton and zooplankton affects juvenile salmon growth and survival.

*Some of our citizen scientists:*



Finally, crews deploy a Secchi disk to assess water turbidity. A recent study concluded that global phytoplankton concentrations have declined over the last century. The measurements taken by the citizen scientists are part of an international effort to measure this (<http://www.secchidisk.org/>).

Ocean Networks Canada (ONC) has developed a smart phone application for sample data transfer so that data can be sent directly from the small boats to ONC, where it undergoes quality control and is then archived and made freely available over the internet. ONC has been responsible for calibrations, engineering support, data management and QA/QC. The CTD data are also freely available from the Strait of Georgia Data Centre ([www.sogdatacentre.ca](http://www.sogdatacentre.ca)), which also houses the nutrient, phytoplankton, chlorophyll, Secchi disk and zooplankton data.

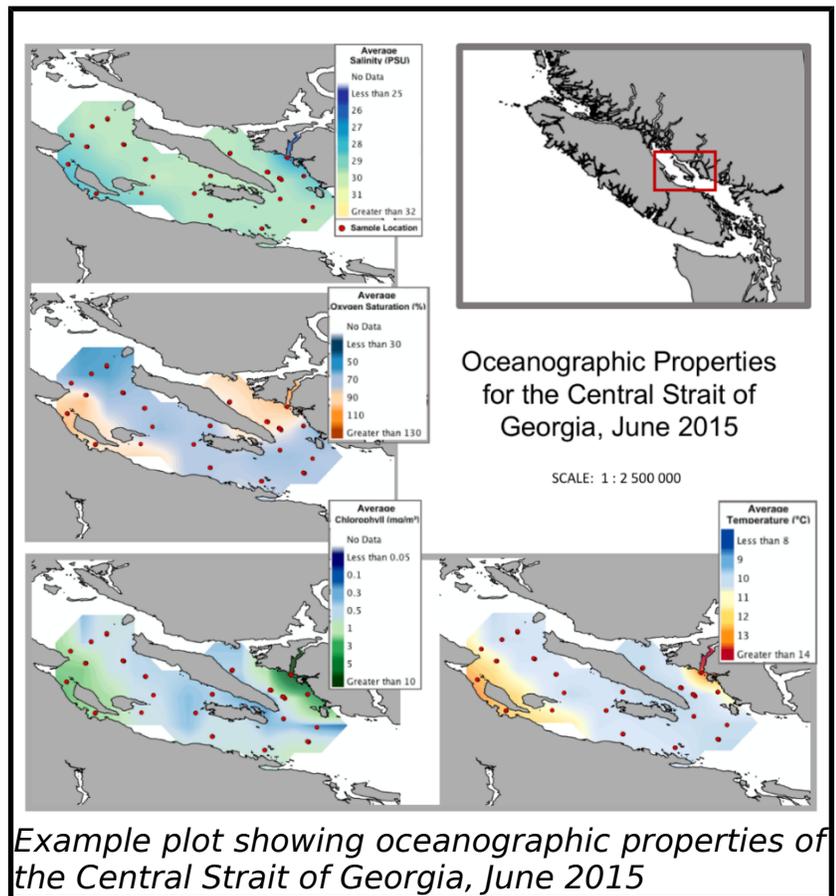
The Citizen Science program has been highly successful! We have collected a huge number of samples over the years, and SSMSP researchers are using these to assess annual variation in the physical/chemical oceanography in the entire Salish Sea, as well to address many of the key questions within the Salish Sea Marine Survival project.

## Samples collected by the PSF Citizen Science Program from 2015-2017

Sampling Years	Vessel Trips	CTD casts	Nutrients Collected	Phyto-plankton Collected	Chlorophyll Collected	Secchi Recordings	Zoo-plankton Collected	Total Samples
<b>2015</b>	150	2,264	1,809	1,381	193	2,088	146	7,881
<b>2016</b>	199	1,445	1,587	2,064	349	2,825	60	8,330
<b>2017</b>	197	1,420	1,529	1,934	340	2,814	54	8,091
<b>3 years</b>	<b>546</b>	<b>5,129</b>	<b>4,925</b>	<b>5,379</b>	<b>882</b>	<b>7,727</b>	<b>260</b>	<b>24,302</b>

Rich Pawlowicz, oceanography professor at UBC, and students, have carried out extensive analysis of the data sets, and currently the Citizen Science data are being used to study the following:

- **Fish Health:** Is there a relationship between level of stress (fish from areas with temperatures greater than 17°C & less than 6ppm O<sub>2</sub>) and expression of disease states?
- **Harmful algal blooms:** How do water temperature/ salinity/ dissolved oxygen/ nutrients affect prevalence of harmful algal blooms?
- **Migration Pathways of Pacific Salmon:** Is there a relationship between water quality and hotspots of plankton and migration pathways of juvenile salmon?
- **Kelp and Eelgrass Restoration:** What are the turbidity and water properties in potential restoration sites (particularly estuaries) around the Strait of Georgia?
- **Juvenile Salmon Studies:** What is the relationship between distribution, diet and fish size for key juvenile salmon stocks and temperature, salinity and dissolved oxygen?
- **Modeling Studies and Satellite Data:** Data collected by the citizen science program is being used to validate 3D biological models of the Salish Sea, and to ground-truth satellite imagery with on-ground data.



Updates and results from this program will continue to be made available on the SSMSP website ([www.marinesurvivaproject.com](http://www.marinesurvivaproject.com)). Please stay tuned!

Please send any questions to:

Dr. Isobel Pearsall, SSMSP Project Coordinator [pearsalli@psf.ca](mailto:pearsalli@psf.ca)

### Citation:

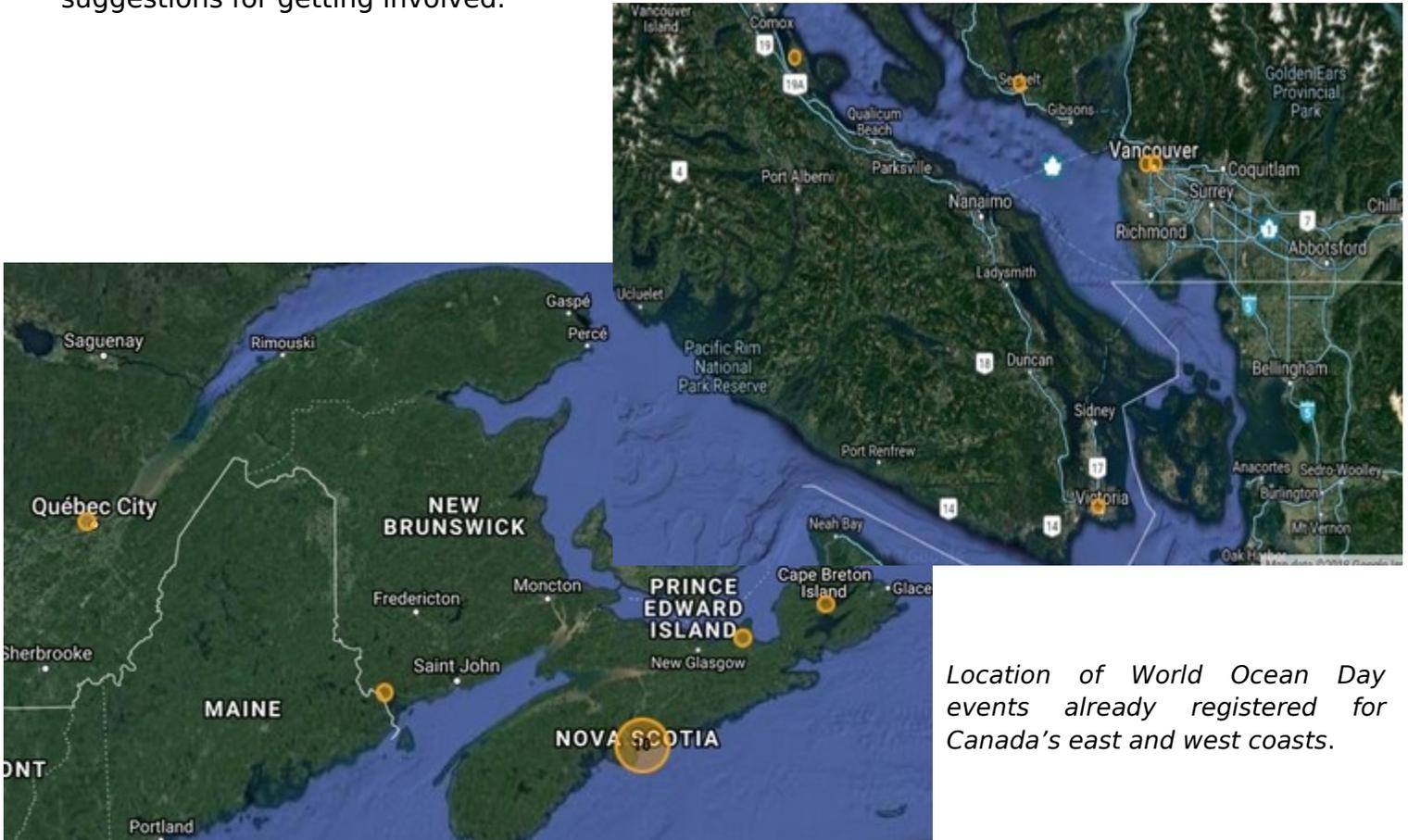
[Masson, D. and Perry, R.I.](#) 2013. The Strait of Georgia Ecosystem Research Initiative. Progress in Oceanography 115.

## World Ocean Day June 8 2018

World Ocean Day is a time to remember we are all connected to the oceans no matter where we live, no matter how far from the coast. Fisheries and Oceans Canada, along with other organizations from across the globe, seeks to raise awareness of the benefits and value of our oceans and the current challenges they face. Celebrate the life-giving role of oceans and take part in stewardship events and activities in your community from coast to coast to coast. Go to the [World Ocean Day website](#) to [download free resources](#), [plan your event](#), [register your event](#) or find [a planned event](#).



Fisheries and Oceans Canada has its own [World Ocean Day web page](#) with resources and suggestions for getting involved.



*Location of World Ocean Day events already registered for Canada's east and west coasts.*

*This section of your newsletter provides an opportunity to highlight your research programs to the Ocean Science Community.*

*Your are invited to send contributions to David Greenberg,  
[david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)*

*Mettez en valeur vos programmes de recherche en publiant un article dans cette première section de votre bulletin.*

*Faites parvenir vos contributions à David Greenberg,  
[david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)*

## MEETINGS

### CMOS CONGRESS 2018

#### June 10-14, 2018, Halifax NS

The Canadian Meteorological and Oceanographic Society's 52<sup>nd</sup> Congress and the annual meeting will be held from 10 June to 14 June, 2018 at the new Halifax Convention Centre in Halifax NS, Canada. This year's congress theme is "marine and environmental risks and impacts". The congress will bring together a wide range of scientists and other professionals from across Canada and other



countries with a focus on topics in atmospheric, ocean and earth science. In recognition of a delay in availability of the full scientific program details, the early bird registration deadline has been extended from April 30 to **May 25**. You are encouraged to take advantage of the savings available through early registration. Don't forget, students get free CMOS membership and members get discounted registration. Note also that the Congress hotel block is filling rapidly. You are urged to take advantage of the great rates at the hotels as soon as possible while rooms are available.

### OERA Webinar Series

Offshore Energy Research Association of Nova Scotia (OERA) is proud to present a webinar series to highlight recent and ongoing research in the offshore energy sector in Nova Scotia. This series is designed to help disseminate information on the research activities and results of projects in geoscience and marine renewable energy.



Webinars are designed to be a forum for industry, researchers, regulators and community stakeholders to share information, get informed, and discuss research results and implications. The webinars are geared towards a broad audience with a balance between non-technical and scientific jargon, prioritizing research results and their implications for the development of the offshore energy sector. Everyone is welcome to attend the following live webinars and participate in the question and answer session with the presenters. The [monthly webinar schedule is now available](#) for presentations up to January 2019. Included in the upcoming presentations are:

**May 24, 2018 - 1:00 - 2:00 pm AST** [Nick Fyffe, Blumara Corp.](#) *"Finite Element Analysis to Assess Fish Mortality from Interactions with Tidal Turbine Blades"*

**August 23, 2018 - 1:00 - 2:00 pm AST** [Haley Viehman and Anna Redden, Acadia University](#) *"Acoustic Assessment of Fish Presence and Vertical Distribution at the FORCE Tidal Turbine Test Site in Minas Passage, Bay of Fundy"*

**October 18, 2018 - 1:00 - 2:00 pm AST** [Hansen Johnson, Dalhousie University](#) *"Measuring the Acoustic Detection Range of Large Whales from Autonomous Platforms to Improve an Acoustic Whale Alert System"*

To register, click in the webinar link on the [schedule page](#).

For previously aired webinars, please [CLICK HERE](#) for full videos.

## XMAS-IV

**Jan 6-9, 2019, Xiamen, China**

The State Key Lab of Marine Environmental Science (MEL) initiated the Xiamen Symposium on Marine Environmental Sciences (XMAS) in Jan 2014, with the overarching theme of The Changing Ocean Environment: From a Multidisciplinary Perspective. The fourth iteration, XMAS-IV (<http://mel.xmu.edu.cn/conference/4xmas>), will be held in Xiamen from January 6th to 9th, 2019. The symposium will consist of different, interconnected sessions covering physical oceanography, marine biogeochemistry, biological oceanography, and marine ecotoxicology along with workshops for emerging topics in marine environmental sciences. Closing date for abstracts **Aug 31, 2018**.



## Workshop: Introduction to the Awesome OCIM (AO)

**August 12<sup>th</sup>, 2018, MIT, Boston MA**

The Awesome OCIM is a new modeling toolbox designed to bring cutting-edge transport matrix models to a wide community of users. This workshop will introduce the AO to the GEOTRACES community and the wider community of chemical oceanographers. Modeling novices welcome!

The AO uses Ocean Circulation Inverse Model (OCIM) transport for realistic global 3d circulation. Within this circulation, broad features of the distribution of many marine TEIs can be achieved by combining just a few processes. For example, iron might be modeled as a combination of atmospheric and sedimentary sources, biological uptake, and remineralization. Thorium might be modeled with radioactive production and decay, plus scavenging. A clickable interface allows the user to include processes such as these, and tune their magnitude to match observed GEOTRACES data. Further adjustments to biogeochemical cycling can be achieved with changes to the underlying Matlab code.



This workshop is designed for graduate students, postdocs, and faculty with an interest in learning more about the AO. No previous experience with modeling is necessary. All participants will be given the latest version of the AO software, and talks will include examples of how the AO and other similar OCIMs are used in research, an introduction to using the AO through the GUI and underlying Matlab code, and a hands-on opportunity to recreate the global distribution of your favorite TEI using the AO. Also there will be sandwiches.

[The announcement \(pdf\)](#)

Contact [sethjohn@usc.edu](mailto:sethjohn@usc.edu) by **June 1<sup>st</sup> to register**

## SOLAS Open Science Conference

**21-25 April 2019, Sapporo, Japan**

The Surface Ocean–Lower Atmosphere Study ([SOLAS](#)) is an international and interdisciplinary research project on biogeochemical-physical air-sea interactions and processes. With its Open Science Conference, SOLAS offers the ideal programme for scientists who wish to learn and exchange about cutting edge research in the field and present their own findings. To keep being up to date with SOLAS and the organisation of the conference, subscribe to the [mailing list](#). Registration will open in May. This will include abstract submission, discussion session submission, and travel support.

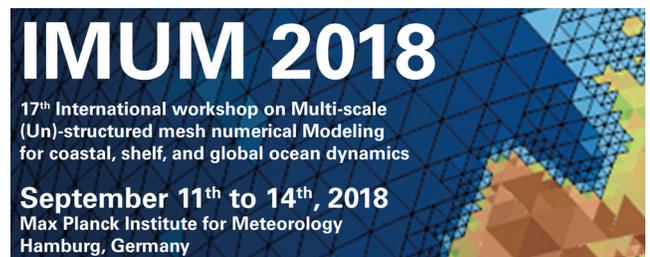
[Website](#)



## IMUM 2018

**September 11-14, Max Planck Institute for Meteorology, Hamburg**

The **17<sup>th</sup> International workshop** on Multi-scale (Un)-structured mesh numerical Modeling for coastal, shelf, and global ocean dynamic will be held in Hamburg, Germany, from September 11<sup>th</sup> to 14<sup>th</sup>, 2018. The workshop is organized by the Max Planck Institute for Meteorology (Hamburg) and the Alfred-Wegener-Institut for Polar and Marine Research (Bremerhaven).



The first workshop in this series was held in Louvain-la-Neuve in 2002. Since then, the IMUM annual workshops have become a premier forum to report on, and advance, the state-of-the-art of unstructured-mesh modeling of the ocean, at multiple scales and in its interactions with freshwater and/or the atmosphere. The workshops have an informal and interactive style, and seek to balance high quality presentations with discussions on leading edge development, benchmarking and application of models.

[Website](#)

Abstract deadline **June 30**.

*Please send meeting announcements to  
David Greenberg,  
[david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)*

*SVP faites parvenir vos annonces de réunion à  
David Greenberg,  
[david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)*

## POSITIONS AVAILABLE

### Visiting Fellowships in Canadian Government Laboratories Program



The Bedford Institute of Oceanography (Fisheries and Oceans Canada) is searching for a postdoc to study the hydrodynamic environment of the bottom boundary layer associated with large glass sponges of conservation concern on the Scotian Shelf. The duties of the position mainly include (1) laboratory experiments to evaluate the drag created by the sponge and its effect on bottom currents as well as the role of water flow over the sponge osculum to facilitate

movement of water and food particles through the sponge body, and (2) numerical models based on the drag parameterization from the laboratory experiments to predict fine-scale distribution and connectivity using Lagrangian particle tracking models. The sponge grows to approximately 50 cm and is vase-shaped with [glass spicules emerging from the body wall](#). Part of the study will be to determine the adaptive significance of this morphology. Results will be used to evaluate the impact of changes to the spatial arrangement of sponges in situ as affected by bottom trawling, recovery potential and the influence of the current on carbon, nitrogen and silicon sequestration in collaboration with European collaborators on the EU Horizon2020 project [SponGES](#).

The applicant should apply through the newly announced [Postdoctoral Research Program](#).

Minimum qualifications: Ph.D. in Oceanography or related fields within the last 3 years. Experience in using numerical models, especially FVCOM and ROMS, is desirable. For further information contact Dr. Yongsheng Wu: [Yongsheng.Wu@dfo-mpo.gc.ca](mailto:Yongsheng.Wu@dfo-mpo.gc.ca) or Dr. Ellen Kenchington: [Ellen.Kenchington@dfo-mpo.gc.ca](mailto:Ellen.Kenchington@dfo-mpo.gc.ca).

Applications are being accepted now. The position will remain open until filled.



### Defence Scientist/Underwater Warfare

Defence Research and Development Canada (DRDC) is seeking candidates for six Defence Scientist (DS) positions in the Underwater Warfare (UWW) domain. The positions are within the following four Streams:

Stream 1 – Acoustic Environment Modelling: Advance the understanding of the underwater acoustic environment under various oceanographic conditions through modelling and prediction of transmission loss, scattering and reverberation.

Stream 2 – Acoustic Sensing for UWW: Advance the science and technology of active and passive

sonar for tactical and surveillance applications in all ocean environments including detection of naval mines and submarines.

Stream 3 – Acoustic Underwater

Communications: Advance the science and technology of acoustic underwater communications with emphasis on low frequency, long range, secure communication.

Stream 4 – Electromagnetic Sensing for

UWW: Advance the science and technology of airborne and/or underwater electromagnetic sensing of submarines and mines.

A pool of qualified candidates will be created and may be used to staff similar positions with various tenures (casual, term and indeterminate), linguistic requirements and security requirements within DND.

[Details](#)

**Closing date: 18 May 2018 - 23:59, Pacific Time**



Defence Research and  
Development Canada

Recherche et développement  
pour la défense Canada

DRDC | RDDC

SCIENCE, TECHNOLOGY AND KNOWLEDGE  
FOR CANADA'S DEFENCE AND SECURITY

SCIENCE, TECHNOLOGIE ET SAVOIR  
POUR LA DÉFENSE ET LA SÉCURITÉ DU CANADA



## Tier 2 Canada Research Chair in Physical Oceanography

The Department of Oceanography at Dalhousie University is seeking applicants for a Tier 2 Canada Research Chair in Physical Oceanography. Applicants must hold a PhD in Physical Oceanography or a closely related discipline, and have a strong record of research excellence. The applicants' research should address ocean dynamics on a range of temporal and spatial scales, and it should complement the existing research activities by physical oceanography faculty in the Department, e.g., ocean models and observational analyses, shelf and deep ocean circulation, nearshore processes, air-sea interactions, climate variability, ocean acoustics, and mixing. Interests in cross-disciplinary oceanographic research are an asset.



The successful applicant may find research support from existing centres of excellence at Dalhousie (e.g., MEOPAR) and from the newly created *Ocean Frontier Institute (OFI)*. *OFI* brings together elite researchers and institutes from across the globe to understand our changing oceans and create safe, sustainable solutions for ocean development. Including a \$93.7M award through the *Canada First Research Excellence Fund* program (*CFREF*), government, private and partner contributions, the *OFI* is a \$220M enterprise.

The anticipated start date is 1 July 2019, or as negotiated. The application should include a detailed curriculum vitae, a two- to three-page statement of research interests, three representative publications, the names and contact information of three references, and a completed Self-ID questionnaire ([www.dal.ca/becounted/selfid](http://www.dal.ca/becounted/selfid)).

Review of applications will **begin on 4 June 2018** and will continue until the position is filled.

[Details](#)

## Postdoc Research Associate for Coastal Ocean Modeling

### Los Alamos, New Mexico

The COSIM team seeks applications from diverse candidates with expertise in coastal, ocean and/or land modeling to work on coastal ocean modeling development, which may include processes such as inundation, sediment transport and vegetation, tides, and mixing. We particularly welcome research proposals for development of novel coastal ocean physics, broadly defined but potentially including but not limited to sub-grid bathymetry approaches, innovative scalar transport schemes, mixed-dimensional and multiscale modeling, reduced-order modeling, coupled land-ocean approaches, etc. The successful candidate will be part of a multidisciplinary team developing an innovative decadal-scale coastal model for real-world application. Results from this work will be presented in conferences and published in peer-reviewed journals. The initial appointment is for two years, with a possible third year extension depending on performance and funding availability.



#### [Details](#)

Applications will be **reviewed as received**. 2 postdoc positions to be filled by August 2018.

## Postdoc position in Marine Science

### Bar-Ilan University, Israel

A postdoc position is offered for two years, starting summer 2018, in the [Environmental Radioisotope Geochemistry lab](#) at Bar-Ilan University, Ramat-Gan, Israel. The candidate will be involved in an interdisciplinary study of the biological pump and transport processes in the warm ultra-oligotrophic eastern Mediterranean Sea, which has been recently subjected to increasing anthropogenic pressure, such as extensive drilling for oil and gas and coastal water desalination.



The work will focus on a recently-deployed deep water observatory ('DeepLev'), accompanied by monthly and seasonal cruises across the Levantine basin. The research will involve geochemical, microbiological and physical aspects. Requirements include a recently-acquired Ph.D. (or expected within the next few months) in oceanography or earth sciences and leading abilities in field and lab work.

The qualified candidate will need to apply for the Mortimer Zuckerman STEM LEADERSHIP PROGRAM (<http://zuckerman-scholars.org/programs/postdoctoral-scholars/>) and submit the application through Bar Ilan University. **Deadline is June 1, 2018.**

For more details, please contact Prof. Yishai Weinstein, [weinsty@biu.ac.il](mailto:weinsty@biu.ac.il)

Looking for work? Try the CMOS site ([click](#)).

Vous recherchez un emploi? Visitez le site SCMO ([click](#)).

## GENERAL

### The Martin Bergmann Medal for Excellence in Arctic Leadership and Science

Established by the [Royal Canadian Geographical Society](#) in 2012, the [medal](#) recognizes achievement for “excellence in Arctic leadership and science”. It celebrates “Marty” Bergmann, a public servant with an outstanding talent for networking that led him to connect scientists with resources and technology, to inspire business leaders, explorers and innovators towards new goals and to consider and attempt to meet the challenges inherent in opening up the Arctic, whether these were related to logistics, safety, resources, people, knowledge or will.



The Martin Bergmann Medal is awarded for:

- distinguished accomplishments in Arctic leadership and science in the Canadian Arctic;
- excellence for a recent outstanding achievement, or for a lifetime of achievement, both being equally eligible.

All nominations [must be made on-line](#) and received at the Society’s office by **11:59 pm EST on June 30**.



### Offshore Energy Research Association Open Call Program

The [Offshore Energy Research Association](#) (OERA) has an '[Open Call Program](#)' available two (2) times per year for potential research funding in the areas of marine renewable energy and petroleum geosciences.

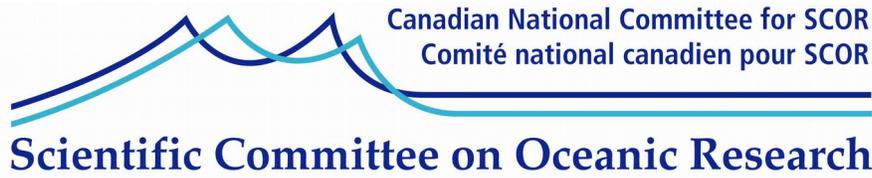


#### Program guideline:

- Program rationale is to capture modestly budgeted research projects that fall outside OERA’s standard competitive research calls/ RFP processes.
- Proposed research must fall within one of *marine geosciences* or *marine renewables (tidal)*.
- Key program driver is to build research capacity in Nova Scotia. Applications that include skills development of students or recent graduates are more favourably reviewed.
- Proposals are vetted by a team of external peer reviewers with funding recommendations made to the OERA Board of Directors. Recommendations must be approved by the Board.

Next Open Call Proposal Deadline: **Monday, July 16, 2018 - 4:00 pm AST**

## New SCOR Working Group Proposals



Nine working group proposals have been submitted to SCOR for review:

- 1 - Active Chlorophyll fluorescence for autonomous measurements of global marine primary productivity
- 2 - The Surface Ocean CO<sub>2</sub> Mapping intercomparison initiative: Phase 2 (SOCOMv2)
- 3 - Ocean Governance and Policy Analysis for Ocean Deoxygenation (WG-OGOD)
- 4 - Carbonate system intercomparison forum (CSIF)
- 5 - Toward a new global view of marine zooplankton biodiversity based on DNA metabarcoding and reference DNA sequence databases (MetaZooGene)
- 6 - The Caribbean Upwelling Research Network (CURNet)
- 7 - A Framework for Ocean Observation for the Next Generation - expanding quantifiable methods and Best Practices (FOO-BP)
- 8 - Coordinated Global Research Assessment Of Seagrass Systems (C-GRASS)
- 9 - Co-ordinated approach for Aerosol Trace element Solubility and Bioavailability Research in Oceanography (CoATS-BRO)

The nine proposals for 2018 are available at

[http://scor-int.org/Annual%20Meetings/2018\\_SCOR\\_Meeting/2018\\_SCOR\\_Annual\\_Meeting.htm](http://scor-int.org/Annual%20Meetings/2018_SCOR_Meeting/2018_SCOR_Annual_Meeting.htm)

One or two of these will be funded at the Annual SCOR meeting in September. Comments from any interested scientist are welcomed. Comments can be sent to CNC-SCOR, either via the Chair (Paul Myers, [pmyers@ualberta.ca](mailto:pmyers@ualberta.ca)) or the Secretary (David Greenberg, [david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)). The deadline for comments for this year is July 11, 2018.

## 2018 Galapagos Ocean Acidification School



2018 SCOR Visiting Scholar Cristian Vargas is leading an Ocean Acidification School at the [Charles Darwin Research Station](#), Puerto Ayora, Galápagos, Ecuador on 19-28 August 2018. See the [flyer](#) and [application form](#) for the course. The deadline for applications is **4 June 2018**.



# Canadian Ocean Science Newsletter Le Bulletin Canadien des Sciences de l'Océan

Previous newsletters may be found on the [CNC/SCOR](#) web site.

Newsletter #**101** will be distributed in **July 2018**.

Please send contributions to David Greenberg  
[david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)

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**SIGNOFF OCEAN-NEWSLETTER**

Les [bulletins](#) antérieurs se retrouvent sur le site web du [CNC/SCOR](#).

Le Bulletin #**101** sera distribué en **juillet 2018**.

Veuillez faire parvenir vos contributions à David Greenberg, [david.greenberg@dfo-mpo.gc.ca](mailto:david.greenberg@dfo-mpo.gc.ca)

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