

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

**Newsletter Number 122, January 2022
Bulletin numéro 122, janvier 2022**

Table of Contents

OCEAN SCIENCE NEWS.....	2
A sustained glider monitoring program in the Canadian coastal Pacific.....	2
Les océans se réchauffent à un rythme sans précédent.....	6
UN Decade of Ocean Science, Canadian Town Hall.....	9
MEETINGS.....	12
CMOS Congress - CGU Annual Meeting - ESC Conference.....	12
Congrès SCMO - UGC réunion annuelle - UGC Conférence.....	12
Marine Microbes – Gordon Research Seminar and Conference.....	13
AOGS2022.....	13
POSITIONS AVAILABLE.....	14
Biological Oceanographer and Remote Sensing Scientist.....	14
Tenured Professor of Marine Science and Director of Marine Science Institute.....	15
PhD Researcher Marine Geology.....	15
Assistant Professor (Tenure Track) Oceanography.....	16
Two early-mid career scientists Baltic Oceanography.....	16
GENERAL.....	17
Les Prix de la Société canadienne de météorologie et d'océanographie (SCMO).....	17
Canadian Meteorological and Oceanographic Society (CMOS) AWARDS.....	17
Honours awarded at CMOS Congresses.....	17
Project Ocean.....	18
2022 IOCCG Summer Lecture Series.....	19
2022 Call for SCOR Working Group Proposals.....	20
Canadian Ocean Science Newsletter Le Bulletin Canadien des Sciences de l'Océan.....	21
CNC-SCOR.....	21



A sustained glider monitoring program in the Canadian coastal Pacific

Khushboo Jhugroo^{1,2}, Stephanie Waterman², Hayley Dosser^{2,4}, Jennifer Jackson¹, Jody Klymak³, Tetjana Ross⁴, James Pegg⁴, Charles Hannah⁴

¹Hakai Institute, Victoria, BC, Canada ²University of British Columbia, Vancouver, BC, Canada ³University of Victoria, BC, Canada ⁴Institute of Ocean Sciences, Sidney, BC, Canada

Today's sense of urgency around understanding and protecting our coastal oceans is precipitated by their warming, acidification and deoxygenation, which is occurring at an alarming rate. Cascading effects on marine ecosystems are similarly occurring at a rate that outstrips our capacity to know and understand the impacts. The need to monitor the coastal ocean to 1) develop a mechanistic understanding of the system and its drivers; 2) better understand ongoing changes and their implications; and 3) develop predictive ability to guide adaptation and provide an early warning system for fragile ecological communities and fisheries stocks is acute. This is especially true in Queen Charlotte Sound, a socially-, economically-, oceanographically- and ecologically-relevant shelf sea on the British Columbia central coast. This region is extremely biologically productive. It is also a vital commercial and subsistence fishing ground, and hosts several Marine Protected Areas. As an upwelling zone of the Northeast Pacific, this shelf region is especially vulnerable to ocean acidification and deoxygenation when upwelling-favourable winds drive the delivery of low-oxygen and acidic waters from intermediate depths in the Pacific Ocean to the shelf. In addition, extreme events including marine heatwaves (such as the “warm Blob”), strong storms (sometimes hurricane-force) and above-normal rainfall (“atmospheric rivers”) are increasingly threatening the region including its fishing grounds, Marine Protected Areas and the communities living along its coastline.

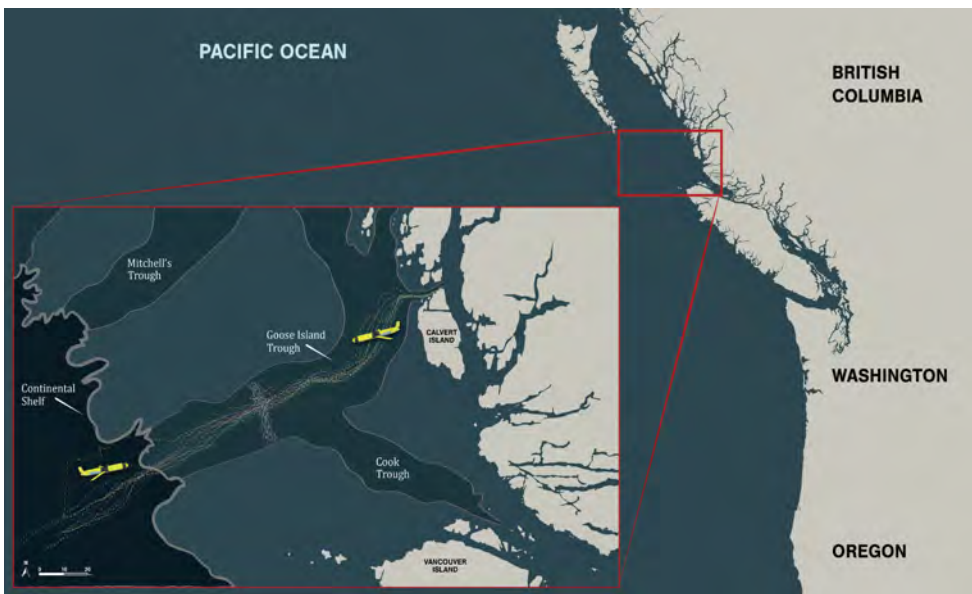


Figure 1: Ocean glider tracks for the ten surveys conducted in Queen Charlotte Sound in 2020-2021 (coloured dotted lines). In each survey, the glider transversed from east to west along Goose Island Trough and approximately 50 kilometers past the continental shelf break into the open ocean, before heading back toward Calvert Island. During five of the surveys, the glider also sampled across Goose Island Trough at about 100 km offshore on the way back. Map by Hakai Institute’s Josh Silberg and Will McInnes.

Queen Charlotte Sound is a shelf sea partially enclosed by Haida Gwaii, Vancouver Island and the mainland west coast of Canada. Oceanographically, it is influenced by strong freshwater forcing, tides, wind-driven coastal upwelling, estuarine-like circulation, and shelf exchanges with coastal fjords. This region also has a complex bathymetry that includes troughs, deep fjords, channels,

islands and banks (Figure 1). Anomalous water masses from marine heatwaves, El Niño/La Niña events, and inter-decadal climate oscillations such as the Pacific Decadal Oscillation (PDO) can strongly alter the near-shore physical and biogeochemical environment; these large-scale forcings interact with local processes that drive important variability in physical and biogeochemical conditions that have potential impacts on many species. At present, however, the mechanisms involved in the transport and modification of open-ocean source waters on the shelf are poorly understood. Further, biogeochemical conditions are poorly characterised in the region. Developing a better understanding of the coastal physical and biogeochemical responses and consequences that arise from large-scale forcings and coast-to-open ocean connectivity is of utmost importance.

Enter the glider fleet (Figure 2) of the Canadian-Pacific Robotic Ocean Observing Facility (C-PROOF; <https://cproof.uvic.ca>), a collaboration between academic, governmental, NGO, and industrial partners. In August of 2021, C-PROOF completed a first year of sustained ocean glider missions in Queen Charlotte Sound. This is the first successful attempt to obtain sustained, high-resolution oceanographic observations across this wide shelf in both summer and winter. Despite a pandemic, rough weather conditions, strong tides, complex bathymetry and instrument failures, a total of 8,050 profiles from ten glider surveys were collected over the period July 2020 to August 2021. In each survey, a glider transversed from the coast to the open ocean: east to west along Goose Trough past the shelf break and back to its deployment location (Figure 1), covering around 500 km over-ground in a 3-4 week time span. Along this path the glider sampled the full water column (up to 1000 m below the surface; Figure 3) with a suite of sensors including temperature, salinity, dissolved oxygen, chlorophyll fluorescence to infer primary production, optical backscatter (at 700 nm) and colored dissolved organic matter (CDOM) fluorescence. On select missions, specialized instrumentation additionally collected ocean turbulence measurements important for understanding the modification of open ocean waters by mixing en route to the coast (Figure 4). Glider sampling offers advantages over traditional ship-based sampling: they permit sustained, high-resolution data collection in adverse weather conditions, for a fraction of the cost of ship-based observations, with a much smaller carbon footprint. They also cause minimal disturbance to marine life as they are quiet and slow moving. Real-time communication transmits data to shore and receives updated instructions allowing for adaptive sampling strategies. Further, they can be piloted from your living room: a particularly useful feature during a pandemic!



Figure 2: C-PROOF glider fleet - Rosie, Eva, Wall-E, BB, and Mike - on a rare occasion when all five gliders were in the same location. Photo credit: DFO, James Pegg.

Figure 3: A schematic illustrating how gliders sample. Gliders have no motor but instead are propelled by adjusting their buoyancy to rise and fall in the stratified water column. Fixed wings then translate a component of this vertical motion to motion in the horizontal, creating a saw tooth motion through the water. Image credit: Robin Matthews and Tara Howatt.

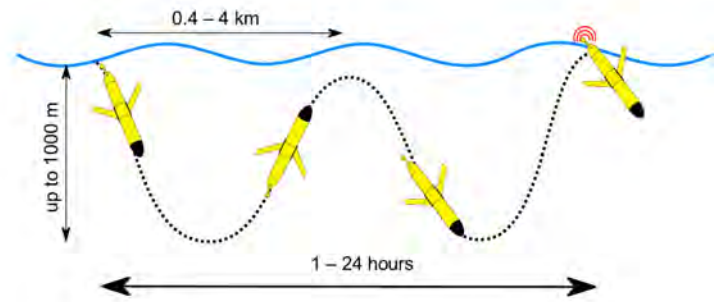


Figure 4: Ocean glider Mike (short for Mike Rorider, in reference to the Rockland MicroRider turbulence sensor the instrument carries) during deployment by the Hakai Institute Oceanography team in June 2019. Photo credit: Hakai Media, Katrina Pyne.

This first year of glider operations in Queen Charlotte Sound yielded a dataset of physical, chemical and biological water properties that is unique in its high spatiotemporal resolution and its broad spatial and temporal coverage (Figure 5). As a consequence it promises new insights into the variability and dynamics of Queen Charlotte Sound, as well as cross-shelf variability in physical and biogeochemical water properties including isopycnal structure that can elucidate the interplay of estuarine-type circulation and seasonal upwelling and downwelling dynamics. The temporal scope of the data permits new understanding of the seasonal evolution of water properties and water column structure, as well as the nature and impact of episodic events such as heavy rainfall and phytoplankton blooms. A preliminary analysis of this first year of data shows, for example, important seasonal and spatial variability in the nature of the stratification, the influence of mixing, and responses in biogeochemical properties such as dissolved oxygen and chlorophyll concentration. Further, it maps a shelf-scale density structure that suggests the importance of an estuarine-type circulation interacting with cross-shelf Ekman transport driven by the wind-driven flow.

The detailed analysis of this powerful dataset is currently underway by C-PROOF researchers. Their work is motivated by questions that relate to characterizing the annual cycle in physical and biogeochemical properties from the near-coast to the open ocean across this wide shelf; mapping the nature and reach of both the open-ocean-originating upwelling influence and coast-originating freshwater influence on the shelf in various seasons; and identifying where and how water mass modification occurs along this coast-to-open-ocean line. The interplay of salinity and temperature stratification, its variation in space and with season, and its influence on water column structure and primary production is also emerging as a significant theme of inquiry.

These analyses all contribute to guiding future sampling strategies in the second year of occupation of this monitoring line and beyond.

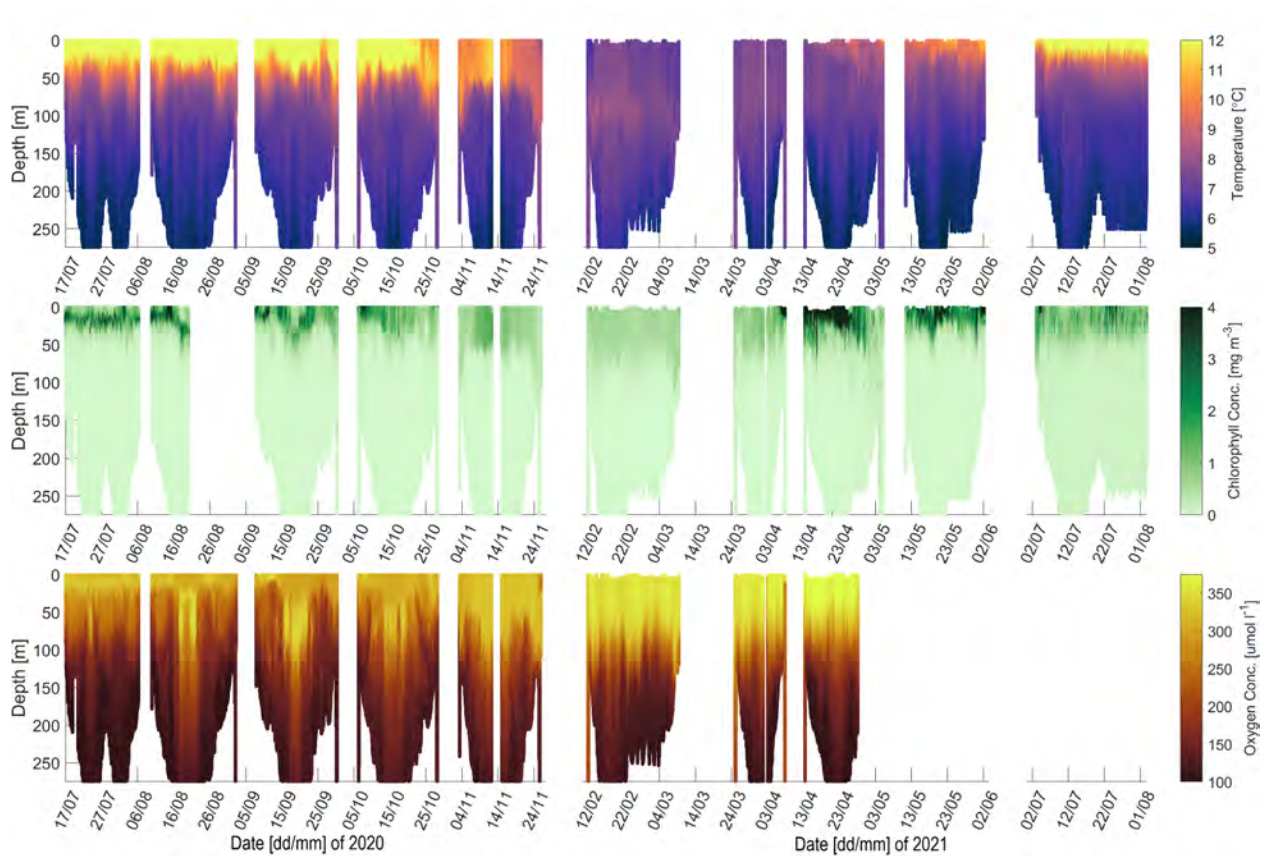


Figure 5: From top to bottom, temperature, chlorophyll and oxygen concentration transects (of the upper 275 m of the ocean) respectively from 10 glider surveys in Queen Charlotte Sound over an annual cycle (July 2020 – August 2021).

In the broadest sense, this project aims to deliver a better understanding of the connectivity between coastal and open ocean waters. These glider observations are filling an important gap in observations linking the coast to the open ocean in a remote and undersampled, yet ecologically and culturally-rich, region along the BC central coast. Shelf seas are common globally and elucidating these connections in Queen Charlotte Sound should give insight into how open-ocean influences, such as marine heatwaves and the upwelling of oxygen-depleted and acidic waters, influence coastal ecosystems. Understanding these impacts is an important focus of ongoing observational and modelling projects in diverse coastal settings around the world.

Les océans se réchauffent à un rythme sans précédent

De [Radio Canada ICI Colombie-Britannique-Yukon](#)

[Alexandre Lepoutre](#) le 16 janvier 2022, trouvé sur [Québec-Océan](#)



Les coraux, les varechs, les macroalgues, les herbiers marins, les mangroves, les poissons, le plancton et les mammifères marins sont tous concernés par le réchauffement et la désoxygénation des océans.

Photo : Reuters / Lucas Jackson

Conséquence directe des dérèglements climatiques, les océans de la planète se réchauffent et enregistrent des records de chaleur d'année en année. Cette hausse de température menace et bouleverse des écosystèmes entiers, tout en mettant en sursis des communautés côtières.

Le constat est sans appel : l'année 2021 a été la plus chaude jamais enregistrée dans les océans, selon une récente étude publiée dans la revue *Advances in Atmospheric Sciences* (Nouvelle fenêtre).

Les auteurs affirment que les océans ont absorbé 14 zettajoules de plus en un an, soit l'équivalent de 145 fois la production mondiale d'électricité.

Leurs résultats montrent que la température des océans ne cesse d'augmenter depuis la fin des années 1950 et que des records sont battus pour la troisième année consécutive.

Aucun océan ne semble épargné. L'étude montre que ce sont les océans Atlantique et Austral qui risquent d'être le plus touchés par le réchauffement climatique à long terme.

Concernant le Pacifique Nord, le réchauffement est "majeur et touche les profondeurs", selon les scientifiques. En 2021, les températures y ont augmenté d'environ deux degrés Celsius à la surface, et d'environ un degré Celsius à 300 mètres de profondeur par rapport à la période 1981-2010.



L'océan Pacifique Nord a connu un réchauffement anormal en 2021, selon les auteurs de l'étude.

Photo : Radio-Canada / Philippe Moulier

Cette vague de chaleur marine est également associée, selon les auteurs de l'étude, au dôme de chaleur que cette zone du Pacifique, y compris la Colombie-Britannique, a connu l'été dernier.

"Le réchauffement des océans en 2021 est une preuve irréfutable que le réchauffement de la planète se poursuit", affirme Lijing Cheng, coauteur de l'étude.

L'océan, essentiel pour ralentir les réchauffements climatiques

Les résultats de cette étude sont loin de surprendre Gabriel Reygondeau, associé de recherche à l'Université de la Colombie-Britannique (UBC), qui s'attend à ce que chaque année établisse désormais un nouveau record.

Le chercheur rappelle que, sans océans, l'augmentation des températures de l'atmosphère serait plus importante.

"L'océan a un effet de tampon. Il absorbe de 80 à 90 % des chaleurs excédentaires depuis l'ère industrielle, en les séquestrant dans ses profondeurs", explique-t-il.

Menace sur les pêches et la biodiversité

L'augmentation de ces températures des océans a des conséquences dramatiques, en premier lieu, sur les espèces et les écosystèmes qui y vivent.

"Plus il va faire chaud, plus les espèces seront en état de stress, donc on augmente leur potentiel de mortalité", explique Gabriel Reygondeau.

Un océan plus chaud peut également avoir un impact sur la taille des poissons et des autres espèces, selon le chercheur.



De nombreux coraux autour de Kiribati, une île de l'océan Pacifique, ont blanchi et sont morts (à droite) lors d'une longue vague de chaleur, mais d'autres ont survécu (à gauche).

Photo : Université de Washington/Danielle Claar et Kevin Bruce

Autre conséquence : le réchauffement des océans force des espèces à migrer vers les pôles, là où les températures leur sont plus adéquates.

Le professeur à l'Université de la Colombie-Britannique UBC note par exemple que la Colombie-Britannique voit déjà dans ses eaux des espèces qu'elle n'avait pas l'habitude de voir auparavant.

"On a eu des requins qu'on ne voyait qu'en Californie du Sud. On commence à voir des espèces comme le poisson lune, qui normalement vient des zones plus tropicales, aux abords de l'île de Vancouver."

Ces migrations risquent de poser d'énormes enjeux et défis, notamment pour les communautés côtières et l'industrie des pêches, selon Gabriel Reygondeau.

"Toutes les espèces auront-elles la capacité de migrer? Avec de nouvelles espèces dans leurs eaux, comment les pays vont-ils s'entendre pour repenser les façons de pêcher", se questionne le professeur à l'Université de la Colombie-Britannique.

Des solutions pour renverser la tendance?

Les auteurs de l'étude publiée dans la revue *Advances in Atmospheric Sciences* exhortent les gouvernements à davantage intégrer les données des océans dans leurs évaluations et plans de lutte contre les réchauffements climatiques.

"Une meilleure prise de conscience et une meilleure compréhension des océans sont à la base des actions de lutte contre le changement climatique", explique Michael Mann, l'un des co-auteurs.

Gabriel Reygondeau, estime que la prise de conscience commence à se faire au Canada.

"Les gouvernements commencent à voir les conséquences avec de nouvelles espèces, [puis aussi avec] des conflits de pêche. D'autres pays sont plus avancés", explique-t-il.

Le professeur à l'Université de la Colombie-Britannique UBC appelle quant à lui à respecter les Accords de Paris pour diminuer les émissions de gaz à effet de serre.

"Tout le monde doit se mettre d'accord et en même temps. Le réchauffement, c'est maintenant. On y est. L'horloge a fini de tiquer."

UN Decade of Ocean Science, Canadian Town Hall

By **Alexa Goodman** From [CMOS Bulletin](#) Dec 16 2021

Advancing Canadian Researcher Involvement in the UN Decade of Ocean Science for Sustainable Development: Town Hall Outcomes from December 3, 2021

Friday, December 3, 2021: An interdisciplinary and intergenerational group of 40 Canadian marine researchers came together for a town hall to sketch an actionable path forward towards collaboration under the UN Decade of Ocean Science for Sustainable Development. The town hall was co-hosted by MEOPAR, CMOS, CNC-SCOR and UQAR, with support from ArcticNet, ASLO, Québec Océan, Réseau Quebec Maritime, and the Tula Foundation/Hakai Institute, all of which are part of the consortium of organizations initiating the United Nations Decade of Ocean Sciences for Sustainable Development Community of Practice (CoP).



Thank You / Merci

UN OCEAN DECADE TOWN HALL

for Canadian marine researchers
Dec 3, 2021 at 3-5PM ADT | 11-1PM PT | 12-2PM MT

HOSTED BY / ORGANISÉ PAR:



The focus of the CoP is on ocean science (natural and social) and will work with other overarching organizations with complementary mandates in supporting UN Decade initiatives in Canada. The CoP offers support for idea development, and membership will be fully open to institutions, University-based research centres, industry organizations as well as to individual researchers, including Early Career Researchers (ECRs) (e.g., students, postdocs), and community researchers. Specific activities of this CoP will be decided by its membership and will focus on organization, communication and action. If you're interested in becoming a member of the CoP, and/or staying up to date on their activities, you can add your email to the mailing list.

What is the UN Decade of Ocean Science for Sustainable Development?

The United Nations declared 2021 to 2030 as the Decade of Ocean Science for Sustainable Development. With the mission of 'transformative ocean science solutions for sustainable development, connecting people and our ocean', the Decade provides a common framework to ensure that ocean science can fully support individual countries' efforts to achieve the UN's 2030 Agenda for Sustainable Development.

The Decade is a 'once in a lifetime' opportunity to create a new foundation, across the science-policy interface, to strengthen the management of our ocean and coastlines for future generations. The Decade requires engagement with scientists, governments, academics, policymakers, businesses, industry, indigenous communities, and civil society to stimulate new ideas, solutions, partnerships, and activities. The town hall marked the first step in bringing together Canadian marine researchers wanting to work collaboratively on proposing applied research related decade activities and actions for Ocean Decade Endorsement later in 2022.

What did we learn from the Town Hall?

During the session, participants were invited to share their ideas and perspectives, highlighting how Canadian researchers can collaborate on existing initiatives and begin to develop our own. The conversation centred on the current need for improved communication around UN Decade activities, international collaboration and interdisciplinary and intersectional projects and programmes that incorporate health, natural and social sciences at a national scale. Emphasis was made on using bottom-up approaches to address community needs, especially with respect to climate change.



As participants pointed out, Canada has taken leadership in indigenous engagement, involvement of early career ocean professionals (ECOPs), and incorporating equity, diversity, inclusion and accessibility (EDIA) into research and management. These principles should and will transcend into research projects and actions submitted for endorsement, in addition to all facets of the CoP, where Canada set an example for other nations at an international scale by taking leadership on endorsed actions.

Where do we go from here?

One of the first steps: Improving access to information. There is a clear need for centralizing information about individuals and groups working on UN Decade Actions as mandated in their strategic plans, plus an inventory of UN Decade events and activities. This information needs to be made accessible and as clearly as possible to improve knowledge mobilization, and connect a broader range of stakeholders to ensure interdisciplinary collaboration. Once the CoP is officially enacted in early 2022, their research assistant will be conducting an ongoing inventory review and will share the results in a variety of ways including a webpage, slack channel and mailing list.

In terms of developing new initiatives for Ocean Decade Endorsement in 2022, the group discussed focusing on an all-encompassing interdisciplinary and intersectional programme to address climate action in Canada, with a public and indigenous engagement component and international partnerships. This idea will be flushed out during the next Town Hall at [MEOPAR's Annual Scientific Meeting](#) on Thursday, February 3, 2022, from 1-2 PM ADT. If you're interested in participating and would like to stay up to date with the Community of Practice, be sure to [sign up for the mailing list](#).

Alexa Goodman (she/they) is a marine manager passionate about doing good for our planet and its people. They joined the MEOPAR team in May 2021 as Training Program Manager to equip the next generation of marine researchers with the knowledge and tools needed to excel in their careers. Alexa is a scientist with a background in marine biology and environmental sustainability, and is an environmental justice activist, lover of the ocean, and a driving force in managing abandoned, lost, and discarded fishing gear, also called 'ghost gear'. They've been a Sustainable Oceans Alliance Youth Leader since 2018 and have continued making waves of change since!

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,
davidgreenberg@alumni.uwaterloo.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,
davidgreenberg@alumni.uwaterloo.ca*

MEETINGS

CMOS Congress - CGU Annual Meeting - ESC Conference

1-3, 6-8 June - online

The Canadian Meteorological and Oceanographic Society (CMOS) 56th Congress, the Canadian Geophysical Union (CGU) Annual Meeting, and the 78th Eastern Snow Conference (ESC) will be held jointly over a 6-day period, 1-3 June 2022 and continuing 6-8 June 2022. Due to the continuing impact and uncertainty caused by the COVID-19 pandemic, the joint meetings will be held using a virtual (on-line) format. More detailed information will be posted as it becomes available on the Congress website.

SCIENCE SERVING
SOCIETY

The theme of our joint meeting is "Science Serving Society", recognizing that the science we all do provides an essential service to our society. This ranges from discovery that pushes the boundaries of our understanding, to the provision of climate, water, weather, oceanic and geophysical services (including policy and regulation development), and even extends to the development of the effective mechanisms for the delivery of services to stakeholders and the users of our work. We hope that this Congress will help maintain and sharpen the focus of our broad professional community on the science while also paying specific attention to the specific needs of our users.

Please submit abstracts electronically [via this link](#) by **28 February 2022**. You will be asked to select a specific session or theme if possible. If you cannot find a relevant session or theme, please choose a "General" session and your paper will be assigned to a session with similar themed papers. Please indicate your preference for oral or poster presentation.

Links [Congress](#) [Abstracts](#)

Congrès SCMO - UGC réunion annuelle - UGC Conférence



1-3, 6-8 juin 2022 - en ligne

Le 56e congrès de la Société canadienne de météorologie et d'océanographie (SCMO), la réunion annuelle de l'Union géophysique canadienne (UGC) et la 78e Conférence de l'Est sur la neige (CEN) se tiendront conjointement sur une période de 6 jours, du 1er au 3 juin 2022 et continueront du 6 au 8 juin 2022. En raison de l'impact et de l'incertitude persistants causés par la pandémie de COVID-19, les réunions conjointes se tiendront en utilisant un format virtuel (en ligne). Des informations plus détaillées seront affichées dès qu'elles seront disponibles sur le site Web du Congrès.

Le thème de notre réunion conjointe est « La science au service de la société », reconnaissant que la science que nous faisons tous fournit un service essentiel à notre société. Cela va de la découverte qui repousse les limites de notre compréhension à la fourniture de services climatiques, hydrologiques, météorologiques, océaniques et géophysiques (y compris l'élaboration de politiques et de réglementations), et s'étend même au développement de mécanismes efficaces pour la prestation de services aux parties prenantes et les utilisateurs de notre travail. Nous espérons que ce congrès aidera à maintenir et à affiner l'attention de notre

LA SCIENCE AU SERVICE
DE LA SOCIÉTÉ

vaste communauté professionnelle sur la science tout en accordant une attention particulière aux besoins spécifiques de nos utilisateurs.

Veuillez transmettre vos résumés par voie électronique **par l'entremise** de [ce lien d'ici le 28 février 2022](#). Il vous sera demandé de sélectionner une séance ou un thème spécifique si possible. Si vous ne trouvez pas une séance ou un thème pertinent, veuillez choisir une séance « générale » et votre article sera attribué à une séance ultérieurement. Veuillez indiquer votre préférence pour un exposé oral ou une affiche à caractère scientifique.

Liens [Congrès](#) [Résumés](#)

Marine Microbes - Gordon Research Seminar and Conference

May 29 - June 3, May 29 - June 3, 2022, Les Diablerets, Switzerland

[Gordon Research Conferences](#) bring a global network of scientists together to discuss the latest pre-publication research in their field. GRC's unique format focuses on discussion and provides conferees with the opportunity to network informally during free afternoon times.

GRSs are unique meetings enabling graduate students and postdocs to share in the GRC experience. Each seminar is held in conjunction with a related GRC and begins the weekend immediately prior to the GRC. Most GRS participants also apply to attend the associated GRC.

Seminar: This GRC will be held in conjunction with the "Marine Microbes (GRS)" Gordon Research Seminar (GRS). Those interested in attending both meetings must submit an application for the GRS in addition to an application for the GRC. **Deadlines - Oral Presentation February 28, Abstract/attendance - April 30, 2022.**



Conference: Despite their acknowledged ecological importance, there is still limited understanding of the physiological and genetic mechanisms that govern the biogeochemical processes carried out by microbes in the sea. The current Marine Microbes Research Conference - "The Interconnected Microbial Ocean" - aims to highlight from a cross-disciplinary perspective, the vital functional roles of microorganism in the different, complex marine ecosystems.



May 29 - June 3, 2022, **Application deadline May 1, 2022.**

[Registering](#), [COVID considerations](#).

AOGS2022

August 1-5 2022, Virtual

The [Asia Oceania Geosciences Society](#) (AOGS) was established in 2003 to promote geosciences and its application for the benefit of humanity, specifically in Asia and Oceania and with an overarching approach to global issues. Asia Oceania region is particularly vulnerable to natural hazards, accounting for almost 80% human lives lost globally. AOGS is deeply involved in addressing hazard related issues through improving our understanding of the genesis of hazards through scientific, social and technical approaches. AOGS holds annual conventions providing a unique opportunity of exchanging scientific knowledge and discussion to address important geo-scientific issues among academia, research institution and public. Recognizing the need of global collaboration, AOGS has developed good co-operation with other international geo-science societies and unions such as the European Geosciences Union (EGU), American Geophysical Union (AGU), International Union of Geodesy and Geophysics (IUGG), Japan Geo-science Union (JpGU), and Science Council of Asia (SCA).



[Conference website](#)

[Abstracts](#)

Deadlines: Abstract- **Feb 23 2022**

Early bird discount and Author registration **May 18 2022**

*Please send meeting announcements to
David Greenberg,
davidgreenberg@alumni.uwaterloo.ca*

*SVP faites parvenir vos annonces de réunion à
David Greenberg,
davidgreenberg@alumni.uwaterloo.ca*

POSITIONS AVAILABLE

Biological Oceanographer and Remote Sensing Scientist

ASL Environmental Sciences, Victoria, B.C.

Biological Oceanographer

[ASL Environmental Sciences](#) is looking for a Biological Oceanographer to be a lead Subject Matter Expert, working with our consulting and products divisions. You will work with the ASL ocean and ice team to develop algorithms and processes to analyze bioacoustics data, particularly from ASL's AZFP. We anticipate that the candidate will also be able to work with ASL's product division to support AZFP clients. Support of ASL's remote sensing team will depend upon the candidate's qualifications.



Responsibilities include:

Subject Matter Expert for biological oceanography, Help develop algorithms and processes to analyze bioacoustics data and Teach and mentor other ASL employees and co-ops.

Qualifications include:

B.Sc. with 5 years of experience or an M.Sc. or a Ph.D. in Biological Oceanography/Marine Biology and a Diverse understanding of fish and plankton behaviour as needed to interpret bioacoustics data.

[Details](#)

Posted January 2022. No deadline given.

Remote Sensing Scientist

At ASL, you will have the opportunity to work on a diverse set of projects, develop tools and models for advanced analytics on large datasets, and help solve important problems. You will also participate in defining new projects and capabilities to continuously enhance our service offering. ASL offers a small company experience with a friendly, professional, dynamic, and flexible work environment. If your ambition is for personal growth, to get exposure to many new practice areas, with a greater level of responsibility then come join our team and help shape its exciting future.

Responsibilities include:

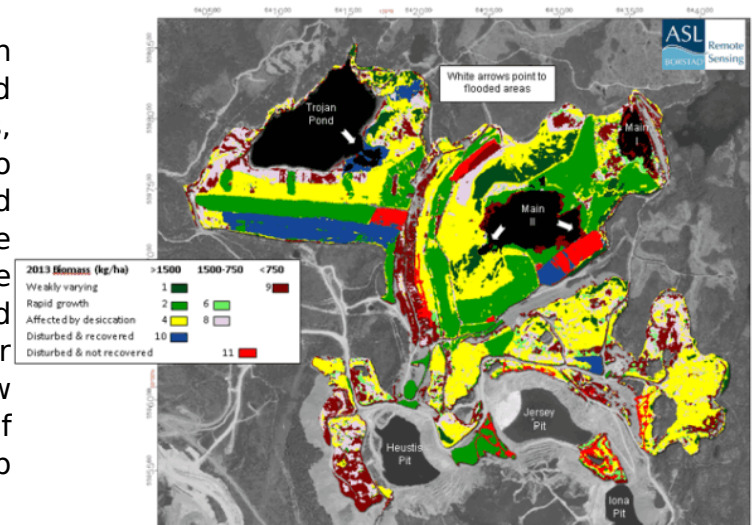
Designing new or improving existing capabilities that use Machine Learning and Deep Learning for automated data processing and analytics, Development of innovative techniques, tools and models for advanced analytics that utilize multi-sensor data including SAR, multispectral, and hyperspectral imagery and Image processing, classification, target and anomaly detection, change detection/monitoring.

Qualifications include:

A postgraduate degree in a scientific discipline and relevant work experience and Experience using machine learning and deep learning for remote sensing data analysis.

[Details](#)

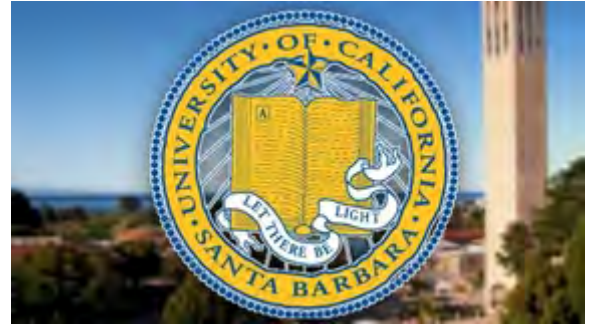
Posted January 2022. No deadline given.



Tenured Professor of Marine Science and Director of Marine Science Institute

University of California Santa Barbara, Santa Barbara, California

The University of California, Santa Barbara (UCSB) invites applications for the position of Associate Professor to Full Professor of Marine Science and Director of the [Marine Science Institute](#) (MSI) with an anticipated start date of July 1, 2022. The MSI is an organized research unit that operates outside of the established academic teaching departments at UCSB and promotes innovative research as well as education outreach activities spanning 14 disciplines. The MSI administers greater than \$86 million in extramural and intramural funds in over 400 projects and education outreach programs. The MSI is housed in the picturesque Marine Science Research Building (MSRB) on the UCSB campus overlooking the Santa Barbara Channel. This modern facility includes 35,230 ft² of laboratory and office space that houses the research and administrative needs of the MSI.



The successful candidate is expected to advance the research enterprise of the MSI across a broad front of activities, while continuing their own internationally recognized, extramurally funded research program, mentoring graduate and undergraduate students, participating in ongoing graduate and undergraduate teaching programs, and participating effectively in other university service and professional activities.

[Details](#)

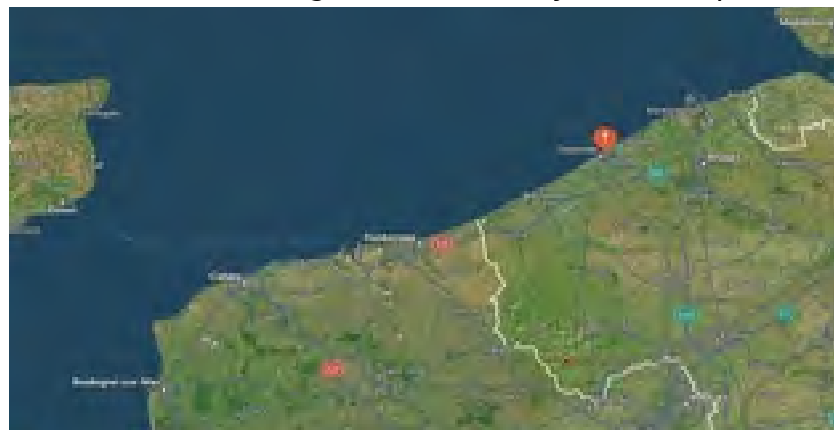
Review of applications starts **Mar 19, 2022**, but later applications will be considered if the position is not filled.

PhD Researcher Marine Geology

Flanders Marine Institute (VLIZ, Ghent University), Ostend Belgium

We offer a 4-year PhD student position to test the hypothesis that proglacial lakes were important landscape features in the southern North Sea during the Quaternary, with a special focus on the Weichselian glacial period.

You will use advanced marine geological/geophysical research techniques, such as multibeam bathymetric mapping, sub-bottom and high-resolution reflection seismic profiling, and sediment (vibro)coring followed by a multi-proxy core analysis, involving core scanning (CT, MSCL, XRF), geochemistry, mineralogy, fabric analysis, microfossil analysis, geochronology, ... The aim is to



refine the complex Quaternary stratigraphy of the North Sea Basin and identify the presence of glaciolacustrine deposits, map their extent and define their stratigraphic and geomorphological context.

As a PhD researcher, you will be based at the [Flanders Marine Institute](#) (VLIZ, Ostend) and enrolled at Ghent University (Department of Geology).

[Details](#)

Deadline 27 February 2022.

Assistant Professor (Tenure Track) Oceanography

University of Washington School of Oceanography, Seattle, Washington

The [University of Washington School of Oceanography](#) seeks applications for a full time, 9-month faculty position at the level of tenure-track Assistant Professor in the broad theme of the Changing Ocean. The anticipated start date of the position is September 16, 2022. Review of applications will begin on March 15, 2022. Applications will be considered until the position is filled.



The successful applicant will be expected to expand the school's research and teaching efforts related to ocean change. Research and teaching could fall within a wide range of coastal or open ocean topics, including but not limited to biogeochemistry, ecology, ocean climate interaction, paleoceanography, geobiology or sedimentology. We welcome the full range of approaches in applied and/or basic science, from field observations and data analysis to laboratory or numerical simulations and theoretical modeling.

Applicants should have the Ph.D. degree in Oceanography or a related field, or foreign equivalent, by the start date of the appointment.

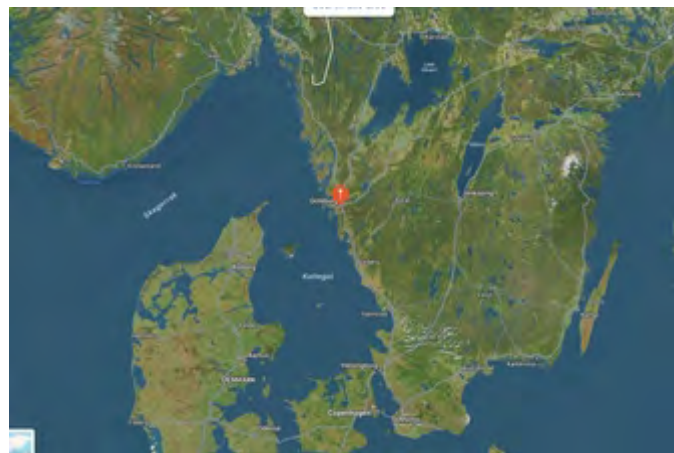
[Details](#)

Review of applications will begin on March 15, 2022. Applications will be considered until the position is filled.

Two early-mid career scientists Baltic Oceanography

Voice Of The Ocean (VOTO), Gothenburg, Sweden

[Voice Of The Ocean](#) (VOTO): Ocean Knowledge is looking to recruit two early-mid career scientists to join the team. Researchers will work with high-resolution, continuous oceanographic time-series collected by autonomous vehicles in the Baltic Sea. These positions should address any biological, chemical, and/or physical oceanography topics supporting an understanding of Baltic ecosystem health. We welcome proposals from interested candidates who can leverage VOTO infrastructure and data.



We are looking for two driven researchers who hold a Ph.D. in physical, chemical, or biological oceanography and have a good track record of publishing and presenting at an international level. Your area of specialism should complement some, or all, of the data types collected by our instrumentation, and you should ideally have some previous knowledge of the Baltic Sea region. You will work closely with our science team at VOTO as well as researchers at the University of Gothenburg and other Baltic institutions.

[Details](#)

Deadline February 28 2022

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

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

GENERAL

Les Prix de la Société canadienne de météorologie et d'océanographie (SCMO)

Le 15 février est la date limite pour la soumissions des mises en candidature pour les prix et honneurs de la Société. Cela semble peut-être loin, mais il semble toujours que la date arrive soudainement.

Veuillez prendre quelques secondes pour visiter <https://www.scmo.ca/site/activities/awards> pour la liste des huit prix et pour lire les instructions, puis prendre le temps de soumettre la nomination d'un de vos collègues ou étudiants.

La SCMO a une histoire qui souligne les personnes méritantes (membres et non-membres) par ses programmes de reconnaissance. Malheureusement, il y a beaucoup de personnes qui méritent d'être nommées qui ne le sont pas, parce qu'on est trop occupé. N'attendez pas : faites-le maintenant!

À noter que toutes enquêtes ainsi que toutes nominations doivent être soumises au Coordinateur des honneurs de la SCMO au coord-honneurs@scmo.ca



Canadian Meteorological and Oceanographic Society (CMOS) AWARDS

February 15th is the deadline for nominations for the CMOS Prizes and Awards. It may seem far away, but it always seems to arrive faster than we thought.

Please take a moment to visit <http://www.cmos.ca/site/awards> for a list of the eight awards, for instructions on how to make a nomination and then submit something on behalf of one of your colleagues or students.

CMOS has a rich history recognizing deserving persons (members and non-members) through its awards programs. But regrettably, there are many deserving candidates who go unrewarded each year because we were too busy to work up a nomination. Don't wait - do it now!

Note that any inquiries and all nominations are to be forwarded to the CMOS Awards Coordinator at awards-coord@cmos.ca.

Honours awarded at CMOS Congresses

The CMOS awards referred to above that are open to oceanographers, include the following:

- **President's Prize** - CMOS member, Recent paper or book.
- **François J. Saucier Prize in Applied Oceanography** - CMOS member or members.
- **Neil J. Campbell Award for Exceptional Volunteer Service** - CMOS member, service to CMOS.
- **J. P. Tully Medal in Oceanography** - CMOS member and non members, significant impact.
- **Tertia M.C. Hughes Memorial Graduate Student Prizes** - Open to any student at a Canadian university or Canadian student at foreign university, up to two prizes.
- **Roger Daley Post-Doctoral Publication Award** - In press at time of nomination.

All of the above have the **February 15 deadline**.

Other awards to be presented at the Congress not included in the above list:

- **CMOS Fellows** (CMOS members), Honorary Fellows (non members). **Deadline March 15**
- **Parsons Medal** (DFO) Distinguished accomplishments in multidisciplinary facets of ocean sciences, lifetime excellence or recent outstanding achievement. **Deadline March?**
- **CNC-SCOR Early Career Ocean Scientist Award** Accomplishments within 10 years of PhD. See article in [November Newsletter](#). **Deadline extended to February 28.**
- **Project Ocean** - Summer workshop for a Canadian science teacher - see item below.

Project Ocean

The Canadian Meteorological and Oceanographic Society (CMOS) is now accepting applications for the K-12 teacher professional development courses, Project Atmosphere and Project Ocean, offered by the American Meteorological Society (AMS).

CMOS is the national society of individuals and organizations dedicated to advancing atmospheric and oceanic sciences and related environmental disciplines in Canada.

Each year CMOS selects one Canadian participant to join each of these AMS summer courses. The ideal candidate demonstrates a keen interest in bringing greater expertise in extreme weather, climate and climate change, oceans and/or natural hazards to the classroom.

The cost of the workshop is covered by the CMOS, the AMS and NOAA. A \$2,000 travel subsidy is provided to each participant by CMOS in partnership with Canadian National Committee/Scientific Committee on Oceanic Research (CNC/SCOR).

Applications are due March 20th, 2022 and further details for each course can be found below and on the [CMOS website](#).

Project Ocean is an online and in-residence teacher professional development course with a one-week residence experience offered by the American Meteorological Society's Education Program in partnership with California University of Pennsylvania and Washington College. This course is specifically designed for K-12 teachers who desire to include ocean content in their curriculum.



The in-residence* component runs from 17-22 July, 2022 at Washington College, Chestertown, Maryland with online components before and after.

PARTICIPANTS WILL HAVE THE OPPORTUNITY TO:

- Gain an understanding of the physical foundations of oceanographic topics and issues
- Help promote oceanographic education by peer training fellow teachers in their community
- Gain access to scientifically accurate and pedagogically sound instructional resource materials designed for teachers.
- Earn three graduate credits from California University of Pennsylvania upon completion of program requirements

*PLEASE NOTE: We are closely monitoring the potential impacts of the COVID pandemic on the planned in-residence component of these courses. A decision regarding the residence component also going virtual will be made BEFORE invitations to participate are sent.

2022 IOCCG Summer Lecture Series

18-29 July 2022, Villefranche-sur-Mer, France

The 5th edition of the advanced IOCCG Summer Lecture Series is scheduled for 18-29 July 2022 in Villefranche-sur-Mer (assuming global travel restrictions have been lifted). The course will be held at the Laboratoire d'Océanographie de Villefranche (LOV), which is part of the IMEV (Institut de la Mer, de Villefranche), and hosts the Marine Optics, Remote Sensing, and Biogeochemical Applications group.

The lecture series is open to students from all countries with no preference for geographical location. Participants should be familiar with downloading and processing satellite ocean colour imagery since this is not an introductory training course. The course is intended primarily for PhD students and post-doctoral fellows involved in any aspect of ocean-colour research, but

outstanding graduate students with a Masters degree (or studying for their Masters degree), with a strong understanding of ocean colour remote sensing, are also encouraged to apply. Research scientists with < 10 years ocean colour research hoping to broaden their knowledge will also be considered. Once selected, all students are required to attend the full 2-week lecture series.



The IOCCG Summer Lecture Series usually attracts around 140 applicants, but the total number of accepted students is restricted to around 20 for logistical and financial reasons. All applications will be evaluated by a Selections Committee based on the candidate's knowledge of remote sensing, previous training, research interests and the potential to apply the knowledge and skills gained to current research topics. Academic qualifications and future goals will also be taken into account.

Applications for the 2022 IOCCG Summer Lecture Series will be accepted until **28 February 2022**. Interested participants should complete the application form at: <https://ioccg.org/2022-sls-application-form/>.

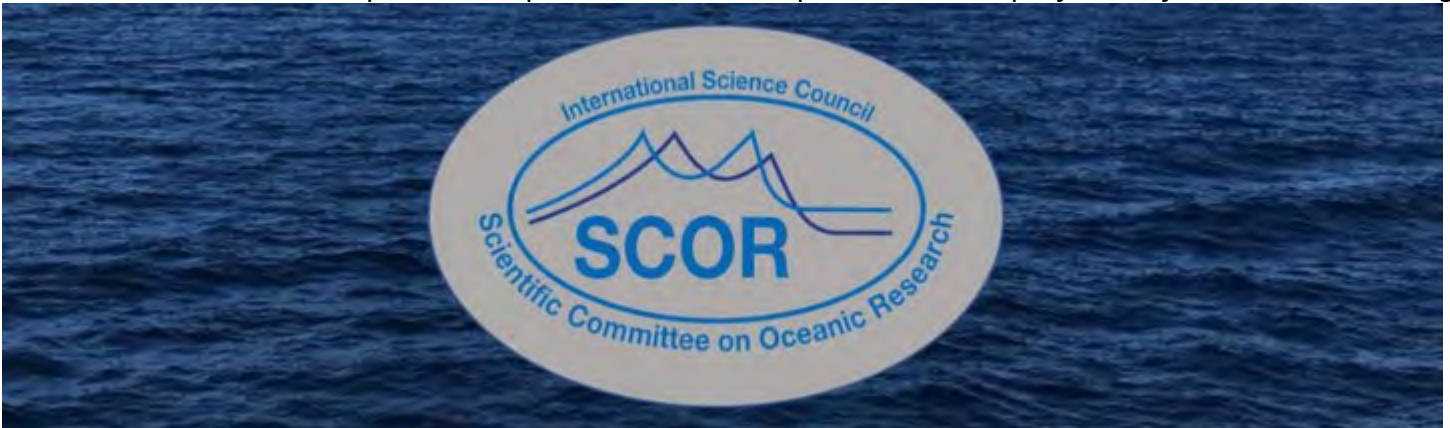
Note: There is a chance that the course will be cancelled, based on situation with the COVID pandemic and resulting global travel restrictions. A decision will be made in late April 2022.



2022 Call for SCOR Working Group Proposals

The SCOR Secretariat invites proposals for new working groups from now until 12:00 p.m. UCT on 30 April 2022. The guidelines, a template, and word limits are available at http://www.scor-int.org/SCOR_WGs_Proposal_Instructions.htm, including a PowerPoint presentation explaining the proposal process.

Each proposal will be evaluated by national SCOR committees in terms of scientific merit and quality, timeliness, and achievability of the proposed terms of reference. National SCOR committees are an important aspect of SCOR's operation and play a key role in reviewing



working group proposals and in seeking new funds to support working group activities. In addition, the review of working group proposals is open worldwide to partner organizations and individuals who would like to provide comments. The selection of the new SCOR working groups will take place at the 2022 SCOR Annual Meeting which is scheduled to take place in Busan, Korea on the week of the 3-7 October 2022. Details about the meeting will be posted at the SCOR website <https://scor-int.org/> as they become available.

Annual SCOR Meetings are open, but anyone attending the meeting that has either submitted or been included in a proposed working group will be asked either to leave the room or disconnect from the call (depending on meeting mode) when their proposal is discussed.

SCOR will probably be able to support two new working groups for a start in late 2022, pending availability of funds and that the proposals pass SCOR review. Each new group will be provided US\$45,000 over a 3-4-year period to conduct its work.

Deadline for submission: 30 April 2022.

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

Previous [newsletters](#) may be found on the [CNC-SCOR](#) web site. The CNC-SCOR website is hosted by [CMOS](#).

Newsletter #123 will be distributed in **March 2022**.

Please send contributions to David Greenberg
davidgreenberg@alumni.uwaterloo.ca

Subscribing and Unsubscribing

If you wish to subscribe to this newsletter or cancel your subscription, please visit the website:

<http://www.mailman.srv.ualberta.ca/mailman/listinfo/cnc-scor>

Les [bulletins](#) antérieurs se retrouvent sur le site web du [CNC-SCOR](#). Le site du CNC-SCOR est hébergé par le [SCMO](#).

Le Bulletin #123 sera distribué en **mars 2022**.

Veuillez faire parvenir vos contributions à David Greenberg, davidgreenberg@alumni.uwaterloo.ca

Abonnement et désabonnement

Si vous souhaitez vous abonner à cette newsletter ou annuler votre inscription, veuillez visiter le site web:

<http://www.mailman.srv.ualberta.ca/mailman/listinfo/cnc-scor>

CNC-SCOR

Members/ Membres

Paul Myers - Chair (U Alberta)
Robie Macdonald - Past Chair (DFO-IOS)
David Greenberg - Secretary (DFO-BIO)
Markus Kienast (Dalhousie)
Michael Scarratt (DFO-IML)
Paul Snelgrove (Memorial)
Stephanie Waterman (UBC)
David Fissel (ASL)
Lisa Miller (DFO)

Le Comité national canadien du Comité scientifique de la recherche océanographique (SCOR) favorise et facilite la coopération internationale. Il reflète la nature multidisciplinaire de la science océanique et de la technologie marine.

Members Ex-Officio/ Membres d'office

Peter Galbraith (IAPSO)
Keith Lennon (DFO-HQ)
Andrew Stewart (DFO-HQ)
Jim Abraham (President CMOS)
Gordon Griffith (Executive Director CMOS)
Jean-Éric Tremblay (Québec-Océan)
David Beauchesne (Québec-Océan étudiants)
Christopher Poitras (CMOS Students)
Jay Cullen (Geotracés)
Steve Mihaly (ONC)

The Canadian National Committee of the Scientific Committee for Oceanic Research (CNC-SCOR) fosters and facilitates international cooperation. It is a non-governmental body that reflects the multi-disciplinary nature of ocean science and marine technology.



WWW.CNCSCOR.CA