

THE (PETRI) DISH

Faculty of Science Newsletter



Bonne Bay Aquarium and Research Station founding director, Dr. **Bob Hooper**, with **Saxon Althorp**, Marine Biology. Saxon is the first recipient of the Bob Hooper Scholarship, which supports Memorial students who wish to do field courses at the station.

In the News

Dr. **Nick Harris**, Psychology, says there's a connection between excessive video gaming and cases of depression, anxiety and other mental health challenges. [Saltwire](#)

The son of **Arya Bal**, a former Biology professor, discusses his life and decline into Alzheimer's. [Saltwire](#)

Dr. **Bill Montevicchi**, Psychology, says recent gannet and murre deaths are likely avian flu. [VOCM](#)
He is keeping an eye on the spread in the province. [Saltwire](#)

Dr. **John Jamieson**, Earth Sciences, recently spoke with As it Happens about mysterious holes in the sea floor. [CBC](#)

Researchers in Ocean Sciences are leaders in the fight against the impacts of climate change on net pen farms on the east coast of Canada. [Aquaculture North America](#)

Dr. **Ian Jones**, Biology, says there is no scientific evidence to support a cormorant shoot. [CBC](#)
He also weighed in on the controversy surrounding Sable Island's wild horses. [Hakai Magazine](#)
Dr. **Jones** is also urging immediate action to address the impact of avian flu on local seabird populations. [CBC](#)

Dr. **Hilding Neilson**, Physics & Physical Oceanography, believes light pollution can lead to a disconnection from nature, which can have a scientific and cultural impact. [CBC](#)

Dr. **Craig Purchase**, Biology, is conducting experiments to see if salt beef brine can make capelin roll. [Saltwire](#)



DEAN'S MESSAGE

Welcome and welcome back!

While some of our students have been back to in-person classes since last winter, many have had few in-person classes and exposure to campus. This September we have three cohorts of students who may not know campus, or at least not well, and who will arrive on Tuesday enthusiastically ready to attend class. If you see some lost-looking students please introduce yourself, welcome them to Memorial, and provide any direction you can.

On top of welcoming our graduate and undergraduate students to campus, I am excited that we are also welcoming 15 new faculty members and many new staff members who will be in their positions for their first fall semester. Please join me in welcoming them all to the Faculty of Science—they may be some of those lost-looking souls. I am looking forward to seeing our halls, classrooms, and labs alive with activity again. It gives a sense of renewal after a relatively quiet summer.

Speaking of renewal, we are armed with a new [strategic plan](#) and will soon release an implementation strategy and plan. Among the top priorities is the hiring of an expert in Etuaptmumk (two-eyed seeing) who will help us Indigenize our curricula and programs. I am also looking forward to the development of new inter- or multi-disciplinary programs that provide our students with exciting, attractive and impactful options.

Good luck to all our new and returning faculty, staff, and students for a prosperous fall semester.



Danny Boyce, Ocean Sciences, and the team at the Dr. Joe Brown Aquatic Research Building have won the Aquaculture Association of Canada's Research Award of Excellence for their work on advancing cleaner fish technologies regionally and internationally.

NEW FACULTY

Dr. Joe Fitzgerald, Physics & Physical Oceanography
 Dr. Amy Todd, Biochemistry
 Dr. Heath Matheson, Psychology
 Dr. Jeanette Wheeler, Biology
 Dr. Patricia Cardenas Martínez (Marie Skłodowska-Curry Fellow), Earth Sciences

NEW STAFF

Chris Cordova, neuroscience lab instructor, Psychology
 Silas Jones, research assistant, Ocean Sciences

APPOINTMENTS

Dr. Matthew Rise, head, Ocean Sciences
 Dr. Sharene Bungay, head, Computer Science
 Dr. Adrien Fiech, interim head, Computer Science
 Dr. Asokan Variyath, chair, Data Science
 Dr. David Wilson, chair, Cognitive and Behavioural Ecology
 Dr. Tao Cheng, chair, Environmental Science

BIRTHS

Jesse Chen to Zhiyu Chen, Cold-ocean Deep-sea Research Facility, OSC



The Aug. 6 Big Splash Open House event at the Champney's West Aquarium, a partner site for Ocean Sciences, was a big success. More than 250 visitors participated in touch tank tours, print making and beach walks.

In the Gazette

A new scholarship honours the legacy - and non-traditional path - of Dr. Doris Babstock. [Read](#)

History-making Verso women's crew comprised entirely of Memorial community members. [Read](#)

The Bonne Bay Aquarium and Research Station is celebrating its 20th anniversary. [Read](#)

Dr. Mikaela Murphy, a science alumna, hopes to set an example for family physicians considering a return to Newfoundland and Labrador. [Read](#)

Science alumna Dr. Lisa Barrett has been named Memorial's Alumna of the Year. [Read](#)

Memorial University earns top grades in global academic ranking. [Read](#)

Web telescope means we are 'entering a new era' of space science. [Read](#)

More than \$23,000 in sponsorships for student teams at Memorial. [Read](#)

Featured in Luminus

Below are links to stories in Memorial's Summer 2022 Luminus magazine featuring connections to the Faculty of Science.

The next 100 - The flagship new Core Science Facility will inspire the next generation of leaders and innovators. [Read](#)

Destination discovered - A look at the Bonavista peninsula's Discovery UNESCO Global Geopark and Champney's West Aquarium. [Read](#)

Givers of the world - The birth and impact of the Fry Family Foundation. [Read](#)

From desperation blooms beauty - Alumna Jean Thornhill Verma's book, *Cod Collapse: The Rise and Fall of Newfoundland's Saltwater Cowboys*. [Read](#)

Forty years of tributes - Chemistry alumnus Dr. Liqin Chen honoured at the 40th Alumni Tribute Awards. [Read](#)

It takes a village - Kelsey Moore, Psychology, helped work on an online portal to coordinate appointment requests at the Student Wellness & Counselling Centre. [Read](#)

Alumni News

Mandy Woodland, Biology, and her company AMP Health, are featured in [Atlantic Business Magazine](#).

Ernest Awoonor-Williams, Chemistry, has been named one of 2022's Chemical Abstracts Service (CAS) Future Leaders. CAS is a division of the American Chemical Society. [Chemical & Engineering News](#)

FACULTY & STAFF NEWS

Dr. Uta Passow will receive the 2022 A.G. Huntsman Medal in recognition of her significant contributions to our understanding of the ocean and its ability to respond to climate change and oil pollution.

Dr. Anne McLeod received the Excellence in Canadian Ecology Award

Dr. Matteo Rizzuto was awarded the journal *Oecologia's* Hanski Prize.

STUDENT NEWS

Rachel Lee, Psychology, has received a Beatrice Hunter Cancer Research Institute Cancer Research Training Program Award. She is studying the ways cancer survivors use cannabis to help with sleep.

Verna Kalter, Ocean Sciences, won a best poster award at the 2022 International Conference on Persistent, Emerging, and Organic Pollution in the Environment – Challenges and Solutions under Climate Change.

Emma Wells, Ocean Sciences, won the Philip H. Jones award at the 2022 International Conference on Persistent, Emerging, and Organic Pollution in the Environment – Challenges and Solutions under Climate Change.

In the News (con't)

The Faculty of Science is inspiring the next generation of researchers at N.L.'s newest educational facility. [Canadian Faculty Management and Design](#)

Memorial hopes new artificial intelligence hub could grow the next Verafin. [CBC](#) and [NTV](#)

NL-based teams bring home hardware at ROV world championships. [VOCM](#) and [Oil & Gas Magazine](#)

How the 'diamond of the plant world' helped plants evolve, featuring Dr. Joseph Banoub, an adjunct professor in Chemistry/Biochemistry. [True Viral News](#)

EVENTS



Join scientists to chat about their research related to sustainability



SAVE THE DATE

3.00-5.00 pm, Sept 25
CSF 1302
Memorial University

<https://www.gcs-day.org/index.html>

PUBLICATIONS

Biochemistry

[Role of Lipids in Food Flavor Generation](#), *Molecules*, co-authored by Abul Hossain and Dr. Fereidoon Shahidi.

[Lysine Dipeptide Enhances Gut Structure and Whole-Body Protein Synthesis in Neonatal Piglets with Intestinal Atrophy](#), *The Journal of Nutrition*, co-authored by Dalshini Kirupananthan and Drs. Robert Bertolo and Janet Brunton

[Conserved FimH mutations in the global Escherichia coli ST131 multi-drug resistant lineage weaken interdomain interactions and alter adhesion function](#), *Computational and Structural Biotechnology Journal*, co-authored by Dr. Katie Wilson

[Interaction between Antimicrobial Peptide Magainin 2 and Nonlipid Components in the Bacterial Outer Envelope](#), *The Journal of Physical Chemistry B*, co-authored by Dr. Valerie Booth

Biology

[A novel iridovirus discovered in deep-sea carnivorous sponges](#), *Viruses* (Special issue: *Iridoviruses*), co-authored by Gabrielle Large and Drs. Marta Canuti, Joost Verhoeven and Suzanne Dufour

[Epigenomic insight of lingonberry and health-promoting traits during micropropagation](#), *Scientific Reports*, co-authored by Arindam Sikdar, Umanath Sharma, Rajesh Barua and Dr. Abir Igamberdiev

Chemistry

[Behaviour of colloidal gels made of thermoresponsive anisotropic nanoparticles](#), *Scientific Reports*, co-authored by Dr. Héloïse Thérien-Aubin.

[Electrodeless Synthesis of Low Dispersity Au Nanoparticles and Nanoclusters at an Immiscible Micro Water/Ionic Liquid Interface](#), *Nanomaterials*, co-authored by Reza Moshrefi and Dr. Talia Jane Stockmann

[Synthesis of anti-\[1\]\(1,6\)Naphthaleno\[1\]\(1,6\)naphthalenophane by Double Contractive Annulation of \[2.2\]Paracyclophane](#), *Organic Letters*, co-authored by Sourav Biswas, Zahra Tabasi, and Drs. Yuming Zhao and Graham Bodwell

[Single-Entity Electrochemical Detection of As-Prepared Metallic and Dielectric Nanoparticle Stochastic Impacts in a Phosphonium Ionic Liquid](#), *ChemElectroChem*, co-authored by Nazanin Ahmadasab and Dr. Talia Jane Stockmann

Computer Science

[A Study on the Geometric and Kinematic Descriptors of Trajectories in the Classification of Ship Types](#), *Sensors*, co-authored by Yashar Tavakoli and Drs. Lourdes Pena-Castillo and Amilcar Soares

[A Semi-Supervised Methodology for Fishing Activity Detection Using the Geometry behind the Trajectory of Multiple Vessels](#), *Sensors*, co-authored by Dr. Amilcar Soares

PUBLICATIONS

Unfolding AIS transmission behavior for vessel movement modeling on noisy data leveraging machine learning, *IEEE Access*, co-authored by Dr. Amilcar Soares

Brain Imaging Abnormalities in Mixed Alzheimer's and Subcortical Vascular Dementia, *Canadian Journal of Neurological Sciences*, co-authored by Dr. Karteek Popuri

Surface-based abnormalities of the executive frontostriatal circuit in pediatric TBI, *NeuroImage: Clinical*, co-authored by Dr. Karteek Popuri

Random $\Theta(\log n)$ -CNFs are Hard for Cutting Planes, *Journal of the ACM*, co-authored by Dr. Noah Fleming

Exploring Orientation Invariant Heuristic Features with Variant Window Length of 1D-CNN-LSTM in Human Activity Recognition, *Biosensors*, co-authored by Arnab Barua and Dr. Xianta Jiang

Unsupervised, Semi-Supervised Interactive Force Estimations During pHRI via Generated Synthetic Force Myography Signals, *IEEE Access*, co-authored by Arnab Barua and Dr. Xianta Jiang

Tactile object recognition in early phases of grasping using underactuated robotic hands, *Intelligent Service Robotics*, co-authored by Drs. Vinicius Prado da Fonseca and Xianta Jiang

PTRAIL — A python package for parallel trajectory data preprocessing, *SoftwareX*, co-authored by Salman Haidri and Yaksh Haranwala and Drs. Vinicius Prado da Fonseca and Amilcar Soares

Earth Sciences

Drs. J. Kim Welford and Elliot Burden, Earth Sciences, contributed chapters to the *Geological synthesis of Baffin Island (Nunavut) and the Labrador-Baffin Seaway* (Geological Survey of Canada Bulletin 608). The [full 432-page bulletin](#) or [individual chapters](#) are available.

Shallow-ocean and atmospheric redox signatures preserved in the ca. 1.88 Ga Sokoman iron formation, Labrador Trough, Canada, *Precambrian Research*, co-authored by Gabriel Sindol, John Slack and Dr. Michael Babechuk

Hydrothermal Alteration Within the Brothers Submarine Arc Volcano, Kermadec Arc, New Zealand, *Economic Geology*, co-authored by Andrew Martin and Dr. John Jamieson.

High-Precision CA-ID-TIMS U-Pb Zircon Geochronology of Felsic Rocks in the Finlayson Lake VMS District, Yukon: Linking Paleozoic Basin-Scale Accumulation Rates to the Occurrence of Subseafloor Replacement-Style Mineralization, *Economic Geology*, co-authored by Matthew Manor, Nikola Denisová and Dr. Stephen Piercey

Lithostratigraphy, Litho geochemistry, and Tectono-Magmatic Framework of the ABM Replacement-Style Volcanogenic Massive Sulfide (VMS) Deposit, Finlayson Lake District, Yukon, Canada, *Economic Geology*, co-authored by Nikola Denisová and Dr. Stephen Piercey

Ocean Sciences

Relative expression and validation of *Aeromonas salmonicida* subsp. *salmonicida* reference genes during *in vitro* and *in vivo* infection, *Infection, Genetics and Evolution*, co-authored by Manuel Soto-Davila, Setu Chakraborty and Dr. Javier Santander

Characterization of *Xanthomonas arboricola* pv. *juglandis* Bacteriophages Against Bacterial Walnut Blight and Field Evaluation, *Viruses*, co-authored by Ignacio Vasquez and Drs. Cristopher Segovia and Javier Santander

Comparative reverse vaccinology of *Piscirickettsia salmonis*, *Aeromonas salmonicida*, *Yersinia ruckeri*, *Vibrio anguillarum* and *Moritella viscosa*, frequent pathogens of Atlantic salmon and lumpfish aquaculture, *Vaccines*, co-authored by Joy Chukwu Osazuwa, Trung Cao, Ignacio Vasquez, Hajaroba Gnanagobal, Ahmed Hossain and Drs. Vimbai Machimbirike and Javier Santander

Edwardsiella ictaluri: a systemic review and future perspectives on disease management, *Reviews in Aquaculture*, co-authored by Drs. Vimbai Machimbirike and Javier Santander

Comparative Genomics of Typical and Atypical *Aeromonas salmonicida* subsp. *salmonicida* reveals new insights in bacterial evolution and pathogenesis, *Microorganisms*, co-authored by Ignacio Vasquez, Ahmed Hossain, Hajaroba Gnanagobal and Drs. Katherine Valderrama, Kurt Gamperl, Cristopher Segovia and Javier Santander

Characterization of miRNAs in embryonic, larval, and adult lumpfish adult provides a reference miRNAome for *Cyclopterus lumpus*, *Biology*, co-authored by Setu Chakraborty, Danny Boyce and Drs. Matthew Rise and Javier Santander

CD45 in ocular tissues during larval and juvenile stages and early stages of *V. anguillarum* infection in young lumpfish (*Cyclopterus lumpus*), *Fish and Shellfish Immunology*, co-authored by Trung Cao, Ignacio Vasquez and Maryam Ghasemishkaftaki and Drs. Vimbrai Machimbirike, Cristopher Segovia and Javier Santander

Physics & Physical Oceanography

Effects of Wind, Waves, and Currents on Icebergs and Surface Floats in the Labrador Sea: A Modeling Study, *Journal of Marine Science and Engineering*, co-authored by Jamseena Parayil and Drs. Entcho Demirov and Yakov Afanasyev

Psychology

Source reinstatement in item-method directed forgetting influences recognition strategies, *Canadian Journal of Experimental Psychology*, authored by Dr. Kathleen Hourihan

Prevalence and factors associated with insomnia symptoms in adolescents and young adults with cancer during the COVID-19 pandemic, *Sleep Health*, co-authored by Joshua Tulk and Dr. Sheila Garland

Multi-departmental

Brief exposure of neuronal cells to levels of SCFAs observed in human systemic circulation impair lipid metabolism resulting in apoptosis, *Scientific Reports*, co-authored by Drs. Sukhinder Cheema, Biochemistry and Jacqueline Blundell, Psychology