

THE (PETRI) DISH

Faculty of Science Newsletter



Students from the Montevecchi Lab in the Psychology department presented at the 50th annual meeting of the Pacific Seabird Group at the Scripps Institute of Oceanography in San Diego, California. Left to right: **Noah Careen**, Psychology (honours) undergrad; **Tori Burt**, Cognitive and Behavioural Ecology (CABE); **Sydney Collins**, CABE; **Gretchen McPhail**, Marine Biology (honours) undergrad; and **Parker Doiron**, CABE

In the News

Scientists including Dr. **Hilding Nielson**, Physics and Physical Oceanography, are urging an end to the colonial approach to space exploration. [The Guardian](#)

Interdisciplinary science student **Dua Fatima**, currently enrolled our master's in artificial intelligence program, was featured in a story on women in technology on International Women's Day. [CBCNL](#)

Dr. **Carole Peterson**, Psychology, reflects on 50 years of research on childhood memories. [The Current](#)

Joy Chukwu-Osazuwa, Marine Biology, has been named a Black Changemaker for her efforts to help others pursue their education. [CBC NL](#)

Research involving Dr. **Uta Passow**, Ocean Sciences, reveals jelly plankton blooms can offset as much CO₂ as emitted by millions of cars. [Fish Focus](#)

Jack Hendrix and **Sydney Collins**, Cognitive and Behavioural Ecology, on animal personality and conservation. [CBC St. John's Morning Show](#)

Camille Liao, Mathematics and Statistics, says Chinese New Year celebrations are a little different in Newfoundland. [CBC NL](#)

Chris McKean, Earth Sciences, and his supervisor, Dr. **Duncan McIlroy**, have been studying the unique 3D fossils of Upper Island Cove. [CBC NL](#)

Nicolai von Oppeln-Bronikowski and Dr. **Brad deYoung**, Physics and Physical Oceanography, and Dr. **Uta Passow**, Ocean Sciences, on using underwater drones to answer questions about ocean carbon. [CBC Atlantic Voice](#)

Dr. **Derek Wilton**, Earth Sciences, on rising lithium exploration in Newfoundland & Labrador. [Saltwire](#)



DEAN'S MESSAGE

Apologies, we are late circulating this issue of the Petri Dish. Students, faculty, staff—everyone—has been busy.

One of the things we've all been busy planning for is the second annual Faculty of Science 'Scientific Endeavours in Academia' (SEA) Interdisciplinary Conference. The SEA conference brings together faculty, staff and students of the Faculty's nine academic departments and six interdisciplinary programs to meet one another and foster new research collaborations.

This year's conference builds on the success of the inaugural conference. We have nearly 350 registrants so far with more than 130 oral and poster presentations and almost 40 awards—and counting!

We are also excited to announce a new public engagement event at this year's SEA conference. The "Gong Show" will provide a fun and welcoming atmosphere for the public to interact with researchers and students at Memorial. I am confident this event will lead to new partnerships with local businesses and organizations, increased community pride for Memorial, and perhaps even increases in student recruitment and local job opportunities for graduates.

I hope to see you at the SEA! It's not too late to register to attend. Visit our [website](#) for more details.

FACULTY NEWS

Dr. Cyr Couturier, Sustainable Aquaculture, has joined the board of the Kurt Grinnell Aquaculture Scholarship Foundation. [Read](#)

Dr. Stephen Piercey, Earth Sciences, has been appointed to the technical advisory board of Sterling Metals. [Read](#)

Dr. Jie Xiao, Mathematics & Statistics, is a member of the international prize committee of the Canadian Mathematical Society.

Dr. Fereidoon Shahidi, Biochemistry, participated in a Canadian Science Policy Centre panel discussion titled Addressing the Challenges of Building Climate Resilient and Sustainable Food Systems for All on Jan. 23.

Alumni News

Dr. Andrew Butler, Mathematics and Statistics/Physics and Physical Oceanography, has been appointed chief investment officer for ReSolve Asset Management Inc. [The Courier Press](#)

Jamie Lavigne, Earth Sciences, is vice-president of exploration, E-Power Resources Inc.

Dean Courage, Earth Science, is exploration manager, Labrador Uranium.



Biology Students recently attended and presented at the Science Atlantic - Atlantic Universities Undergraduate Aquaculture & Fisheries and Biology Conference in Saint John, NB. From left to right: **Emily Templeman, Jacob Power, Jenna Scott, Julia Ball and Shreya Hande.**



Dr. Cyr Couturier (centre), Sustainable Aquaculture, received the Aquaculture Ambassador Award from the N.L. Aquaculture Industry Association on Feb. 21.

In the Gazette

An expert on food insecurity to give public lecture at Memorial. [Read](#)

Energy expert to speak on Canada's pledge to reduce greenhouse gas emissions. [Read](#)

CNA, Memorial agreement focuses on critical minerals industry in N.L. [Read](#)

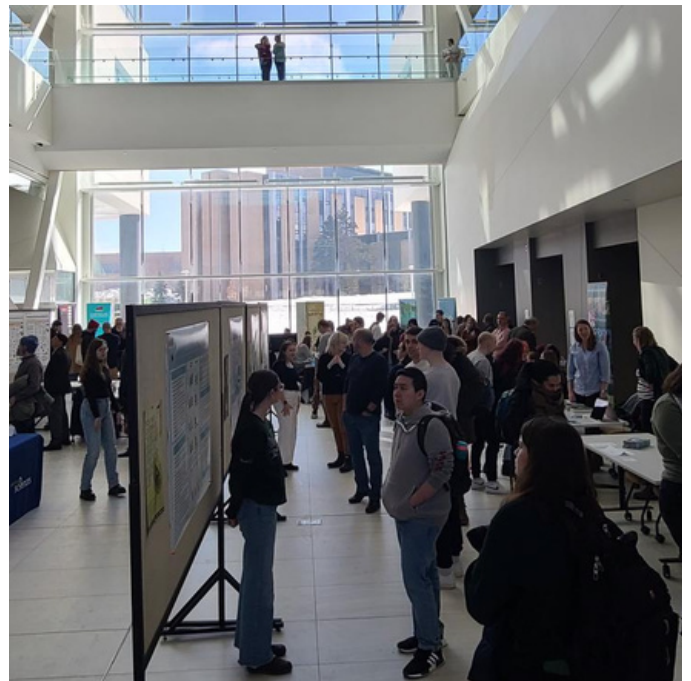
Memorial developing a retirement plan for Ocean Sciences Centre seals. [Read](#)

Ocean Sciences, Bahamas partner on climate change impacts in tropics. [Read](#)

Interdisciplinary program students **Dua Fatima**, Artificial Intelligence; **Raheel Virani**, Data Science; and **Matti Ur Rehman**, Software Engineering, featured in tech sector funding announcement. [Read](#)

We shine a 'slime'-light on Physics PhD student **Dillon Hanlon** and his research on snail mucus. [Read](#)

In an op-ed from **Maya Hasson**, Physics and Physical Oceanography/Mathematics and Statistics, she says mental illness does not define her. [Read](#)



The departments of Biology and Ocean Sciences held a joint open house on March 1. Undergrads from Biology, Marine Biology and Ocean Sciences programs chatted with representatives about employment, scholarship and volunteer opportunities.

NEW STAFF

Cassandra Gardner, Ocean Sciences
Melissa Strong, Physics and Physical Oceanography
Sofiia Garasym, Dean of Science Office
Roberta Noseworthy, Mathematics and Statistics
Leah Careen, Earth Sciences
Alicia Sizov, Earth Sciences

RETIREMENTS

Maureen Wade, Physics and Physical Oceanography
Dr. Rick Goulding, Physics and Physical Oceanography

VISITING PROFESSORS

Dr. Fei Gao, Ocean College, Hainan University - Ocean Sciences
Dr. Qiang Xu, Ocean College, Hainan University - Ocean Sciences



Science U Sports Academic All-Canadian recipients 2020-21 and 2021-22.



Nurul B. Ibrahim and Victor Borges, Physics and Physical Oceanography, represented Memorial at the Atlantic Undergraduate Physics and Astronomy Conference in Halifax, NS in February. The pair were victorious in a series of competitions with students from other universities and brought home the esteemed AUPAC Cup.



PUBLICATIONS

Multi-departmental/Interdisciplinary
Influence of Octahedral Site Chemistry on the Elastic Properties of Biotite, *Physics and Chemistry of Minerals*, co-authored by Dillon Hanlon and Dr. Todd Andrews, Physics and Physical Oceanography and Dr. Roger Mason, Earth Sciences

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STUDENT NEWS

U Sports Academic All-Canadian

Memorial University recognized 21 student-athletes from Science who earned the U Sports Academic All-Canadian distinction in the 2020-21 and 2021-22 academic years. To receive this honour they achieved an academic standing of 80 per cent or better while playing on a Memorial varsity team.

- Abby Pace, Cross-Country, 2021-22
- Alexander Pittman, Cross Country, 2020-21, 2021-22
- Caleb d'Entremont, Basketball, 2020-21
- Claire Langille, Soccer, 2020-21, 2021-22
- Emily Ennis, Swimming, 2021-22
- Evan Youden, Cross Country, 2020-21, 2021-22
- Inés Salat Margarit, Basketball, 2020-21, 2021-22
- Kate Hickey, Soccer, 2020-21, 2021-22
- Katie Joyce, Soccer, 2020-21, 2021-22
- Keelin Tucker, Swimming, 2020-21, 2021-22
- Laith Alzghoul, Soccer, 2020-21, 2021-22
- Laura Pittman, Swimming, 2020-21
- Maria Chafe, Cross Country, 2020-21, 2021-22
- Molly Pomeroy, Track and Field, 2020-21, 2021-22
- Nella Woelfel, Volleyball, 2020-21, 2021-22
- Noah Defreyne, Track and Field, 2021-22
- Phoenix Tashlin Clifford, Cross Country and Track and Field, 2020-21, 2021-22
- Polina Konstantinova, Swimming, 2021-22
- Wayne Walsh, Swimming, 2020-21
- Sarah-Kim Côté, Basketball, 2021-22
- Zoë Rowe, 2020-21, 2021-22

Benjamin King, Marine Biology - The Dr. Joe Brown Graduate Research Award in Aquatic Ecology and Aquaculture

Dr. Abdalaziz Hamdan, Mathematics and Statistics, winner of the first AARMS Doctoral Thesis Award Read

Caleb Wellbourn Jones, Mathematics and Statistics, AARMS Graduate Scholarship Read

Benjamin King, Marine Biology, Dr. Joe Brown Graduate Research Award in Aquatic Ecology and Aquaculture

Mahek Parmar, Computer Science, M.O. Morgan Alumni Scholarship and the Samuel, Millicent and Thomas Grandy Memorial Scholarship

Nicholas Qiu, Chemistry, Fry Family Foundation Hugh J. Anderson Chemistry Scholarship

PUBLICATIONS

Biochemistry

[Importance of Insoluble-Bound Phenolics to the Antioxidant Potential Is Dictated by Source Material, *Antioxidants*](#), co-authored by Dr. Fereidoon Shahidi and Abul Hossain

[The breast cancer microenvironment and lipoprotein lipase: another negative notch for a beneficial enzyme?](#), *FEBS Open Bio*, co-authored by Makayla Bavis, Allison Nicholas, Alexandria Tobin and Drs. Sherri Christian and Robert Brown

[Membrane cholesterol regulates inhibition and substrate transport by the glycine transporter, GlyT2](#), *Life Science Alliance*, co-authored by Dr. Katie Wilson

[Effect of Vitamin D Supplementation on Bone Mass in Infants With 25-Hydroxyvitamin D Concentrations Less Than 50 nmol/L](#), *JAMA Pediatrics*, co-authored by Dr. Zahra Farahnak

Biology

[Genomic epidemiology of *Mycobacterium avium* subsp. paratuberculosis isolates from Canadian dairy herds provides evidence for multiple infection events](#), *Frontiers in Genetics*, co-authored by Alexander Byrne and Dr. Kapil Tahlan.

[Phenotype variation and epigenetic insight into tissue culture berry crops](#), *Frontiers in Plant Science*, co-authored by Amrita Ghosh

Chemistry

[Maternal exposure to polystyrene microplastics alters placental metabolism in mice](#), *Metabolomics*, co-authored by Zahra Aghaei, Grace Mercer and Drs. Céline Schneider, Karl Jobst and Lindsay Cahill

[Carboxymethyl chitin and chitosan derivatives: Synthesis, characterization and antibacterial activity](#), *Carbohydrate Polymer Technologies and Applications*, co-authored by Dr. Paris Georghiou

[Acid-catalysed cyclization of o-aminobenzamide with \$\alpha\$ -oxodithioesters: A divergent and regioselective synthesis of quinazolinones and 1,3-benzothiazinones](#), *Chemistry Select*, co-authored by Dr. Parish Georghiou

[The effect of counterions on the detection of Cu²⁺ ions in aqueous solutions using quartz tuning fork \(QTF\) sensors modified with L-cysteine self-assembled monolayers: Experimental and quantum chemical DFT study](#), *Chemosensors*, co-authored by Dr. Paris Georghiou

Earth Sciences

[Corundum genesis at the Blue Jay Sapphire occurrence \(British Columbia, Canada\) as a record of metamorphism and partial melting in the Monashee Complex](#), *Lithos*, co-authored by Dr. Philippe Belley

[Petrogenesis of siliciclastic sediments and sedimentary rocks explored in three-dimensional Al₂O₃-CaO*+Na₂O-K₂O-FeO+MgO \(A-CN-K-FM\) compositional space](#), *Canadian Journal of Earth Sciences*, co-authored by Dr. Michael Babechuk

[Comparison between strip sampling and laser ablation methods to infer seasonal movements from intra-tooth strontium isotopes profiles in migratory caribou](#), *Scientific Reports*, co-authored by Dr. Vaughan Grimes

[Predictive lithology mapping using semisupervised learning: Practical insights using a case study from New South Wales, Australia](#), *Geophysics*, co-authored by Drs. Michael Dunham and Alison Malcolm and J. Kim Welford

[The role of the Ebro Block on the deformation experienced within the Pyrenean realm: Insights from deformable plate tectonics models](#), *Journal of Geodynamics*, co-authored by Michael King and Dr. J. Kim Welford

Ocean Sciences

[The Outsized Role of Salps in Carbon Export in the Subarctic Northeast Pacific Ocean](#), *Global Biogeochemical Cycles*, co-authored by Dr. Uta Passow

[Effects of Replacement of Fish Oil with Microbial Oil \(*Schizochytrium* sp. T18\) on Membrane Lipid Composition of Atlantic Salmon Parr Muscle and Liver Tissues](#), *Sustainability*, co-authored by Nigel Guerra, Dr. Christopher Parrish and Judy Perry

[Comparative Genomics of a Polyvalent Escherichia-Salmonella Phage fp01 and In Silico Analysis of Its Receptor Binding Protein and Conserved Enterobacteriaceae Phage Receptor](#), *Viruses*, co-authored by Ignacio Vasquez and Drs. Vimbai Machimbirike and Javier Santander

[Multi-Organ Transcriptome Response of Lumpfish \(*Cyclopterus lumpus*\) to *Aeromonas salmonicida* Subspecies *salmonicida* Systemic Infection](#), *Microorganisms*, co-authored by Setu Chakraborty, Ahmed Hossain, Trung Cao, Harjarooba Gnanagobal, Cristopher Segovia, Stephen Hill, Jennifer Monk, Jillian Porter, Danny Boyce, Jennifer Hall, Surendra Kumar and Dr. Javier Santander

Physics & Physical Oceanography

[Influence of incommensurate structure on the elastic constants of crystalline Bi₂Sr₂CaCu₂O_{8+ \$\delta\$} by Brillouin light scattering spectroscopy](#), *Materials Research Express*, co-authored by Brad McNiven, Drs. James LeBlanc and Todd Andrews

Psychology

[Neuroinflammation and neuroprogression in depression: Effects of alternative drug treatments](#), *Brain, Behavior and Immunity - Health*, co-authored by Brandon Richardson, Andrew MacPherson and Dr. Francis Bambico

[Time for a Measurement Check-Up: Testing the Couple's Satisfaction Index and the Global Measure of Sexual Satisfaction Using Structural Equation Modeling and Item Response Theory](#), *Journal of Social and Personal Relationships*, authored by Dr. Christopher Quinn-Nilas

[Healthcare provider knowledge, beliefs, and attitudes regarding opioids for chronic non-cancer pain in North America prior to the emergence of COVID-19: A systematic review of qualitative research](#), *Canadian Journal of Pain*, co-authored by Dr. Joshua Rash

[Production improves recognition and reduces intrusions in between-subject designs: An updated meta-analysis](#), *Canadian Journal of Experimental Psychology*, co-authored by Dr. Jonathan Fawcett, Maddison Baldwin, Jedidiah Whitridge, Kyla Malayang, Brooke Hiscock and Dailainey Drakes