Pathology & Microbiology Newsletter
Atlantic Veterinary College
University of Prince Edward Island
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" WOW, We're Going to Need a Bigger Trailer!!"

On October 29, 2025 a recently deceased white shark had been found on the shores of Prince Edward Island National Park and a Park's team was being assembled to tow the fish to shore and transport it to the Atlantic Veterinary College (AVC) where a necropsy would be performed. This was the fourth white shark to wash up within a National Park in the Maritimes in the past 3 years and investigating these deaths is important as so little is known about the natural history of this species in the region.

After a long tow to shore by zodiac and an entertaining drive to the AVC (disbelief from other drivers!) the shark was carefully yet respectfully disassembled to try and determine cause of stranding and death. The necropsy team, lead by **Drs. Laura Bourque** and **Megan Jones,** learned the shark had been eating well, as it had parts of harbour porpoise and a whole grey seal in its stomach, and there were no indications of boat strike or entanglement in fishing gear. The case is still being investigated and hopefully the team will learn more in coming months.

In 2021, the Great White Shark was listed as an endangered species under the Species at Risk Act. The main threat continues to be accidental mortality in fisheries. White Sharks travel widely, and a single individual may move throughout the Northwest Atlantic during its life. We don't know exactly how many White Sharks live in Canadian Atlantic waters, but there have been only about 100 confirmed sightings along Canada's Atlantic coast since 1874 although these have increased in recent years.

Interestingly, this 13-foot, 2000 lbs male shark had previously been captured and tagged by biologists in Massachusetts, USA. While it is sad to see such a magnificent animal die, we hope the opportunity to investigate its death reveals more about how white sharks live in our waters.

The interview CBC have done on November 12 is available to watch at this link (English only):

Great white shark's death in P.E.I. waters being investigated | CBC.ca

Submitted by Dr. Dave McRuer in collaboration with Drs. Laura Bourque and Megan Jones


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Canadian Wildlife Health Cooperative (CWHC) News

CWHC Participates in the North American Symposium on Bat Research

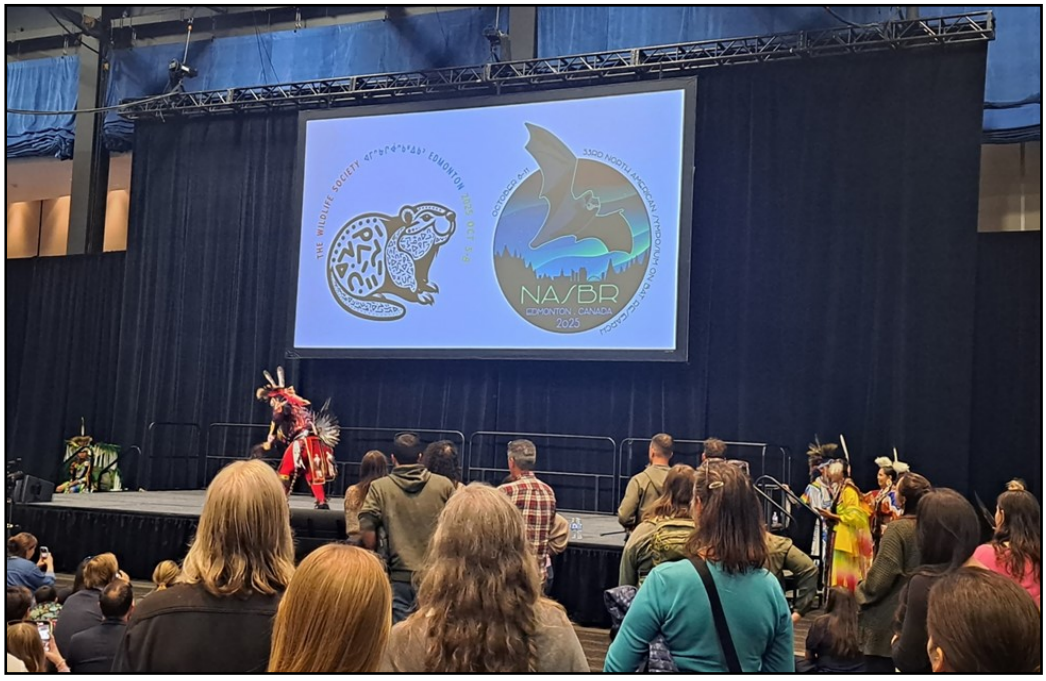
In October, **Darrian Washinger** (Atlantic Bat Conservation Project Technician; Canadian Wildlife Health Cooperative Atlantic) and **Jordi Segers** (National Bat Health Program Coordinator; Canadian Wildlife Health Cooperative National Office) participated in the 53rd North American Symposium on Bat Research, held in Edmonton, Alberta.

Jordi co-hosted a half-day workshop on 'Securing, Centralizing, and Activating Data for Canadian Bat Conservation Needs', along with partners at the Wildlife Conservation Society Canada, Biodiversity Pathways, and Environment and Climate Change Canada. The workshop was well attended by representatives of federal, provincial, and territorial governments, non-profit organizations, industry, universities, consultants, and First Nations. This workshop was only the first step towards data centralization, and the team continues working with partners across Canada towards this goal.

Darrian presented 'Identifying Northern Myotis Occupancy and Maternity Roost Habitat in Prince Edward Island Forested Places' at the symposium; a field project conducted in the summer of 2024 for the PEI Forested Landscapes and Priority Places. This was a pilot project as part of a national working group for the protection of bat maternity roost habitats.

Organizing the workshop and presenting our research to the North American bat research community was a great opportunity to establish new partnerships and strengthen old ones, positioning Canada to better understand bat health and population dynamics, and aiding our partners in more effectively protecting at risk bat species.

Submitted by Jordi Segers



Shared opening ceremony of the North American Symposium on Bat Research and The Wildlife Society with an indigenous dance performance by Mariah Dumont's dance troupe; Dëne Sųłiné /Cree with roots in the Cold Lake First Nations.

Photo by Darrian Washinger.

Pangnirtung Bowhead Whale Hunt, 2025

Pangnirtung Bowhead Whale Hunt, 2025

By: **Dr. Laura Bourque**, CWHC

Figure – Image of Pangnirtung and “Welcome to Pangnirtung” sign on the hill.

Every year individual Nunavut communities apply for a permit to hunt a single bowhead whale. This is an intensive and expensive process, which can begin more than a year in advance. Communities invest considerable human and material resources into hunts, and their success is critical for communities as a valuable sources of food and crafting materials. Hunts are important for Inuit cultural identity and represent important opportunities to pass on skills and knowledge to the next generation.

These hunts also represent an opportunity to collect important samples that provide context on bowhead whale health and conservation, both on the individual and population levels. Collecting research samples is challenging, both because of the technical nature of the sampling process, as well as the inherent complexity of the butchering process. Having veterinary pathologists present during both the hunt and butchering provides a valuable opportunity to take research samples, as well as train members of the community on how to take those samples during future hunts.

Funding for **Dr. Pierre-Yves Daoust** and **Dr. Laura Bourque** to attend the bowhead whale hunt out on Pangnirtung (NU) was provided by the Department of Fisheries and Oceans Canada. Our mandate was to observe the hunt, obtain research samples, and to provide sample training to community members for future hunts.

We arrived in Pangnirtung on July 18th, and spent the next few days preparing for the hunt which involved meeting with various members of the Hunters and Trappers Organization to work out our sampling logistics, as well as purchasing camping supplies from local businesses. Qikiqtan Island (65°42'17"N 65°48'29"W) was chosen as base camp, which has been the traditional base camp location of past

Pangnirtung bowhead hunts, ~~and~~ represents an important cultural heritage site as a historical whaling station. We traveled with the hunt team and their families to Qikiqtan via boat on July 22nd, and spent the next few days setting up camp and waiting for weather conditions to be optimal for the hunt. The ideal weather conditions for the hunt require a sunny day with very little wind which minimizes the surf and improves visibility for identifying whales.

Figure – Image of base camp on Qikiqtan Island.

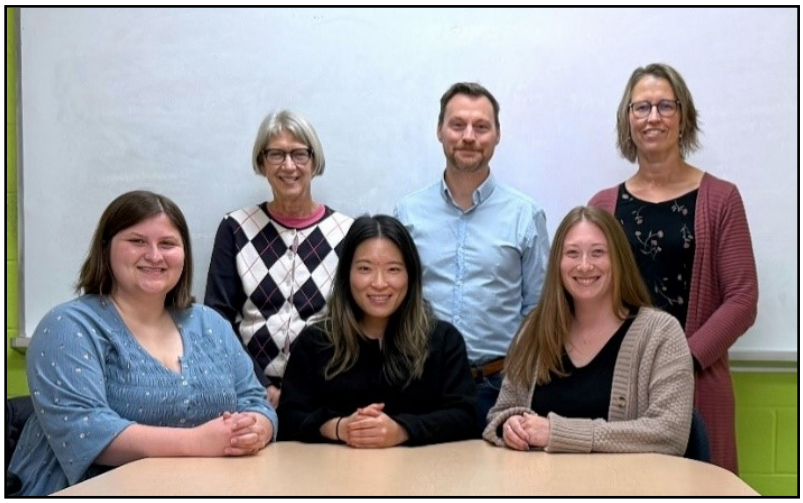
On the morning of July 26th we headed out into the Cumberland sound, and very soon the hunt team identified an adult whale. The Pangnirtung hunters were extremely competent at their jobs, which required an amazing degree of coordination between numerous boats, as well as skill with grenades, harpoons, and lances. Once the whale was dispatched, it was towed back to Qikiqtan base camp where the butchering process commenced. The butchering was attended by a large number of community members who all pitched in to harvest parts of the whale that are important as both nutritional and cultural resources for the community.

We were able to acquire research samples as well as train a member of the community on how to take a wide variety of research samples that could be used for a variety of testing modalities including histopathology, PCR, and toxicology. Once sampling was completed, we assisted with the rest of the butchering. Butchering is an incredibly labor intensive process, and took approximately 2 and a half days with at times more than 20 people working on the carcass.

This experience brought home how important bowhead whales are to Inuit communities, and also the need to preserve not only the species itself but the cultural heritage that surrounds them. I hope we will be able to continue to work with Nunavut communities on sampling and health issues related to both bowhead whales and other marine mammals in the future.

Figure – Image of Bowhead whale stranded on shore at high tide on Qikiqtan Island.

Training Sessions



Drs. Shelley Burton, Noel Clancey and **Cornelia Gilroy** provided clinical pathology training sessions for the small animal clinical residents from the Department of Companion Animals from October 20 - 24, 2025. This week training partly or fully meets requirements for time spent with American College of Veterinary Pathologists (ACVP) boarded pathologists in residency programs accredited by the American College of Veterinary Internal Medicine (ACVIM) and the American College of Veterinary Surgery (ACVS).

Photo left to right: Front row - Drs. Jordan Steeves, Hyunjeung Park and Julia Petrie.

Back row – Drs. Shelley Burton, Noel Clancey and Cornelia Gilroy.

Graduate Student Presentation/Award

Dr. Matthew Yeung (MVSc graduate student/resident) provided a platform presentation at the Annual Meeting of the American College of Veterinary Pathologists/American Society for Veterinary Clinical Pathology (ASVCP) in New Orleans, October 25 - 28, 2025 entitled “Assessment of Proteinuria Detection in Dogs by Visual and Automated Dipstick Analysis and Sulfosalicylic Acid Test compared with the Urine Protein: Urine Creatinine Ratio” (**Yeung M, Gilroy C, Clancey N, Burton S**, **Saunders J**). **Dr. Yeung** is co-supervised by **Drs. Noel Clancey** and **Cornelia Gilroy**.

Dr. Yeung was also awarded an ASVCP Share the Future Presentation Grant for this presentation.

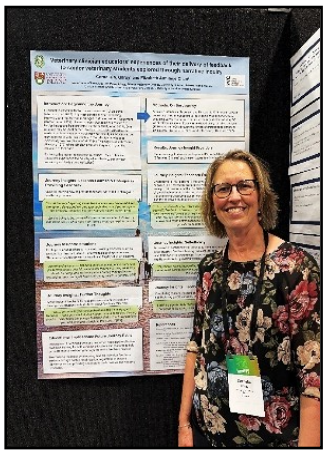
Congratulations!

Thesis Defense

Congratulations to **Dr. Eyesun Fajei**, who successfully defended her PhD thesis entitled, “Immunomodulatory Effects of PACAP in Fish: Administration Route-Dependent Protection Against Bacteria and the Impacts of Stress and Co-exposure,” on October 27, 2025.

Eyesun was supervised by **Dr. Mark Fast. Dr. David Groman** chaired the Supervisory Committee, and **Dr. Chelsea Martin** chaired the Examination Committee.

Poster Presentation



Dr. Cornelia Gilroy provided a poster presentation on “Veterinary clinician educators’ experiences of their delivery of feedback to senior veterinary students explored through narrative inquiry” at the International Society for the Scholarship of Teaching and Learning Conference held in Christchurch, New Zealand, November 3 - 6, 2025.

Visiting Graduate Student

Dr. Mark Fast will be hosting a visiting graduate student in the new year. **Yubing Chen** will be visiting the department of Pathology and Microbiology from January 6 - 27, 2026.

Presentations

Cara Doucette (MSc), **Sarah Purcell** (VetSRA, AVC Class of 2027), **Brady Sweeney** (VetSRA, AVC Class of 2027), and **Hannah Johnston** (VetSRA, AVC Class of 2028) presented at the Atlantic Canada Association of Parasitologist Annual meeting, held October 24 - 25, 2025, in Pictou, Nova Scotia, under the supervision of **Dr. Nina Germitsch.** Cara and Sarah presented their research together, titled: "*Echinococcus species: emerging parasites in wild canids of Nova Scotia",* while Brady presented: *"The fox-cinating tale of Echinococcus multilocularis on Prince Edward Island*". Hannah's presentation was titled: *"Exploring the prevalence of lung and heartworms in Nova Scotia foxes".* The students had the opportunity to learn about parasite research occurring in Atlantic Canada, and to network with students from Acadia and Mount Allison University.

Left-to-Right: Cara Doucette, Dr. Will Robbins, Dr. Nina Germitsch, Sarah Purcell, Hannah Johnston

Brady Sweeney

Over the same weekend, **Laura Leaman (MSc)** presented at the Canadian Emerging Veterinary Scholars Summit, held October 23 – 25, 2025, in Calgary, Alberta, representing the AVC, and parasitology research, among students from all the vet schools across Canada. Laura's presentation was titled: "Investigating Lung- and Heartworm Infections in Maritime Wild Canids". She had the opportunity to network with DVM and graduate students from the Canadian vet schools, attend workshops and career panels put on by the University of Calgary, and visit the Calgary Zoo.

L-R front row, 2nd person-Laura Leaman with all the EVSS attendees at Calgary Zoo

Publications

Yeung M, Clancey N, Gilroy C, Maloney S, **Saunders J**. American Society for Veterinary Clinical Pathology Mystery Case Session. Calcium oxalate dihydrate crystals in a canine cerebral spinal fluid sample. Annual Meeting of the American College of Veterinary Pathologists/American Society for Veterinary Clinical Pathology. New Orleans, LA. October 25 - 28, 2025.

Germitsch N, Greenwood SJ, Carr M. Surveillance for *Aelurostrongylus abstrusus* in feral cats on Prince Edward Island reveals low prevalence. Veterinary Parasitology: Regional Studies and Reports 67 (2026) 101398. https://doi.org/10.1016/j.vprsr.2025.101398

Vemygora O, **Bourque L, Jones M,** Nielsen O, Embury-Hyatt C, Moffat E, Wimmer T, Lung O. 2024.
Novel Dolphin Tupavirus from Stranded Atlantic White-Sided Dolphin with Severe Encephalitis, Canada. Emerging Infectious Diseases. www.cdc.gov/eid. Vol. 31, No. 11, November 2025.

Fast MD and **Michaud DM**. 2026. Sea Lice, *Lepeophtheirus salmonis* and related species. In "Fish Parasites: Pathobiology and protection". Woo PTK (ED), 4th volume in Fish Diseases and Disorders, 456 pp.

Ghanei-Motlagh R, Garber A, Cai W.C**.**, Poley J.D., **Whyte SK**, Bridger C, **Fast MD**. 2025. Sea lice (*Lepeophtheirus salmonis*) life stage impacts Atlantic salmon transcriptomic responses under different thermal profiles. Front Genet. 16: 1633603.

Sveen L, **Fast MD**, Tengs T, Timmerhaus G, Vaadal M, Houston RD, Bron JE, Monaghan SJ, Mohammed H, Daniels RR, Salisbury S, Robledo D, **Braceland M**, Robinson N. 2025. Local inflammation at the salmon louse (*Lepeophtheirus salmonis*) attachment site contributes to copepodid rejection in Coho salmon (*Oncorhynchus kisutch*). Cell and Tissue Res. https://doi.org/10.1007/s00441-025-03976-0

2025 International Sea Lice Conference - Puerto Varas, Chile

L-R- Dr. Mark Fast with interviewer

Dr. Mark Fast delivered a plenary talk at the 2025 International Sea Lice Conference, in Puerto Varas, Chile. His presentation focused on his research on vaccination and the use of CRISPR in salmon, highlighting how these approaches can be used as tools to identify genes that control resistance to Sea Lice in salmon. Dr. Fast's PhD student **Shelby Reimer** also gave a presentation.

Shelby Reimer, Dr. Fast's PhD student presenting

<u>Altogether, members of Dr. Fast's research group gave four talks at the conference:</u>

1) **Fast MD.** From Genes to Environment: Shaping our understanding of salmon immunity. Keynote address.

2) Batnes AS, Antonsen E, Pambudi MR, Hatlebakk M, Miljeteig C, Robinson NA, **Fast MD**, et al. The cellular and genetic response to sea lice infection: how might we use this knowledge to improve Atlantic salmon host-resistance to sea lice?

3) **Reimer SL**, Siah A, **Fast MD**. Genomic markers associated with tolerance to emamectin benzoate in *Lepeophtheirus salmonis* from British Columbia, Canada.

4) **Semple SL**, Tengs T, Østbye TK, Krasnov A, Salisbury S, Ruiz Daniels R, **Soto Davila M, Ghanei-Motlagh R**, Sveen L, Edvardsen RB, Bizuayehu TT, Houston RD, Robledo D, Wargelius A, Robin son N, **Fast MD**. Uncovering the important genetic defenses against sea lice in Coho salmon via CRISPR-mediated gene editing.

Chair's Holiday Message

As we approach the closure of another busy and rewarding year in the Department of Pathology and Microbiology, it's remarkable how quickly the time has passed. This year brought both moments of celebration and transition for our department and the broader AVC community, including the graduation of several graduate students and the DVM class of 2025, and the welcoming of new trainees who will shape the future of our profession.

Earlier in the year, we wished a fond farewell to **Karen Roche** as she began her well-earned retirement, and we were pleased to welcome **Sherri Pineau** to the department. We also congratulated **Drs. Fred and Molly Kibenge,** and **Juan Carlos Rodriguez Lecompte**, on their retirements, and thank them for their many years of dedication and service. Following these transitions, I would also like to thank our sessional instructor, **Dr. Shawna Semple**, for joining our team in the fall semester and for her excellent teaching of virology and immunology to our veterinary students.

Through outstanding teaching, diagnostic service, research, and graduate training, our department continues to make meaningful contributions that support AVC's mission and reputation. The accomplishments of our students, staff, and faculty this year are too numerous to list, but include publications, presentations, successful funding competitions, and recognitions for excellence in teaching, research, service, and leadership.

I would like to extend my sincere thanks to everyone in the department for their collective efforts, and especially to our administrative and technical staff, whose dedication and expertise support our mission and help our department run so smoothly.

As the holiday season arrives, I hope everyone can take time to rest, reflect, and recharge. My thoughts are with those who may be missing friends or loved ones during this time of year. Wishing you all a peaceful and restorative holiday season, and I look forward to all that we will accomplish together in the year ahead.

For comments or suggestions for our newsletter,
please contact: Ingrid MacLeod (imacleod@upei.ca) (902) 566-0541.
Editors / Reviewers Ingrid MacLeod and Dr. Shivani Ojha
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