

## AINA NEWS

*Northern Scientific Training Program 2018*

The Arctic Institute of North America administers University of Calgary applications for the Northern Scientific Training Program funds, established through Polar Knowledge Canada. The program provides funds for graduate student travel in the North. This year the program awarded \$26,567.00 to nine students from this university, who represent a range of disciplines in the physical and social sciences, as well as veterinary medicine. Students will carry out research in Greenland and across the Canadian Arctic and Subarctic regions, including the Northwest Territories, northern British Columbia, and Nunavut. We look forward to hearing from the students during AINA's public speaker series in the fall when they will report on their summer fieldwork.

*Data and Information Services Welcomes New Team Member*

The Arctic Institute of North America is pleased to announce that Kara Matthews has joined our team as an Information Analyst with Data and Information Services. Kara has previously worked as a postdoctoral researcher for the University of Oxford, Department of Earth Sciences, and for the University of Sydney, School of Geosciences. Her background in data and information services includes work with the EarthByte Research Group (<http://www.earthbyte.org>) and work on the GPlates project (<https://www.gplates.org/>) and the Deep Time project (<http://deeptime.earth.ox.ac.uk/>), and development



Kara Matthews

of training sessions for geospatial and data visualization software. She has experience with geospatial mapping and with creating visualization models. Kara holds a PhD in Geophysics from the University of Sydney. We are very happy to welcome her to AINA!

*Cooper Langford III*

AINA staff and board members were saddened to hear of the death of Dr. Cooper Langford III on 11 March 2018 from pancreatic cancer. Dr. Langford was a professor of chemistry at the University of Calgary and served on AINA's Board of Directors from 2002 to 2014. Our sincere condolences to his wife Denise and children, Cooper, Holly, and Robert.

*Search for the British Whaling Vessel Nova Zembla*

This summer, two researchers from the Arctic Institute of North America, Drs. Michael Moloney and Matthew Ayre, will journey north in search of the wreck site of the Scottish whaling vessel *Nova Zembla*.

*Nova Zembla* wrecked in a fjord off Baffin Bay at 10:20 pm on Thursday, September 18, 1902. Her crew members were rescued by fellow whalers on the *Diana* and *Eclipse*, and it is from their logbooks that information about the events that evening have been gleaned. Alongside newspaper testimonies from the crew on their return, these firsthand accounts place the wreck in a remote harbour on the east coast of Baffin Island, in shallow water and protected from the destructive effects of turbulent sea ice conditions. *Nova Zembla*, under new and novice captaincy, struck a reef while running for cover in a storm. She sank fast, and the crew had little time to abandon ship. The valuable whalebone was rescued from her stores and transferred to *Diana*, who revisited the wreck the following year and salvaged her rudder.

Commercial whaling in the Eastern Canadian Arctic, focused on the bowhead whale (*Balaena mysticetus*), was practiced from the mid-18th century through to World War I. Operations in these waters were fraught with danger, and the British fleet alone lost more than 200 vessels. Despite these many losses, not a single wreck from this industry, which lubricated the march of the industrial revolution, has ever been discovered. With no known wrecks or surviving vessels, history is based on the extant artifacts and documents from these men who ushered in the modern world.

If successfully relocated, *Nova Zembla* would be the first British Arctic whaling wreck in the world to be found and investigated. Whalers were the first sailors to ply the Arctic waters extensively, and the knowledge gained by their voyages was an invaluable asset to subsequent voyages of exploration for the discovery of a Northwest Passage by the British Royal Navy. The wreck of the *Nova Zembla* presents an opportunity to ground-truth historic documents and understand more completely the operation

of Arctic whaling ships. Information gained from the discovery of *Nova Zembla* will complement the current investigation of HMS *Erebus* and HMS *Terror* by Parks Canada and contribute to a more holistic understanding of the exploration of the Canadian Arctic.

The surviving documents from whaling voyages have more than historical value, and the environmental observations they contain are now being used to establish much needed climatological baselines for the Arctic regions, improving the accuracy of global climate prediction models. Ground-truthing of these documents will enhance the reliability of the data and facilitate greater accuracy in these models. In addition, as the exact date and time of the wrecking is noted in the log books of *Diana*, the wreck of *Nova Zembla* will provide a benchmark for understanding the timeline of ecological growth in the region, which will be increasingly useful as climate change continues to affect the region.

The quality and abundance of information in historic documents has allowed the expedition team to refine the search grid to an area of ~3 km<sup>2</sup>. The search for the wreck will be conducted using a multibeam sonar and a remotely operated underwater vehicle, generously provided by Deep Trekker, deployed from a zodiac. The expedition team has been given passage aboard the One Ocean Expedition ship *Akademik Sergey Vavilov* to reach the site location and conduct the search. Logistical support has also been generously provided by the Royal Canadian Geographic Society, the Royal Scottish Geographic Society, and the University of Calgary.

### *AINA Education and Outreach 2017–18*

Over this past academic year, we have had the opportunity to engage with students and the general public through several events and programs. These events have helped fulfill our mandate for outreach and spread knowledge of Arctic research and Arctic communities.

**Arctic in the Classroom:** AINA's Arctic in the Classroom program enjoyed another successful year, visiting more schools this academic year than in any of the four previous years of the program. The visits bring Arctic artifacts, such as muskox horn hammers, bone snow goggles, stone ulus, seal mitts, and kudliks, to Grade 2 classrooms around the Calgary area. This program aligns with the curriculum subject of communities, which sees students learning about what a community is and the differences between their own community and those in eastern and northern Canada. Students are invited to handle the artifacts and pass them around, attempting to determine the types of tools and the material they are made from.

Students are amazed at the different materials used to create the tools. The presentation culminates in the unveiling of our polar bear pelt, and students are invited to come up and feel the hair and claws as we discuss a bit about polar bear habitat and the changing Arctic environment.

Feedback from the program has been fantastic: teachers note that the hands-on experience is unique and an amazing asset to student learning and information retention. We are excited to continue to build the program and look forward to more school visits in 2018–19.

**Telus Spark March Break Camp:** In March 2018, we unveiled our new outreach program *Climate Detectives!* This program, featured in the Energy Sustainability-themed Telus Spark March Break Camp, included a brief presentation on the history of Arctic whaling and its relevance to climatology, followed by an activity with whaling logbooks. Campers were split into groups, and each group was given a logbook to examine. On days that whalers caught a whale, they drew a small whale tail in the margin, representative of the ice edge at the time. Campers sifted through the documents and made note of each day a whale was caught and the total whales caught by a single ship. They also determined what year the ship sailed and calculated how old the data are.

Once the 'detectives' determined their number of whales, they searched through a to-scale outline of a bowhead whale for whale tails with their logbook colour on them. After collecting all of their whale tails, the campers could place their tails on a projected map according to the coordinates of their ship. The result is a record of the sea ice extent stretching back to the time of the ship's voyage, which helps climate scientists understand how the sea ice has shrunk over the last 150 years.

Feedback from the program was very positive, and we look forward to rolling the program out for Grade 4–5 classes in the next academic year.

**Robert Thirsk High School Arctic Summit:** In December 2017, AINA helped Robert Thirsk High School conduct a summit on Arctic Transnationalism and Sovereignty for Grade 11 students. The event featured a keynote address on Arctic Transnationalism and Political Policy by Dr. Robert Huebert, professor of Political Science at the University of Calgary and AINA Research Associate, which was followed by breakout sessions on the themes of food security, Arctic community lifestyle, climate science, the Arctic in popular media, and an Arctic Council-themed model UN. Students were able to pick from two of the sessions and experience an almost conference-style learning experience. The event was an outstanding success, and plans are in the works to host the event again, this time at the University of Calgary, in June 2018.

**Whaling Logbook Transcription in Schools:** This year, AINA piloted a new education program based on our project "Northern Seas: An interdisciplinary study of human/marine and climate system interactions in Arctic North America over the last millennium," which is funded by the Social Sciences and Humanities Research Council of Canada (SSHRC). This program brought copies of real logbooks from British whaling voyages in the Canadian Arctic to Grade 10 students at Robert Thirsk High School. Under the direction of AINA postdoctoral researcher Dr.

Matthew Ayre, students transcribed the logbooks and recorded climatological information noted by the whalers, such as temperature, wind, ice conditions, and wildlife sightings. Through their efforts, the students contributed to our scientific study and helped build a hundred-year

climate record for the Baffin Bay region. By participating in this citizen science program, the students learned about historical climatology, climate processes, and the historical and current impacts of climate change on the Canadian Arctic.