



# Arctic Institute of North America

ANNUAL REPORT 2012



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<b>University of Calgary Librarian, AINA Collection:</b>	Claudette Cloutier
<b>Kluane Lake Research Station Manager:</b>	Sian Williams and Lance Goodwin



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## Message from the Executive Director

AS WE ENTER 2013, CANADA IS POISED TO ASSUME the chairmanship of the eight-nation Arctic Council. There has perhaps never been a better time to move AINA's mandate forward. Consequently, it is timely that the search for AINA's new executive director has now ended with the appointment of Maribeth Murray. Dr. Murray comes to AINA from the International Arctic Research Center and Northern Studies Program of the University of Alaska, Fairbanks. Murray begins her appointment July 1, 2013 and we wish her every success.

Many internal changes have happened at AINA over the course of 2012. The Institute moved into its new home on the 10th floor of the Earth Sciences building at the University of Calgary. The new office suite is larger and brighter than AINA's previous location, and the move places the Institute closer to the Geology, Geography, and Archaeology departments, where most Arctic research on campus is undertaken. The new quarters will help to raise AINA's profile among both faculty and students within the University of Calgary.

The past year has also seen some significant staff changes. After 36 years of service, Ross Goodwin officially retired as manager of ASTIS in the autumn of 2012. This is a huge change for AINA, as he leaves behind an enviable legacy of service to the Institute and the university. We are fortunate to have Ross continue his affiliation with the Arctic Institute as an ASTIS volunteer. Following an extensive search, Shannon Vossepoel was selected as Ross's successor. Shannon has a Master of Library and Information Science degree and more than seven years of experience managing libraries and historic sites. She came to us from the Brooks Public Library, where she was head librarian. Shannon was one of the few applicants with proven experience obtaining grants from government agencies and industries, and she boasts a 100% success rate in receiving funds through grant-writing initiatives. Shannon is enthusiastic and outgoing and has been very successful in her job so far. It is hard to believe that she has now been with AINA for almost a year. Sadly, we said goodbye to Pam Scowen, one of our information analysts, from ASTIS in 2012. Pam left Calgary to be with her husband, who has moved to New Zealand, and will be sorely missed by the staff.

I would like to thank Monica Micallef, who served as Institute manager during the past year. Monica played an invaluable role in facilitating AINA's recent move to Earth Sciences, as well as in helping the Institute move through some unanticipated financial challenges involving the Kluane Lake Research Station. Monica was a maternity leave replacement for Mary Li, who returned to her position at AINA this past January. I would like to welcome Mary back, and I wish her every success over the next year.

Participating in international cooperative networks is an important means of expanding AINA's mandate to support Arctic research. I am therefore delighted to announce that the Institute became a member of the University of the Arctic in 2012. UArctic is an organization consisting of universities, colleges, and other organizations with interests in promoting education and research in the North. AINA is also now a member of the Canadian Heritage Information Network (CHIN), which allows Canadian museums to connect to each other and general audiences through digital

technologies. Membership in CHIN will provide AINA with opportunities to increase awareness of its extensive northern art collection, as well as collaborate in heritage-themed research projects in the Arctic.

While there has been much to celebrate during the past year, AINA has also faced some challenges. The loss of funding to the Kluane Lake Research Station (KLRS), through the cancellation of the Natural Sciences and Engineering Research Council of Canada (NSERC) Major Resources Support Program means that the Institute must develop new sources of revenue. Station Managers Sian Williams and Lance Goodwin, along with David Hik (Chair of the KLRS Users' Committee), have been instrumental in tackling this important issue. Despite this disruption, the station continues to make important contributions to northern science in such areas as ecology, geography, geology, and glaciology.

The journal *Arctic* is also currently exploring new publishing models to reduce costs and ensure the journal remains viable in the years to come. To this end, the Institute conducted an online survey this past fall, in which AINA members were polled on digital versus print formats for issues. As the debate over the advantages and disadvantages of open access journals continues to be a subject of discussion among scholars and publishers, it is important that we continue this conversation with our membership in the foreseeable future.

AINA research fellows and associates continue to advance the Institute's mandate through research and education. Jon Dudley has been especially active in this regard, having helped to establish a partnership between AINA and Arctic tour operator Adventure Canada. Jon also manned the AINA booth at the International Polar Year 2012 conference in Montreal in April, with assistance from fellow AINA attendees Ross Goodwin, Shannon Vossepoel, and Research Associate Magdalena Muir.

In closing, with many of last year's transitions nearly completed, AINA is set to move forward in new and exciting directions. There are so many fascinating areas to explore: climate change, unexpected ancient fauna (e.g., camels), geopolitical issues, food security, and heritage under threat. A strong University of Calgary/AINA partnership is key to fostering research in these areas—especially among the next generation of Arctic researchers here at the University of Calgary.

**Peter C. Dawson**, PhD, Acting Executive Director





## Message from the Chair

WELCOME TO THE 2012 ANNUAL REPORT of the Arctic Institute of North America. This is my third message as Chair. Looking back, I see that in my first message I said that 2011 would be the year we would transition to a new executive director. And in my second, I said that I was looking forward to introducing you to our new executive director in 2012. With the appointment of Dr. Maribeth Murray from the University of Alaska, Fairbanks in April, I am finally able to fulfill this long-standing commitment. We look forward to welcoming Dr. Murray to the Arctic Institute in July 2013.

The role of executive director is of particular importance to the Arctic Institute. It is difficult to adopt a strategic vision in the absence of a permanent leader, and even more difficult to achieve all that I believe the Arctic Institute can achieve. I am more convinced than ever that the Institute has a significant and meaningful role to play in matters involving the circumpolar North. Issues today have become too complex and multifaceted for us to believe that traditional disciplinary models will be up to the task in front of us. The Arctic Institute, by virtue of its multidisciplinary approach, is uniquely positioned to bring solid research and data-based solutions to the challenges facing policy makers, researchers, and most importantly, inhabitants of the Arctic regions of the world.

We were successful in recruiting a manager for our ASTIS database in 2012, and I would like to welcome Shannon Vossepoel to that role. Shannon has a significant challenge in succeeding Ross Goodwin, who can perhaps be looked on as a “founding father” of Arctic databases in general and ASTIS in particular, but with his able and willing assistance, there is little doubt we will see continued success. Thanks are also due to staff members Lynda Howard and Lynne Howard for their continued efforts during this time of transition.

I was recently privileged to visit one of the “jewels” in the Arctic Institute crown—our Kluane Lake Research Station—and meet with our station manager, Sian Williams, and her family. It is quite cold at Kluane Lake in March (-30°C!), but nothing can dampen the impression that the facility makes when one first sees it in its glorious setting on the shores of Kluane Lake in the Yukon Territory, surrounded by various mountain ranges. It is easy to see why so much first-class research has come from this place over the last 50 years (please see our website for a bibliography) and why the researchers who use this facility are so committed to it. The Arctic Institute is justifiably proud of the research station and the work that has been done there. Under the able leadership of Sian and the guidance and untiring efforts of Professor David Hik of the University of Alberta, we are engaging as we never have before with local stakeholders, including the Kluane First Nation and the Government of the Yukon.

I would particularly like to thank Dr. Ed McCauley, Vice-President (Research), and Dr. Anne Katzenberg, Associate Vice-President (Research), of the University of Calgary for their efforts both in our executive director search and in working with us to develop a vision of the role that the Arctic Institute can play in the University of Calgary and beyond. The Institute is deeply indebted to Ross Goodwin, Professor Peter Dawson (Department of



Archaeology) and Professor Shawn Marshall (Department of Geography) for agreeing to step in as acting executive directors of the Institute since the retirement of our last executive director, and I thank them on behalf of all of us. Thanks are also due to Karen McCullough, the editor of *Arctic*, our quarterly academic journal and another jewel in our crown. I also want to thank Melanie Paulson, our administrative assistant; Monica Micallef, who stepped in as our Institute manager for 2012; and the numerous local AINA research associates for their work throughout the year. Lastly, I would like to thank our board of directors for their guidance and patience as we position the Arctic Institute for the bright future that lies ahead.

**Henry W. Sykes, QC, Chair of the Board**



Left to right: Sian Williams, David Hik, Henry Sykes, and Shawn Marshall at KLRs in March 2013 (Photo: Lance Goodwin).





## AINA US Corporation Report

THE ARCTIC INSTITUTE OF NORTH AMERICA (AINA) was founded jointly in Canada and the United States in 1945 because both countries recognized the cost of their “Arctic ignorance” during World War II. The history of early days at AINA includes an effort to encourage people to get involved in Arctic research. The “remote” Arctic was primarily known to the world then through fiction and reports of special expeditions. The past half-century has seen such unprecedented and profound changes in transportation and communication that the very concept of “remote” has been eroded. We are now going through a time of rapid changes in climate and socio-political activity and our collective ignorance of these changes, which are especially pronounced in the Arctic, demands attention. To Canada and Alaska, they present new challenges, which again, as during World War II, emphasize the need for joint, international cooperative activity because so many Arctic problems cross national boundaries.

In 2000, the University of Alaska and the University of Calgary jointly signed an academic co-operation agreement that included a supplemental letter of agreement for staff and student exchange. These documents were well written and contain a fine set of objectives; however, the section on implementation remains to be acted upon. The subject of cooperative activities was revisited during an August 2009 meeting held at AINA’s Kluane Lake Research Station to discuss the renewal and updating of the 2000 agreement. Action has been on hold during the search and completion of replacing key administration leaders at the University of Alaska Fairbanks (president of the university, a new vice president for academic affairs, and a new vice chancellor for research) and for a new executive director of AINA at the University of Calgary. We now consider it to be a priority item to pursue again.

Our public outreach programs include the Arctic Roundtable. The Roundtable consists of a small group of three or four experts initiating a subject followed by discussion with the audience. We also collaborate with the University of Alaska Museum of the North in presenting a series of lectures for the general public. At the Kluane Lake meeting, we discussed ways to broaden these programs and make them international.

A very successful international joint project is the AINA Grant-in-Aid Program, administered by a binational committee of volunteers and funded entirely from member donations. With the 10 awards given out in 2012, the Grant-in-Aid program has supported 168 students over the past 18 years.

**Carl S. Benson, PhD**, Chairman, Board of Governors





## Kluane Lake Research Station

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**A**FTER THE LAST TWO YEARS OF PHYSICALLY RENOVATING the Kluane Lake Research Station, 2012 has been the beginning of a financial renovation. In May, NSERC notified us that the operating grant that we have depended on for over 20 years would not be renewed. A bridge fund of \$70,000 was secured by Acting Executive Director Shawn Marshall, and we began a process of searching for new sources of funding. In September, Geordie Dalgish and Garfield Mitchell from the Weston Foundation visited the research station and an agreement for two years' operating funds is in progress. The agreement includes seeking more varied and stable sources of funding.

In the midst of the financial upheaval, the scientific projects continued. Dr. Charles Krebs and his crew from the University of British Columbia continued working on the Community Ecological Monitoring Program (CEMP), which is constantly evolving its monitoring protocols. The latest protocol involves testing and modeling the use of motion-sensing cameras for animal census. Visiting professors from Spain and New Zealand were here to gather information on how ecological monitoring is being done in Canada. The diverse range of partners in this project includes the Yukon Government, Parks Canada, Environment Canada, and local First Nations.

Dr. Ryan Danby and students from Queens University were investigating the effect of bark beetle mortality on tree-line dynamics. They also resurveyed vegetation plots from the 1970s to determine changes in caribou habitat in the Burwash Uplands. Monitoring of long-term tree-line plots was also maintained to determine how tree lines are responding to climate change.

Dr. Boonstra from University of Toronto Scarborough returned with a new graduate student, who will be looking at the effects of stress on snowshoe hares. This continuing study spans the divide between biomedical studies and the effects of stress on reproduction.

Dr. Roy Turkington, University of British Columbia, maintained plots that are assessed for changes in biodiversity, biomass, and microbial response due to an experimental increase in nitrogen.

Dr. David Hik, University of Alberta, and students were working out of Pika Camp in the Ruby Range. They completed the installation of six meteorological stations and snow observation cameras to provide validation of snow cover measurements from satellite observations. They are examining competition between species of alpine plants along gradients of increasing herbivory and within long-term warming plots.

Dr. Antoni Lewkowicz and graduate students from the University of Ottawa located the bore holes from the old Alaska Highway Pipeline and reassessed them for changes in permafrost regimes.

Dr. Konrad Gajewski and a graduate student from University of Ottawa were looking at lake sediments and chemistry across an elevation gradient.

Dr. Michel Lamothe, Université du Québec à Montréal, was in the area doing preliminary work on glacier terminus and loess deposits.

Dr. Michael Schmidt from the Geological Survey of Canada is continuing to monitor seismic activity and setting up a new station in a very active area of the St. Elias Range near Mt. Steele.

Dr. Eric Higgs, University of Victoria, was rephotographing Boundary Survey sites that were originally photographed about 100 years ago.

Dr. Gwenn Flowers and her team from Simon Fraser University were back on Glacier One, a tributary to the Kaskawulsh, to measure meteorological variables, glacier mass balance, and glacier flow regimes. The goal is to develop a picture of glacier-climate interactions through a combination of field data collection, remote sensing, and numerical modeling.

Dr. Christian Schoof, based at the University of British Columbia, and his international team, including students from Chile, Germany, and Saudi Arabia, were continuing their investigation into subglacial dynamics and flow regimes on Glacier One.

Dr. Luke Copland and students from the University of Ottawa are investigating melt and surface velocity patterns on the Kaskawulsh Glacier. They are also investigating the fine scale time frame of surge patterns on the Lowell Glacier.

Dr. Garry Clarke from the University of British Columbia completed his model of glacial retreat that includes climate variations up to 2100. He continues work on a model of the filling and draining of Neoglacial Lake Alsek.

Dr. Gerry Holdsworth has returned to KLRS, reincarnated as an anthropologist, and has found pre-contact artifacts on a nunatak adjacent to the Quintino Sella Glacier.

The wide base of support and statements of commitment to keep the Kluane Lake Research Station open have been very encouraging. The list is long, but includes the University of Calgary and contributing universities, a dedicated core group of principal investigators, the Kluane First Nation, Yukon MP Ryan Leef, Yukon College, and the Yukon Government. We were also pleased to receive private donations from Canadian citizens and media support for funding science in Canada. The Arctic Institute remains strongly committed to the continued operation of the Kluane Lake Research Station.

**Sian Williams**, KLRS Manager





## Outreach

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### 2012 Arctic Speakers Series

The continuation of the Arctic Life Speaker Series in the spring of 2012 included three presentations, the first two of which were on various aspects of glacier research. Dr. Brian Moorman, AINA Life Member and Professor in the Department of Geography at the University of Calgary, spoke on “Remote Sensing of Permafrost, Ground Ice and Glaciers: New Ways to Monitor a Changing Arctic.” Next, Dr. Gwenn Flowers, Canada Research Chair Glaciology and associate professor in the Department of Earth Sciences at Simon Fraser University, presented a talk entitled “Surging Glaciers in a Warming Climate.” The final talk of the spring series, “Cruising the Arctic,” was given by Research Associate and honorary Outreach Coordinator Dr. Jon Dudley.

In autumn 2012, the Speaker Series began with a talk entitled “Lost Worlds in Ancient Ice” by Dr. Duane Froese, associate professor and Canada Research Chair in Northern Environmental Change in the Department of Earth and Atmospheric Sciences, University of Alberta. We then had the pleasure of hearing Dr. Gifford Miller, professor of Geological Sciences and associate director of the Institute of Arctic and Alpine Research (INSTARR) at the University of Colorado at Boulder, discuss “The Little Ice Age as seen from Arctic Canada.” The final speaker for 2012 was Adam Lajeunesse, a graduate student in the Department of History at the University of Calgary, who spoke on “The Cold War under Ice.”

### International Polar Year (IPY) 2012 Exhibit

At the IPY 2012 *From Knowledge to Action* conference, held in Montreal from 22 to 27 April 2012, AINA representatives gave a special exhibitor’s presentation on the exhibit floor, which outlined the Institute’s history, mission, and current activities, including the ongoing appeal to IPY researchers to submit their publications and data to the ASTIS database. The booth was staffed on a rotating basis by the AINA registrants to the conference (Jon Dudley, Ross Goodwin, Magdalena Muir, and Shannon Vossepoel).

Numerous students and other youth, including many from the Circumpolar Young Leaders Program and the Association of Polar Early Career Scientists, visited the AINA booth and were very pleased to learn of ASTIS and its value as a great research tool. One of these visitations led to the submission and publication of an InfoNorth article, “Circumpolar Young Leaders Find Common Ground at IPY 2012,” published in the September 2012 issue of *Arctic* (Vol. 65, No. 3).



AINA publications displayed at the exhibit were donated at the end of the conference to the fellow exhibitor “Students on Ice.”

## New AINA Display Panels

Attendance as an exhibitor at the IPY 2012 Montreal conference inspired development of exhibitor display backdrop panels for use at the conference and other public events in which AINA participates. The display was designed as three separate vertical banners that together create one montage, but can also be used independently for smaller events. Thanks to AINA Life Member Murray Coppold, Research Associate Jon Dudley, and Karen Wallace-Dudley for their volunteer work in designing the graphics for the display.

## Outreach Presentations

Saddle Ridge Elementary in Calgary requested presentations to five Grade 2 classes (~125 students) over two days as a complement to the Social Studies program that explores communities, including those of the Inuit. The class sessions featured sketching and interpretation of Inuit artifacts and natural history specimens, including many from the AINA collections.

A Calgary scout troop (~30 co-ed scouts) requested a similar program, with the addition of physical activities that included a sampling of Inuit games.

## Partnership Activity

Adventure Canada, one of AINA’s partners, provides unique outreach opportunities for the Institute in the form of displays and presentations on Arctic expedition cruises. News on AINA activities that may be of interest to Adventure Canada’s clientele is made available through the partner’s newsletter and website.

## Expert Support

Throughout a year, AINA is commonly approached for technical advice or support on small projects. Two examples in 2012 pertained to Inuktitut vocabulary and pronunciation.

For a Boxing Day special broadcast on the theme of winter, CBC Radio Calgary wanted to know whether there are in fact “50 words for snow” or whether this is an urban myth.

STR-Speech Tech Ltd. of Victoria, British Columbia, which provides digital text-to-speech weather data systems, primarily for the aviation industry, including in-flight weather information, inquired about the correct Greenlandic Inuktitut pronunciation of some Greenland communities (e.g., Qimusseriarsuaq).

AINA contacts within the Inuit community were able to respond successfully to these requests. Thank you to Meeka Mike and Aaju Peter, both of Iqaluit.

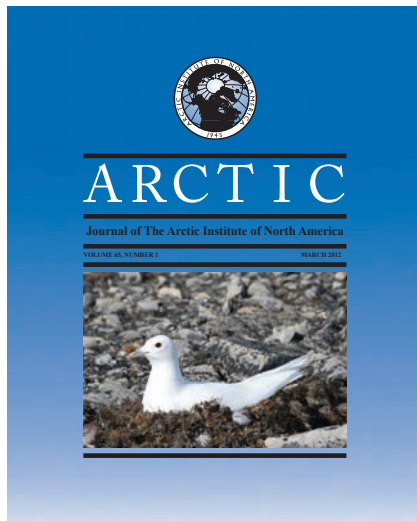
# Arctic Journal in 2012

IN MAY 2012, A SUPPLEMENTARY ISSUE OF *Arctic* on “The Archaeology and Paleoecology of Alpine Ice Patches: A Global Perspective” was published and distributed to all members of the Arctic Institute. The supplement includes an Introduction and 12 papers focusing on the human, ecological, and physical dimensions of alpine ice patches in Yukon, Northwest Territories, Alaska, the U.S. Rocky Mountains, Norway, and the European Alps. The rapid melting of perennial ice and snow in alpine areas of the circumpolar North has led to the discovery of cryogenically preserved artifacts and biological specimens rarely found in subarctic areas. These finds and the fascinating insights they provide into the lives of early caribou and reindeer hunters are stimulating interest in the search for ice patch archaeological sites in other mountainous areas of the world.

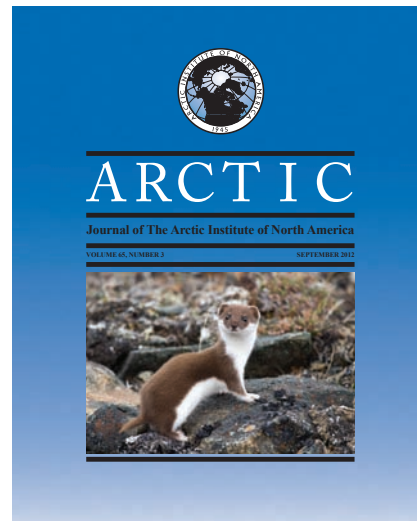
Funding for the supplementary issue was generously provided by the Government of the Northwest Territories and an International Polar Year 2007–08 grant to Tom Andrews, Territorial Archaeologist with the Prince of Wales Northern Heritage Centre in Yellowknife, NT. We are deeply grateful to Tom Andrews and Glen MacKay for their hard work in coordinating the supplement and to all the authors for participating in this very special issue of *Arctic*.

The four regular issues of *Arctic* published in 2012 included 37 research articles, 2 research notes, 21 book reviews, 5 obituaries, 1 Arctic profile, 3 letters, and 4 InfoNorth essays. Our page count for Volume 65, including the supplement, was 712 pages. Of the 51 research articles published in 2012, 20 (39%) were from the social sciences, 23 (45%) from the biological sciences, and 8 (16%) from the physical sciences. The high percentage of papers in the social sciences is due

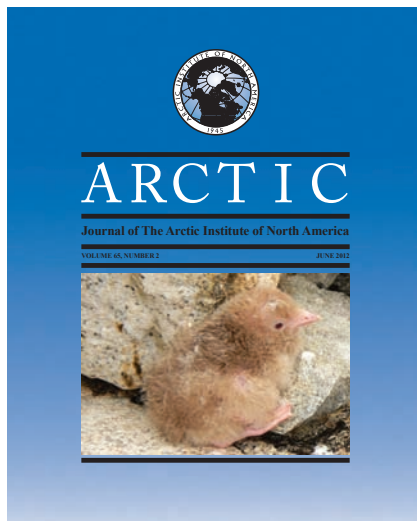
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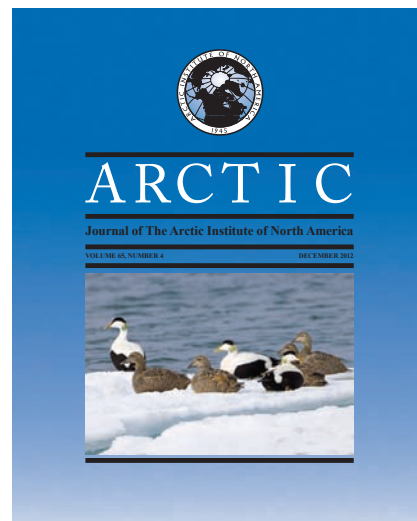
September 2012



June 2012



December 2012



to the archaeology papers in the ice patch issue. As in 2011, submissions in 2012 were well beyond our annual average of 57 papers, with 75 articles submitted for consideration for publication.

## Arctic Online

In 2012, approximately 19% of AINA members opted for an online only subscription, with 81% subscribing to either the print journal only or both print and online.

In October 2012, we sent an exploratory survey to our members to gauge the impact of making *Arctic* solely available online and dropping the print version. Over 40% of AINA members responded, 52% of whom indicated that they would subscribe to the online journal. From the many comments returned with the survey, however, it is clear that many members prefer to receive a print journal, as is evident from the fact that more than 80% of renewals include a print copy. Our sincere thanks to all respondents for taking the time to complete the survey and send additional comments.



# Arctic Science and Technology Information System

THE ARCTIC SCIENCE AND TECHNOLOGY INFORMATION SYSTEM (ASTIS) is Canada's national northern database. ASTIS contains 77,000 records describing publications and research projects about northern Canada. ASTIS includes all subjects and covers the Yukon, the Northwest Territories, Nunavut, the northern parts of seven provinces, and Canada's Arctic waters. ASTIS has been in operation since 1978 and is funded through contract work and donations.

The ASTIS database is available from a free bilingual website and is searchable from Simple and Advanced Search pages or by clicking on hyperlinks in database records. ASTIS records contain abstracts and detailed subject and geographic indexing terms from the ASTIS thesauri. The publications cited in the database include both peer-reviewed and grey literature. More than 20,600 records contain links to PDF files of publications that are available online.

The ASTIS database contains 16,300 records describing research projects conducted in Canada's three northern territories since 1974. These records are based on information provided by the organizations that license all territorial research: the Aurora Research Institute; the Central and Arctic Region of Fisheries and Oceans Canada; the Northwest Territories Department of Environment and Natural Resources; the Nunavut Department of Culture, Language, Elders and Youth; the Nunavut Department of Environment; the Nunavut Research Institute; the Prince of Wales Northern Heritage Centre; and the Yukon Heritage Resources Unit.

ASTIS continues to grow with support from its many funders. In 2012, ASTIS received general funding from BP Canada, the Canadian Association of Petroleum Producers (CAPP), Chevron Canada, ConocoPhillips Canada, the McLean Foundation, MGM Energy, TransCanada, and WorleyParsons.

ASTIS specializes in the preparation of bibliographic databases about northern Canada and can easily make those databases available from customized websites for clients. The Databases page of the Institute's website provides access to 15 such databases.

Many ongoing ASTIS projects continued during 2012. The Canadian IPY Publications Database, funded by the Government of Canada Program for International Polar Year (IPY) and Encana Corporation, included work with the American Geosciences Institute, the Scott Polar Research Institute, the University of Colorado, and NISC Export Services Pvt. on the international IPY Publications Database. Work continued on the ArcticNet Publications Database funded by the ArcticNet Network of Centres of Excellence Canada, the Hydrocarbon Impacts database funded by the Aboriginal Affairs and Northern Development Canada (AANDC) Northern Oil and Gas Branch, and the NCP Publications Database funded by the AANDC Northern Contaminants Program. ASTIS also worked with the Geological Survey of Canada, funded by the Environmental Studies Research Funds, to catalogue legacy publications and data about Beaufort seabed geohazards; with the Inuvialuit Joint Secretariat on the Inuvialuit Settlement Region Database funded by MGM Energy, ConocoPhillips Canada, and Chevron Canada; with Makivik Corporation on the Nunavik Bibliography, funded by Xtrata Nickel; with the Yukon Biodiversity Working Group on the Yukon Biodiversity Database funded by the Alaska Pipeline Project and Wildlife Conservation Society Canada; and for the Yukon Heritage Resources Unit to index Yukon research projects.

One new ASTIS project was undertaken in 2012: work for Dr. Peter Dawson of the Department of Archaeology, University of Calgary, to create the Fort Conger Publications Database to accompany his Fort Conger website.

ASTIS also worked on several internal Arctic Institute projects in 2012, including the Kluane Lake Research Station Bibliography; the *Arctic* Contents and *Arctic* Search pages of the Institute website; and maintenance of the Institute's publications server, which makes 4220 publications available on the Web as PDF files.

All of these projects are moving ASTIS closer to its goal of providing comprehensive coverage of northern Canadian publications and research projects.

ASTIS was affected by some staff changes this year. Information Analyst Pam Scowen left ASTIS in June 2012, and Ross Goodwin, who managed ASTIS from its inception, retired in September 2012. Shannon Vossepoel was welcomed as the new ASTIS Manager, and Ross Goodwin continues at the Arctic Institute as a volunteer for ASTIS.

## Northern Lights Series

THE NORTHERN LIGHTS SERIES OF BOOKS has been copublished by the Arctic Institute of North America and the University of Calgary Press since 2002. This non-technical series presents a broad range of scholarly works on topics from the humanities to the natural, social, and earth sciences. In 2012 one book was published and one manuscript was accepted for publication. The book is *The Reindeer Botanist: Alf Erling Porsild, 1901–1977*, by P. Wendy Dathan. A book launch was held in November 2012 at the Canadian Museum of Nature, where Porsild worked for many years. The University of Calgary Press Editorial Committee accepted the manuscript *Shipwreck at Cape Flora: The Arctic Expeditions of Benjamin Leigh Smith, 1871–1882*, by P.J. Capelotti. The manuscript provides a fascinating account of Leigh Smith and his polar explorations.

We are very grateful to Elisa Hart, who volunteered her services as Northern Lights Series Editor as of May 2012. Elisa has conducted archaeological, historical, and oral traditions research in the Canadian Arctic for about 20 years. Our sincere thanks to outgoing Series Editor William Barr for his many years of service to AINA.

## AINA Library

THE ARCTIC INSTITUTE OF NORTH AMERICA COLLECTION, housed in the Gallagher Library at the University of Calgary, continues to attract students, researchers, and an interested public from across campus and from around the world.

The Library continued to add material from the historic Arctic Institute of North America library collection to our online catalogue (material that was classified using the University Decimal







Classification System and not available for search through our online catalogue). As a result, almost 2,000 items were made more widely searchable. Now that this material is accessible, it has proven to be very popular with researchers on campus as well as with international researchers. This project also included adding archival materials to our University Archives. To date, 101 archival boxes of pre-print articles and northern reports have been added to our archival holdings. This material is accessible by contacting University Archives at 403-220-7234.

Additionally, through donation, a collection of translations into English of Scandinavian fiction is beginning to develop. Authors donated to date include Stieg Larsson and Henning Mankell (both Swedish), Jo Nesbø (Norwegian), and Arnaldur Indriðason (Icelandic).

To discover these and other research resources, search our library catalogue at <http://library.ucalgary.ca/>.

Claudette Cloutier, the Liaison Librarian for Northern Studies, provides research assistance to students, faculty, staff, and visiting researchers looking for northern and polar-related information. Please contact her at [ccloutie@ucalgary.ca](mailto:ccloutie@ucalgary.ca) for research assistance.

## 2012 Scholarship Winners

### Jennifer Robinson Scholarship – \$5,000

The recipient of the 2012 Jennifer Robinson Memorial Scholarship was N. Jane Harms, a doctoral student in the Department of Veterinary Pathology at the Western College of Veterinary Medicine, University of Saskatchewan. Jane studied avian cholera outbreaks in Common Eiders in the eastern Canadian Arctic and how these outbreaks affect subsistence hunters in Nunavut and Greenland.

### Lorraine Allison Scholarship – \$3,000

Ann Balasubramaniam, a doctoral candidate in the Biology Department at the University of Waterloo, was the 2012 recipient of the Lorraine Allison Memorial Scholarship. Ann is researching the linkages among climate, hydrology, and limnology in thermokarst lakes of Old Crow Flats, northern Yukon.

## Jim Bourque Scholarship – \$1,000

Baillie Redfern, a member of the Painted Feather Woodland Métis Tribe, was selected as the 2012 recipient of the Jim Bourque Scholarship. Baillie is a Master's student in the Genome Science & Technology Program, University of British Columbia, Vancouver, British Columbia, and is currently working in the field of medicinal plant genomics. Baillie hopes to develop a career in public policy and outreach programs related to Aboriginal concerns.

## Grant-in-Aid Program

**T**HE GRANT-IN-AID PROGRAM IS A JOINT CANADA-U.S. endeavour that provides funds to young investigators starting their careers in northern research. A binational committee administers the program, and funding comes entirely from member donations.

Of the 28 students who applied for a Grant-in-Aid award in 2012, 10 received awards of \$1000 to assist with the costs of conducting northern research. The successful candidates for 2012 were Sean Desjardins, McGill University; Edward Dunn; Simon Filhol, International Arctic Research Center, University of Alaska Fairbanks; Joanne Heslop, University of Nevada, Reno; Amanda Koltz, Duke University; Veronica Lech, Memorial University; Jennie McLaren, University of British Columbia; Jennifer Provencher, Carleton University; Heidi Tomes, University of Toronto; and Scott Williamson, University of Alberta.

The members of the Grant-in-Aid Selection Committee for 2012 were Mark Johnson, Matthew Sturm, Thomas Newbury, Peter Johnson, and Stephen Braund.

## Research Associates

**A**RTIC RESEARCH INVOLVES AREAS OF EXPERTISE not encompassed by any one discipline or department. This is reflected in the Institute's research associates—a diverse group of individuals whose work is advancing the study of the North and the mission of the Arctic Institute. Their interests cover a wide range of disciplines in the natural, physical, and social sciences, as well as the humanities and fine arts.

- **Don Albright**, Biology
- **Thomas D. Andrews**, Archaeology and Museology
- **Charles Arnold**, Archaeology and Museology
- **William Barr**, Geography and History
- **Margaret Bertulli**, Archaeology
- **Ellen Bielawski**, Anthropology
- **Lloyd Binder**, Economic Development
- **Jean Blodgett**, Art
- **Alexander Braun**, Geodesy
- **Dave Button**, Education
- **Garry Clarke**, Glaciology
- **Helen Corbett**, Film and Journalism
- **Peter Dawson**, Archaeology
- **Ken de la Barre**, Human Geography
- **Mark Dickerson**, Political Science
- **Jon Dudley**, Earth Science Outreach, Geology, Canadian Arctic Culture
- **Jeff Gilmour**, Law



- **John Graham**, Social Work
- **Norman Hallendy**, Ethnohistory
- **Alexander Hill**, History
- **Gerald Holdsworth**, Glaciology
- **Gunhild Hoogensen**, Political Science
- **Robert Huebert**, Political Science
- **Martha Johnson**, Anthropology
- **Peter Johnson**, Geography
- **Kenneth Jones**, Geology, Geography, Archaeology, History
- **Karim-Aly Kassam**, Arctic Social Science
- **Barbara Kingscote**, Veterinary Medicine
- **Heidi Klein**, Environmental Planning
- **Susan Kutz**, Veterinary Medicine
- **P. Whitney Lackenbauer**, History
- **Line Laplante**, Spirituality and the Environment
- **Nic Larter**, Zoology
- **Allice Legat**, Anthropology
- **David Lertzman**, Aboriginal Studies
- **Robert MacDonald**, History
- **Sean Maher**, Anthropology
- **Constance Martin**, Art History
- **Arthur Mason**, History, Politics and Culture
- **Robert McPherson**, Geology and History
- **Frank Miller**, Wildlife Biology
- **Magdalena Muir**, Law, Environment and Resource Management
- **Dave Norton**, Ecology
- **Marc Poulin**, Medicine and Kinesiology
- **Martin Raillard**, Arctic Ecology
- **William Semple**, Northern Housing
- **Alan Smart**, Anthropology
- **Jane Sproull Thomson**, Inuit Art and Culture, Heritage Planning
- **Mary Stapleton**, History and Planning
- **Emma J. Stewart**, Geography
- **Wayne Strong**, Forest Ecology
- **Susanne Swibold**, Film and Journalism
- **Darielle Talarico**, Ecotourism
- **Callum Thomson**, Archaeology and Expedition Cruise Tourism
- **Robert van Everdingen**, Hydroecology
- **Wanda Wuttunee**, Native Studies, Law and Management
- **John James Yackel**, Geography
- **Jose Zorrilla**, Interdisciplinary

## Selected Research Publications

- Alix, C., Hare, P.G., **Andrews, T.D.**, and MacKay, G. 2012. A thousand years of lost hunting arrows: Wood analysis of ice patch remains in northwestern Canada. *Arctic* 65 (Suppl. 1):95–117.
- Andrews, T.D.**, and Buggey, S. 2012. Canadian Aboriginal cultural landscapes in praxis. In: Taylor, K., and Lennon, J., eds. *Managing cultural landscapes*. London: Routledge. 253–271.
- Andrews, T.D.**, and MacKay, G. 2012. The archaeology and paleoecology of alpine ice patches: A global perspective. *Arctic* 65(Suppl. 1):iii–vi.
- Andrews, T.D.**, MacKay, G., and Andrew, L. 2012. Archaeological investigations of alpine ice patches in the Selwyn Mountains, Northwest Territories, Canada. *Arctic* 65(Suppl. 1):1–21.
- Andrews, T.D.**, MacKay, G., Andrew, L., Stephenson, W., Barker, A., Alix, C., and the Shúhtagot'ine Elders of Tulita. 2012. Alpine ice patches and Shúhtagot'ine land use in the Mackenzie and Selwyn Mountains, Northwest Territories, Canada. *Arctic* 65(Suppl. 1):22–42.
- Barr, W.** 2012. Rehearsing for the Antarctic: Wilhelm Filchner's practice expedition to Spitsbergen 1910. *Il Polo* 67(1):9–32.
- Bartareau, T.M., **Larter, N.C.**, Cluff, H.D., and Leone, E.H. 2012. Body condition and growth dynamics of American black bears in northern Canada. *Ursus* 23(1):12–20.
- Butler, D.H., and **Dawson, P.C.** 2012. Accessing hunter-gatherer site structures using Fourier transform infrared spectroscopy: Applications at a Taltheilei settlement in the Canadian Sub-Arctic. *Journal of Archaeological Science* 40:1731–1742.
- Ducrocq, J., Beauchamp, G., **Kutz, S.**, Simard, M., Elkin, B., Croft, B., Taillon, J., Côté, S.D., Brodeur, V., Campbell, M., Cooley, D., Cuyler, C., and Lair, S. 2012. Comparison of gross visual and microscopic assessment of four anatomic sites to monitor *Besnoitia tarandi* in barren-ground caribou. *Journal of Wildlife Diseases* 48(3):732–738.
- Dulik, M.C., Owings, A.C., Gaieski, J.B., Vilar, M.G., Andre, A., Lennie, C., Mackenzie, M.A., Kritsch, I., Snowshoe, S., Wright, R., Martin, J., Gibson, N., **Andrews, T.D.**, Schurr, T.G., and the Genographic Consortium. 2012. Y-chromosome analysis of native North Americans reveals new lineages and genetic differentiation between Athapaskan- and Eskimoan-speaking populations. *Proceedings of the National Academy of Sciences* 109(22):8471–8476.
- Forde, T., **Kutz, S.**, De Buck, J., Warren, A., Ruckstuhl, K., Pybus, M., and Orsel, K. 2012. Occurrence, diagnosis, and strain typing of *Mycobacterium avium* subspecies *paratuberculosis* infection in Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) in southwestern Alberta. *Journal of Wildlife Diseases* 48(1):1–11.
- Galloway, J.M., Adamczewski, J., Schock, D.M., **Andrews, T.D.**, MacKay, G., Bowyer, V.E., Meulendyk, T., Moorman, B.J., and **Kutz, S.J.** 2012. Diet and habitat of mountain woodland caribou inferred from dung preserved in 5000-year-old alpine ice in the Selwyn Mountains, Northwest Territories, Canada. *Arctic* 65(Suppl. 1):59–79.
- Gill, J.P.S., and **Yackel, J.J.** 2012. Evaluation of C-band SAR polarimetric parameters for discrimination of first-year sea ice types. *Canadian Journal of Remote Sensing* 38(3):306–323.
- Hoar, B.M., Eberhardt, A.G., and **Kutz, S.J.** 2012. Obligate larval inhibition of *Ostertagia gruehneri* in *Rangifer tarandus*? Causes and consequences in an Arctic system. *Parasitology* 139(10):1339–1345.
- Hoar, B.M., Ruckstuhl, K., and **Kutz, S.** 2012. Development and availability of the free-living stages of *Ostertagia gruehneri*, an abomasal parasite of barren-ground caribou (*Rangifer tarandus groenlandicus*), on the Canadian tundra. *Parasitology* 139(8):1093–1100.
- Hoberg, E.P., Abrams, A., Pilitt, P.A., and **Kutz, S.J.** 2012. Discovery and description of the “*Davtiani*” morphotype for *Teladorsagia boreoarcticus* (Trichostrongyloridae: Ostertagiinae) abomasal parasites in muskoxen, *Ovibos moschatus*, and caribou, *Rangifer tarandus*, from the



North American Arctic: Implications for parasite faunal diversity. *Journal of Parasitology* 98(2):355–364.

Hoberg, E.P., Galbreath, K.E., Cook, J.A., **Kutz, S.J.**, and Polley, L. 2012. Northern host-parasite assemblages: History and biogeography on the borderlands of episodic climate and environmental transition. *Advances in Parasitology* 79:1–97.

Johnston, A., Johnston, M., Dawson, J., and **Stewart, E.** 2012. Challenges of Arctic cruise tourism development in Canada: Perspectives of federal government stakeholders. *Journal of Maritime Law and Commerce* 43(3):335–347.

Johnston, A., Johnston, M.E., **Stewart, E.J.**, Dawson, J., and Lemelin, R.H. 2012. Perspectives of decision makers and regulators on climate change and adaptation in expedition cruise ship tourism in Nunavut. *The Northern Review* 35:69–85.

**Kutz, S.J.**, Ducrocq, J., Verocai, G.G., Hoar, B.M., Colwell, D.D., Beckmen, K.B., Polley, L., Elkin, B.T., and Hoberg, E.P. 2012. Parasites in ungulates of Arctic North America and Greenland: A view of contemporary diversity, ecology, and impact in a world under change. *Advances in Parasitology* 79:99–252.

**Larter, N.C.**, Nagy, J.A., and Bartareau, T.M. 2012. Growth in skull length and width of the Arctic wolf: Comparison of models and ontogeny of sexual size dimorphism. *Arctic* 65(2):207–213.

Lemelin, R.H., Johnston, M.E., Dawson, J., **Stewart, E.J.**, and Mattina C. 2012. From hunting and fishing to cultural tourism and ecotourism: Examining the transitioning tourism industry in Nunavik. *The Polar Journal* 2(1):39–60.

Lemelin, R.H., **Stewart, E.**, and Dawson, J. 2012. An introduction to last chance tourism. In: Lemelin, R.H., Dawson, J., and Stewart, E.J., eds. *Last-chance tourism: Adapting tourism opportunities in a changing world*. Routledge: London. 3–9.

Letts, B., Fulton, T.L., Stiller, M., **Andrews, T.D.**, MacKay, G., Popko, R., and Shapiro, B. 2012. Ancient DNA reveals genetic continuity in mountain woodland caribou of the Mackenzie and Selwyn Mountains, Northwest Territories, Canada. *Arctic* 65(Suppl. 1):80–94.

Meulendyk, T., Moorman, B.J., **Andrews, T.D.**, and MacKay, G. 2012. Morphology and development of ice patches in Northwest Territories, Canada. *Arctic* 65(Suppl. 1):43–58.

Scharien, R.K., **Yackel, J.J.**, Barber, D.G., Asplin, M.G., Gupta, M., and Isleifson, D. 2012. Geophysical controls on C band polarimetric backscatter from melt pond covered Arctic first-year sea ice: Assessment using high-resolution scatterometry. *Journal of Geophysical Research* 117, C00G18, doi:10.1029/2011JC007353.

**Stewart, E.J.** 2012. Review of *Polar tourism: A tool for regional development*, edited by Alain A. Grenier and Dieter K. Müller. *Arctic* 65(3):353–354.

**Stewart, E.**, Dawson, J., and Lemelin, R.H. 2012. The transformation of polar bear viewing tourism in the Hudson Bay region, Canada. In: Lemelin, R.H., Dawson, J., and **Stewart, E.J.**, eds. *Last-chance tourism: Adapting tourism opportunities in a changing world*. Routledge: London. 89–102.



## Financial Report for the Fiscal Year Ended March 31, 2012 (Condensed)

THE INSTITUTE'S FINANCIAL YEAR ENDS ON MARCH 31, and the figures here reflect the latest complete year and comparatives. The information presented in this document is an extract of the financial statements. This summary financial information cannot be expected to provide as comprehensive an understanding of the performance of the Institute as the full financial statements. Financial statements can be obtained by contacting the Institute. The Institute is a wholly owned subsidiary of the University of Calgary. The results of operations and the financial position of the Institute are included in the consolidated financial statements of the University. Funding for general and administrative expenses is received from the Province of Alberta, Department of Advanced Education, through the University. The University has also provided substantial in-kind support.

The Notes and Schedules accompanying these financial statements form part of the statements. To see the Notes and Schedules, please contact the Institute Manager via e-mail at [mmli@ucalgary.ca](mailto:mmli@ucalgary.ca), or by telephone at 403-220-8373.



## Statement of Financial Position as at March 31, 2012

	2012	2011
<b>ASSETS</b>		
Due from University of Calgary	\$505,601	\$860,949
Investments (note 3)	1,159,191	1,164,068
Accounts receivable (note 4)	131,413	168,918
Inventories and prepaid expenses	26,548	23,649
Tangible capital assets (note 5)	2,521,227	2,435,280
	<u>\$4,343,980</u>	<u>\$4,652,864</u>
<b>LIABILITIES</b>		
Accounts payable and accrued charges	\$76,136	\$526,211
Deferred revenue (note 6)	2,794,513	2,568,900
	<u>\$2,870,649</u>	<u>\$3,095,111</u>
<b>NET ASSETS</b>		
Endowments (note 7)	\$456,477	\$456,505
Accumulated surplus (note 8)	1,016,854	1,101,248
	<u>\$1,473,331</u>	<u>\$1,557,753</u>
	<u>\$4,343,980</u>	<u>\$4,652,864</u>

## Statement of Operations as at March 31, 2012

	2012	2011
<b>REVENUE</b>		
University of Calgary and Government grants	\$450,001	\$585,418
Sales of services and products	299,263	343,780
Donations and other grants	157,042	242,824
Investment income (note 11)	31,765	72,790
	<b>\$938,071</b>	<b>\$1,244,812</b>
<b>EXPENSE</b>		
Salaries	\$558,637	\$753,890
Employee benefits	98,268	92,361
Materials, supplies and services	215,049	259,000
Scholarships and bursaries	35,111	38,300
Amortization of capital assets	92,328	13,888
Cost of goods sold	16,927	17,031
Travel and meeting	6,145	40,864
	<b>\$1,022,465</b>	<b>\$1,214,614</b>
<b>Excess/(deficiency) of revenue over expense</b>	<b>\$(84,394)</b>	<b>\$30,198</b>
Change in accumulated surplus	(84,394)	\$30,198
Accumulated surplus, beginning of year	1,101,248	1,071,050
<b>Accumulated surplus, end of year</b>	<b>\$1,016,854</b>	<b>\$1,101,248</b>



## Statement of Cash Flows as at March 31, 2012

	2012	2011
<b>OPERATING TRANSACTIONS</b>		
Excess (deficiency)/of revenue over expense	\$(84,394)	\$30,198
Add (deduct) non-cash items:		
Amortization of tangible capital assets	92,328	13,168
Amortization of deferred capital contributions	(89,649)	(7,313)
Gain (loss) on unrealized non-endowed investments	3,463	(51,754)
Total non-cash items	6,142	(45,899)
Net change in non-cash working capital	(304,603)	(782,513)
<b>Cash provided by (applied to) operating transactions</b>	<b>(382,854)</b>	<b>(798,214)</b>
<b>CAPITAL TRANSACTIONS</b>		
Acquisition of tangible capital assets	(178,275)	(1,821,946)
<b>Cash provided by (applied to) capital transactions</b>	<b>(178,275)</b>	<b>(1,821,946)</b>
<b>INVESTING TRANSACTIONS</b>		
Proceeds from (purchase of) long-term investments, net	(779)	(3,732)
Endowment investment income	9,281	6,756
<b>Cash provided by (applied to) investing transactions</b>	<b>8,502</b>	<b>3,024</b>
<b>FINANCING TRANSACTIONS</b>		
Endowment contributions	779	3,732
Capital contributions	196,500	1,768,605
<b>Cash provided by (applied to) financing transactions</b>	<b>197,279</b>	<b>1,772,337</b>
<b>Increase (decrease) in cash and cash equivalents</b>	<b>(355,348)</b>	<b>(844,799)</b>
<b>Due from University of Calgary, beginning of year</b>	<b>860,949</b>	<b>1,705,748</b>
<b>Due from University of Calgary, end of year</b>	<b>\$505,601</b>	<b>\$860,949</b>



## Financial Support

FINANCIAL SUPPORT FOR THE PROGRAMS OF THE ARCTIC INSTITUTE, Canadian Corporation, during 2012, was provided by the Government of Canada, the Government of Alberta, the University of Calgary, the University of Alaska, over 1000 members and subscribers, and the following corporate associates and sponsors:

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