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PolArctic LLC and C-CORE Develop First Artificial Intelligence-Indigenous Knowledge Model to Complete Nunavut Marine Resources Assessment

Nunavut, Canada – PolArctic LLC and C-CORE announced the completion of the Commercial Inshore Fishery Potential (CIFP) Project, which resulted in the successful development of the first artificial intelligence model to integrate indigenous knowledge, scientific data, and remote sensing techniques to assess potential inshore fishery locations for the Arctic community of Sanikiluaq in Nunavut, Canada.

Funding and support for the project came from the Nunavut Fishery Association (NFA), Qikiqtaaluk Corporation (QC), and the World Wildlife Fund Canada (WWF-Canada).

The CIFP project integrated data from community interviews completed for the Government of Nunavut (GN's) Coastal Resource Inventory (CRI) project, oceanographic information, and remote sensing to identify coastal sites likely to contain higher concentrations of scallops, clams, and seaweeds in the vicinity of Sanikiluaq.

The resulting product provides easily-communicable information about potential site locations that will inform future potential sustainable inshore fisheries development, and infrastructure planning, including the location of processing plants, water and sewage lines, shipping routes, and protected habitat areas.

Because the data sources types used are not specific to this area, and similar CRI interviews were conducted across most communities, the results of this program can be replicated across Nunavut. As observations on locations and features are continually integrated within the model, its capabilities will only continue to improve.

With the successful completion of the pilot, planning is in the works between the organization on continuing, and expanding this project in the near future.

“As an Alaska Native owned business we understand how much value is in traditional knowledge, and the responsibility to protect this resource. It was a pleasure to work with the study team, and develop an AI model that directly integrates local understanding of the environment to support sustainable development.”

Leslie Canavera, CEO
PolArctic LLC

“The CIFP project was the ideal opportunity to bring together remote sensing technology, fish habitat science, and AI to address current challenges. We look forward to the use of science driven data and community knowledge to assess and unlock the economic potential of remote fishery locations.”

Paul Adlakha, P.Eng.
Managing Director, LOOKNorth

“The COVID-19 pandemic had a direct impact on the ability to conduct in-community research over the last two years. This project illustrates the potential to utilize remote sensing in combination with local indigenous knowledge, as a non-invasive way to provide important information to inshore communities in Nunavut on potential areas of interest for resource assessment”.

Brian Burke
Executive Director, Nunavut Fisheries Association

“Using remote sensing technology complements the work being done by QC on its new inshore fishery research vessel the RV Ludy Pudluk for inshore resource assessment. The model developed in Sanikiluaq is transferable to other Nunavut communities”, states Harry Flaherty President & CEO of Qikiqtaaluk Corporation.

“Sustainable, community-based commercial fisheries are an essential part of the future economy for communities like Sanikiluaq. By using new and innovative solutions like machine learning and remote sensing, and the immense knowledge of local harvesters, we can build a new and better model for fisheries management.”

Doug Chiasson
Senior Specialist, Marine Ecosystems, WWF-Canada

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About Nunavut Fishery Association

NFA is a not-for-profit corporation established to present a united voice for Nunavut’s commercial fishing industry to stakeholders and the public at the territorial and federal levels. NFA also supports fisheries and ecosystem science and research activities in the Eastern Arctic, working collaboratively with stakeholders and conducting its own annual research program, all in support of sustainable fisheries development in the north.

The current membership of NFA consists of four Inuit owned companies which hold 100% of the commercial allocations of Greenland halibut (turbot) and shrimp managed through the Nunavut Wildlife Management Board. These companies are: Arctic Fishery Alliance (AFA), Baffin Fisheries (BF), Pangnirtung Fisheries/Cumberland Sound Fisheries Partnership (PFL/CSFL), and Qikiqtaaluk Corporation (QC). All companies are owned by the HTOs, communities, and/or Inuit of the Qikiqtani region of Nunavut.

About Qikiqtaaluk Corporation

Qikiqtaaluk Corporation (QC) is a 100% Inuit-owned birthright development corporation established in 1983 by the Qikiqtani Inuit Association (QIA), its sole shareholder. QC is the for-profit business development arm of the QIA with the goal of improving the social and economic well-being of Nunavut and the 15,000 Qikiqtani Inuit we represent by investing in and creating strategic business opportunities.

About WWF-Canada

World Wildlife Fund Canada is Canada's largest international conservation organization. Guided by the best scientific analysis and Indigenous knowledge, we work to conserve species at risk, protect threatened habitats, and address climate change. Our long-term vision is simple: to create a world where nature and people thrive.

About C-CORE

Since 1975 C-CORE has provided research-based advisory services and technology solutions to mitigate operational risk and help clients improve safety, efficiency and cost-effectiveness in remote or challenging environments worldwide. We also address security, sustainability and safety issues for clients in the resource development, transportation and aerospace/defense sectors.

C-CORE's three closely integrated areas of technical expertise – **ice engineering**, **geotechnical engineering** and **remote sensing** (both applications and systems development) – work together to address specific challenges. With a staff of 75+ scientists, engineers and other professionals, we bring scientific rigor and business discipline to bear on real-world problems.

Headquartered in St John's NL, with offices in Ottawa ON and Halifax NS, C-CORE maintains a collaborative relationship with Memorial University, with access to its extensive facilities, diverse academic expertise and \$120 million research portfolio. We are also home to **LOOKNorth**, a Canadian national Centre of Excellence for Commercialization and Research dedicated to remote sensing innovation that supports responsible, sustainable resource development.

About PolArctic

PolArctic is an Alaska Native, woman, and disabled veteran-owned small business working to solve critical environmental challenges impacting the Arctic community. PolArctic is an oceanographic and data science company with an interest in supporting scientific research, planning, and sustainable development in the Arctic. Using Artificial Intelligence (AI) and

Machine Learning (ML) techniques PolArctic creates a range of data-driven products tailored to meet the needs of environmental science, arctic policy, and resource development initiatives within the Arctic. These solutions aim to meet the developing market-demand for quality models, analysis, and data consultation for coastal erosion, tides, ice flow patterns, surf zones, and other unique physical phenomena inherent to the Arctic Ocean region.

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