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ECCC File: 6100 000 179/001
NIRB File: 17SN034

August 21, 2020

Via email to: info@nirb.ca

Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

RE: 17SN034- Nunavut Impact Review Board – Strategic Environmental Assessment in Baffin Bay and Davis Strait

In response to your request of March 23, 2020 for comments on the recommendations in the Strategic Environmental Assessment (SEA) in Baffin Bay and Davis Strait, Environment and Climate Change Canada (ECCC) is providing an overview of some of the current activities that the department is undertaking in the area of sea ice, migratory birds, climate change in relation to the SEA in Baffin Bay and Davis Strait.

ECCC's mandate covers matters such as the preservation and enhancement of the quality of the natural environment including water, air and soil quality, and the coordination of the relevant policies and programs of the Government of Canada; renewable resource, including migratory birds and other non-domestic flora and fauna; meteorology, and the enforcement of rules and regulations. ECCC's specialist advice is provided in the context of the *Canadian Environmental Protection Act* (CEPA), the pollution prevention provisions of the *Fisheries Act* (FA), the *Species at Risk Act* (SARA), and the *Migratory Birds Convention Act* (MBCA).

ECCC participated in the SEA by providing input, expert advice and documentation covered by our mandate, including specific research.

Sea Ice:

The Canadian Ice Service (CIS), a division of the Meteorological Service of Canada, is currently updating baseline research on sea ice conditions (sea ice climatology) based on data from 1991 to 2020. Updated studies of the sea ice climatology will encompass the Baffin Bay and Davis Strait area, and the updated sea ice climatology (which includes seasonal summaries, an annual Arctic Ice Atlas, a 30-year ice atlas, and ice coverage records) is tentatively scheduled for publication in March of 2021. This publication may be used as a tool to evaluate sea ice incursion risks and ice-free date projections in Baffin Bay.

Migratory Birds:

ECCC updated the inventory of critical waterbird sites in Nunavut, and a report was published in 2018. In addition, ECCC has used existing survey data to create maps of migratory birds in the Baffin Bay/Davis Strait region which provide seasonal information on how these species use the Baffin Bay/Davis Strait region. The mapping can provide an indication of how birds may interact with routine oil and gas activities, or may be affected by changes in habitat. While seasonal surveys are still required to describe inter-annual variation, but the mapping supports existing baseline survey work in the region. The report on this work, titled "Predicting offshore distribution of seabirds in Baffin Bay and Davis Strait to inform risks from potential offshore oil and gas exploration, development, and production" has not yet been published, but summaries have been delivered to communities in the Baffin Bay/Davis Strait region.

In 2018, ECCC researchers, in coordination with hunters from local communities, including Qikiqtarjuaq, collected samples of four seabird species to examine oil-related contaminants in the tissues of the birds, and specifically those located in and around the two National Wildlife Areas in the region that ECCC co-manages with the community of Qikiqtarjuaq. The published results of the field work report baseline levels of oil-related contaminants in the birds (Provencher et al. 2020, STOTEN). These contaminants include pollution from natural sources and burned sources of oil. Two additional papers are being prepared for publication in 2021 that examine the biological effects of these levels of contaminants on the species

Expert workshops, which will include ECCC researchers as well as northern land managers that have been involved in the Baffin Bay/Davis Strait SEA, are planned for fiscal year 2020/21. These workshops will document the different stressors to northern fulmars (a bird species in the Baffin Bay/Davis Strait region) using cognitive mapping. This mapping method will allow for respectful inclusion of different knowledge systems.

Climate Change:

The Climate Research Division (CRD) at ECCC conducts research related to greenhouse gas observations, climate processes and cryosphere research, attribution and detection of climate trends and variability, development of earth system models for global and regional climate projections, and climate impact studies.

CRD's research is applied to make quantitative predictions/projections to support adaptation and mitigation decision making. Some of the recent publications that may be of interest to this particular strategic assessment include:

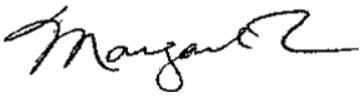
- "Canadian Environmental Sustainability Indicators (CESI)" on sea ice extent and trends as an indicator of climate changes (2019 publication) https://www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/sea-ice/2019/SeaIce-EN.pdf
- "Canada's Changing Climate Report (2019)" provides an assessment of observed and projected future changes in Canadian Climate (https://changingclimate.ca/CCCR2019/).

- Howell, S.E.L., D. Small, C. Rohner, M.S. Mahmud, J.J. Yackel and M. Brady (2019), "Estimating melt onset over Arctic sea ice from time series multi-sensor Sentinel-1 and RADARSAT-2 backscatter" (Remote Sensing of Environment, August 2019).
- Laliberté, F., S.E.L. Howell, J-F. Lemieux, F. Dupont and J. Lei (2018), "What historical landfast ice observations tell us about projected ice conditions in Arctic Archipelagoes and marginal seas under anthropogenic forcing" (The Cryosphere, 12, 3577-3588, https://tc.copernicus.org/articles/12/3577/2018/).
- Casas-Prat, M. and Wang, X. 2020. "Projections of extreme ocean waves in the Arctic and potential implications for coastal inundation and erosion". JGR: Oceans https://doi.org/10.1029/2019JC015745
- Casas-Prat M and Wang XL "Sea-ice retreat contributes to projected increases in extreme Arctic ocean surface waves", Geophysical Research Letters. https://doi.org/10.1029/2020GL088100
- Howell, S.E.L., and M. Brady (2019), "The dynamic response of sea ice to warming in the Canadian Arctic Archipelago". Geophysical Research Letters, 46. https://doi.org/10.1029/2019GL085116

ECCC continues to be engaged in research and activities referenced in the SEA, and has a number of CIRNAC funded research projects related to the above topics. These were highlighted in CIRNAC's letter of July 2, 2020 to NIRB in their response to the SEA in Baffin Bay and Davis Strait.

ECCC thanks the Nunavut Impact Review Board for the opportunity to review and comment on the report.

Sincerely



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