

A systematic review of indicators and methods used to assess coastal to offshore marine ecosystems in the eastern Canadian Arctic

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ABSTRACT

Bilous, M., Wight, K., Galappaththi, E.K., and Dunmall, K.M. 2026. A systematic review of indicators and methods used to assess coastal to offshore marine ecosystems in the eastern Canadian Arctic. *Can. Tech. Rep. Fish. Aquat. Sci.* 3786: vii + 81 p.

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The ongoing impact of anthropogenic change in the Canadian Arctic necessitates coordination and collaboration in ecological research to better understand and manage these ecosystems going forward. We systematically reviewed available literature on marine research in the eastern Canadian Arctic from 1965 to 2021 to identify common indicators and methods across coastal and offshore areas. Most abundant in our review were indicators concerning trophic webs and biological organisms, followed by indicators concerning the physical and chemical environment, and finally indicators addressing anthropogenic stressors and threats. Shore-based coastal studies (i.e., from shore-launched boats or depths < 20 m) were the most common in our sample, and were primarily focused on sea ice, biological indicators, and contaminants. Significant differences were observed in both indicator inclusion and method use across coastal and offshore study locations. Differences in data collection and spatial coverage highlight areas to focus future effort, and also potential for coordination among coastal and offshore programs. Overall, this review identifies opportunities to link coastal and offshore research programs through common research methods and ecological indicators, thereby facilitating improved connectivity and coordination of ecological research in the eastern Canadian Arctic. This report provides a solid example of how to approach a systematic review assessing key components of sampling coverage in support of decision making related to data gaps and priority areas.

RÉSUMÉ

Bilous, M., Wight, K., Galappaththi, E.K., and Dunmall, K.M. 2026. A systematic review of indicators and methods used to assess coastal to offshore marine ecosystems in the eastern Canadian Arctic. Can. Tech. Rep. Fish. Aquat. Sci. 3786: vii + 81 p.

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L'impact continu des changements anthropiques dans l'Arctique canadien nécessite une coordination et une collaboration en matière de recherche écologique afin d'améliorer notre compréhension et notre gestion de ces écosystèmes. Nous avons systématiquement examiné la documentation disponible sur la recherche marine dans l'est de l'Arctique canadien de 1965 à 2021 afin de déterminer des méthodes et des indicateurs communs dans les zones côtières et extracôtières. Les indicateurs les plus abondants dans notre examen étaient ceux concernant les réseaux trophiques et les organismes biologiques, suivis des indicateurs concernant l'environnement physique et chimique, et enfin ceux traitant des facteurs de stress et des menaces anthropiques. Les études côtières basées à terre (c.-à-d. à partir de bateaux déployés depuis le rivage ou à des profondeurs inférieures à 20 m) étaient les plus courantes dans notre échantillon et étaient principalement axées sur la glace de mer, les indicateurs biologiques et les contaminants. Des différences importantes ont été observées à la fois dans l'inclusion des indicateurs et dans l'utilisation de la méthode entre les zones d'étude côtières et extracôtières. Les différences dans la collecte des données et la couverture spatiale mettent en évidence les zones à cibler pour les efforts futurs, ainsi que le potentiel de coordination entre les programmes côtiers et extracôtiers. Dans l'ensemble, cet examen permet de déterminer les possibilités d'établir un lien entre les programmes de recherche côtiers et extracôtiers au moyen de méthodes de recherche et d'indicateurs écologiques communs, ce qui facilitera l'amélioration de la connectivité et de la coordination de la recherche écologique dans l'est de l'Arctique canadien. Le présent rapport fournit un exemple solide de la façon d'aborder un examen systématique de l'évaluation des principales composantes de la couverture de l'échantillonnage à l'appui de la prise de décisions concernant les lacunes dans les données et les domaines prioritaires.

INTRODUCTION

The impacts of climate change are not being experienced uniformly across the Canadian Arctic due to the extensive variation present across its massive 4 million km² expanse (Wassman et al. 2011; Niemi et al. 2019). In the eastern Canadian Arctic, vastly different geographic features are present including a semi-enclosed sea (Hudson Bay and connected areas, termed Hudson Bay Complex), a relatively small deep basin (Baffin Bay), highly productive polynyas, and the Canadian Archipelago, a shallow network of passages, sills, and narrow straits (Niemi et al. 2019). The majority of the strong tidal currents are also in the eastern side of the Canadian Arctic (Niemi et al. 2019). Data suggest marginally significant patterns of warming (Baffin Bay and Hudson Bay areas) and salinity changes (Baffin Bay area), though the lack of long-term oceanographic datasets in these areas preclude identification of significant trends and climate change impacts (Steiner et al. 2015). Climate change has also resulted in snow cover and sea ice reductions, with the largest declines from 1981-2015 observed in the eastern Canadian Arctic, the Canadian Archipelago, and Hudson Bay (Mudryk et al. 2018). This reduction in sea ice and the associated extension of the open water period can contribute to several related changes including an increase in wave heights and subsequent coastal erosion, and reduced surface layer salinity (ACIA 2004; Steiner et al. 2015). Reduced sea ice also leads to earlier and more prevalent phytoplankton blooms (Mundy et al. 2014), with cascading effects through the food chain (summarized in Niemi et al. 2019), and potential negative impacts to the productivity of the polynyas (i.e., *Pikialasorsuaq*) (Blais et al. 2017; Marchese et al. 2017). Climate change is also shifting biodiversity with the increased appearance of subarctic species further northward in the eastern Canadian Arctic (e.g., killer whale *Orcinus orca*, Higdon et al. 2013; salmon, Bilous and Dunmall 2020, McNicholl et al. 2021), as well as shifts in prey species (e.g., to capelin *Mallotus villosus*, Ulrich 2013) and energy sources for marine prey and predators (Yurkowski et al. 2018). Changes to coastal sea ice location and quality are also impacting traditional routes and access to hunting sites, and shifts in break up and freeze up timing are altering subsistence harvest activities (Government of Nunavut 2012, 2015, unpublished data, as summarized in Niemi et al. 2019). For Inuit, the cumulative impact of these changes threatens food security and culture (Huntington et al. 2022).

The need to monitor a rapidly changing Arctic and predict future scenarios to facilitate adaptation is precariously balanced by incomplete baseline understandings and underlying natural variability (Wassman et al. 2011; Niemi et al. 2019). Therefore, a coordinated approach to monitoring is needed that focuses on key indicators (e.g., Conservation of Arctic Flora and Fauna (CAFF) Arctic Marine Biodiversity Monitoring Plan, Gill et al. 2011) such as groups of ecologically-related coastal species called focal ecosystem components (FECs), and the environmental drivers and anthropogenic stressors that impact these FECs (CAFF Arctic Coastal Biodiversity Monitoring Plan, Jones et al. 2019). Complementing a similar review focused on the western Canadian Arctic (Bilous & Wight et al. 2024), here we collected and analyzed available published literature concerning marine ecological research in the eastern Canadian Arctic. Our analysis focused on important research subjects (indicators or FECs) and the methods used to study these indicators. Through this process, we built a dataset to facilitate identification of common approaches and the linking of indicators with methods across coastal and offshore ecosystems. Through compiling and analyzing the literature, our objectives are 1) to document the methods and indicators that are used for marine research in the eastern Canadian Arctic, with

a focus on identifying commonalities and patterns, and 2) to find links between coastal and offshore research with regards to methodologies and indicators studied. This analysis of the literature is intended to contribute to existing research programs, improve knowledge of linkages between coastal and offshore research, and facilitate improved coordination across existing and future monitoring programs.

METHODS

Systematic review

Through conducting a systematic review of published literature, characterized by a thorough and rigorous review methodology with explicit search terms and data collection criteria, we investigated indicators and the methods used to study them in ecological research in the eastern Canadian Arctic. We have previously defined the longitudinal boundary between the eastern and western Canadian Arctic as the Boothia Peninsula and the Somerset, Devon, and Axel Heiberg Islands (Bilous & Wight et al. 2024). The southern border of the eastern Canadian Arctic was informed by the Arctic region of Fisheries and Oceans Canada (DFO), which includes Nunatsiavut and broadly encompasses Inuit Nunangat, though we also chose to include all of the Hudson Bay complex (Figs. 1-2). The search terms (Appendix 1, 2, 3) and coding questions (Appendix 4) used were based on indicators outlined in Ehrman et al. (2022). Indicators are defined here as ecosystem components that show measurable responses to environmental and anthropogenic changes, which can then be used to assess the state of conservation objectives (Ehrman et al. 2022). Ehrman et al. (2022) grouped the indicators into categories of (1) indicators that provide environmental context, (2) indicators of biological and food web integrity, and (3) indicators of anthropogenic stressors and threats. These indicators were originally developed for the Anguniaqvia Niqiqyuam Marine Protected Area (ANMPA) in the western Canadian Arctic but were maintained in this review to better facilitate comparisons between different ecosystem components, their differing drivers of change, and also among regions across the Canadian Arctic. Ecological overviews in the eastern Canadian Arctic (e.g., Hornby et al. 2021) have identified similar parameters as being important for assessing ecosystem health.

In a companion review focused on the western Canadian Arctic (Bilous & Wight et al. 2024) we searched Web of Science and the Fisheries and Oceans Collection on the Federal Science Libraries Network, to obtain peer-reviewed literature relevant to our research objectives including scientific articles and reports, technical reports, and research reports (Appendix 1, 2). For this current review, we performed a second Web of Science search to update our sample of papers (final search on January 17th, 2022) and a search of the Scopus database using the search string in Appendix 3 (final search on February 7th, 2022). While the search terms remained the same across all databases, minor modifications were made to the search string to account for different syntaxes across search engines.

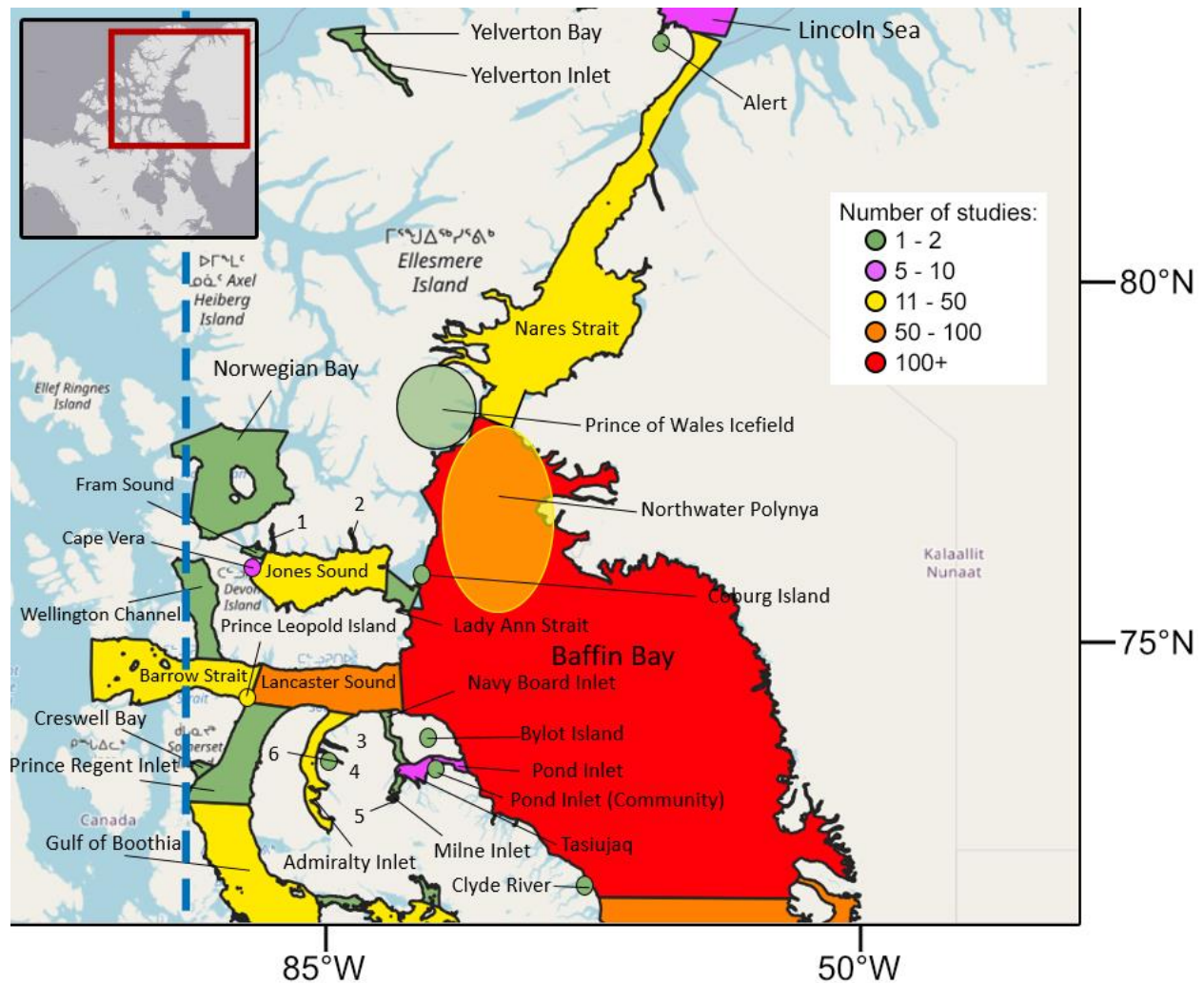


Figure 1. Heatmap of the number of published papers in the 128 study areas identified in our sample during coding. Marine areas are outlined with distinct shapes; non-marine areas (specific communities, islands, etc) are marked with dots. Blue areas indicate no studies. The western boundary of the eastern Canadian Arctic as defined in this review is marked by a dotted blue line. Features that were too small to include by name are labelled with numbers as: 1: Goose Fiord ($n = 2$); 2: Grise Fiord ($n = 12$); 3: Strathcona Inlet ($n = 1$); 4: Adams Sound ($n = 11$); 5: Koluktoo Bay ($n = 4$), 6: Arctic Bay ($n = 2$). Created in QGIS.

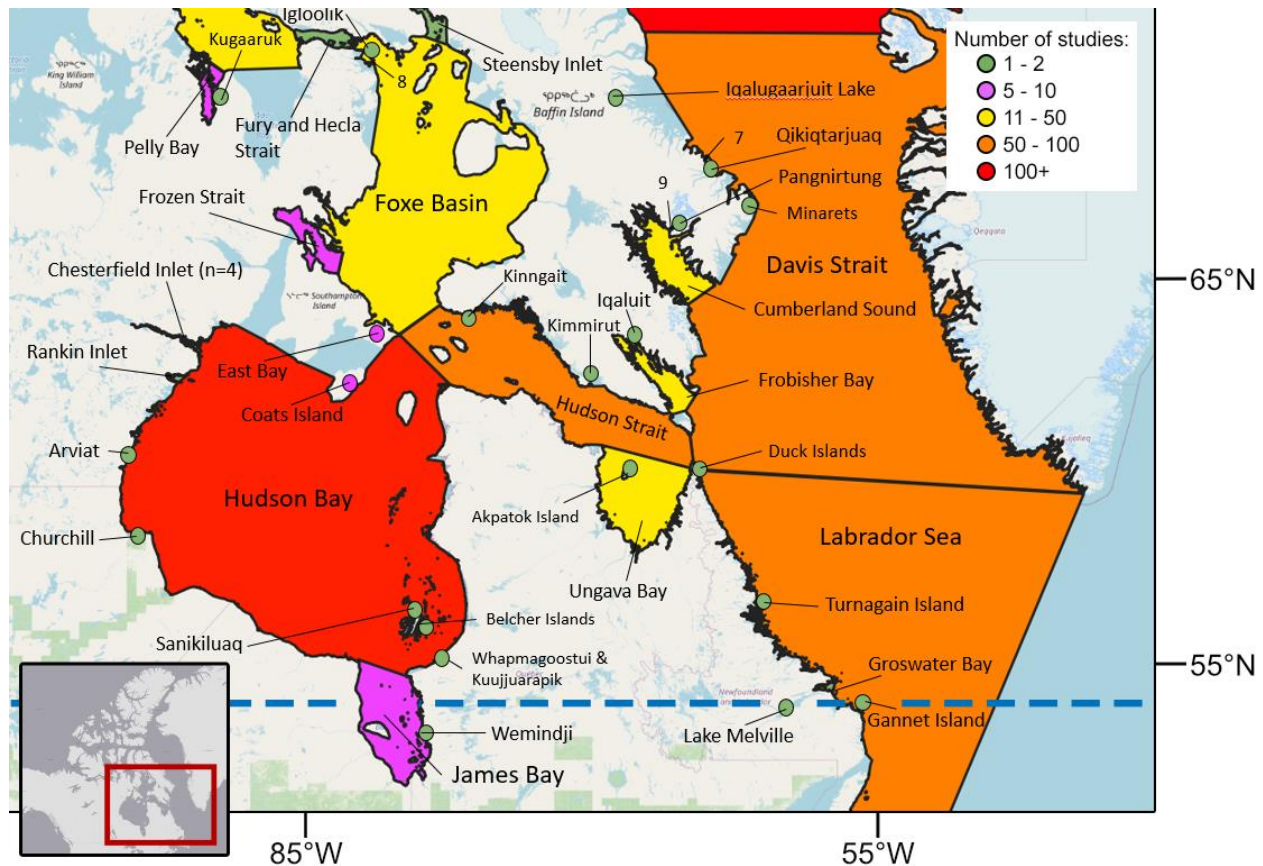


Figure 2. Heatmap of the number of papers that took place in the 128 study areas identified in our sample during coding. Marine areas are outlined with distinct shapes; non-marine areas (specific communities, islands, etc) are marked with dots. Blue areas indicate no studies. The southern boundary of the eastern Canadian Arctic as defined in this review is marked by a dotted blue line. Features that were too small to include by name are labelled with numbers as: 7: Broughton Channel (n = 1); 8: Ikpiarjuq (n = 8); 9: Pangnirtung Fiord (n = 20). Created in QGIS.

After removal of duplicates, the combined searches returned a sample of 2078 papers, which were then subjected to a series of screenings (Figure 3). Of these papers, 321 had already been screened and coded by M. Bilous and K. Wight in the companion review (Bilous & Wight et al. 2024); these 321 papers were screened for the inclusion criteria in this paper, and 81 were included in the final sample (Figure 3). For the remaining 1757 papers, we conducted an initial screening where we assessed the title and abstract for our inclusion/exclusion criteria (i.e., geographic scope, publication type, ecosystem focus, paper focus, and temporal scope), which were consistent across all papers and identical to those set in Bilous & Wight et al. (2024). We also assessed whether each paper had a methods section or otherwise-named equivalent, so as to extract information on methodology. All papers that did not meet these criteria were excluded. This initial title and abstract screening left 477 papers, which were then assessed on a full-text basis to extract information relevant to our research objectives. This information was coded into a database by M. Bilous. During this coding process, 184 articles were excluded based on our exclusion criteria. The majority of these exclusions were due to geographic scope (n = 46) and publication type (n = 43), followed by ecosystem focus (n = 35), paper focus (n = 28), a lack of

sufficient methods ($n = 26$), and temporal scope ($n = 6$). Across all database searches and screening processes, 374 total papers were included in our final sample (Figure 3); see Appendix 5 for a full list of included papers. Inclusion and exclusion criteria used to assess all papers can be found in Appendix 6.

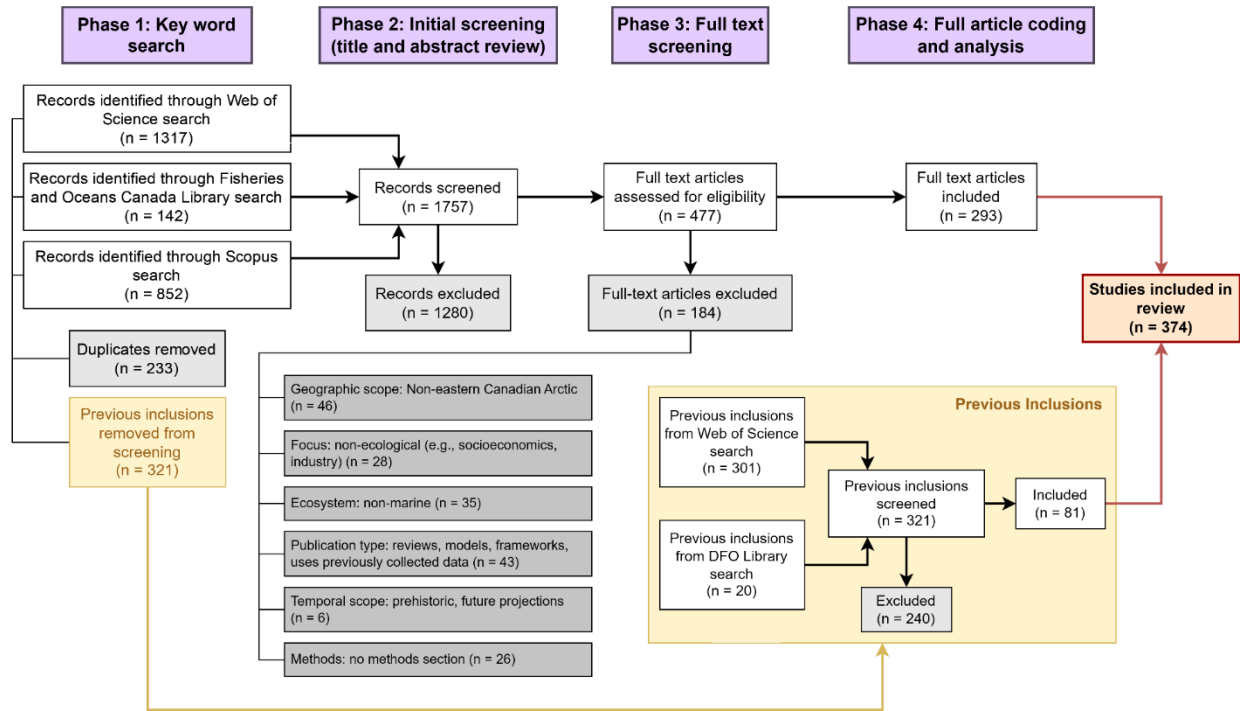


Figure 3. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram.

Throughout the full-text screening process, information pertaining to methods of data collection and the indicators studied was extracted from the 374 final papers using 82 coding questions divided into 6 separate themes: (1) Physical and chemical indicators, (2) Biological indicators, (3) Anthropogenic stressor indicators, (4) Study duration, (5) Methodology, and (6) Coastal vs offshore (see Appendix 4 for theme descriptions and coding questions). We investigated indicators and the parameters associated with these indicators; parameters were defined by Ehrman et al. (2022) as measurements that can be used to detect the status of an indicator, where multiple parameters can be used to assess a single indicator. The coastal vs offshore theme categorized study locations into coastal nearshore, coastal offshore, far offshore, or offshore tender categories, and were defined by vessel size (shore-launched vessels, vessels less than 80', or vessels over 80') or water depth (<20 m, between 21-100 m, and >100 m) at the location of data collection in cases where vessels were not used (Table 1). Where water depth was not provided, it was estimated from the International Bathymetric Chart of the Arctic Ocean (IBCAO). In cases where papers could not be categorized by these definitions ($n = 62$), this was typically due to insufficient location or sampling information within the paper itself, or the use of only satellites for data collection (i.e., satellite use was categorized by scale, not coastal versus offshore sampling location).

Table 1. Research location categories and definitions.

Category	Definition
Coastal nearshore	Studies done onshore, from shore-launched boats or at a depth of less than 20m
Coastal offshore	Studies done from coastal vessels of less than 80' or at depths of 21-100m
Far offshore	Studies done from large oceangoing vessels over 80' long or at depths of over 100m
Coastal nearshore ice	Studies performed through the ice at depths of less than 20m
Coastal offshore ice	Studies performed through the ice at depths between 21-100m
Far offshore ice	Studies performed through the ice at depths greater than 100m
Offshore tender	Studies that utilize a small vessel launched from an offshore ship to access shallower waters (e.g., ships' boats or RHIBs)

Data Analysis

We analyzed the final sample using descriptive statistics and simple correlational tests. Descriptive statistics, computed using Excel (2016), were used to understand and describe patterns in the data and to identify any obvious outliers or incorrect entries during coding. In addition, we performed two-proportion Z-tests and Fisher's exact tests (depending on sample size) in R 4.1.2 to investigate relationships between different categories of data (e.g., determining if different indicators were more commonly studied in coastal or offshore location categories).

We constructed a heatmap in QGIS 3.14 to display the number of papers focused across the various marine areas and communities of the eastern Canadian Arctic (Figs. 1-2). Geographic areas of focus were recorded during coding, and these areas were then located in the Canadian Geographical Names Database (CGNDB), from which the appropriate KML files were downloaded and converted into QGIS shapefiles. This was done for all areas except for the Lincoln Sea, which did not have a corresponding CGNDB file; the shapefile for this area was downloaded from the Marine Regions database. Studies taking place in specific communities, on islands, or at other non-marine locations are marked with dots. All locations and areas were colour-coded according to the number of studies focused on each location (Figs. 1-2). To increase resolution and readability of map features, we divided the map into north and south sections (Figs. 1-2).

RESULTS

Descriptive statistics

Publication year ranged from 1965 to 2021, and 78% of all included papers were published in 2010 or later. Nearly 80% of all papers had lead authors associated with Canadian institutions, with 16 total countries represented in our sample based on lead author affiliation. Academic institutions (based on lead author affiliation) represented 74% of the sample, government institutions represented 21%, and various other institution types (e.g., non-academic research institutes, private companies) represented the rest. Just over half (53%) of all papers were classified as “Regional”, defined as focusing on a broader geographic area within the eastern Canadian Arctic. The remaining papers were classified as “Arctic”, defined as encompassing the eastern Canadian Arctic as well as the western Canadian Arctic or non-Canadian Arctic (33%), or as “Local”, defined as smaller-scale studies only concerning one geographic area or one or several communities (14%). Twenty percent of all papers ($n = 74$) were classified as taking place exclusively in the Hudson Bay complex (comprised of the Hudson Bay, James Bay, Hudson Strait, and Foxe Basin areas), whereas 57% of papers took place in the eastern Canadian Arctic outside of the Hudson Bay complex. Eighty-eight (24%) papers were located in both the Hudson Bay complex and the rest of the eastern Canadian Arctic.

A total of 128 marine and terrestrial (i.e., where marine indicators were studied at terrestrial locations) study areas were included at least once in our sample (Figs. 1-2). The most commonly studied area was the Hudson Bay, followed by Baffin Bay and north Labrador Sea (Figs. 1-2). Also frequently studied were the Davis Strait and other locations in the Hudson Bay Complex, whereas the northern parts of the archipelago were infrequently represented (particularly north of Ellesmere Island) and most of the studies in this area were located in the Lancaster and Jones Sounds. Many papers had multiple study locations, e.g., Galicia et al. (2021) took samples from many areas including Baffin Bay, Jones Sound, and the Hudson Bay Complex (Figs. 1-2). Areas without data in Figs. 1 and 2 (i.e., those in blue) highlight the poor data coverage around Ellesmere Island. The inclusion of non-marine study areas such as coastal communities (e.g., Laforest et al. 2018) and marine bird nesting grounds (e.g., Gaston et al. 2005) was to include community-focused Indigenous knowledge studies and to cover important biological indicators such as polar bears and seabirds in our sample, as these animals are more frequently studied in their terrestrial habitats.

Indicators and methods

Indicators

Over half (55%) of all papers included indicators providing environmental context, 69% collected data on indicators of biological and trophic integrity, and 26% addressed indicators of anthropogenic stressors and threats (Figure 4). Of the papers that measured various oceanographic variables (36%), temperature and salinity were the most commonly included variables (Figure 5). Examples of oceanographic variables in the “other” category included organic carbon and other organic matter, followed by total alkalinity, though these were generally less commonly included than most other core oceanographic parameters. Only three papers

focused on coastal change. Indicators relating to sea ice and snow were more common, included in 24% of all papers (Figure 5). Of the sea ice variables included in the “other” category, movement and velocity of sea ice was most common. Indicators related to bathymetry and benthic habitat were included in 7% of all papers; these were primarily focused on benthic habitat ($n = 24$) rather than bathymetry ($n = 4$) (Figure 5). Marine mammals ($n = 91$) were by far the most commonly studied indicator across papers that focused on biological indicators, followed by trophic interactions ($n = 59$) and then seabirds ($n = 57$) (Figure 6). The specific parameters studied in papers focusing on biological indicators varied, but basic biological and morphometric parameters (e.g., sex, age, length, etc.) were most common, followed by abundance and population data (e.g., biomass, stock assessments, etc.), then contaminant concentrations (Figure 7). Almost all papers that included anthropogenic stressors focused on contaminants (95%) (Figure 8). Nearly half of all papers (48%) included more than one category of indicator.

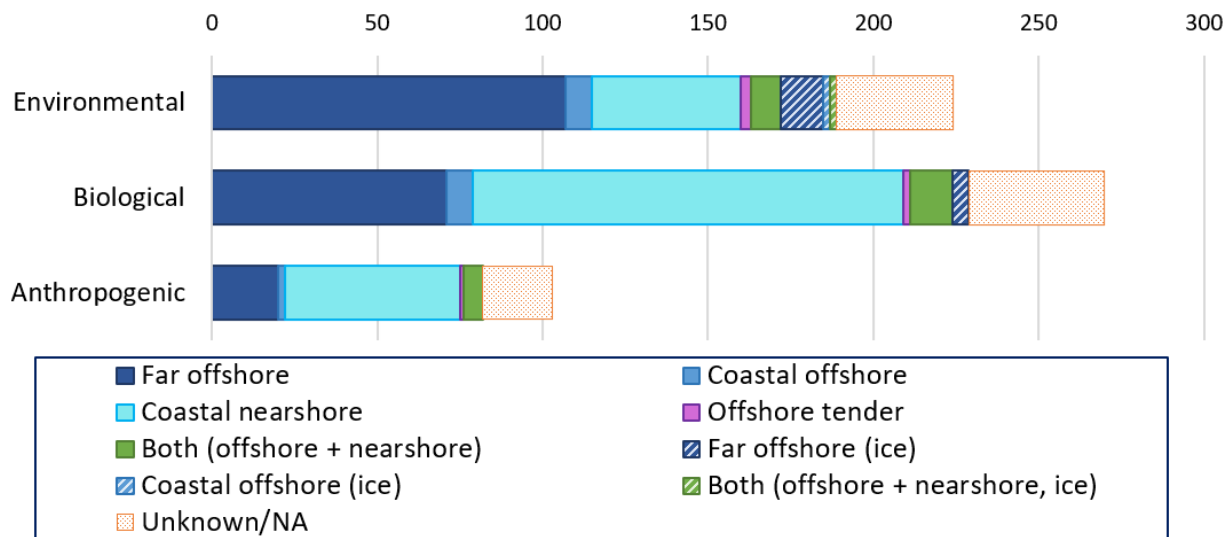


Figure 4. Counts of papers grouped by inclusions of indicator categories (i.e., physical and chemical environmental context, biological and food web integrity, and anthropogenic stressors and threats).

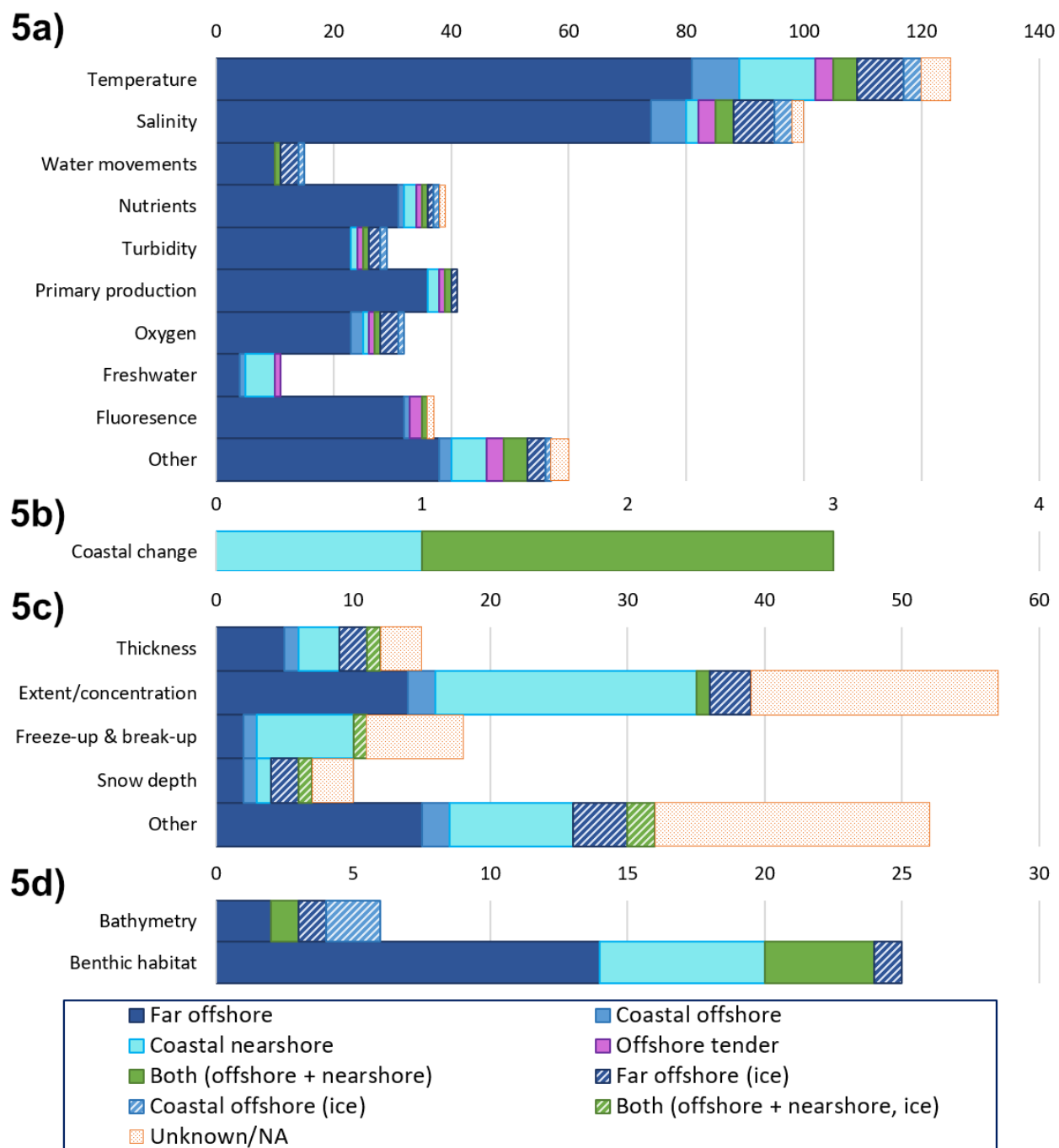


Figure 5. Total count of all papers that include key environmental indicators in four categories: A: Core oceanography (n = 135), B: Coastal change (n = 3), C: Sea-ice and snow (n = 91), D: Bathymetry (n = 28). These are grouped by coastal-offshore sampling location categories.

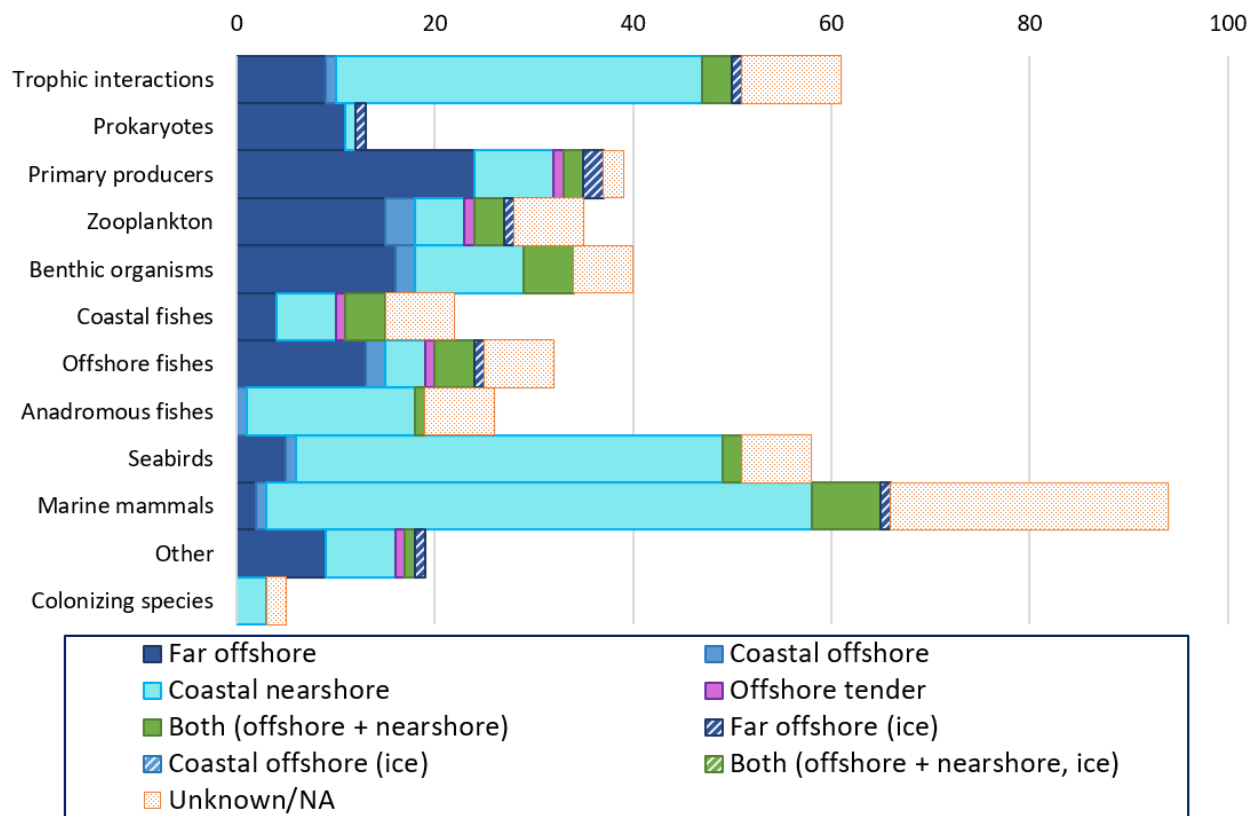


Figure 6. Total count of all papers that include key biological indicators (n = 257), grouped by coastal-offshore sampling location categories.

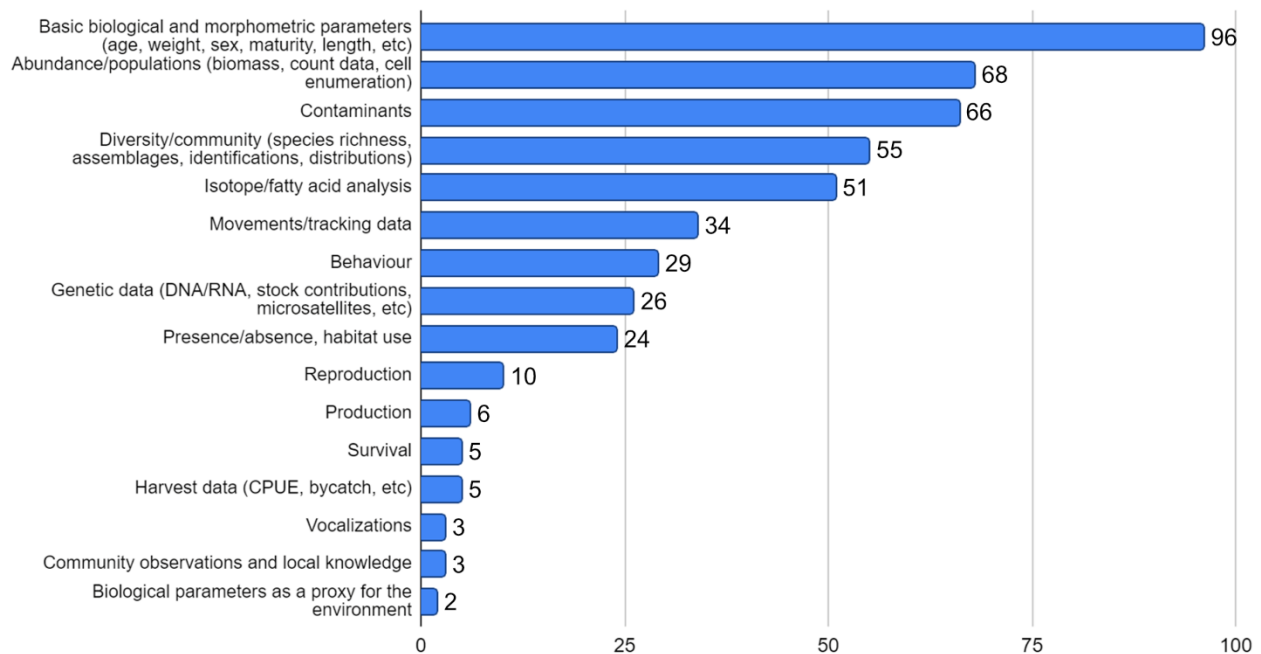


Figure 7. Frequencies that basic biological parameters are investigated in studies that include biological indicators.

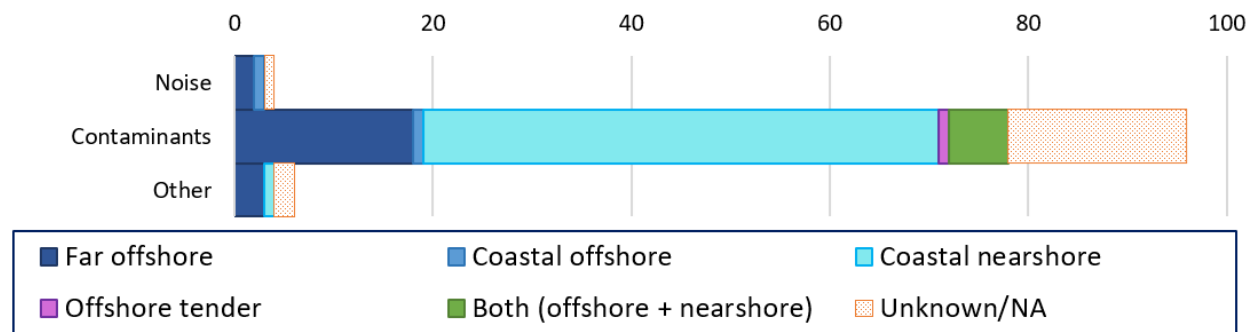


Figure 8. Total count of all papers that include key anthropogenic indicators (n = 97), grouped by coastal-offshore sampling location categories.

Across location categories, far offshore studies were more frequently associated with environmental indicators (n = 107), coastal offshore studies were equally associated with environmental and biological indicators (both n = 8), coastal nearshore studies were highly associated with biological indicators (n = 130), and studies that used offshore tender were not majorly associated with any one of the three broad categories of indicators (environmental, n = 3; biological, n = 2; anthropogenic, n = 1) (Figure 4). Studies that took place in both coastal and offshore location categories were most frequently associated with biological indicators (n = 13) (Figure 4). Studies that occurred at far offshore ice camps were primarily associated with environmental indicators (n = 15), followed by biological indicators (n = 5). Studies at coastal offshore ice camps or those with both coastal and offshore ice-based study locations were focused exclusively on environmental indicators (both n = 2) (Figure 4). No ice-associated studies in exclusively coastal nearshore locations were present in our sample.

Studies exclusive to the Hudson Bay complex were slightly more associated with biological indicators (n = 56), whereas those exclusive to the eastern Canadian Arctic outside of the Hudson Bay complex were equally strongly associated with environmental and biological indicators (both n = 134). There were no studies exclusive to the Hudson Bay complex that focused on offshore fishes, anthropogenic noise, or anthropogenic stressors in the “other” category. No studies in our sample that included colonizing or invasive species occurred exclusively in the eastern Canadian Arctic (outside of the Hudson Bay complex).

Methods

Point sampling using rosette casts, usually including conductivity-temperature-depth (CTD) instruments and other tools for assessing various oceanographic parameters, were the most frequently used method in papers focusing on physical and chemical indicators, followed by satellite data (Figure 9). While many methods designated as “other” were used, the most common were sediment cores (n = 16) and data from the Canadian Ice Service (CIS) (n = 11). Across papers focusing on biological indicators, the most abundant method of sampling was various types of whole body and tissue collections, the most common of these being liver and muscle tissue samples followed by multiple types of netting (e.g., gillnets, trawling and net tows, dredging). Observations and harvest records (both n = 41) were also commonly used methods associated with biological indicators (Figure 9). The vast majority of papers focusing on anthropogenic stressors used data collected from tissue samples (n = 65) (Figure 9).

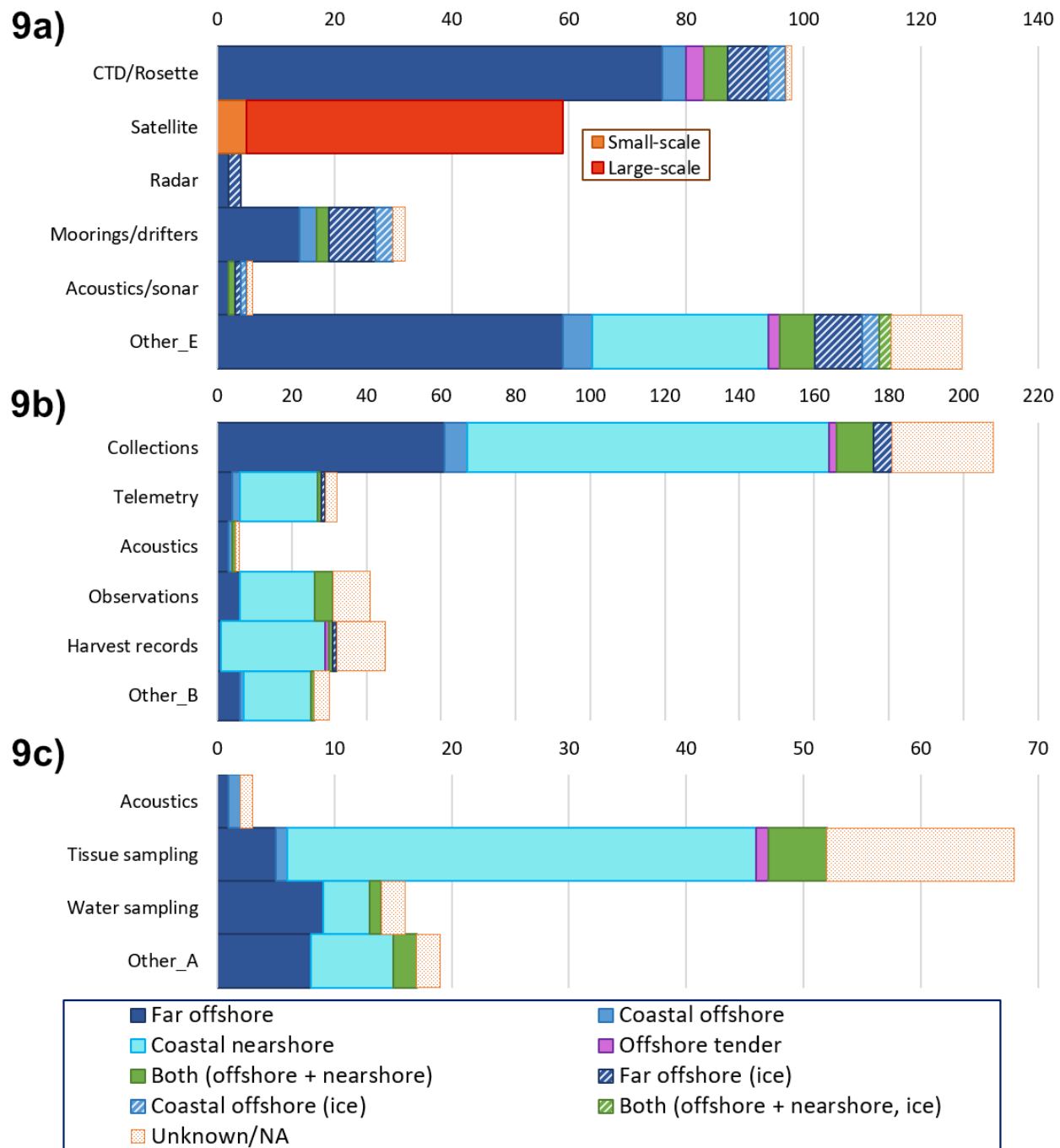


Figure 9. Count of papers grouped by the use of various data collection methods in A: papers focusing on physical and chemical indicators (n = 208), B: papers focusing on biological indicators (n = 257), and C: papers focusing on anthropogenic indicators (n = 97). Satellite use is categorized as large-scale (regional or pan-Arctic) or small-scale (local)

Across location categories, far offshore studies were most commonly associated with CTD profiling and rosette casts (n = 76), followed by biological collections (n = 61). Coastal offshore studies and coastal nearshore studies were most commonly associated with biological collections

(n = 6 and 97, respectively). Studies that occurred in both coastal and offshore locations were most frequently associated with biological collections (n = 10). Ice-associated far offshore studies were associated with moorings and drifters as well as “other” environmental data collection methods (both n = 8). All other location categories did not display a strong association with particular methods.

Study duration

Papers in our sample exhibited a broad range of study durations, ranging from less than one month to over 10 years across all indicator categories (Table 2). Studies lasting 10 years or longer were the most common (23%), whereas studies lasting between six months and one year were least common (5%) (Figure 10). Forty-eight papers could not be categorized by study duration, resulting from either insufficient information (e.g., Hare et al. 2014; Foster et al. 2015) or a complete lack of sampling duration provided in the paper or supplementary files (e.g., Shipley et al. 2017; Stevenard et al. 2021). Papers including physical and chemical indicators (n = 208) and biological indicators (n = 257) most frequently lasted 10 or more years (26% and 22%, respectively), whereas papers including anthropogenic indicators (n = 98) most frequently lasted from 2 to 5 years (16%) (Table 2). While most indicators were associated with a broad range of study durations, there were some exceptions; e.g., papers focusing on anthropogenic noise exclusively had durations over two years, whereas papers including research into turbidity, benthic habitat and bathymetry, and prokaryotes all had durations of five years or less.

Table 2. Distribution of study durations by indicator type. Many papers included multiple indicator types, thus these numbers do not indicate the total paper inclusions.

Indicator type	≤1 month	>1 to <6 months	6 months to <1 year	1 to <2 years	2 to <5 years	5 to <10 years	≥10 years
Environmental	33	22	11	18	32	19	54
Biological	34	15	14	32	43	29	56
Anthropogenic stressors	15	8	6	4	16	11	15

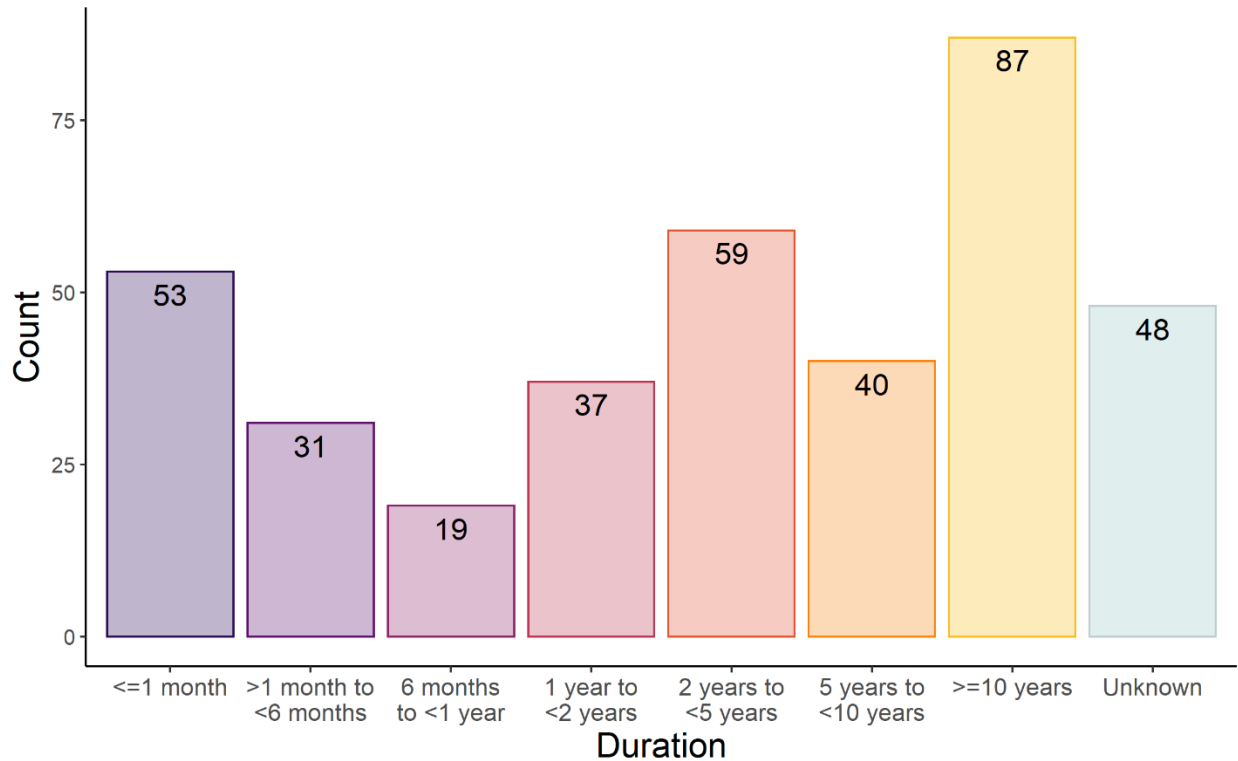


Figure 10. Study duration of all papers included in the sample ($n = 374$).

Coastal and offshore links

Indicators

Most indicators were studied across coastal and offshore location categories, though studies focusing in the coastal nearshore were most common in our sample ($n = 143$). Studies focusing on anthropogenic noise were located exclusively offshore (Figure 6), whereas studies that included colonizing or invasive species were located exclusively in coastal areas (Figure 5).

Location categories displayed significant differences in indicator prevalence (Figs. 5-7).

Indicators that were present significantly more in far offshore studies included temperature and salinity (both $p < 0.0001$), water movements ($p = 0.0002$), all oceanographic variables not already mentioned (excepting freshwater inputs) including alkalinity and organic carbon (all with significance $p < 0.0001$), “other” ice- and snow-related variables ($p = 0.0002$), benthic habitat ($p = 0.0002$), prokaryotes ($p < 0.0001$), primary producers ($p < 0.0001$), zooplankton ($p < 0.0001$), benthic organisms ($p = 0.0005$), offshore fishes ($p < 0.0001$), and other biological variables ($p = 0.0004$). Indicators that were present significantly more in coastal nearshore studies included ice extent and concentration ($p < 0.0001$), freeze-up and break-up ($p = 0.0263$), trophic interactions ($p < 0.0001$), anadromous fishes ($p < 0.0001$), seabirds ($p < 0.0001$), marine mammals ($p < 0.0001$), and contaminants ($p < 0.0001$). All other differences were not significant.

Methods

Use of certain methods differed significantly across coastal and offshore location categories (Figure 9). Far offshore studies included significantly more CTD and rosette sampling ($p < 0.0001$), moorings and drifters ($p < 0.0001$), “other” physical and chemical sampling methods ($p < 0.0001$), and water sampling for anthropogenic indicators ($p = 0.0077$). Coastal nearshore studies included significantly more biological collections, telemetry data, observations, harvest records, “other” biological sampling methods, and tissue sampling for anthropogenic indicators (all with significance $p < 0.0001$). All other differences in method use across location category were not significant.

Other differences in study design were recorded between coastal and offshore location categories. Nineteen papers collected data in both coastal nearshore and offshore locations, and almost half of these ($n = 9$) described methodological differences between location categories. Some of those methodological differences were the result of different indicators collected between coastal and offshore areas (e.g., a crossbow darting system used for coastal sampling of bowhead whales, *Balaena mysticetus*, versus Bongo nets for offshore zooplankton sampling; Pomerleau et al. 2012), whereas some were simply the result of methodological differences (e.g., the use of rosette casts in offshore areas but carboys, buckets, or submersible pumps in coastal areas; Jacquemot et al. 2021).

DISCUSSION

The purpose of this systematic review was to investigate and document the incidence of important indicators, and the methods used to study these indicators, in marine research and monitoring programs in the eastern Canadian Arctic. This was done with a particular focus on highlighting linkages between coastal and offshore location categories and their differing inclusions of methodologies and indicators. The final sample of papers included by our review criteria consisted of 374 scientific articles and peer-reviewed government reports. The Hudson Bay complex and Baffin Bay were the most commonly studied locations, followed by the Davis Strait area and the north Labrador Sea, indicating both the relative accessibility of these marine waters and their ecological, economical, and cultural importance. Studies focusing on coastal nearshore and far offshore areas were most highly represented in our sample at $n = 144$ and $n = 136$, respectively, whereas all other location categories each represented less than 5% of the sample. Biological indicators were the most commonly included parameters ($n = 257$), followed by core oceanographic variables ($n = 135$) and anthropogenic stressors ($n = 97$). Previous systematic reviews with a focus on methods or indicators have investigated approaches used in community-based monitoring (Kouril et al. 2016), methods of biomonitoring using lichens (Abas 2021), and ecosystem service indicators (Czúcz et al. 2018). However, systematic reviews focusing on documenting methods and indicators of all ecological research in a given area do not appear in the literature, with the exception of our companion review (Bilous & Wight et al. 2024). These reviews are necessary to discuss commonalities and differences in the methodologies used and indicators studied, with particular focus on linking coastal and offshore research.

Methods and indicators in eastern Canadian Arctic research

Large differences in inclusion of assessed indicators were observed throughout our sample. Temperature and salinity were ubiquitous as environmental indicators, a pattern that may indicate the relative ease of measurement of these indicators (e.g., the use of underway or multi-site CTD sampling; Fransson et al. 2009) and their relevance in influencing the marine ecosystem (Ehrman et al. 2022). Ice cover and other ice-related parameters (e.g., ice type and texture, ice movement) were also prevalent throughout our sample, likely due to both the ease of access of long-term datasets and satellite data (e.g., Canadian Ice Service data) and the importance of sea ice in structuring all levels of the Arctic marine ecosystem (Polyak et al. 2010; Johannessen and Miles 2011). Sea ice is also important for shipping activity and industry, highlighting the further importance of sea ice data in assessing potential future impacts of anthropogenic disruptions (Pizzolato et al. 2014; Pizzolato et al. 2016). The most commonly studied indicators in our sample were biological; especially prevalent were trophic interactions (e.g., diet analyses), and various parameters from seabirds and marine mammals (e.g., presence and habitat use; sex, age, and morphometric measurements; movement tracking). Marine mammals are sentinel species that serve as indicators of both ecosystem and human health (Bossart 2011) and are important to northern communities as a nutritional, cultural, and economic resource (Dale and Armitage 2011; Laidre et al. 2015). Four million breeding seabirds use the eastern Canadian Arctic, generally in very large colonies (Gaston et al. 2012), likely explaining the ubiquity of seabirds as indicators in marine research. Almost all studies of anthropogenic stressors focused on contaminants, primarily in various tissues but also including water and sediment samples, among others. This focus on contaminants in our sample likely relates to concerns over increasing concentrations of mercury and new contaminants of marine environments and their important ecosystem components (Braune et al. 2005) and the implications of potential future increases of various industries in the Canadian Arctic (Gaston et al. 2012; MacMillan et al. 2017). This contamination impacts not only Arctic marine ecosystems but the coastal communities that rely on subsistence harvest as a food source (Donaldson et al. 2010).

Though a wide variety of methodologies were documented in our sample, some commonalities and patterns were observed. For example, the most common method for measuring physical and chemical oceanographic parameters such as temperature, salinity, and primary production was the use of rosette water samplers equipped with CTD and other instruments (e.g., fluorometers, current profilers). This equipment was often standardized across studies; e.g., CTD instruments were often Seabird™ SBE instruments. Across the various types of biological data collection, tissue sampling was most common, particularly sampling of liver tissue. Liver tissue is often used to investigate contaminant concentrations (Brown et al. 2009; Routti et al. 2012; Ewald et al. 2019), likely explaining the abundance of this sampling type. Though the above commonalities may facilitate better comparisons across studies, and standardization or semi-standardization of sampling methods should be considered in future research, all methods are not equally suitable across location, scale, and target indicators. For example, only a small minority of satellite-based studies in our sample used small-scale data, because often data are not available at a resolution for small-scale analyses (Gully et al. 2022).

Linkages between coastal and offshore research

Significant differences were observed in the inclusion of indicators in coastal versus offshore studies. The prevalence of oceanographic variables as well as prokaryotes, primary producers, and zooplankton in offshore studies is likely related to the relative ease of collecting these indicators; many can be collected concurrently using a rosette sampler or moorings equipped with water bottles and various physical and chemical instruments. For example, Kalenitchenko et al. (2019) sampled several physical, chemical, and biological indicators using rosette casts equipped with Niskin bottles and several measuring instruments. Additionally, ice freeze-up and break-up were strongly associated with coastal locations, possibly relating to the use of community-led monitoring (Mahoney et al. 2009) and community knowledge (Ford et al. 2009; Laforest et al. 2018). Freeze-up and break-up are important considerations among northern communities that rely on sea ice for subsistence harvesting practices (Cooley et al. 2020), and thus understanding of this indicator in coastal areas is especially important. In addition, studies investigating ice freeze-up and break-up often also included polar bears (*Ursus maritimus*), which were usually studied in coastal areas. Anadromous fishes and marine mammals also had strong associations with coastal study locations, owing to the nutritional and cultural importance of these animals to coastal communities (Ostertag et al. 2009). Many studies in our sample that focused on marine mammals collected data from harvested animals (e.g., Nielsen et al. 2004; Ostertag et al. 2009; Lunn et al. 2016), investigating parameters relevant to community interests, e.g., contamination and disease in subsistence foods, and shifting population dynamics in response to changing habitats. The vast majority of seabird studies were coastal because the birds were collected either on their nesting sites (e.g., Gaston et al. 2005, Mallory et al. 2008) or on open water from small coastal vessels (e.g., Provencher et al. 2020). The few studies of seabirds in their ocean habitat points to a relatively poorer understanding of Canadian Arctic seabird distribution and ecology in their ocean habitats and necessitates further study to link their terrestrial and open ocean ecology (Wong et al. 2014), especially as Arctic seabirds face further threats in their ocean habitats (Frederiksen et al. 2016).

Differences were observed in method use across coastal and offshore location categories, highlighting areas where coastal and offshore research could be better connected in the future. For instance, rosette casts equipped with CTD instruments were only used in one study with coastal sampling locations (Petrusevich et al. 2018); otherwise, rosette casts and CTD measurements were strongly associated with offshore vessels, where this methodology and instrumentation is used ubiquitously (e.g., on the ArcticNet cruises of the CCGS Amundsen; Burt et al. 2016, Burgers et al. 2017). This may be due to the cumbersome size of rosette samplers and their deployment systems, making them often poorly suited for smaller shore-based vessels. With consideration for vessel limitations, water collections and CTD measurements could be standardized across coastal and offshore studies, e.g., using buckets or submersible pumps in coastal locations, equipped with CTD and other instruments that collect the same information as offshore studies. As an example, the majority use of Seabird SBE profilers as CTD instruments highlights a standardization across offshore-based sampling that could be applied in coastal locations to better facilitate comparisons. Use of moorings and drifters occurred primarily in far offshore locations, both in the ice-free open ocean (e.g., Rabe et al. 2010) and on offshore ice sheets (e.g., Hamilton et al. 2021). Moorings and drifters are typically used far offshore where they can be moored at a depth to avoid being damaged or destroyed by the movements of sea ice.

The single use of a buoy in coastal offshore waters (between 21 and 100 m depth) in our sample was in Petrusevich et al. (2018), where an ice-tethered mooring was deployed in the Belcher Islands region to collect hydrographic measurements (temperature, conductivity, and current). The usefulness of moorings and drifters in collecting long-term, consistent, and diverse data (e.g., temperature and salinity, water currents, ice movements, microbes and plankton) when equipped with varied instrumentation, particularly in areas that are temporally or spatially difficult to access (e.g., under ice cover, Cuny et al. 2005; at high latitudes, Newton and Sotirin 1997), highlights the importance of these tools in collecting Arctic ocean data. Data collection in coastal or shore-based locations on similar temporal scales and with similar intervals would be greatly useful in comparisons across coastal and offshore locations, but implementing coastal monitoring equipment in the Canadian Arctic may be limited by potential damage caused by movements of sea ice. The use of certain methods in primarily coastal locations is related to the strong associations of these methods with coastal communities. Data collected from harvests were associated almost exclusively with coastal nearshore studies, owing to the use of coastal marine ecosystems by northern communities for subsistence harvest. Tissue sampling for anthropogenic indicators was also strongly associated with coastal locations because, as mentioned previously, tissue samples are frequently taken from harvested animals to address community concerns about country food contamination (Lockhart et al. 2005; Ostertag et al. 2009; Brown et al. 2016). These observed differences may indicate potential difficulties in linking coastal and offshore research, but may also present opportunities for future study.

While this review highlights differences in method use across coastal and offshore areas, these results can also be used to present opportunities to link coastal and offshore research and monitoring. As an example, while certain types of biological collections were more prevalent in either nearshore or offshore environments, some were done frequently in both (e.g., various types of sediment cores, Richerol et al. 2012; Krumhansl et al. 2015). In cases where similar methods were used to study a particular indicator, as was the case with bottom trawling, dredging, and sediment cores being used to collect benthic organisms both in nearshore (Krumhansl et al. 2015; Leduc et al. 2019) and far offshore (Squires 1996; Dinn et al. 2019) locations, this offers an opportunity for collaboration and collation of data to provide a better understanding of the Arctic benthic environment. Standardization of the number of core grabs or duration and type of trawls and dredging would facilitate even more accurate comparisons. Other opportunities for comparison across coastal and offshore locations arise from the relative simplicity of certain types of sampling and the standardization of analyses, e.g., water sampling for anthropogenic contaminants (Benskin et al. 2012; Stroski et al. 2020).

Less than five percent of all papers were categorized as occurring in both coastal and offshore study locations, with approximately half of these describing no methodological differences between coastal and offshore areas. Of the papers that outlined differences between coastal and offshore sampling methods, some were minor differences in the gear used, e.g., autonomous versus hand-held recorders in coastal offshore and coastal nearshore areas, respectively (Marcoux et al. 2011) or nearshore water samples being collected with buckets versus offshore samples collected using a rosette sampler (Burt et al. 2016; Jacquemot et al. 2021). Others used different sampling methods as a result of focusing on different indicators in coastal versus offshore areas, e.g., coastal subsistence harvest and shore-set gillnets to collect beluga whale (*Delphinapterus leucas*), ringed seal (*Phoca hispida*), and Arctic char (*Salvelinus alpinus*),

versus offshore longlines and vessel trawls to collect Greenland halibut (*Reinhardtius hippoglossoides*), shrimp, and Arctic cod (*Boreogadus saida*) (Yurkowski et al. 2018). Generally, these differences in method use between coastal and offshore areas were not major enough to preclude comparison and linkages between coastal and offshore study, though there are likely still necessary gaps to fill. For example, the stronger representation of oceanographic variables in offshore studies indicates a need for similar sampling in coastal areas, as was done in Dale and Leontowich (2006). The accessibility of some coastal sampling locations could also facilitate measurements over an annual cycle, as opposed to offshore measurements which are often limited to the open water season. In addition, the high proportion of tissue samples for anthropogenic stressors collected in coastal areas may indicate a need to collect organisms and sample tissues for contaminants and other anthropogenic stressor indicators in offshore areas, especially given trophic linkages between coastal and offshore ecosystems (Eriksson et al. 2011). Because of these linkages (e.g., exploitation of large offshore fishes being associated with higher abundances of mesopredatory coastal fish and increased nearshore production; Eriksson et al. 2011), and the use of both coastal and offshore habitats by many species (e.g., ringed seal (McLaren 1958); beluga (Smith et al. 2017)), connecting and collaborating on research in these two ecosystems is vital for understanding and managing vulnerable Canadian Arctic waters.

Gaps and Future Research

Through this systematic review, we can identify gaps in the geographic coverage of research in the eastern Canadian Arctic (Figs. 1-2), as well as gaps in the assessment of the important ecological indicators identified by Ehrman et al. (2022). For instance, gaps in geographic coverage were identified on several scales; many communities had only a handful of studies (i.e., less than five), highlighting a need for more community-based research and monitoring, and the poor coverage in the northwest areas of the archipelago near Ellesmere Island indicates a potential need for research. In terms of gaps in assessed indicators, only three papers in our sample included coastal change as an indicator, and none of these papers had a strong focus on coastal change or coastal erosion. Given that areas in the eastern Canadian Arctic are under threat of severe storm surges and potential increases in wave energy that may increase coastal erosion (Steiner et al. 2015; Bagnall 2021), further research and understanding into this indicator are necessary. Another knowledge gap is the almost complete lack of published papers (only three in total) investigating anthropogenic noise. Vessel traffic in the Canadian Arctic has shown significant increases in the past several decades (Pizzolato et al. 2014) and is forecasted to continue increasing with sea ice declines and growing interest (Halliday et al. 2021). Anthropogenic noise pollution poses risks for marine mammals, as they use noise for communication, navigation, and survival (Halliday et al. 2020; Halliday et al. 2021). This gap does not appear to be for lack of data, as acoustic data have been collected in the Canadian Arctic for the past decade and longer (Halliday et al. 2021), and there is research into this subject currently ongoing (e.g., acoustic monitoring data collected in Eclipse Sound by Oceans North and Pond Inlet hunters; Jones 2021).

Continued research of important indicators at all levels of the ecosystem is necessary for understanding, managing, and protecting Arctic marine environments vulnerable to climate change (ACIA 2004). Long-term research (i.e., spanning 10 or more years) was the most common duration category in our sample. This included programs such as an ongoing whale

stock identity program supported by the Nunavut Wildlife Management Board (Lockhart et al. 2025) and long-term Arctic seabird monitoring (Gaston et al. 2005; Foster et al. 2019). Sea ice extent and concentration and marine mammals were both highly represented in this duration category, possibly owing to long-term data collection programs such as the Canadian Ice Service and community-based monitoring programs for marine mammal harvests. However, our duration categories did not take frequency of study into account, so while our sample provides a useful measure of how many studies include data from a wide date range, it says nothing about the frequency of monitoring. Given the importance of understanding the long-term impacts of climate change on Arctic marine ecosystem conditions, efforts at studies and monitoring programs over longer timeframes should continue, both to establish baselines and to identify ongoing change. For example, the Arctic data compilation and appraisal series (e.g., Cornford et al. 1982) offers a long-term historic dataset describing environmental conditions in the Canadian Arctic oceans from the 1800s to the 1980s, providing useful baseline information for evaluations of occurring and future change. Long-term research should be expanded to include indicators where long-term studies were absent or extremely uncommon in our sample (e.g., oceanographic variables other than temperature and salinity, prokaryotic organisms, all fishes). However, long-term Arctic marine monitoring is not always feasible in terms of cost and access, owing to harsh environmental conditions and geographic inaccessibility (Henson 2014). The logistics of research and monitoring programs in the Canadian Arctic marine environment are important considerations, both in planning research and in drawing these linkages. For example, while moorings are an effective means of collecting long-term, consistent data in offshore locations, ice movements in shallow or coastal waters may preclude or complicate those same data collections in shore-based research.

The indicators we have investigated in this review pair well with the concept of Essential Variables, which are core environmental and biological variables that are considered essential for ongoing global monitoring of environment and biodiversity (Miloslavich et al. 2018; Jetz et al. 2019). Many indicators identified by Ehrman et al. (2022) are very similar to Essential Variables, such as core oceanography (e.g., nutrients; IOCCP 2017) and seabird-related parameters (Simmons et al. 2018), highlighting the importance of these indicators for ongoing climate and diversity monitoring. The method-independent nature of the Essential Variable concept implies a potential for broadly applying the results of research and monitoring efforts despite non-standardized methods. In that vein, this review also allows easier identification of existing Arctic data, which could be compiled to create broad-spanning, long-term datasets as well as historical baselines.

While the dearth of certain indicators in coastal or offshore location categories (e.g., marine mammals rarely being studied offshore) may indicate potential data gaps that could be filled with further research, filling those gaps may also be logistically implausible or unnecessary (using the same example, sampling from marine mammals from offshore vessels often requires killing the animal and would be thus more ecologically impactful and less convenient than opportunistically collecting the same data from subsistence harvested mammals). While filling all existing data gaps may not be feasible, this review emphasizes that research and monitoring programs should take all levels of the ecosystem into consideration; as an example, focusing on indicators that act as proxies for multiple parameters to collect data more broadly and holistically (e.g., marine birds can be indicators of ice conditions, contaminants, and overall ecosystem health; Mallory et

al. 2006). The natural variability of Arctic marine ecosystems (Niemi et al. 2019) may also complicate attempts to collect certain baseline data, potentially making such attempts unrealistic. This review identifies commonalities and differences in the prevalence of methods and indicators across offshore ship-based and coastal shore-based research, and highlights potential data gaps as well as opportunities to link existing and future coastal and offshore programs. These connections are necessary for a full, holistic understanding of all levels of the Arctic marine ecosystem, predicting the impacts of future change, and managing these economically, culturally, and ecologically important ecosystems.

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APPENDICES

Appendix 1. Web of Science Core Collection search strings used to obtain the final sample of publications. ALL = all fields, TS = topic, AB = abstract.

	ALL	TS	AB	Search string
#11	4 426	1 317	811	#9 AND #10
#10	14 550 079			ALL=(method* OR data) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>
#9	7 645	2 354	1 397	#7 AND #8 <i>Timespan=All years</i>
#8	14 428 665			ALL=(monitor* OR indicator* OR research*) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>
#7	10 938	3 437	1 973	#1 AND #2 AND #6 <i>Timespan=All years</i>
#6	13 189 038	12 215 288	9 991 376	#3 OR #4 OR #5 <i>Timespan=All years</i>
#5	322 340	302 361	236 905	((noise AND vessel) OR contaminant* OR pollutant OR microplastic*) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>
#4	2 517 871	2 093 242	1 535 117	(phytoplankton* OR alga* OR zooplankton* OR benth* OR fish* OR seabird OR bird OR mammal*) OR ((trophic OR “food web”) AND (link* OR interaction* OR dynamic*)) OR (invas* OR invas*) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>
#3	11 271 081	10 598 420	8 793 447	(temperature OR salinit* OR conductivit* OR current* OR circulation OR nutrient* OR “primary production” OR chlorophyll OR fluor* OR oxygen OR turbid* OR clarit* OR “Photosynthetically Active Radiation” OR densit*) OR ((freshwater) AND (input OR runoff)) OR (bathymetr* OR “benthic habitat” OR sediment*) OR ((erosion OR erod* OR chang*) AND (coast* OR shore*)) OR (ice AND (thickness OR extent OR concentration OR

				freeze* OR break* OR structure*)) OR ((snow) AND (depth OR thickness)) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>
#2	1 110 212	575 706	389 561	(marine OR ocean OR anadrom*) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>
#1	63 700	13 311	8 744	(canad*) AND (arctic* OR polar*) AND LANGUAGE: (English OR French) <i>Timespan=All years</i>

Appendix 2: The final search string (modified for syntax from the Web of Science search string) used in the Fisheries and Oceans Library. This search was limited to publications in English or French that were available online and returned 142 final results (Figure 3).

(canad*) AND (arctic* OR polar*) AND (marine OR ocean OR anad*) AND ((temperature OR salinit* OR conductivit* OR current* OR circulation OR nutrient* OR “primary production” OR chlorophyll OR fluor* OR oxygen OR turbid* OR clarit* OR “Photosynthetically Active Radiation” OR densit*) OR ((freshwater) AND (input OR runoff)) OR (bathymetr* OR "benthic habitat" OR sediment*) OR ((erosion OR erod* OR chang*) AND (coast* OR shore*)) OR (ice AND (thickness OR extent OR concentration OR freeze* OR break* OR structure*)) OR (snow AND (depth OR thickness)) OR (phytoplankton* OR alga* OR zooplankton* OR benth* OR fish* OR seabird OR bird OR mammal*) OR ((trophic OR “food web*”) AND (link* OR interaction* OR dynamic*)) OR ((noise AND vessel) OR contaminant* OR pollutant* OR microplastic*)) AND (monitor* OR indicator* OR research*) AND (method* OR data).

Appendix 3: The final search string (modified for syntax from the Web of Science search string) used in Scopus. This search returned 852 final results (Figure 3).

TITLE-ABS-KEY((canad*) AND (arctic* OR polar*) AND (marine OR ocean OR anad*) AND ((temperature OR salinit* OR conductivit* OR current* OR circulation OR nutrient* OR "primary production" OR chlorophyll OR fluor* OR oxygen OR turbid* OR clarit* OR "Photosynthetically Active Radiation" OR densit*) OR ((freshwater) AND (input OR runoff)) OR (bathymetr* OR "benthic habitat" OR sediment*) OR ((erosion OR erod* OR chang*) AND (coast* OR shore*)) OR (ice AND (thickness OR extent OR concentration OR freeze* OR break* OR structure*)) OR (snow AND (depth OR thickness)) OR (phytoplankton* OR alga* OR zooplankton* OR benth* OR fish* OR seabird OR bird OR mammal*) OR ((trophic OR "food web*") AND (link* OR interaction* OR dynamic*)) OR ((noise AND vessel) OR contaminant* OR pollutant* OR microplastic*) OR (invad* OR invas*))) AND TITLE-ABS-KEY(monitor* OR indicator* OR research*) AND ALL(method* OR data)

Appendix 4. Coding questions and theme descriptions used for included publications. Theme numbers correspond to six themes: (1) Physical and chemical indicators, (2) Biological indicators, (3) Anthropogenic stressor indicators, (4) Study duration, (5) Methodology, and (6) Coastal vs offshore. Indicators are indicated in bold; measurement parameters for each indicator, where applicable, are indicated by italics.

Themes 1 to 3 identified specific parameters within broad indicator categories of environmental, biological, and anthropogenic stressors. “Primary production” in theme 1 is defined as production as a chemical oceanographic process, whereas “primary producers” in theme 2 is defined as the organisms themselves. Theme 4 grouped papers by study duration categories. Theme 5 detailed the data collection methods associated with the broad indicator categories. Methods included in coding questions were extracted from a preliminary assessment of common methodologies from research and monitoring programs described in Ehrman et al. (2022). Theme 6 categorized papers between several “coastal” or “offshore” categories (Table 1).

#	Theme	Column item	Description	Coding
A		Included/ excluded	Is it included or excluded from analysis?	1=Included; 0=Excluded
B		Methods	Does the paper include a methods section?	1=Yes; 0=No
0.1		Spatial scale	What is the geographic scale of the research/monitoring?	L=Local; R=Regional; A=Canadian Arctic or Pan-Arctic
0.2		Geographic scope	Which part of the Canadian Arctic was the focus of study?	W=Western; E=Eastern; A=Arctic Archipelago
0.2.1		Eastern geographic scope	Where in the eastern Canadian Arctic did the study take place?	H=Hudson Bay complex; E=Eastern Arctic; B=Both
0.3		Geographic focus	Name of the communities, regions, or water bodies studied.	Name(s)
0.4		Coordinates	Lat/lon coordinates, if available.	Coordinates (decimal degree)
0.5		Publication type	What is the publication type?	J=Journal article; D=DFO Report

0.6		Institutional affiliation	The name of the academic or research institution, based on the first-author affiliation.	Institution/group name
1.1	1	Core oceanography	Did the indicators in this study include core oceanographic parameters?	1=Yes; 0=No
	1		If yes, mark the specific parameters included:	Mark “X” if applicable:
1.1.1	1	<i>Temperature</i>	Water temperature (SST, temperature profile)	“X”
1.1.2	1	<i>Salinity</i>	Salinity or conductivity	“X”
1.1.3	1	<i>Water movements</i>	Circulation patterns, ocean currents	“X”
1.1.4	1	<i>Nutrients</i>	Nutrient concentrations (e.g., nitrate, phosphate, etc)	“X”
1.1.5	1	<i>Turbidity</i>	Water turbidity, clarity, PAR	“X”
1.1.6	1	<i>Primary production</i>	Primary production (g C m^{-2}), concentrations of chlorophyll <i>a</i>	“X”
1.1.7	1	<i>Oxygen</i>	Oxygen profile, dissolved oxygen	“X”
1.1.8	1	<i>Freshwater input</i>	Input or runoff from freshwater	“X”
1.1.9	1	<i>Fluorometry</i>	Fluorescence profile	“X”
1.1.10	1	Other	Other physical and chemical oceanographic parameters	“X”
1.1.11	1	Specify	If “other”, specify here.	Name parameter(s)
1.2	1	Coastal change	Did indicators in this study include coastal change or coastal erosion?	1=Yes; 0=No
1.3	1	Sea-ice and snow	Did the indicators in this study include sea-ice and snow parameters?	1=Yes; 0=No
	1		If yes, mark the specific parameters included:	Mark “X” if applicable

1.3.1	1	<i>Thickness</i>	Sea ice thickness	“X”
1.3.2	1	<i>Extent and concentration</i>	Ocean area with sea ice or percentage concentration of ocean area with sea ice	“X”
1.3.3	1	<i>Freeze-up or break-up</i>	Timing of freeze-up and/or break-up of sea ice	“X”
1.3.4	1	<i>Snow</i>	Snow depth	“X”
1.3.5	1	Other	Other sea-ice (e.g., structure, age, types) or snow (e.g., structure) parameters	“X”
1.3.6	1	Specify	If “other”, specify here.	Name parameter(s)
1.4	1	Bathymetry	Did the indicators in this study include bathymetry or benthic habitat?	1=Yes; 0=No
	1		If yes, mark the specific parameters included:	Mark “X” if applicable
1.4.1	1	<i>Bathymetry</i>	Bathymetric mapping	“X”
1.4.2	1	Benthic habitat	Bottom sediments	“X”
2.1	2	Biological indicators	Did this study include biological indicators?	1=Yes; 0=No
	2		If yes, mark the specific trophic level(s) studied:	Mark “X” if applicable
2.1.1	2	Trophic interactions	(diet, stable isotopes, fatty acids)	“X”
2.1.2	2	Primary producers	Phytoplankton or algae	“X”
2.1.3	2	Prokaryotes	Bacteria or archaea	“X”
2.1.4	2	Zooplankton	Zooplankton	“X”
2.1.5	2	Benthic organisms	Benthic infauna or epifauna	“X”

2.1.6	2	Coastal fishes	Fishes that inhabit the shoreline and waters inshore of the continental shelf	“X”
2.1.7	2	Offshore fishes	Fishes that inhabit waters beyond the continental shelf	“X”
2.1.8	2	Anadromous fishes	Fishes that spawn in freshwater but inhabit marine waters for the majority of their lives	“X”
2.1.9	2	Seabirds	Marine birds	“X”
2.1.10	2	Marine mammals	Marine mammals	“X”
2.1.11	2	Other	Other biological (e.g., bacteria) indicators	“X”
2.1.12	2	Specify	If “other”, specify here.	Name parameter(s)
2.2	2	Colonizing or invasive species	Did this study include or discuss colonizing or invasive species?	1=Yes; 0=No
2.3	2	Parameters studied	What biological data (e.g., age, abundance, physical characteristics) were collected?	Name data type(s)
3.1	3	Anthropogenic stressors	Did this study include anthropogenic stressors and threats as indicators?	1=Yes; 0=No
	3		If yes, mark the stressor(s) studied:	Mark “X” if applicable
3.1.1	3	Noise	Vessel-generated underwater noise	“X”
3.1.2	3	Contaminants	Contaminants, pollutants, microplastics	“X”
3.1.3	3	Other	Other anthropogenic stressors	“X”
3.1.4	3	Specify	If “other”, specify here	Name parameter(s)

4.1	4	Study duration	How long did this study last, defined as commencement date to ending date.	1M: ≤ 1 month (≤ 31 days); 1_6M: >1 to <6 months; 6M_1Y: 6 months to <1 year; 1_2Y: 1 to <2 years; 2_5Y: 2 to <5 years; 5_10Y: 5 to <10 years; 10Y: ≥ 10 years
4.1.1	4	Define	If unknown, provide details here	Brief description
	5		If physical and chemical indicators were studied, what methods were used?	Mark “X” if applicable:
5.1.1	5	CTD/Point sampling		“X”
5.1.2	5	Satellite		“X”
5.1.2.1	5	Satellite scope	What is the scope of the satellite data?	L=Large scale (regional or pan-Arctic); S=Small scale (local)
5.1.3	5	Radar		“X”
5.1.4	5	Moorings and drifters		“X”
5.1.5	5	Acoustics/sonar		“X”
5.1.6	5	Other		“X”
5.1.7	5	Describe	If “other” please name and describe	Brief description
	5		If biological indicators were studied, what methods were used?	Mark “X” if applicable:

5.2.1	5	Whole body or tissue collection		“X”
5.2.2	5	Collection method	If collection was used, what specific collection method(s) (e.g., dredging, net tows, tissue sampling)?	Brief description
5.2.3	5	Telemetry		“X”
5.2.4	5	Acoustics		“X”
5.2.5	5	Observations		“X”
5.2.6	5	Harvest records and surveys		“X”
5.2.7	5	Other		“X”
5.2.8	5	Describe	If “other” please name and describe	Brief description
	5		If anthropogenic stressors were studied, what methods were used?	Mark “X” if applicable:
5.3.1	5	Acoustics		“X”
5.3.2	5	Tissue sampling		“X”
5.3.3	5	Water sampling		“X”
5.3.4	5	Other		“X”
5.3.5	5	Describe	If “other” please name and describe	Brief description
6.1.1	6	Vessel information	Add any information on vessel name(s) if available.	Describe
6.1.2	6	Vessel length	What is the vessel length in feet?	Describe
6.1.3	6	Coastal or Offshore (ship-based definition)	Did the research/monitoring take place in far offshore (i.e., ship-based, >80’ length or >100 m depth), coastal offshore (i.e., ship-based, 20-100 m depth), or coastal nearshore (i.e., shore-based, <20 m depth) locations, or	F_O=Far offshore; C_O=Coastal offshore; C_N=Coastal nearshore; O_T=Offshore tender;

			offshore tender (i.e., small boats launched from offshore vessels)?	B=Both; F_O_I=Ice-based far offshore; C_O_I=Ice-based coastal offshore; C_N_I=Ice-based near offshore; B_I=Ice-based both
6.2	6	Self-definition	Do the authors define location in terms of coastal vs offshore?	1=Yes; 0=No
6.2.1	6	Description	If yes, describe these definitions and/or give relevant quotes.	Describe
6.3	6	Shared methods	If “both”, were any methods shared between coastal and offshore locations?	1=Yes; 0=No
6.3.1	6	Similarities	If “yes”, briefly describe similarities.	Describe
6.3.2	6	Differences	If “no”, briefly describe differences.	Describe

Appendix 5: Details of the 374 papers included in our final sample. Information was taken from Web of Science, Scopus, or the DFO Library catalogue.

Authors	Title	Journal	Year
Parkinson, CL; Cavalieri, DJ; Gloersen, P; Zwally, HJ; Comiso, JC	Arctic sea ice extents, areas, and trends, 1978-1996	Journal Of Geophysical Research-Oceans	1999
Maslanik, James; Stroeve, Julianne; Fowler, Charles; Emery, William	Distribution and trends in Arctic sea ice age through spring 2011	Geophysical Research Letters	2011
Lammers, RB; Shiklomanov, AI; Vorosmarty, CJ; Fekete, BM; Peterson, BJ	Assessment of contemporary Arctic river runoff based on observational discharge records	Journal Of Geophysical Research-Atmospheres	2001
Parkinson, Claire L.; Cavalieri, Donald J.	Arctic sea ice variability and trends, 1979-2006	Journal Of Geophysical Research-Oceans	2008
Lehnherr, Igor; St Louis, Vincent L.; Hintelmann, Holger; Kirk, Jane L.	Methylation of inorganic mercury in polar marine waters	Nature Geoscience	2011
Carr, CM; Hardy, SM; Brown, TM; Macdonald, TA; Hebert, PDN	A Tri-Oceanic Perspective: DNA Barcoding Reveals Geographic Structure and Cryptic Diversity in Canadian Polychaetes	Plos One	2011
Kelly, BC; Ikonomou, MG; Blair, JD; Gobas, FAPC	Hydroxylated and methoxylated polybrominated diphenyl ethers in a Canadian Arctic marine food web	Environmental Science & Technology	2008
Martin, J; Tremblay, JE; Gagnon, J; Tremblay, G; Lapoussiere, A; Jose, C; Poulin, M; Gosselin, M; Gratton, Y; Michel, C	Prevalence, structure and properties of subsurface chlorophyll maxima in Canadian Arctic waters	Marine Ecology Progress Series	2010
Cuny, J; Rhines, PB; Kwok, R	Davis Strait volume, freshwater and heat fluxes	Deep-Sea Research Part I- Oceanographic Research Papers	2005
Ardyna, M; Gosselin, M; Michel, C; Poulin, M; Tremblay, JE	Environmental forcing of phytoplankton community structure and function in the Canadian High Arctic: contrasting oligotrophic and eutrophic regions	Marine Ecology Progress Series	2011
Higdon, JW; Ferguson, SH	Loss of Arctic sea ice causing punctuated change in sightings of	Ecological Applications	2009

	killer whales (<i>Orcinus orca</i>) over the past century		
Verreault, J; Muir, DCG; Norstrom, RJ; Stirling, I; Fisk, AT; Gabrielsen, GW; Derocher, AE; Evans, TJ; Dietz, R; Sonne, C; Sandala, GM; Gebbink, W; Riget, FF; Born, EW; Taylor, MK; Nagy, J; Letcher, RJ	Chlorinated hydrocarbon contaminants and metabolites in polar bears (<i>Ursus maritimus</i>) from Alaska, Canada, East Greenland, and Svalbard: 1996-2002	Science Of The Total Environment	2005
Tremblay, G; Belzile, C; Gosselin, M; Poulin, M; Roy, S; Tremblay, JE	Late summer phytoplankton distribution along a 3500 km transect in Canadian Arctic waters: strong numerical dominance by picoeukaryotes	Aquatic Microbial Ecology	2009
Peacock, NR; Laxon, SW	Sea surface height determination in the Arctic Ocean from ERS altimetry	Journal Of Geophysical Research-Oceans	2004
Benskin, JP; Muir, DCG; Scott, BF; Spencer, C; De Silva, AO; Kylin, H; Martin, JW; Morris, A; Lohmann, R; Tomy, G; Rosenberg, B; Taniyasu, S; Yamashita, N	Perfluoroalkyl Acids in the Atlantic and Canadian Arctic Oceans	Environmental Science & Technology	2012
De Silva, AO; Mabury, SA	Isolating isomers of perfluorocarboxylates in polar bears (<i>Ursus maritimus</i>) from two geographical locations	Environmental Science & Technology	2004
Layton, KKS; Martel, AL; Hebert, PDN	Patterns of DNA Barcode Variation in Canadian Marine Molluscs	Plos One	2014
Wagemann, R; Trebacz, E; Boila, G; Lockhart, WL	Mercury species in the liver of ringed seals	Science Of The Total Environment	2000
Kirk, JL; Louis, VLS; Hintelmann, H; Lehnher, I; Else, B; Poissant, L	Methylated Mercury Species in Marine Waters of the Canadian High and Sub Arctic	Environmental Science & Technology	2008
Gaston, AT; Gilchrist, HG; Mallory, ML; Smith, PA	CHANGES IN SEASONAL EVENTS, PEAK FOOD AVAILABILITY, AND CONSEQUENT BREEDING ADJUSTMENT IN A MARINE	Condor	2009

	BIRD: A CASE OF PROGRESSIVE MISMATCHING		
Ostertag, SK; Tague, BA; Humphries, MM; Tittlemier, SA; Chan, HM	Estimated dietary exposure to fluorinated compounds from traditional foods among Inuit in Nunavut, Canada	Chemosphere	2009
Ford, JD; Gough, WA; Laidler, GJ; MacDonald, J; Irngaut, C; Qrunnut, K	Sea ice, climate change, and community vulnerability in northern Foxe Basin, Canada	Climate Research	2009
Lockhart, WL; Stern, GA; Wagemann, R; Hunt, RV; Metner, DA; DeLaronde, J; Dunn, B; Stewart, REA; Hyatt, CK; Harwood, L; Mount, K	Concentrations of mercury in tissues of beluga whales (<i>Delphinapterus leucas</i>) from several communities in the Canadian Arctic from 1981 to 2002	Science Of The Total Environment	2005
Dery, SJ; Mlynowski, TJ; Hernandez-Henriquez, MA; Straneo, F	Interannual variability and interdecadal trends in Hudson Bay streamflow	Journal Of Marine Systems	2011
Lunn, NJ; Servanty, S; Regehr, EV; Converse, SJ; Richardson, E; Stirling, I	Demography of an apex predator at the edge of its range: impacts of changing sea ice on polar bears in Hudson Bay	Ecological Applications	2016
Fransson, A; Chierici, M; Nojiri, Y	New insights into the spatial variability of the surface water carbon dioxide in varying sea ice conditions in the Arctic Ocean	Continental Shelf Research	2009
Love, OP; Gilchrist, HG; Descamps, S; Semeniuk, CAD; Bety, J	Pre-laying climatic cues can time reproduction to optimally match offspring hatching and ice conditions in an Arctic marine bird	Oecologia	2010
Galand, PE; Lovejoy, C; Hamilton, AK; Ingram, RG; Pedneault, E; Carmack, EC	Archaeal diversity and a gene for ammonia oxidation are coupled to oceanic circulation	Environmental Microbiology	2009
BOURKE, RH; MCLAREN, AS	CONTOUR MAPPING OF ARCTIC BASIN ICE DRAFT AND ROUGHNESS PARAMETERS	Journal Of Geophysical Research-Oceans	1992
Zhao, MN; Timmermans, ML; Cole, S; Krishfield, R; Proshutinsky, A; Toole, J	Characterizing the eddy field in the Arctic Ocean halocline	Journal Of Geophysical Research-Oceans	2014
Halfar, J; Adey, WH; Kronz, A; Hetzinger, S;	Arctic sea-ice decline archived by multicentury annual-resolution	Proceedings Of The National Academy Of Sciences Of The	2013

Edinger, E; Fitzhugh, WW	record from crustose coralline algal proxy	United States Of America	
Wong, F; Jantunen, LM; Pucko, M; Papakyriakou, T; Staebler, RM; Stern, GA; Bidleman, TF	Air-Water Exchange of Anthropogenic and Natural Organohalogenes on International Polar Year (IPY) Expeditions in the Canadian Arctic	Environmental Science & Technology	2011
Chain, FJJ; Brown, EA; MacIsaac, HJ; Cristescu, ME	Metabarcoding reveals strong spatial structure and temporal turnover of zooplankton communities among marine and freshwater ports	Diversity And Distributions	2016
Tranquilla, LAM; Montevecchi, WA; Hedd, A; Fifield, DA; Burke, CM; Smith, PA; Regular, PM; Robertson, GJ; Gaston, AJ; Phillips, RA	Multiple-colony winter habitat use by murre Uria spp. in the Northwest Atlantic Ocean: implications for marine risk assessment	Marine Ecology Progress Series	2013
Falk, K; Benvenuti, S; Dall'Antonia, L; Gilchrist, G; Kampp, K	Foraging behaviour of thick-billed murre breeding in different sectors of the North Water polynya: an inter-colony comparison	Marine Ecology Progress Series	2002
Lacoursiere-Roussel, A; Howland, K; Normandeau, E; Grey, EK; Archambault, P; Deiner, K; Lodge, DM; Hernandez, C; Leduc, N; Bernatchez, L	eDNA metabarcoding as a new surveillance approach for coastal Arctic biodiversity	Ecology And Evolution	2018
Munchow, A; Falkner, KK; Melling, H	Spatial continuity of measured seawater and tracer fluxes through Nares Strait, a dynamically wide channel bordering the Canadian Archipelago	Journal Of Marine Research	2007
Newton, JL; Sotirin, BJ	Boundary undercurrent and water mass changes in the Lincoln Sea	Journal Of Geophysical Research-Oceans	1997
Agnew, T; Lambe, A; Long, D	Estimating sea ice area flux across the Canadian Arctic Archipelago using enhanced AMSR-E	Journal Of Geophysical Research-Oceans	2008
Skaare, JU; Larsen, HJ; Lie, E; Bernhoft, A; Derocher, AE; Norstrom, R; Ropstad, E; Lunn, NF; Wiig, O	Ecological risk assessment of persistent organic pollutants in the arctic	Toxicology	2002

Wentworth, GR; Murphy, JG; Croft, B; Martin, RV; Pierce, JR; Cote, JS; Courchesne, I; Tremblay, JE; Gagnon, J; Thomas, JL; Sharma, S; Toom-Sauntry, D; Chivulescu, A; Levasseur, M; Abbatt, JPD	Ammonia in the summertime Arctic marine boundary layer: sources, sinks, and implications	Atmospheric Chemistry And Physics	2016
Brown, EA; Chain, FJJ; Zhan, AB; MacIsaac, HJ; Cristescu, ME	Early detection of aquatic invaders using metabarcoding reveals a high number of non-indigenous species in Canadian ports	Diversity And Distributions	2016
Goncalves-Araujo, R; Granskog, MA; Bracher, A; Azetsu-Scott, K; Dodd, PA; Stedmon, CA	Using fluorescent dissolved organic matter to trace and distinguish the origin of Arctic surface waters	Scientific Reports	2016
Sahanatien, V; Derocher, AE	Monitoring sea ice habitat fragmentation for polar bear conservation	Animal Conservation	2012
Martin, J; Tremblay, JE; Price, NM	Nutritive and photosynthetic ecology of subsurface chlorophyll maxima in Canadian Arctic waters	Biogeosciences	2012
St Louis, VL; Derocher, AE; Stirling, I; Graydon, JA; Lee, C; Jocksch, E; Richardson, E; Ghorpade, S; Kwan, AK; Kirk, JL; Lehnherr, I; Swanson, HK	Differences in Mercury Bioaccumulation between Polar Bears (<i>Ursus maritimus</i>) from the Canadian high- and sub-Arctic	Environmental Science & Technology	2011
Ferguson, SH; Dueck, L; Loseto, LL; Luque, SP	Bowhead whale <i>Balaena mysticetus</i> seasonal selection of sea ice	Marine Ecology Progress Series	2010
Varela, DE; Crawford, DW; Wrohan, IA; Wyatt, SN; Carmack, EC	Pelagic primary productivity and upper ocean nutrient dynamics across Subarctic and Arctic Seas	Journal Of Geophysical Research-Oceans	2013
Frederiksen, M; Descamps, S; Erikstad, KE; Gaston, AJ; Gilchrist, HG; Gremillet, D; Johansen, KL; Kolbeinsson, Y; Linnebjerg, JF; Mallory, ML; Tranquilla, LAM; Merkel, FR; Montevecchi, WA;	Migration and wintering of a declining seabird, the thick-billed murre <i>Uria lomvia</i> , on an ocean basin scale: Conservation implications	Biological Conservation	2016

Mosbech, A; Reiertsen, TK; Robertson, GJ; Steen, H; Strom, H; Thorarinsson, TL			
Cameron, ME; Metcalfe, TL; Metcalfe, CD; Macdonald, CR	Persistent organochlorine compounds in the blubber of ringed seals (<i>Phoca hispida</i>) from the Belcher islands, northwest territories, Canada	Marine Environmental Research	1997
MacMillan, GA; Chetelat, J; Heath, JP; Mickpegak, R; Amyot, M	Rare earth elements in freshwater, marine, and terrestrial ecosystems in the eastern Canadian Arctic	Environmental Science-Processes & Impacts	2017
Heikkila, M; Pospelova, V; Forest, A; Stern, GA; Fortier, L; Macdonald, RW	Dinoflagellate cyst production over an annual cycle in seasonally ice-covered Hudson Bay	Marine Micropaleontology	2016
Stapleton, S; Atkinson, S; Hedman, D; Garshelis, D	Revisiting Western Hudson Bay: Using aerial surveys to update polar bear abundance in a sentinel population	Biological Conservation	2014
Mahoney, A; Gearheard, S; Oshima, T; Qillaq, T	SEA ICE THICKNESS MEASUREMENTS FROM A COMMUNITY-BASED OBSERVING NETWORK	Bulletin Of The American Meteorological Society	2009
Moore, JS; Harris, LN; Tallman, RF; Taylor, EB	The interplay between dispersal and gene flow in anadromous Arctic char (<i>Salvelinus alpinus</i>): implications for potential for local adaptation	Canadian Journal Of Fisheries And Aquatic Sciences	2013
McMeans, BC; Arts, MT; Rush, SA; Fisk, AT	Seasonal patterns in fatty acids of <i>Calanus hyperboreus</i> (Copepoda, Calanoida) from Cumberland Sound, Baffin Island, Nunavut	Marine Biology	2012
Kuzyk, ZZA; Macdonald, RW; Johannessen, SC; Gobeil, C; Stern, GA	Towards a sediment and organic carbon budget for Hudson Bay	Marine Geology	2009
Granskog, MA; Macdonald, RW; Kuzyk, ZZA; Senneville, S; Mundy, CJ; Barber, DG; Stern, GA; Saucier, F	Coastal conduit in southwestern Hudson Bay (Canada) in summer: Rapid transit of freshwater and significant loss of colored dissolved organic matter	Journal Of Geophysical Research-Oceans	2009
Schuback, N; Hoppe, CJM; Tremblay, JE; Maldonado, MT; Tortell, PD	Primary productivity and the coupling of photosynthetic electron transport and carbon fixation in the Arctic Ocean	Limnology And Oceanography	2017

Falkner, KK; Steele, M; Woodgate, RA; Swift, JH; Aagaard, K; Morison, J	Dissolved oxygen extrema in the Arctic Ocean halocline from the North Pole to the Lincoln Sea	Deep-Sea Research Part I- Oceanographic Research Papers	2005
Neiva, J; Paulino, C; Nielsen, MM; Krause-Jensen, D; Saunders, GW; Assis, J; Barbara, I; Tamigneaux, E; Gouveia, L; Aires, T; Marba, N; Bruhn, A; Pearson, GA; Serrao, EA	Glacial vicariance drives phylogeographic diversification in the amphi-boreal kelp <i>Saccharina latissima</i>	Scientific Reports	2018
Blais, M; Ardyna, M; Gosselin, M; Dumont, D; Belanger, S; Tremblay, JE; Gratton, Y; Marchese, C; Poulin, M	Contrasting interannual changes in phytoplankton productivity and community structure in the coastal Canadian Arctic Ocean	Limnology And Oceanography	2017
Saunders, GW; McDevit, DC	DNA barcoding unmasks overlooked diversity improving knowledge on the composition and origins of the Churchill algal flora	Bmc Ecology	2013
Mallory, ML; Karnovsky, NJ; Gaston, AJ; Hobson, KA; Provencher, JF; Forbes, MR; Hunt, GL; Byers, T; Dick, TA	Temporal and spatial patterns in the diet of northern fulmars <i>Fulmarus glacialis</i> in the Canadian High Arctic	Aquatic Biology	2010
Laine, V	Arctic sea ice regional albedo variability and trends, 1982-1998	Journal Of Geophysical Research-Oceans	2004
Rabe, B; Munchow, A; Johnson, HL; Melling, H	Nares Strait hydrography and salinity field from a 3-year moored array	Journal Of Geophysical Research-Oceans	2010
Nancarrow, TL; Chan, HM	Observations of environmental changes and potential dietary impacts in two communities in Nunavut, Canada	Rural And Remote Health	2010
Bouchard, C; Geoffroy, M; LeBlanc, M; Majewski, A; Gauthier, S; Walkusz, W; Reist, JD; Fortier, L	Climate warming enhances polar cod recruitment, at least transiently	Progress In Oceanography	2017
Hussey, NE; Hedges, KJ; Barkley, AN; Treble, MA; Peklova, I; Webber, DM; Ferguson, SH;	Movements of a deep-water fish: establishing marine fisheries management boundaries in coastal Arctic waters	Ecological Applications	2017

Yurkowski, DJ; Kessel, ST; Bedard, JM; Fisk, AT			
Carmack, EC; McLaughlin, FA; Vagle, S; Melling, H; Williams, WJ	Structures and Property Distributions in the Three Oceans Surrounding Canada in 2007: A Basis for a Long-Term Ocean Climate Monitoring Strategy	Atmosphere-Ocean	2010
Stapleton, S; Peacock, E; Garshelis, D	Aerial surveys suggest long-term stability in the seasonally ice-free Foxe Basin (Nunavut) polar bear population	Marine Mammal Science	2016
Shadwick, EH; Thomas, H; Gratton, Y; Leong, D; Moore, SA; Papakyriakou, T; Prowse, AEF	Export of Pacific carbon through the Arctic Archipelago to the North Atlantic	Continental Shelf Research	2011
Lapoussiere, A; Michel, C; Gosselin, M; Poulin, M	Spatial variability in organic material sinking export in the Hudson Bay system, Canada, during fall	Continental Shelf Research	2009
Else, BGT; Yackel, JJ; Papakyriakou, TN	Application of satellite remote sensing techniques for estimating air-sea CO ₂ fluxes in Hudson Bay, Canada during the ice-free season	Remote Sensing Of Environment	2008
Verreault, J; Letcher, RJ; Gentes, ML; Braune, BM	Unusually high Deca-BDE concentrations and new flame retardants in a Canadian Arctic top predator, the glaucous gull	Science Of The Total Environment	2018
Landy, JC; Ehn, JK; Babb, DG; Theriault, N; Barber, DG	Sea ice thickness in the Eastern Canadian Arctic: Hudson Bay Complex & Baffin Bay	Remote Sensing Of Environment	2017
Matsuoka, A; Boss, E; Babin, M; Karp-Boss, L; Hafez, M; Chekalyuk, A; Proctor, CW; Werdell, PJ; Bricaud, A	Pan-Arctic optical characteristics of colored dissolved organic matter: Tracing dissolved organic carbon in changing Arctic waters using satellite ocean color data	Remote Sensing Of Environment	2017
Hare, AA; Kuzyk, ZZA; Macdonald, RW; Sanei, H; Barber, D; Stern, GA; Wang, FY	Characterization of sedimentary organic matter in recent marine sediments from Hudson Bay, Canada, by Rock-Eval pyrolysis	Organic Geochemistry	2014
Ryan, PA; Munchow, A	Sea ice draft observations in Nares Strait from 2003 to 2012	Journal Of Geophysical Research-Oceans	2017
Wang, K; Munson, KM; Beaupre-Laperriere, A;	Subsurface seawater methylmercury maximum explains	Scientific Reports	2018

Mucci, A; Macdonald, R; Wang, FY	biotic mercury concentrations in the Canadian Arctic		
Peck, LE; Gilchrist, HG; Mallory, CD; Braune, BM; Mallory, ML	Persistent organic pollutant and mercury concentrations in eggs of ground-nesting marine birds in the Canadian high Arctic	Science Of The Total Environment	2016
Yamamoto-Kawai, M; McLaughlin, F; Carmack, E	Ocean acidification in the three oceans surrounding northern North America	Journal Of Geophysical Research-Oceans	2013
Brown, TA; Belt, ST; Piepenburg, D	Evidence for a pan-Arctic sea-ice diatom diet in <i>Strongylocentrotus</i> spp	Polar Biology	2012
Braune, BM; Trudeau, S; Jeffrey, DA; Mallory, ML	Biomarker responses associated with halogenated organic contaminants in northern fulmars (<i>Fulmarus glacialis</i>) breeding in the Canadian Arctic	Environmental Pollution	2011
Mallory, ML; Gaston, AJ; Forbes, MR; Gilchrist, HG; Cheney, B; Lewis, S; Thompson, PM	Flexible incubation rhythm in northern fulmars: a comparison between oceanographic zones	Marine Biology	2008
Fenwick, L; Capelle, D; Damm, E; Zimmermann, S; Williams, WJ; Vagle, S; Tortell, PD	Methane and nitrous oxide distributions across the North American Arctic Ocean during summer, 2015	Journal Of Geophysical Research-Oceans	2017
Xi, HY; Larouche, P; Tang, SL; Michel, C	Characterization and variability of particle size distributions in Hudson Bay, Canada	Journal Of Geophysical Research-Oceans	2014
Routti, H; Letcher, RJ; Born, EW; Branigan, M; Dietz, R; Evans, TJ; McKinney, MA; Peacock, E; Sonne, C	Influence of carbon and lipid sources on variation of mercury and other trace elements in polar bears (<i>Ursus maritimus</i>)	Environmental Toxicology And Chemistry	2012
Kellogg, CTE; Deming, JW	Particle-associated extracellular enzyme activity and bacterial community composition across the Canadian Arctic Ocean	Fems Microbiology Ecology	2014
Richerol, T; Pienitz, R; Rochon, A	Modern dinoflagellate cyst assemblages in surface sediments of Nunatsiavut fjords (Labrador, Canada)	Marine Micropaleontology	2012
Bringloe, TT; Saunders, GW	Mitochondrial DNA sequence data reveal the origins of postglacial marine macroalgal flora in the Northwest Atlantic	Marine Ecology Progress Series	2018

Goyette, S; Cao, ZR; Libman, M; Ndao, M; Ward, BJ	Seroprevalence of parasitic zoonoses and their relationship with social factors among the Canadian Inuit in Arctic regions	Diagnostic Microbiology And Infectious Disease	2014
van der Velden, S; Evans, MS; Dempson, JB; Muir, DCG; Power, M	Comparative analysis of total mercury concentrations in anadromous and non-anadromous Arctic charr (<i>Salvelinus alpinus</i>) from eastern Canada	Science Of The Total Environment	2013
Thomas, H; Shadwick, E; Dehairs, F; Lansard, B; Mucci, A; Navez, J; Gratton, Y; Prowe, F; Chierici, M; Fransson, A; Papakyriakou, TN; Sternberg, E; Miller, LA; Tremblay, JE; Monnin, C	Barium and carbon fluxes in the Canadian Arctic Archipelago	Journal Of Geophysical Research-Oceans	2011
Alkire, MB; Falkner, KK; Boyd, T; Macdonald, RW	Sea ice melt and meteoric water distributions in Nares Strait, Baffin Bay, and the Canadian Arctic Archipelago	Journal Of Marine Research	2010
Marcoux, M; Auger- Methe, M; Humphries, MM	Encounter frequencies and grouping patterns of narwhals in Koluktoo Bay, Baffin Island	Polar Biology	2009
Pomerleau, C; Lesage, V; Winkler, G; Rosenberg, B; Ferguson, SH	Contemporary Diet of Bowhead Whales (<i>Balaena mysticetus</i>) from the Eastern Canadian Arctic Inferred from Fatty Acid Biomarkers	Arctic	2014
Loewen, TN; Gillis, D; Tallman, RF	Ecological niche specialization inferred from morphological variation and otolith strontium of Arctic charr <i>Salvelinus alpinus</i> L. found within open lake systems of southern Baffin Island, Nunavut, Canada	Journal Of Fish Biology	2009
Elliott, KH; Gaston, AJ	Diel vertical migration of prey and light availability constrain foraging in an Arctic seabird	Marine Biology	2015
Roy, V; Iken, K; Archambault, P	Regional Variability of Megabenthic Community Structure across the Canadian Arctic	Arctic	2015
Duerksen, SW; Thiemann, GW; Budge,	Large, Omega-3 Rich, Pelagic Diatoms under Arctic Sea Ice:	Plos One	2014

SM; Poulin, M; Niemi, A; Michel, C	Sources and Implications for Food Webs		
Lu, Z; Fisk, AT; Kovacs, KM; Lydersen, C; McKinney, MA; Tomy, GT; Rosenburg, B; McMeans, BC; Muir, DCG; Wong, CS	Temporal and spatial variation in polychlorinated biphenyl chiral signatures of the Greenland shark (<i>Somniosus microcephalus</i>) and its arctic marine food web	Environmental Pollution	2014
Spence, C; Burke, A	Estimates of Canadian Arctic Archipelago runoff from observed hydrometric data	Journal Of Hydrology	2008
Stewart, REA	Redefining walrus stocks in Canada	Arctic	2008
Murillo, FJ; Kenchington, E; Tompkins, G; Beazley, L; Baker, E; Knudby, A; Walkusz, W	Sponge assemblages and predicted archetypes in the eastern Canadian Arctic	Marine Ecology Progress Series	2018
Burgers, TM; Miller, LA; Thomas, H; Else, BGT; Gosselin, M; Papakyriakou, T	Surface Water pCO ₂ Variations and Sea-Air CO ₂ Fluxes During Summer in the Eastern Canadian Arctic	Journal Of Geophysical Research-Oceans	2017
Pedro, S; Fisk, AT; Tomy, GT; Ferguson, SH; Hussey, NE; Kessel, ST; McKinney, MA	Mercury and persistent organic pollutants in native and invading forage species of the Canadian Arctic: Consequences for food web dynamics	Environmental Pollution	2017
Guery, L; Descamps, S; Pradel, R; Hanssen, SA; Erikstad, KE; Gabrielsen, GW; Gilchrist, HG; Bety, J	Hidden survival heterogeneity of three Common eider populations in response to climate fluctuations	Journal Of Animal Ecology	2017
Watt, CA; Orr, J; Ferguson, SH	A shift in foraging behaviour of beluga whales <i>Delphinapterus leucas</i> from the threatened Cumberland Sound population may reflect a changing Arctic food web	Endangered Species Research	2016
van der Velden, S; Dempson, JB; Power, M	Comparing mercury concentrations across a thirty year time span in anadromous and non-anadromous Arctic charr from Labrador, Canada	Science Of The Total Environment	2015
Melling, H; Haas, C; Brossier, E	Invisible polynyas: Modulation of fast ice thickness by ocean heat flux on the Canadian polar shelf	Journal Of Geophysical Research-Oceans	2015

Pope, S; Copland, L; Mueller, D	Loss of Multiyear Landfast Sea Ice from Yelverton Bay, Ellesmere Island, Nunavut, Canada	Arctic Antarctic And Alpine Research	2012
Chambers, CA; Dick, TA	Trophic structure of one deep-sea benthic fish community in the eastern Canadian Arctic: application of food, parasites and multivariate analysis	Environmental Biology Of Fishes	2005
Beddow, TA; Deary, C; McKinley, RS	Migratory and reproductive activity of radio-tagged Arctic char (<i>Salvelinus alpinus</i> L.) in northern Labrador	Hydrobiologia	1998
Joli, N; Gosselin, M; Ardyna, M; Babin, M; Onda, DF; Tremblay, JE; Lovejoy, C	Need for focus on microbial species following ice melt and changing freshwater regimes in a Janus Arctic Gateway	Scientific Reports	2018
Gourdal, M; Lizotte, M; Masse, G; Gosselin, M; Poulin, M; Scarratt, M; Charette, J; Levasseur, M	Dimethyl sulfide dynamics in first- year sea ice melt ponds in the Canadian Arctic Archipelago	Biogeosciences	2018
Devine, BM; Wheeland, LJ; Fisher, JAD	First estimates of Greenland shark (<i>Somniosus microcephalus</i>) local abundances in Arctic waters	Scientific Reports	2018
de la Guardia, LC; Myers, PG; Derocher, AE; Lunn, NJ; van Scheltinga, ADT	Sea ice cycle in western Hudson Bay, Canada, from a polar bear perspective	Marine Ecology Progress Series	2017
Crawford, DW; Wyatt, SN; Wrohan, IA; Cefarelli, AO; Giesbrecht, KE; Kelly, B; Varela, DE	Low particulate carbon to nitrogen ratios in marine surface waters of the Arctic	Global Biogeochemical Cycles	2015
Xi, HY; Larouche, P; Michel, C; Tang, SL	Beam attenuation, scattering and backscattering of marine particles in relation to particle size distribution and composition in Hudson Bay (Canada)	Journal Of Geophysical Research-Oceans	2015
Peklova, I; Hussey, NE; Hedges, KJ; Treble, MA; Fisk, AT	Movement, depth and temperature preferences of an important bycatch species, Arctic skate <i>Amblyraja hyperborea</i> , in Cumberland Sound, Canadian Arctic	Endangered Species Research	2014
Hamilton, JM; Collins, K; Prinsenber, SJ	Links between ocean properties, ice cover, and plankton dynamics	Journal Of Geophysical Research-Oceans	2013

	on interannual time scales in the Canadian Arctic Archipelago		
Xi, HY; Larouche, P; Tang, SL; Michel, C	Seasonal variability of light absorption properties and water optical constituents in Hudson Bay, Canada	Journal Of Geophysical Research-Oceans	2013
Boisvert, LN; Markus, T; Parkinson, CL; Vihma, T	Moisture fluxes derived from EOS aqua satellite data for the north water polynya over 2003-2009	Journal Of Geophysical Research-Atmospheres	2012
Babaluk, JA; Campbell, JL; Evans, CL; Halden, NM; Mejia, SR; Nejedly, Z; Reist, JD; Teesdale, WJ	Micro-PIXE analysis of strontium in Arctic char, <i>Salvelinus alpinus</i> , otoliths from Quttinirpaaq National Park, Nunavut, Canada	Nuclear Instruments & Methods In Physics Research Section B-Beam Interactions With Materials And Atoms	2002
Singh, K; Chan, HM	Association of blood polychlorinated biphenyls and cholesterol levels among Canadian Inuit	Environmental Research	2018
Shiple, ON; Olin, JA; Polunin, NVC; Sweeting, CJ; Newman, SP; Brooks, EJ; Barker, S; Witt, MJ; Talwar, B; Hussey, NE	Polar compounds preclude mathematical lipid correction of carbon stable isotopes in deep-water sharks	Journal Of Experimental Marine Biology And Ecology	2017
Krumhansl, K; Jamieson, R; Krkosek, W	Using species traits to assess human impacts on near shore benthic ecosystems in the Canadian Arctic	Ecological Indicators	2016
Baillon, S; Hamel, JF; Mercier, A	Protracted oogenesis and annual reproductive periodicity in the deep-sea pennatulacean <i>Halopteris finmarchica</i> (Anthozoa, Octocorallia)	Marine Ecology-An Evolutionary Perspective	2015
Gaillard, B; Meziane, T; Tremblay, R; Archambault, P; Layton, KKS; Martel, AL; Olivier, F	Dietary tracers in <i>Bathyrca glacialis</i> from contrasting trophic regions in the Canadian Arctic	Marine Ecology Progress Series	2015
Evans, MS; Muir, DCG; Keating, J; Wang, XW	Anadromous char as an alternate food choice to marine animals: A synthesis of Hg concentrations,	Science Of The Total Environment	2015

	population features and other influencing factors		
Lung, JYSLY; Tank, SE; Spence, C; Yang, DQ; Bonsal, B; McClelland, JW; Holmes, RM	Seasonal and Geographic Variation in Dissolved Carbon Biogeochemistry of Rivers Draining to the Canadian Arctic Ocean and Hudson Bay	Journal Of Geophysical Research-Biogeosciences	2018
Tempestini, A; Rysgaard, S; Dufresne, F	Species identification and connectivity of marine amphipods in Canada's three oceans	Plos One	2018
Marcoux, M; Ferguson, SH; Roy, N; Bedard, JM; Simard, Y	Seasonal marine mammal occurrence detected from passive acoustic monitoring in Scott Inlet, Nunavut, Canada	Polar Biology	2017
Burt, WJ; Thomas, H; Miller, LA; Granskog, MA; Papakyriakou, TN; Pengelly, L	Inorganic carbon cycling and biogeochemical processes in an Arctic inland sea (Hudson Bay)	Biogeosciences	2016
Pomerleau, C; Stern, GA; Pucko, M; Foster, KL; Macdonald, RW; Fortier, L	Pan-Arctic concentrations of mercury and stable isotope ratios of carbon (delta C-13) and nitrogen (delta N-15) in marine zooplankton	Science Of The Total Environment	2016
Hussey, NE; Cosandey-Godin, A; Walter, RP; Hedges, KJ; VanGerwen-Toyne, M; Barkley, AN; Kessel, ST; Fisk, AT	Juvenile Greenland sharks <i>Somniosus microcephalus</i> (Bloch & Schneider, 1801) in the Canadian Arctic	Polar Biology	2015
Howell, SEL; Derksen, C; Pizzolato, L; Brady, M	Multiyear ice replenishment in the Canadian Arctic Archipelago: 1997-2013	Journal Of Geophysical Research-Oceans	2015
Pufall, EL; Jones-Bitton, A; McEwen, SA; Brown, TM; Edge, VL; Rokicki, J; Karpiej, K; Peregrine, AS; Simard, M	Prevalence of Zoonotic Anisakid Nematodes in Inuit-Harvested Fish and Mammals from the Eastern Canadian Arctic	Foodborne Pathogens And Disease	2012
Matthews, CJD; Breed, GA; LeBlanc, B; Ferguson, SH	Killer whale presence drives bowhead whale selection for sea ice in Arctic seascapes of fear	Proceedings Of The National Academy Of Sciences Of The United States Of America	2020
Ma, B; Steele, M; Lee, CM	Ekman circulation in the Arctic Ocean: Beyond the Beaufort Gyre	Journal Of Geophysical Research-Oceans	2017

Breton-Honeyman, K; Hammill, MO; Furgal, CM; Hickie, B	Inuit Knowledge of beluga whale (<i>Delphinapterus leucas</i>) foraging ecology in Nunavik (Arctic Quebec), Canada	Canadian Journal Of Zoology	2016
Kjellerup, S; Dunweber, M; Moller, EF; Schiedek, D; Oskarsson, GJ; Riget, F; Johansen, KL; Mosbech, A	Vertical and horizontal distribution of zooplankton and polar cod in southern Baffin Bay (66-71 degrees N) in September 2009	Polar Biology	2015
Wyatt, SN; Crawford, DW; Wrohan, IA; Varela, DE	Distribution and composition of suspended biogenic particles in surface waters across Subarctic and Arctic Seas	Journal Of Geophysical Research-Oceans	2013
Layton, KKS; Dempson, B; Snelgrove, PVR; Duffy, SJ; Messmer, AM; Paterson, IG; Jeffery, NW; Kess, T; Horne, JB; Salisbury, SJ; Ruzzante, DE; Bentzen, P; Cote, D; Nugent, CM; Ferguson, MM; Leong, JS; Koop, BF; Bradbury, IR	Resolving fine-scale population structure and fishery exploitation using sequenced microsatellites in a northern fish	Evolutionary Applications	2020
Bouchard, C; Geoffroy, M; LeBlanc, M; Fortier, L	Larval and adult fish assemblages along the Northwest Passage: the shallow Kitikmeot and the ice- covered Parry Channel as potential barriers to dispersal	Arctic Science	2018
Maccali, J; Hillaire- Marcel, C; Not, C	Radiogenic isotope (Nd, Pb, Sr) signatures of surface and sea ice- transported sediments from the Arctic Ocean under the present interglacial conditions	Polar Research	2018
Johansson, ML; Chaganti, SR; Simard, N; Howland, K; Winkler, G; Rochon, A; Laget, F; Tremblay, P; Heath, DD; MacIsaac, HJ	Attenuation and modification of the ballast water microbial community during voyages into the Canadian Arctic	Diversity And Distributions	2017
Tanaka, Y; Tateyama, K; Kameda, T; Hutchings, JK	Estimation of melt pond fraction over high-concentration Arctic sea ice using AMSR-E passive microwave data	Journal Of Geophysical Research-Oceans	2016
Layton, KKS; Martel, AL; Hebert, PDN	Geographic patterns of genetic diversity in two species complexes of Canadian marine bivalves	Journal Of Molluscan Studies	2016

Curry, RA; Gautreau, MD; Culp, JM	Fin tissues as surrogates of white muscle when assessing carbon and nitrogen stable isotope levels for Arctic and brook char	Environmental Biology Of Fishes	2014
Taalba, A; Xie, H; Scarratt, MG; Belanger, S; Levasseur, M	Photooxidation of dimethylsulfide (DMS) in the Canadian Arctic	Biogeosciences	2013
Defossez, M; Saucier, FJ; Myers, PG; Caya, D; Dumais, JF	Analysis of a dense water pulse following mid-winter opening of polynyas in western Foxe Basin, Canada	Dynamics Of Atmospheres And Oceans	2010
Amiriaux, R; Smik, L; Koseoglu, D; Rontani, JF; Galindo, V; Grondin, PL; Babin, M; Belt, ST	Temporal evolution of IP25 and other highly branched isoprenoid lipids in sea ice and the underlying water column during an Arctic melting season	Elementa-Science Of The Anthropocene	2019
Lu, Z; De Silva, AO; Provencher, JF; Mallory, ML; Kirk, JL; Houde, M; Stewart, C; Braune, BM; Avery-Gomm, S; Muir, DCG	Occurrence of substituted diphenylamine antioxidants and benzotriazole UV stabilizers in Arctic seabirds and seals	Science Of The Total Environment	2019
Anderson, CM; Gilchrist, HG; Ronconi, RA; Shlepr, KR; Clark, DE; Weseloh, DVC; Roberston, GJ; Mallory, ML	Winter home range and habitat selection differs among breeding populations of herring gulls in eastern North America	Movement Ecology	2019
Grivault, N; Hu, XM; Myers, PG	Impact of the Surface Stress on the Volume and Freshwater Transport Through the Canadian Arctic Archipelago From a High-Resolution Numerical Simulation	Journal Of Geophysical Research-Oceans	2018
Ballinger, TJ; Hanna, E; Hall, RJ; Cropper, TE; Miller, J; Ribergaard, MH; Overland, JE; Hoyer, JL	Anomalous blocking over Greenland preceded the 2013 extreme early melt of local sea ice	Annals Of Glaciology	2018
Hussey, NE; Orr, J; Fisk, AT; Hedges, KJ; Ferguson, SH; Barkley, AN	Mark report satellite tags (mrPATs) to detail large-scale horizontal movements of deep water species: First results for the Greenland shark (<i>Somniosus microcephalus</i>)	Deep-Sea Research Part I- Oceanographic Research Papers	2018
Laidre, KL; Stern, H; Born, EW; Heagerty, P; Atkinson, S; Wiig, O;	Changes in winter and spring resource selection by polar bears	Endangered Species Research	2018

Lunn, NJ; Regehr, EV; McGovern, R; Dyck, M	Ursus maritimus in Baffin Bay over two decades of sea-ice loss		
Makela, A; Witte, U; Archambault, P	Benthic macroinfaunal community structure, resource utilisation and trophic relationships in two Canadian Arctic Archipelago polynyas	Plos One	2017
Finke, JF; Hunt, BPV; Winter, C; Carmack, EC; Suttle, CA	Nutrients and Other Environmental Factors Influence Virus Abundances across Oxic and Hypoxic Marine Environments	Viruses-Basel	2017
Turk, D; Bedard, JM; Burt, WJ; Vagle, S; Thomas, H; Azetsu-Scott, K; McGillis, WR; Iverson, SJ; Wallace, DWR	Inorganic carbon in a high latitude estuary-fjord system in Canada's eastern Arctic	Estuarine Coastal And Shelf Science	2016
Crawford, AJ; Wadhams, P; Wagner, TJW; Stern, A; Abrahamsen, EP; Church, I; Bates, R; Nicholls, KW	Journey of an Arctic Ice Island	Oceanography	2016
Thaler, M; Lovejoy, C	Environmental selection of marine stramenopile clades in the Arctic Ocean and coastal waters	Polar Biology	2014
Jackson, JM; Lique, C; Alkire, M; Steele, M; Lee, CM; Smethie, WM; Schlosser, P	On the waters upstream of Nares Strait, Arctic Ocean, from 1991 to 2012	Continental Shelf Research	2014
Campagna, L; de Groot, PJV; Saunders, BL; Atkinson, SN; Weber, DS; Dyck, MG; Boag, PT; Loughheed, SC	Extensive sampling of polar bears (Ursus maritimus) in the Northwest Passage (Canadian Arctic Archipelago) reveals population differentiation across multiple spatial and temporal scales	Ecology And Evolution	2013
Preusser, A; Ohshima, KI; Iwamoto, K; Willmes, S; Heinemann, G	Retrieval of Wintertime Sea Ice Production in Arctic Polynyas Using Thermal Infrared and Passive Microwave Remote Sensing Data	Journal Of Geophysical Research-Oceans	2019
Ahmed, M; Else, BGT; Burgers, TM; Papakyriakou, T	Variability of Surface Water pCO(2) in the Canadian Arctic Archipelago From 2010 to 2016	Journal Of Geophysical Research-Oceans	2019

Chanona, M; Waterman, S; Gratton, Y	Variability of Internal Wave-Driven Mixing and Stratification in Canadian Arctic Shelf and Shelf-Slope Waters	Journal Of Geophysical Research-Oceans	2018
Laforest, BJ; Hebert, JS; Obbard, ME; Thiemann, GW	Traditional Ecological Knowledge of Polar Bears in the Northern Eeyou Marine Region, Quebec, Canada	Arctic	2018
Steenweg, RJ; Crossin, GT; Kyser, TK; Merkel, FR; Gilchrist, HG; Hennin, HL; Robertson, GJ; Provencher, JF; Flemming, JM; Love, OP	Stable isotopes can be used to infer the overwintering locations of prebreeding marine birds in the Canadian Arctic	Ecology And Evolution	2017
Marcoux, M; Auger-Methe, M; Chmelnitsky, EG; Ferguson, SH; Humphries, MM	Local Passive Acoustic Monitoring of Narwhal Presence in the Canadian Arctic: A Pilot Project	Arctic	2011
Huntington, A; Corcoran, PL; Jantunen, L; Thaysen, C; Bernstein, S; Stern, GA; Rochman, CM	A first assessment of microplastics and other anthropogenic particles in Hudson Bay and the surrounding eastern Canadian Arctic waters of Nunavut	Facets	2020
Nixon, RL; Jackson, SL; Cullen, JT; Ross, ARS	Distribution of copper-complexing ligands in Canadian Arctic waters as determined by immobilized copper(II)-ion affinity chromatography	Marine Chemistry	2019
Comeau, AM; Lagunas, MG; Scarcella, K; Varela, DE; Lovejoy, C	Nitrate Consumers in Arctic Marine Eukaryotic Communities: Comparative Diversities of 18S rRNA, 18S rRNA Genes, and Nitrate Reductase Genes	Applied And Environmental Microbiology	2019
Crawford, AJ; Mueller, D; Desjardins, L; Myers, PG	The Aftermath of Petermann Glacier Calving Events (2008-2012): Ice Island Size Distributions and Meltwater Dispersal	Journal Of Geophysical Research-Oceans	2018
Hughes, KG; Klymak, JM; Williams, WJ; Melling, H	Tidally Modulated Internal Hydraulic Flow and Energetics in the Central Canadian Arctic Archipelago	Journal Of Geophysical Research-Oceans	2018
Shen, Y; Benner, R; Kaiser, K; Fichot, CG; Whitledge, TE	Pan-Arctic Distribution of Bioavailable Dissolved Organic Matter and Linkages With Productivity in Ocean Margins	Geophysical Research Letters	2018

Huntley, HS; Ryan, P	Wind Effects on Flow Patterns and Net Fluxes in Density-Driven High-Latitude Channel Flow	Journal Of Geophysical Research-Oceans	2018
Marmen, MB; Kenchington, E; Ardyna, M; Archambault, P	Influence of seabird colonies and other environmental variables on benthic community structure, Lancaster Sound Region, Canadian Arctic	Journal Of Marine Systems	2017
Bedard, JM; Vagle, S; Klymak, JM; Williams, WJ; Curry, B; Lee, CM	Outside influences on the water column of Cumberland Sound, Baffin Island	Journal Of Geophysical Research-Oceans	2015
Murdoch, A; Dempson, JB; Martin, F; Power, M	Temperature-growth patterns of individually tagged anadromous Arctic charr <i>Salvelinus alpinus</i> in Ungava and Labrador, Canada	Ecology Of Freshwater Fish	2015
Martyniuk, MAC; Couture, P; Tran, LL; Beaupre, L; Power, M	Seasonal variation of total mercury and condition indices of Arctic charr (<i>Salvelinus alpinus</i>) in Northern Quebec, Canada	Science Of The Total Environment	2020
Petrusevich, VY; Dmitrenko, IA; Niemi, A; Kirillov, SA; Kamula, CM; Kuzyk, ZZA; Barber, DG; Ehn, JK	Impact of tidal dynamics on diel vertical migration of zooplankton in Hudson Bay	Ocean Science	2020
Bourdages, MPT; Provencher, JF; Sudlovenick, E; Ferguson, SH; Young, BG; Pelletier, N; Murphy, MJJ; D'Addario, A; Vermaire, JC	No plastics detected in seal (<i>Phocidae</i>) stomachs harvested in the eastern Canadian Arctic	Marine Pollution Bulletin	2020
Foster, KL; Braune, BM; Gaston, AJ; Mallory, ML	Climate influence on mercury in Arctic seabirds	Science Of The Total Environment	2019
Yau, S; dos Santos, AL; Eikrem, W; Ribeiro, CG; Gourvil, P; Balzano, S; Escande, ML; Moreau, H; Vaultot, D	<i>Mantoniella beaufortii</i> and <i>Mantoniella baffinensis</i> sp. nov. (Mamiellales, Mamiellophyceae), two new green algal species from the high arctic(1)	Journal Of Phycology	2020
Kalenitchenko, D; Joli, N; Potvin, M; Tremblay, JE; Lovejoy, C	Biodiversity and Species Change in the Arctic Ocean: A View Through the Lens of Nares Strait	Frontiers In Marine Science	2019
Dinn, C; Edinger, E; Leys, SP	Sponge (Porifera) fauna of Frobisher Bay, Baffin Island, Canada with the description of an <i>Iophon</i> rich sponge garden	Zootaxa	2019

Miller, LA; Burgers, TM; Burt, WJ; Granskog, MA; Papakyriakou, TN	Air-Sea CO ₂ Flux Estimates in Stratified Arctic Coastal Waters: How Wrong Can We Be?	Geophysical Research Letters	2019
Lange, BA; Beckers, JF; Casey, JA; Haas, C	Airborne Observations of Summer Thinning of Multiyear Sea Ice Originating From the Lincoln Sea	Journal Of Geophysical Research-Oceans	2019
Pedro, S; Fisk, AT; Ferguson, SH; Hussey, NE; Kessel, ST; McKinney, MA	Limited effects of changing prey fish communities on food quality for aquatic predators in the eastern Canadian Arctic in terms of essential fatty acids, methylmercury and selenium	Chemosphere	2019
Petrusevich, VY; Dmitrenko, IA; Kozlov, IE; Kirillov, SA; Kuzyk, ZZA; Komarov, AS; Heath, JP; Barber, DG; Ehn, JK	Tidally-generated internal waves in Southeast Hudson Bay	Continental Shelf Research	2018
Gmelch, L; Hintelmann, H; Hickie, B; Kienberger, H; Stern, G; Rychlik, M	Risk-Benefit Assessment of Monomethylmercury and Omega-3 Fatty Acid Intake for Ringed Seal Consumption with Particular Emphasis on Vulnerable Populations in the Western Canadian Arctic	Frontiers In Nutrition	2017
Watt, CA; Orr, JR; Ferguson, SH	Spatial distribution of narwhal (Monodon monoceros) diving for Canadian populations helps identify important seasonal foraging areas	Canadian Journal Of Zoology	2017
Westdal, KH; Higdon, JW; Ferguson, SH	Attitudes of Nunavut Inuit toward Killer Whales (Orcinus orca)	Arctic	2013
Colombo, M; Jackson, SL; Cullen, JT; Orians, KJ	Dissolved iron and manganese in the Canadian Arctic Ocean: On the biogeochemical processes controlling their distributions	Geochimica Et Cosmochimica Acta	2020
Cusset, F; Fort, J; Mallory, M; Braune, B; Massicotte, P; Masse, G	Arctic seabirds and shrinking sea ice: egg analyses reveal the importance of ice-derived resources	Scientific Reports	2019
Colombo, M; Rogalla, B; Myers, PG; Allen, SE; Orians, KJ	Tracing Dissolved Lead Sources in the Canadian Arctic: Insights from the Canadian GEOTRACES Program	Acs Earth And Space Chemistry	2019

Devine, BM; Wheeland, LJ; Neves, BD; Fisher, JAD	Baited remote underwater video estimates of benthic fish and invertebrate diversity within the eastern Canadian Arctic	Polar Biology	2019
Steeves, HN; Mcmeans, B; Field, C; Stewart, C; Arts, MT; Fisk, AT; Lydersen, C; Kovacs, KM; Macneil, MA	Non-parametric analysis of the spatio-temporal variability in the fatty-acid profiles among Greenland sharks	Journal Of The Marine Biological Association Of The United Kingdom	2018
Ng, JY; Williams, B; Thompson, DM; Mayne, C; Halfar, J; Edinger, E; Johnson, K	Assessing multi-site delta O-18-climate calibrations of the coralline alga <i>Clathromorphum</i> across the high-latitude Northern Hemisphere	Geochimica Et Cosmochimica Acta	2016
Canario, J; Poissant, L; Pilote, M; Blaise, C; Constant, P; Ferard, JF; Gagne, F	Toxicity survey of Canadian Arctic marine sediments	Journal Of Soils And Sediments	2014
Provencher, JF; Thomas, PJ; Pauli, B; Braune, BM; Franckowiak, RP; Gendron, M; Savard, G; Sarma, SN; Crump, D; Zahaby, Y; O'Brien, J; Mallory, ML	Polycyclic aromatic compounds (PACs) and trace elements in four marine bird species from northern Canada in a region of natural marine oil and gas seeps	Science Of The Total Environment	2020
Chambault, P; Tervo, OM; Garde, E; Hansen, RG; Blackwell, SB; Williams, TM; Dietz, R; Albertsen, CM; Laidre, KL; Nielsen, NH; Richard, P; Sinding, MHS; Schmidt, HC; Heide-Jorgensen, MP	The impact of rising sea temperatures on an Arctic top predator, the narwhal	Scientific Reports	2020
Chen, SY; Shokr, M; Li, XQ; Ye, YF; Zhang, ZL; Hui, FM; Cheng, X	MYI Floes Identification Based on the Texture and Shape Feature from Dual-Polarized Sentinel-1 Imagery	Remote Sensing	2020
Charry, B; Marcoux, M; Cardille, JA; Giroux-Bougard, X; Humphries, MM	Hierarchical Classification of Narwhal Subpopulations Using Social Distance	Journal Of Wildlife Management	2020
Davidson, ER; Hussey, NE	Movements of a potential fishery resource, porcupine crab (<i>Neolithodes grimaldii</i>) in	Deep-Sea Research Part I- Oceanographic Research Papers	2019

	Northern Davis Strait, Eastern Canadian Arctic		
Peng, HT; Ke, CQ; Shen, XY; Li, MM; Shao, ZD	Summer albedo variations in the Arctic Sea ice region from 1982 to 2015	International Journal Of Climatology	2020
Brouard, E; Lajeunesse, P	Ice-stream flow switching by up-ice propagation of instabilities along glacial marginal troughs	Cryosphere	2019
Dalton, A; Copland, L; Tivy, A; Van Wychen, W; Cook, A	Iceberg production and characteristics around the Prince of Wales Icefield, Ellesmere Island, 1997-2015	Arctic Antarctic And Alpine Research	2019
Mallory, ML; Forbes, MR	Behavioural and energetic constraints of reproduction: Distinguishing breeding from non-breeding northern fulmars at their colony	Ecoscience	2013
Caron-Beaudoin, E; Ayotte, P; Blanchette, C; Muckle, G; Avard, E; Ricard, S; Lemire, M	Perfluoroalkyl acids in pregnant women from Nunavik (Quebec, Canada): Trends in exposure and associations with country foods consumption	Environment International	2020
Ferguson, SH; Willing, C; Kelley, TC; Boguski, DA; Yurkowski, DJ; Watt, CA	Reproductive Parameters for Female Beluga Whales (<i>Delphinapterus leucas</i>) of Baffin Bay and Hudson Bay, Canada	Arctic	2020
Henri, DA; Martinez-Levasseur, LM; Weetaltuk, S; Mallory, ML; Gilchrist, HG; Jean-Gagnon, F	Inuit knowledge of Arctic Terns (<i>Sterna paradisaea</i>) and perspectives on declining abundance in southeastern Hudson Bay, Canada	Plos One	2020
Martyniuk, MAC; Couture, P; Tran, LL; Beaupre, L; Urien, N; Power, M	A seasonal comparison of trace metal concentrations in the tissues of Arctic charr (<i>Salvelinus alpinus</i>) in Northern Quebec, Canada	Ecotoxicology	2020
Boye, TK; Simon, MJ; Laidre, KL; Riget, F; Stafford, KM	Seasonal detections of bearded seal (<i>Erignathus barbatus</i>) vocalizations in Baffin Bay and Davis Strait in relation to sea ice concentration	Polar Biology	2020
Dinn, C; Zhang, XY; Edinger, E; Leys, SP	Sponge communities in the eastern Canadian Arctic: species richness, diversity and density determined using targeted benthic sampling and underwater video analysis	Polar Biology	2020

Andrews, JT; Jenner, KA; Campbell, C	LINKING MARINE CORE LITHOFACIES AND MINERAL AND GRAIN-SIZE COMPOSITIONS ON THE BAFFIN ISLAND MARGIN: CHANGES IN PROVENANCE AND TRANSPORT	Journal Of Sedimentary Research	2020
Togunov, RR; Klappstein, NJ; Lunn, NJ; Derocher, AE; Auger-Methe, M	Opportunistic evaluation of modelled sea ice drift using passively drifting telemetry collars in Hudson Bay, Canada	Cryosphere	2020
Pienkowski, AJ; Kennaway, S; Lang, SI	Aquatic palynomorphs from modern marine sediments in a reconnaissance transect across the Northwest Passage - Baffin Bay region	Marine Micropaleontology	2020
Simo-Matchim, AG; Gosselin, M; Belzile, C	Multivariate control of heterotrophic bacterial abundance and zooplankton grazing in Labrador fjords (northeastern Canada)	Aquatic Microbial Ecology	2020
Guery, L; Descamps, S; Hodges, KI; Pradel, R; Moe, B; Hanssen, SA; Erikstad, KE; Gabrielsen, G; Gilchrist, HG; Jenouvrier, S; Bety, J	Winter extratropical cyclone influence on seabird survival: variation between and within common eider Somateria mollissima populations	Marine Ecology Progress Series	2019
Johnston, ME	Thickness and freeboard statistics of Arctic Multi-year Ice in late summer: Three, recent drilling campaigns	Cold Regions Science And Technology	2019
Wu, BY; Zhang, RH; Wang, J	Dipole anomaly in the Arctic atmosphere and winter Arctic sea ice motion	Science In China Series D-Earth Sciences	2005
Watt, Cortney A; Dunn, J. Blair; Moore, Richard; Hodgson, Robert; Ferguson, Steven H; Marcoux, Marianne	Effect of the 2015 narwhal (Monodon monoceros) entrapment on the Eclipse Sound narwhal stock		2019
McMillan, A; Kenchington, E; Baker, E; Rowsell, J; Beazley, L	Epibenthic megafauna of the Disko Fan Conservation Area in the Davis Strait (Eastern Arctic) identified from in situ benthic image transects.		2018
Dunn, J. Blair; Ferguson, Steven H; Matthews,	Estimate of the abundance of the Eclipse Sound narwhal (Monodon		2019

Cory J.D; Marcoux, Marianne; Montsion, Leah M	Monoceros) summer stock from the 2016 photographic aerial survey		
Hornby, Claire A; Matthews, Cory J.D; Ferguson, Steven H; Marcoux, Marianne	Evaluation of LGL visual aerial survey data for estimating narwhal abundance in Eclipse Sound during the open-water season 2013–2015		2019
Dunn, J. Blair; Asselin, Natalie C; Watt, Cortney; Westdal, Kristin H; Matthews, Cory J. D; Young, Brent G; Ferguson, Steven H; Orr, Jack R; Marcoux, Marianne; Hall, Patricia A; Montsion, Leah M	Estimated abundance of the Western Hudson Bay beluga stock from the 2015 visual and photographic aerial survey		2017
Squires, Hubert J	Decapod crustaceans of Newfoundland, Labrador and the Canadian eastern Arctic		1996
Squires, Hubert J	Decapod crustaceans of Newfoundland, Labrador and the Canadian Eastern Arctic		1965
Stewart, D. B	Commercial and subsistence catches of beluga whales (<i>Delphinapterus leucas</i>) from Cumberland Sound, Nunavut, 1840-2016		2018
Hammill, M.O; Marcoux, Marianne	Model estimates of Cumberland Sound beluga (<i>Delphinapterus leucas</i>) population size and total allowable removals		2016
Kenchington, E; Niemi, A; Deslongchamps, G; Tremblay, J.-É; Michel, C	Oceanographic data in support of benthic biodiversity surveys in Baffin Bay and Davis Strait, 2012		2017
Ferguson, Steven H.	Review of aerial survey estimates for ringed seals (<i>Pusa hispida</i>) in western Hudson Bay, 2009 and 2010		2011
Sarma, S.N., Thomas, P.J., Naz, S., Pauli, B., Crump, D., Zahaby, Y., O'Brien, J.M., Mallory, M.L., Franckowiak, R.P.,	Metabolomic profiles in relation to benchmark polycyclic aromatic compounds (PACs) and trace elements in two seabird species from Arctic Canada	Environmental Research	2022

Gendron, M., Provencher, J.F.			
Gianasi, B.L., Goldsmit, J., Archambault, P., McKindsey, C.W., Holovachov, O., Howland, K.L.	Biodiversity of macrobenthic nematodes in the intertidal and shallow subtidal zones in the Eastern Canadian Arctic	Polar Biology	2022
Sezginer, Y., Suggett, D.J., Izett, R.W., Tortell, P.D.	Irradiance and nutrient-dependent effects on photosynthetic electron transport in Arctic phytoplankton: A comparison of two chlorophyll fluorescence-based approaches to derive primary photochemistry	Plos ONE	2021
Galicia, M.P., Thiemann, G.W., Dyck, M.G., Ferguson, S.H.	Polar bear diet composition reveals spatiotemporal distribution of Arctic marine mammals across Nunavut, Canada	Ecological Indicators	2021
Wilson, K., Arreak, A., Bell, T., Ljubicic, G.	The Mittimatalik Siku Asijjipallianinga (Sea Ice Climate Atlas): How Inuit Knowledge, Earth Observations, and Sea Ice Charts Can Fill IPCC Climate Knowledge Gaps	Frontiers In Climate	2021
Cote, D., Dempson, J.B., Piersiak, M., Layton, K., Roul, S., Laing, R., Angnatok, J., Bradbury, I.	Using movement, diet, and genetic analyses to understand Arctic charr responses to ecosystem change	Marine Ecology Progress Series	2021
Adams, J.K., Dean, B.Y., Athey, S.N., Jantunen, L.M., Bernstein, S., Stern, G., Diamond, M.L., Finkelstein, S.A.	Anthropogenic particles (including microfibers and microplastics) in marine sediments of the Canadian Arctic	Science Of The Total Environment	2021
Charry, B., Tissier, E., Iacozza, J., Marcoux, M., Watt, C.A.	Mapping Arctic cetaceans from space: A case study for beluga and narwhal	Plos ONE	2021
Halliday, W.D., Barclay, D., Barkley, A.N., Cook, E., Dawson, J., Hilliard, R.C., Hussey, N.E., Jones, J.M., Juanes, F., Marcoux, M., Niemi, A., Nudds, S., Pine, M.K., Richards, C., Scharffenberg, K., Westdal, K., Insley, S.J.	Underwater sound levels in the Canadian Arctic, 2014–2019	Marine Pollution Bulletin	2021

Bourdages, M.P.T., Provencher, J.F., Baak, J.E., Mallory, M.L., Vermaire, J.C.	Breeding seabirds as vectors of microplastics from sea to land: Evidence from colonies in Arctic Canada	Science Of The Total Environment	2021
Sühring, R., Diamond, M.L., Bernstein, S., Adams, J.K., Schuster, J.K., Fernie, K., Elliott, K., Stern, G., Jantunen, L.M.	Organophosphate Esters in the Canadian Arctic Ocean	Environmental Science And Technology	2021
Mc Nicholl, D.G., Harris, L.N., Loewen, T., May, P., Tran, L., Akeagok, R., Methuen, K., Lewis, C., Jeppesen, R., Illasiak, S., Green, B., Koovaluk, J., Annahatak, Z., Kapakatoak, J., Kaosoni, N., Hainnu, B., Maksagak, B., Reist, J.D., Dunmall, K.M.	Noteworthy occurrences among six marine species documented with community engagement in the Canadian Arctic	Animal Migration	2021
Kovacs, K.M., Citta, J., Brown, T., Dietz, R., Ferguson, S., Harwood, L., Houde, M., Lea, E.V., Quakenbush, L., Riget, F., Rosing-Asvid, A., Smith, T.G., Svetoch, V., Svetoch, O., Lydersen, C.	Variation in body size of ringed seals (<i>Pusa hispida hispida</i>) across the circumpolar arctic: Evidence of morphs, ecotypes or simply extreme plasticity?	Polar Research	2021
Ogloff, W.R., Ferguson, S.H., Fisk, A.T., Marcoux, M., Hussey, N.E., Jaworenko, A., Yurkowski, D.J.	Long-distance movements and associated diving behaviour of ringed seals (<i>Pusa hispida</i>) in the eastern canadian arctic	Arctic Science	2021
Ulrich, K.L., Tallman, R.F.	Multi-indicator evidence for habitat use and trophic strategy segregation of two sympatric forms of arctic char from the cumberland sound region of nunavut, canada	Arctic Science	2021
Stocki, T.J., Braune, B.M.	Radiocesium in Canadian game Birds Harvested during 1989–95	Journal Of Environmental Radioactivity	2020
Mears, C., Thomas, H., Henderson, P.B.,	Using ²²⁶ Ra and ²²⁸ Ra isotopes to distinguish water mass	Biogeosciences	2020

Charette, M.A., MacIntyre, H., Dehairs, F., Monnin, C., Mucci, A.	distribution in the Canadian Arctic Archipelago		
Wang, Z., Li, Z., Zeng, J., Liang, S., Zhang, P., Tang, F., Chen, S., Ma, X.	Spatial and Temporal Variations of Arctic Sea Ice From 2002 to 2017	Earth And Space Science	2020
Baak, J.E., Provencher, J.F., Mallory, M.L.	Plastic ingestion by four seabird species in the Canadian Arctic: Comparisons across species and time	Marine Pollution Bulletin	2020
Stroski, K.M., Luong, K.H., Challis, J.K., Chaves-Barquero, L.G., Hanson, M.L., Wong, C.S.	Wastewater sources of per- and polyfluorinated alkyl substances (PFAS) and pharmaceuticals in four Canadian Arctic communities	Science Of The Total Environment	2020
Leduc, N., Lacoursière-Roussel, A., Howland, K.L., Archambault, P., Sevellec, M., Normandeau, E., Dispas, A., Winkler, G., McKindsey, C.W., Simard, N., Bernatchez, L.	Comparing eDNA metabarcoding and species collection for documenting Arctic metazoan biodiversity	Environmental DNA	2019
Houde, M., Wang, X., Colson, T.-L.L., Gagnon, P., Ferguson, S.H., Ikonomou, M.G., Dubetz, C., Addison, R.F., Muir, D.C.G.	Trends of persistent organic pollutants in ringed seals (<i>Phoca hispida</i>) from the Canadian Arctic	Science Of The Total Environment	2019
April, A., Montpetit, B., Langlois, D.	Linking the Open Water Area of the North Open Water Polynya to Climatic Parameters using a Multiple Linear Regression Prediction Model	Atmosphere - Ocean	2019
Ewald, J.D., Kirk, J.L., Li, M., Sunderland, E.M.	Organ-specific differences in mercury speciation and accumulation across ringed seal (<i>Phoca hispida</i>) life stages	Science Of The Total Environment	2019
Torbati, R.Z., Turnbull, I.D., Taylor, R.S., Mueller, D.	The calving events of petermann glacier from 2008 to 2012: Ice island drift characteristics, assessment of fracture events, and geographical data analysis	Proceedings Of The International Conference On Offshore Mechanics And	2019

		Arctic Engineering - OMAE	
Poirier, L., Brown, J., Frederking, R.	Environmental monitoring and ice forces on the nanisivik wharf	Proceedings Of The International Conference On Port And Ocean Engineering Under Arctic Conditions, POAC	2019
St-Amant, M., Mueller, D., Tivy, A., Garbo, A.	A low-cost survey method for sea ice topography using structure-from-motion photogrammetry and small uavs	Proceedings Of The International Conference On Port And Ocean Engineering Under Arctic Conditions, POAC	2019
Johnson, A.C., Hobson, K.A., Lunn, N.J., McGeachy, D., Richardson, E.S., Derocher, A.E.	Temporal and intra-population patterns in polar bear foraging ecology in western Hudson Bay	Marine Ecology Progress Series	2019
Yurkowski, D.J., Hussey, N.E., Ferguson, S.H., Fisk, A.T.	A temporal shift in trophic diversity among a predator assemblage in a warming Arctic	Royal Society Open Science	2018
Pomerleau, C., Matthews, C.J.D., Gobeil, C., Stern, G.A., Ferguson, S.H., Macdonald, R.W.	Mercury and stable isotope cycles in baleen plates are consistent with year-round feeding in two bowhead whale (<i>Balaena mysticetus</i>) populations	Polar Biology	2018
Avery-Gomm, S., Provencher, J.F., Liboiron, M., Poon, F.E., Smith, P.A.	Plastic pollution in the Labrador Sea: An assessment using the seabird northern fulmar <i>Fulmarus glacialis</i> as a biological monitoring species	Marine Pollution Bulletin	2018
Mallory, C.D., Gilchrist, H.G., Robertson, G.J., Provencher, J.F., Braune, B.M., Forbes, M.R., Mallory, M.L.	Hepatic trace element concentrations of breeding female common eiders across a latitudinal gradient in the eastern Canadian Arctic	Marine Pollution Bulletin	2017
Collins, D.B., Burkart, J., Chang, R.Y.-W., Lizotte, M., Boivin-Rioux, A., Blais, M., Mungall, E.L., Boyer, M., Irish, V.E., Massé, G., Kunkel, D., Tremblay, J.-E.,	Frequent ultrafine particle formation and growth in Canadian Arctic marine and coastal environments	Atmospheric Chemistry And Physics	2017

Papakyriakou, T., Bertram, A.K., Bozem, H., Gosselin, M., Levasseur, M., Abbatt, J.P.D.			
Amiriaux, R., Belt, S.T., Vaultier, F., Galindo, V., Gosselin, M., Bonin, P., Rontani, J.-F.	Monitoring photo-oxidative and salinity-induced bacterial stress in the Canadian Arctic using specific lipid tracers	Marine Chemistry	2017
Chen, J., Zhang, W., Sadi, B., Wang, X., Muir, D.C.G.	Activity concentration measurements of selected radionuclides in seals from Canadian Arctic	Journal Of Environmental Radioactivity	2017
Brown, T.M., Hammond, S.A., Behsaz, B., Veldhoen, N., Birol, I., Helbing, C.C.	De novo assembly of the ringed seal (<i>Pusa hispida</i>) blubber transcriptome: A tool that enables identification of molecular health indicators associated with PCB exposure	Aquatic Toxicology	2017
Luddington, I.A., Lovejoy, C., Kaczmarek, I., Moisander, P.	Species-rich meta-communities of the diatom order Thalassiosirales in the Arctic and northern Atlantic Ocean	Journal Of Plankton Research	2016
Hedd, A., Regular, P.M., Wilhelm, S.I., Rail, J.-F., Drolet, B., Fowler, M., Pekarik, C., Robertson, G.J.	Characterization of seabird bycatch in eastern Canadian waters, 1998–2011, assessed from onboard fisheries observer data	Aquatic Conservation: Marine And Freshwater Ecosystems	2016
Brown, T.M., Fisk, A.T., Wang, X., Ferguson, S.H., Young, B.G., Reimer, K.J., Muir, D.C.G.	Mercury and cadmium in ringed seals in the Canadian Arctic: Influence of location and diet	Science Of The Total Environment	2016
Michel, C., Hamilton, J., Hansen, E., Barber, D., Reigstad, M., Iacozza, J., Seuthe, L., Niemi, A.	Arctic Ocean outflow shelves in the changing Arctic: A review and perspectives	Progress In Oceanography	2015
Schartup, A.T., Balcom, P.H., Soerensen, A.L., Gosnell, K.J., Calder, R.S.D., Mason, R.P., Sunderland, E.M., St. Louis, V.L.	Freshwater discharges drive high levels of methylmercury in Arctic marine biota	Proceedings Of The National Academy Of Sciences Of The United States Of America	2015
Gauthier, G., Legagneux, P., Valiquette, M.-A.,	Diet and reproductive success of an Arctic generalist predator: Interplay between variations in	Auk	2015

Cadieux, M.-C., Therrien, J.-F.	prey abundance, nest site location, and intraguild predation		
Brown, T.M., Iverson, S.J., Fisk, A.T., Macdonald, R.W., Helbing, C.C., Reimer, K.J.	Local contamination, and not feeding preferences, explains elevated PCB concentrations in Labrador ringed seals (<i>Pusa hispida</i>)	Science Of The Total Environment	2015
Matthews, C.J.D., Ferguson, S.H.	Weaning age variation in beluga whales (<i>Delphinapterus leucas</i>)	Journal Of Mammalogy	2015
McMeans, B.C., Arts, M.T., Fisk, A.T.	Impacts of food web structure and feeding behavior on mercury exposure in Greenland Sharks (<i>Somniosus microcephalus</i>)	Science Of The Total Environment	2015
Foster, K.L., Stern, G.A., Carrie, J., Bailey, J.N.-L., Outridge, P.M., Sanei, H., Macdonald, R.W.	Spatial, temporal, and source variations of hydrocarbons in marine sediments from Baffin Bay, Eastern Canadian Arctic	Science Of The Total Environment	2015
Bond, A.L., Hobson, K.A., Branfireun, B.A.	Rapidly increasing methyl mercury in endangered ivory gull (<i>Pagophila eburnea</i>) feathers over a 130 year record	Proceedings Of The Royal Society B: Biological Sciences	2015
Krumhansl, K.A., Krkosek, W.H., Greenwood, M., Ragush, C., Schmidt, J., Grant, J., Barrell, J., Lu, L., Lam, B., Gagnon, G.A., Jamieson, R.C.	Assessment of arctic community wastewater impacts on marine benthic invertebrates	Environmental Science And Technology	2015
Brown, T.M., Luque, S., Sjare, B., Fisk, A.T., Helbing, C.C., Reimer, K.J.	Satellite telemetry informs PCB source apportionment in a mobile, high trophic level marine mammal: The ringed seal (<i>Pusa hispida</i>)	Environmental Science And Technology	2014
Mallory, M.L., Braune, B.M., Robertson, G.J., Gilchrist, H.G., Mallory, C.D., Forbes, M.R., Wells, R.	Increasing cadmium and zinc levels in wild common eiders breeding along Canada's remote northern coastline	Science Of The Total Environment	2014
Braune, B.M., Gaston, A.J., Elliott, K.H., Provencher, J.F., Woo, K.J., Chambellant, M., Ferguson, S.H., Letcher, R.J.	Organohalogen contaminants and total mercury in forage fish preyed upon by thick-billed murres in northern Hudson Bay	Marine Pollution Bulletin	2014

Brand, U., Came, R.E., Affek, H., Azmy, K., Mooi, R., Layton, K.	Climate-forced change in Hudson Bay seawater composition and temperature, Arctic Canada	Chemical Geology	2014
Matthews, C.J.D., Ferguson, S.H.	Spatial segregation and similar trophic-level diet among eastern Canadian Arctic/north-west Atlantic killer whales inferred from bulk and compound specific isotopic analysis	Journal Of The Marine Biological Association Of The United Kingdom	2014
Higdon, J.W., Westdal, K.H., Ferguson, S.H.	Distribution and abundance of killer whales (<i>Orcinus orca</i>) in Nunavut, Canada-An inuit knowledge survey	Journal Of The Marine Biological Association Of The United Kingdom	2014
Iacozza, J., Ferguson, S.H.	Spatio-temporal variability of snow over sea ice in western Hudson Bay, with reference to ringed seal pup survival	Polar Biology	2014
Wong, S.N.P., Gjerdrum, C., Morgan, K.H., Mallory, M.L.	Hotspots in cold seas: The composition, distribution, and abundance of marine birds in the North American Arctic	Journal Of Geophysical Research: Oceans	2014
Olivier, F., San Martín, G., Archambault, P.	A new species of <i>Streptospinigera</i> Kudenov, 1983 (Polychaeta, Syllidae, Anoplosyllinae) from the Arctic and north-western Atlantic with a key to all species of the genus	Polar Biology	2013
Goñi, M.A., O'Connor, A.E., Kuzyk, Z.Z., Yunker, M.B., Gobeil, C., Macdonald, R.W.	Distribution and sources of organic matter in surface marine sediments across the North American Arctic margin	Journal Of Geophysical Research: Oceans	2013
McMeans, B.C., Rooney, N., Arts, M.T., Fisk, A.T.	Food web structure of a coastal Arctic marine ecosystem and implications for stability	Marine Ecology Progress Series	2013
Thiemann, G.W., Derocher, A.E., Cherry, S.G., Lunn, N.J., Peacock, E., Sahanatien, V.	Effects of chemical immobilization on the movement rates of free-ranging polar bears	Journal Of Mammalogy	2013
Brown, T.M., Kuzyk, Z.Z.A., Stow, J.P., Burgess, N.M., Solomon, S.M., Sheldon, T.A., Reimer, K.J.	Effects-based marine ecological risk assessment at a polychlorinated biphenyl-contaminated site in Saglek, Labrador, Canada	Environmental Toxicology And Chemistry	2013

Foster, K.L., Stern, G.A., Pazerniuk, M.A., Hickie, B., Walkusz, W., Wang, F., MacDonald, R.W.	Mercury biomagnification in marine zooplankton food webs in hudson bay	Environmental Science And Technology	2012
Peacock, E., Laake, J., Laidre, K.L., Born, E.W., Atkinson, S.N.	The utility of harvest recoveries of marked individuals to assess polar bear (<i>Ursus maritimus</i>) survival	Arctic	2012
Pomerleau, C., Lesage, V., Ferguson, S.H., Winkler, G., Petersen, S.D., Higdon, J.W.	Prey assemblage isotopic variability as a tool for assessing diet and the spatial distribution of bowhead whale <i>Balaena mysticetus</i> foraging in the Canadian eastern Arctic	Marine Ecology Progress Series	2012
Peklova, I., Hussey, N.E., Hedges, K.J., Treble, M.A., Fisk, A.T.	Depth and temperature preferences of the deepwater flatfish Greenland halibut <i>Reinhardtius hippoglossoides</i> in an Arctic marine ecosystem	Marine Ecology Progress Series	2012
McKinney, M.A., McMeans, B.C., Tomy, G.T., Rosenberg, B., Ferguson, S.H., Morris, A., Muir, D.C.G., Fisk, A.T.	Trophic transfer of contaminants in a changing arctic marine food web: Cumberland sound, Nunavut, Canada	Environmental Science And Technology	2012
Bailleul, F., Lesage, V., Power, M., Doidge, D.W., Hammill, M.O.	Migration phenology of beluga whales in a changing Arctic	Climate Research	2012
Thaler, M., Lovejoy, C.	Distribution and diversity of a protist predator <i>cryothecomonas</i> (Cercozoa) in arctic marine waters	Journal Of Eukaryotic Microbiology	2012
Smith, P.A., Gaston, A.J.	Environmental variation and the demography and diet of thick-billed murre	Marine Ecology Progress Series	2012
Provencher, J.F., Gaston, A.J., O'Hara, P.D., Gilchrist, H.G.	Seabird diet indicates changing Arctic marine communities in eastern Canada	Marine Ecology Progress Series	2012
Vézina, F., Williams, T.D., Piersma, T., Guy Morrison, R.I.	Phenotypic compromises in a long-distance migrant during the transition from migration to reproduction in the High Arctic	Functional Ecology	2012
Brunelle, C.B., Larouche, P., Gosselin, M.	Variability of phytoplankton light absorption in Canadian Arctic seas	Journal Of Geophysical Research: Oceans	2012
Kuzyk, Z.Z.A., Macdonald, R.W., Stern, G.A., Gobeil, C.	Inferences about the modern organic carbon cycle from	Journal Of Marine Systems	2011

	diagenesis of redox-sensitive elements in Hudson Bay		
Pepin, P., Colbourne, E., Maillet, G.	Seasonal patterns in zooplankton community structure on the Newfoundland and Labrador Shelf	Progress In Oceanography	2011
Amiguet, V.T., Jewell, L.E., Mao, H., Sharma, M., Hudson, J.B., Durst, T., Allard, M., Rochefort, G., Arnason, J.T.	Antibacterial properties of a glycolipid-rich extract and active principle from Nunavik collections of the macroalgae <i>Fucus evanescens</i> C. Agardh (Fucaceae)	Canadian Journal Of Microbiology	2011
Matthews, C.J.D., Luque, S.P., Petersen, S.D., Andrews, R.D., Ferguson, S.H.	Satellite tracking of a killer whale (<i>Orcinus orca</i>) in the eastern Canadian Arctic documents ice avoidance and rapid, long-distance movement into the North Atlantic	Polar Biology	2011
Ropars, Y., Guimond, A., Savard, J.-P.	Marine infrastructures in nunavik and climate changes	Proceedings Of The International Conference On Port And Ocean Engineering Under Arctic Conditions, POAC	2011
Fontana, F.M.A., Trishchenko, A.P., Luo, Y., Khlopenkov, K.V., Nussbaumer, S.U., Wunderle, S.	Perennial snow and ice variations (2000-2008) in the Arctic circumpolar land area from satellite observations	Journal Of Geophysical Research: Earth Surface	2010
Andersen, L.W., Born, E.W., Doidge, D.W., Gjertz, I., Wiig, Ø., Waples, R.S.	Genetic signals of historic and recent migration between sub-populations of Atlantic walrus <i>Odobenus rosmarus rosmarus</i> west and east of Greenland	Endangered Species Research	2009
Brown, T.M., Sheldon, T.A., Burgess, N.M., Reimer, K.J.	Reduction of PCB contamination in an arctic coastal environment: A first step in assessing ecosystem recovery after the removal of a point source	Environmental Science And Technology	2009
Mckinney, M.A., Peacock, E., Letcher, R.J.	Sea ice-associated diet change increases the levels of chlorinated and brominated contaminants in polar bears	Environmental Science And Technology	2009
Mallory, M.L., Forbes, M.R., Ankney, C.D., Alisauskas, R.T.	Nutrient dynamics and constraints on the pre-laying exodus of High Arctic northern fulmars	Aquatic Biology	2008

Forrest, A.L., Laval, B., Doble, M.J., Yeo, R., Magnusson, E.	AUV measurements of under-ice thermal structure	Oceans 2008	2008
Simard, Y., Fortier, L.	Listening at climate change in ice- covered seas: Example with aural autonomous hydrophones in the arctic	Oceans 2008	2008
Hare, A., Stern, G.A., Macdonald, R.W., Kuzyk, Z.Z., Wang, F.	Contemporary and preindustrial mass budgets of mercury in the Hudson Bay Marine System: The role of sediment recycling	Science Of The Total Environment	2008
Kelly, B.C., Ikonomou, M.G., Blair, J.D., Gobas, F.A.P.C.	Bioaccumulation behaviour of polybrominated diphenyl ethers (PBDEs) in a Canadian Arctic marine food web	Science Of The Total Environment	2008
Hooker, S.K., Metcalfe, T.L., Metcalfe, C.D., Angell, C.M., Wilson, J.Y., Moore, M.J., Whitehead, H.	Changes in persistent contaminant concentration and CYP1A1 protein expression in biopsy samples from northern bottlenose whales, <i>Hyperoodon ampullatus</i> , following the onset of nearby oil and gas development	Environmental Pollution	2008
Elliott, K.H., Woo, K., Gaston, A.J., Benvenuti, S., Dall'Antonia, L., Davoren, G.K.	Seabird foraging behaviour indicates prey type	Marine Ecology Progress Series	2008
Garneau, M.-É., Gosselin, M., Klein, B., Tremblay, J.-É., Fouilland, E.	New and regenerated production during a late summer bloom in an Arctic polynya	Marine Ecology Progress Series	2007
Butt, C.M., Mabury, S.A., Muir, D.C.G., Braune, B.M.	Prevalence of long-chained perfluorinated carboxylates in seabirds from the Canadian arctic between 1975 and 2004	Environmental Science And Technology	2007
Svendsen, T.C., Camus, L., Hargrave, B., Fisk, A., Muir, D.C.G., Borgå, K.	Polyaromatic hydrocarbons, chlorinated and brominated organic contaminants as tracers of feeding ecology in polar benthic amphipods	Marine Ecology Progress Series	2007
Bystriansky, J.S., Frick, N.T., Richards, J.G., Schulte, P.M., Ballantyne, J.S.	Wild arctic char (<i>Salvelinus alpinus</i>) upregulate gill Na ⁺ ,K ⁺ - ATPase during freshwater migration	Physiological And Biochemical Zoology	2007
Butt, C.M., Muir, D.C.G., Stirling, I., Kwan, M., Mabury, S.A.	Rapid response of arctic ringed seals to changes in perfluoroalkyl production	Environmental Science And Technology	2007

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Kirk, J.L., St. Louis, V.L., Sharp, M.J.	Rapid reduction and reemission of mercury deposited into snowpacks during atmospheric mercury depletion events at Churchill, Manitoba, Canada	Environmental Science And Technology	2006
Borgå, K., Campbell, L., Gabrielsen, G.W., Norstrom, R.J., Muir, D.C.G., Fisk, A.T.	Regional and species specific bioaccumulation of major and trace elements in arctic seabirds	Environmental Toxicology And Chemistry	2006
Dale, J.E., Leontowich, K.	Sediments and biota of the marine coastal zone of Igloodik Island, Nunavut	Geographie Physique Et Quaternaire	2006
Kuzyk, Z.A., Hodson, P.V., Solomon, S.M., Reimer, K.J.	Biological responses to PCB exposure in shorthorn sculpin from Saglek Bay, Labrador	Science Of The Total Environment	2005
Riget, F., Muir, D., Kwan, M., Savinova, T., Nyman, M., Woshner, V., O'Hara, T.	Circumpolar pattern of mercury and cadmium in ringed seals	Science Of The Total Environment	2005
Outridge, P.M., Hobson, K.A., Savelle, J.M.	Changes in mercury and cadmium concentrations and the feeding behaviour of beluga (<i>Delphinapterus leucas</i>) near Somerset Island, Canada, during the 20th century	Science Of The Total Environment	2005
Johnston, D.W., Friedlaender, A.S., Torres, L.G., Lavigne, D.M.	Variation in sea ice cover on the east coast of Canada from 1969 to 2002: Climate variability and implications for harp and hooded seals	Climate Research	2005
Braune, B.M., Hobson, K.A., Malone, B.J.	Regional differences in collagen stable isotope and tissue trace element profiles in populations of long-tailed duck breeding in the Canadian Arctic	Science Of The Total Environment	2005
Borgå, K., Gabrielsen, G.W., Skaare, J.U., Kleivane, L., Norstrom, R.J., Fisk, A.T.	Why do organochlorine differences between arctic regions vary among trophic levels?	Environmental Science And Technology	2005

Gaston, A.J., Gilchrist, H.G., Mallory, M.L.	Variation in ice conditions has strong effects on the breeding of marine birds at Prince Leopold Island, Nunavut	Ecography	2005
Mallory, M.L., Braune, B.M., Wayland, M., Drouillard, K.G.	Persistent organic pollutants in marine birds, arctic hare and ringed seals near Qikiqtarjuaq, Nunavut, Canada	Marine Pollution Bulletin	2005
Nielsen, O., Cobb, D., Stewart, R.E.A., Ryan, A., Dunn, B., Raverty, S., Nielsen, K., Harwood, L.	Results of a community based disease monitoring program of marine mammals in Arctic Canada	Ocean '04 - MTS/IEEE Techno-Ocean '04: Bridges Across The Oceans - Conference Proceedings	2004
Braune, B.M., Simon, M.	Trace elements and halogenated organic compounds in Canadian Arctic seabirds	Marine Pollution Bulletin	2004
Mallory, M.L., Wayland, M., Braune, B.M., Drouillard, K.G.	Trace elements in marine birds, arctic hare and ringed seals breeding near Qikiqtarjuaq, Nunavut, Canada	Marine Pollution Bulletin	2004
Laidre, K.L., Heide-Jørgensen, M.P., Dietz, R.	Diving behaviour of narwhals (Monodon monoceros) at two coastal localities in the Canadian High Arctic	Canadian Journal Of Zoology	2002
Hoekstra, P.F., O'Hara, T.M., Teixeira, C., Backus, S., Fisk, A.T., Muir, D.C.G.	Spatial trends and bioaccumulation of organochlorine pollutants in marine zooplankton from the Alaskan and Canadian Arctic	Environmental Toxicology And Chemistry	2002
Fisk, A.T., Moisey, J., Hobson, K.A., Karnovsky, N.J., Norstrom, R.J.	Chlordane components and metabolites in seven species of Arctic seabirds from the Northwater Polynya: Relationships with stable isotopes of nitrogen and enantiomeric fractions of chiral components	Environmental Pollution	2001
Anderson, M.R., Drobot, S.D.	Spatial and temporal variability in snowmelt onset over Arctic sea ice	Annals Of Glaciology	2001
Wilson, K.J., King, D.J., Barber, D.G.	A case-study in tracking 1998 polynya ice dynamics in Smith Sound, North Water polynya region, Canadian Arctic, using RADARSAT-1 data	Annals Of Glaciology	2001
Muir, D.C.G., Norstrom, R.J.	Geographical differences and time trends of persistent organic pollutants in the Arctic	Toxicology Letters	2000

Norstrom, R.J., Belikov, S.E., Born, E.W., Garner, G.W., Malone, B., Olpinski, S., Ramsay, M.A., Schliebe, S., Stirling, I., Stishov, M.S., Taylor, M.K., Wiig, O.	Chlorinated hydrocarbon contaminants in polar bears from eastern Russia, North America, Greenland, and Svalbard: Biomonitoring of arctic pollution	Archives Of Environmental Contamination And Toxicology	1998
France, R., Loret, J., Mathews, R., Springer, J.	Longitudinal variation in zooplankton $\delta^{13}C$ through the Northwest Passage: Inference for incorporation of sea-ice POM into pelagic foodwebs	Polar Biology	1998
Letcher, R.J., Norstrom, R.J., Lin, S., Ramsay, M.A., Bandiera, S.M.	Immunoquantitation and microsomal monooxygenase activities of hepatic cytochromes P4501A and P4502B and chlorinated hydrocarbon contaminant levels in polar bear (<i>Ursus maritimus</i>)	Toxicology And Applied Pharmacology	1996
Evans, R.D., Richner, P., Outridge, P.M.	Micro-spatial variations of heavy metals in the teeth of walrus as determined by laser ablation ICP-MS: The potential for reconstructing a history of metal exposure	Archives Of Environmental Contamination And Toxicology	1995
Patterson, A; Gilchrist, HG; Gaston, A; Elliott, KH	Northwest range shifts and shorter wintering period of an Arctic seabird in response to four decades of changing ocean climate	Marine Ecology Progress Series	2021
Izett, RW; Hamme, RC; McNeil, C; Manning, CCM; Bourbonnais, A; Tortell, PD	Delta O-2/N-2 ' as a New Tracer of Marine Net Community Production: Application and Evaluation in the Subarctic Northeast Pacific and Canadian Arctic Ocean	Frontiers In Marine Science	2021
Goldsmith, J; Schlegel, RW; Filbee-Dexter, K; MacGregor, KA; Johnson, LE; Mundy, CJ; Savoie, AM; McKindsey, CW; Howland, KL; Archambault, P	Kelp in the Eastern Canadian Arctic: Current and Future Predictions of Habitat Suitability and Cover	Frontiers In Marine Science	2021
Yan, Y; Cantoni, E; Field, C; Treble, M; Flemming, JM	Spatiotemporal modeling of bycatch data: methods and a practical guide through a case study in a Canadian Arctic fishery	Canadian Journal Of Fisheries And Aquatic Sciences	2022

Colombo, M; Rogalla, B; Li, JX; Allen, SE; Orians, KJ; Maldonado, MT	Canadian Arctic Archipelago Shelf-Ocean Interactions: A Major Iron Source to Pacific Derived Waters Transiting to the Atlantic	Global Biogeochemical Cycles	2021
Jacquemot, L; Kalenitchenko, D; Matthes, LC; Vigneron, A; Mundy, CJ; Tremblay, JE; Lovejoy, C	Protist communities along freshwater-marine transition zones in Hudson Bay (Canada)	Elementa-Science Of The Anthropocene	2021
Hamilton, AK; Mueller, D; Laval, BE	Ocean Modification and Seasonality in a Northern Ellesmere Island Glacial Fjord Prior to Ice Shelf Breakup: Milne Fiord	Journal Of Geophysical Research-Oceans	2021
Chan, FT; MacIsaac, HJ; Bailey, SA	Relative importance of vessel hull fouling and ballast water as transport vectors of nonindigenous species to the Canadian Arctic	Canadian Journal Of Fisheries And Aquatic Sciences	2015
Yang, DQ; Shrestha, RR; Lung, JLY; Tank, S; Park, H	Heat flux, water temperature and discharge from 15 northern Canadian rivers draining to Arctic Ocean and Hudson Bay	Global And Planetary Change	2021
Dallaire, X; Normandeau, E; Mainguy, J; Tremblay, JE; Bernatchez, L; Moore, JS	Genomic data support management of anadromous Arctic Char fisheries in Nunavik by highlighting neutral and putatively adaptive genetic variation	Evolutionary Applications	2021
Mallory, ML; Baak, J; Gjerdrum, C; Mallory, OE; Manley, B; Swan, C; Provencher, JF	Anthropogenic litter in marine waters and coastlines of Arctic Canada and West Greenland	Science Of The Total Environment	2021
Stevenard, N; Montero-Serrano, JC; Eynaud, F; St-Onge, G; Zaragosi, S; Copland, L	Lateglacial and Holocene sedimentary dynamics in northwestern Baffin Bay as recorded in sediment cores from Cape Norton Shaw Inlet (Nunavut, Canada)	Boreas	2021
Gutowsky, SE; Baak, JE; Gaston, AJ; Mallory, ML	Sea ice extent and phenology influence breeding of high-Arctic seabirds: 4 decades of monitoring in Nunavut, Canada	Oecologia	2022
Seyer, Y; Gauthier, G; Bety, J; Therrien, JF; Lecomte, N	Seasonal variations in migration strategy of a long-distance Arctic-breeding seabird	Marine Ecology Progress Series	2021
Liboiron, M; Zahara, A; Hawkins, K; Crespo, C;	Abundance and types of plastic pollution in surface waters in the	Science Of The Total Environment	2021

Neves, BD; Wareham-Hayes, V; Edinger, E; Muise, C; Walzak, MJ; Sarazen, R; Chidley, J; Mills, C; Watwood, L; Arif, H; Earles, E; Pijogge, L; Shirley, J; Jacobs, J; McCarney, P; Charron, L	Eastern Arctic (Inuit Nunangat) and the case for reconciliation science		
Halliday, WD; Dawson, J; Yurkowski, DJ; Doniol-Valcroze, T; Ferguson, SH; Gjerdrum, C; Hussey, NE; Kochanowicz, Z; Mallory, ML; Marcoux, M; Watt, CA; Wong, SNP	Vessel risks to marine wildlife in the Tallurutiup Imanga National Marine Conservation Area and the eastern entrance to the Northwest Passage	Environmental Science & Policy	2022
Smith, RA; Albonaimi, SS; Hennin, HL; Gilchrist, HG; Fort, J; Parkinson, KJL; Provencher, JF; Love, OP	Exposure to cumulative stressors affects the laying phenology and incubation behaviour of an Arctic-breeding marine bird	Science Of The Total Environment	2022
Corminboeuf, A; Montero-Serrano, JC; St-Louis, R	Spatial and temporal distributions of polycyclic aromatic hydrocarbons in sediments from the Canadian Arctic Archipelago	Marine Pollution Bulletin	2021
Hamilton, BM; Bourdages, MPT; Geoffroy, C; Vermaire, JC; Mallory, ML; Rochman, CM; Provencher, JF	Microplastics around an Arctic seabird colony: Particle community composition varies across environmental matrices	Science Of The Total Environment	2021

Appendix 6. Inclusion and exclusion criteria used to assess all papers in the sample for inclusion.

Dimension	Inclusion	Exclusion
Geographic scope	Western Canadian Arctic	Eastern Canadian Arctic, non-Canadian, non-Arctic
Language	English and French	Non-English and non-French
Focus	Ecology	Non-ecological (e.g., industry, socioeconomics)
Ecosystem focus	Marine and coastal	Non-marine (e.g., freshwater)
Publication type	Case studies, research articles, technical reports (DFO), manuscript reports (DFO), and research documents (DFO)	Reviews, models
Temporal scope	Current and past	Prehistoric, future projections
Methods section?	The paper has a methods section or equivalent	The paper does not have a methods section or equivalent