

GOVERNMENT RESPONSE

June 13, 2023

Mr. Ken McDonald
Chair
Standing Committee on Fisheries and Oceans
House of Commons
Ottawa ON K1A 0A6

Dear Mr. McDonald,

On behalf of the Government of Canada, I would like to thank the House of Commons Standing Committee on Fisheries and Oceans (the Committee) for its Report, *Science at the Department of Fisheries and Oceans*. I am pleased to receive the Committee's recommendations and would like to thank Committee members for dedicating their time and effort to identifying ways in which the Government of Canada, in collaboration with others, can continue to strengthen the evidence base for decision-making in Canada's oceans and aquatic environments.

The Committee's 48 recommendations get to the heart of the important role that science plays in informing decisions of governments, private enterprise, partners and of Canadians. While largely focused on science, the report also speaks to other key functions within the Department that play a role in supporting decision-making and communicating the decisions of government to the public, including engagement of Indigenous organizations including Modern Treaty and Self-Government partners, throughout the decision-making process and ensuring that Indigenous knowledge is considered and respects appropriate co-management processes.

The Government of Canada remains firmly committed to ensuring that decisions on Canada's aquatic ecosystems and species are informed by the best available science. The Department of Fisheries and Oceans (DFO) has a clear mandate, through the implementation of its core legislation, the *Fisheries Act*, to consider scientific information as well as the precautionary and ecosystem approaches, and many other relevant factors in its decision-making processes.

Departmental decision-makers rely on analyses generated by Canadian and international experts through DFO's Canadian Science Advisory Secretariat (CSAS) process, which coordinates the delivery of peer-reviewed science advice. Through CSAS, the Department publishes scientific advice and information that addresses the important issues facing our oceans and aquatic ecosystems, such as fish stock dynamics (including growth, recruitment, mortality), species at risk, invasive species, ecology of marine and freshwater ecosystems, marine protected areas, and aquaculture. This advice is then provided to decision-makers and shared with Canadians on the DFO website.

To ensure that DFO is considering the full range of perspectives from experts, the Department continues to evolve its science program and is implementing strategies to identify and prioritize use of external expert participants in its peer-review processes to help generate the objective advice that decision-makers rely on while at the same time better documenting the full range of views and supporting evidence relevant to the specific advice coming forward. In doing so, it is drawing on the expertise of its Departmental Science Advisor and the Chief Science Advisor, who are assisting DFO in harnessing the range of external perspectives contributing their expertise. Further, the Department is ensuring that the science advice generated within the Department continues to be shared openly on its website and that the website containing the supporting Departmental publicly available data is clearly linked.

The Government of Canada firmly supports the work of its researchers and the need to maintain scientific independence that is free from political interference. This is a key tenet of the Government of Canada's Model Science Integrity Policy which has formed the basis of

Departmental policies, including at DFO. In keeping with this policy, in my capacity as Minister, I will not provide direction to Departmental scientists on considerations such as preferred collaborators or specific analytical approaches they need to use while executing their functions.

However, I am pleased that the Committee agrees that the Department's scientists are highly qualified to carry out the scientific work in the Department's mandate, and had numerous suggestions, including areas where additional scientific work would be valuable. The Department will consider these recommendations as we move forward in setting priorities for the future.

While the recommendations provided by the Committee were arranged individually, I have outlined our Government's response to the report in six broad themes.

The Impact of Climate Change on Canada's Oceans and Aquatic Ecosystems (Recommendations: 1-3)

The Government of Canada shares the view that climate change poses serious risks to the future of Canada's marine ecosystems, fisheries, species at risk, and coastal communities. The changes in the ocean environment resulting from climate change are likely to be many and varied, and the rate and scale of aquatic ecosystem change and the associated impacts on fish stocks point to the need for a better understanding of the environment. The 2019 amended *Fisheries Act* (namely, the Fish Stocks Provisions) includes a requirement to consider environmental conditions affecting stocks in the development of management measures and rebuilding plans.

DFO has been, and continues to be, committed to improving our understanding of the risks that climate change poses to our marine ecosystems, coastal communities, and fisheries. As noted in the 2017 Commissioner of the Environment and Sustainable Development (CESD) Report, *Adapting to the Impacts of Climate Change*, DFO has identified the risks that climate change poses to the Department's mandate, including potential negative impacts on ecosystems and fish stocks. As reflected in my mandate letter, I am working with partners to expand climate vulnerability work to better inform marine conservation planning and management. For example, at the most recent Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) meeting, held in November 2022, I, along with my provincial and territorial partners, discussed the impact that a changing climate will increasingly have on Canadian marine and freshwater ecosystems, in particular the impact on fish, fish habitats, aquaculture and fisheries. As a Council, we agreed that further CCFAM engagement on how we can work together to support marine and freshwater fisheries and aquaculture in this changing environment is a priority, including potential approaches to adaptation and mitigation. Within the Government of Canada, DFO is also working collaboratively with other federal departments, including Environment and Climate Change Canada, to advance Canada's climate change agenda through the National Adaptation Strategy (NAS).

DFO scientists are monitoring and studying the effects that changing ocean conditions, including water temperature and ocean acidification, are having on Canada's fisheries and aquatic ecosystems. DFO scientists use oceanographic models to predict future ocean conditions, including temperature, currents, and ocean chemistry. This work supports efforts to estimate the impact of climate change on Canadian marine species. Across Canada, DFO scientists are exploring the ecosystem impacts of changing ocean conditions such as oxygen depletion and sea ice loss by studying the response of various fish species to these changes in areas such as the Arctic, Northeast Pacific, Gulf of St. Lawrence, Scotian Shelf, and Gulf of Maine.

DFO publicly reports on the state of Canada's oceans annually, through the *Canada's Oceans Now* series. These reports describe recent status and trend information including climate change-related changes (e.g., sea ice loss in the Atlantic and Arctic oceans, warming and increased ocean acidification in all of Canada's oceans and decreasing oxygen levels in the Pacific and Atlantic oceans) through the publication of a plain-language summary for Canadians. Monitoring the status of Canada's three oceans is key to the ongoing assessment of the state and trends of ocean ecosystems on which our aquatic resources depend. DFO scientists also

contribute to broader Canadian and global initiatives including *Canada's Changing Climate Report*, which provides regional perspectives on the impacts of climate change and how Canadians are adapting.

Departmental researchers continue to consider environmental variables, such as climate, oceanographic and ecological factors, when providing science advice on fish stocks. DFO Science expertise is recognized internationally in the development of ecosystem-based approaches, and work done through the Northwest Atlantic Fisheries Organization (NAFO), of which Canada is a member, is at the global forefront. The Department continues to analyze how ecosystem information can be better incorporated in fisheries management, and will be undertaking further engagement over the coming year with stakeholders and Indigenous Peoples including Modern Treaty and Self-Government partners on advancing an ecosystem based approach to fisheries management (EAFM) across federally-managed fisheries.

Transparency and Scientific Independence

(Recommendations: 9, 10, 17-23, 38, 42, 45-48)

The Department shares the Committee's views regarding the importance of objective, impartial evidence-based science and remains committed to effectively and efficiently coordinating the delivery of rigorous peer-reviewed scientific processes, advice, and products. Science advice plays a key role in the Department's decision-making process and the development of tools, products, and services.

Through a standardized and consistent process, the Department works to ensure appropriate peer-review; this means scientific results and conclusions have been constructively and respectfully challenged and evaluated by a range of experts. These experts can be drawn from inside and outside of DFO, including academia, industry, non-government organizations, and Indigenous Knowledge holders. Resulting scientific advice to inform decision-makers is available publicly online. In this way, DFO is making government science available to the public by providing information on the scope of the advice, its intent, the data inputs, and participants involved in the peer-review. Further, the Department is working to make its science and data more open and accessible to Canadians in a timely way. The Department continues to increase its publicly available datasets on the Open Government and other portals, as it recognizes the importance of open data and also notes the challenges, including the need for data releases to be in compliance with all relevant legislation, including the *Privacy Act*.

Departmental scientists and teams publish primary papers, present at conferences and symposia, offer technical briefings, and partner with museums and ocean literacy organizations to communicate about Canada's oceans and aquatic ecosystems. Further, DFO has partnered with other science-based departments and agencies and the Office of the Chief Science Advisor of Canada to establish a Federal Open Science Repository. This shared infrastructure will help meet key recommendations of Canada's "Roadmap for Open Science" and allow scientists and researchers to make federally funded scientific outputs accessible to all Canadians.

The status of fish stocks and information on the sustainability of fisheries is publicly available on the Department's website through DFO's annual Sustainability Survey for Fisheries. The survey, first published in 2016, reports a wide range of information on key harvested fish stocks, including their stock status. The stocks included in the survey were selected for their economic, ecological, and/or cultural importance, and are a subset of the total number of federally-managed fish stocks.

Over the past several years, the Department has continued to evolve the science advisory process, including responding to feedback and an internal evaluation, to underscore its value in providing open and transparent advice to inform decision-making, and continues to innovate and be more efficient to provide the most timely and robust advice possible. A number of the Report's recommendations touched on expertise, and as noted above, DFO continues to work within existing policy and funding frameworks to increase the diversity of expertise and perspectives as it strengthens the independence of the peer-review process. For example, an external expert registry has been developed to help ensure a diverse set of experts are participating in scientific peer-review. It is also drawing on external perspectives, including its

Departmental Science Advisor, as it works to enhance its use of independent experts in this process.

The Department continues to build and strengthen relationships with First Nations, Métis, and Inuit, particularly as it works in, and with, Indigenous communities including Modern Treaty and Self-Government partners on various collaborative research and monitoring projects, marine protected area management plans, and the development of collaborative or co-governance agreements with Indigenous communities, including Modern Treaty and Self-Government partners. The resulting partnerships and collaborations have been essential to DFO's programs, allowing Indigenous knowledge to be documented and incorporated into the Department's processes and policies.

As the Committee highlights in the report, the fishing industry is also a critical source of fisheries knowledge, expertise, and capacity for the Department, and supports and participates in a large number of collaborative research programs and monitoring activities that provide key data inputs to DFO's stock assessments. Industry groups conduct surveys and research with DFO through a number of programs which facilitates the collection of fisheries science data and research that contributes to stock assessments. These programs include the Fisheries Science Collaborative Program (FSCP), which facilitates fishing industry engagement on data collection and research that contribute to stock assessments in Atlantic Canada, as well as the Groundfish Sentinel Program, which funds surveys that are carried out by harvesters and that provide independent indices of abundance and biomass that are incorporated into the assessment of Northern Cod. The Department also recently developed a new, multi-year Collaborative Agreement with the Atlantic Groundfish Council to co-develop and execute science activities in Eastern Canada.

The Department's Policy on Science Integrity, implemented in April 2019 guides the work of the organization. The Department actively participates in the Interdepartmental Scientific Integrity Policy Working Group, led by the Office of the Chief Science Advisor for Canada, in collaboration with a number of other science-based departments and agencies, ensuring a whole-of-government approach to scientific integrity.

Engagement and Consultation

(Recommendations: 11, 24-26, 28, 30, 31, 37, 41, 43)

The Department shares the Committee's views regarding the importance of engagement and consultation in fisheries management decision-making. DFO regularly consults with stakeholders through stock-specific advisory committees and working groups, which include participants from the recreational; Indigenous food, social, and ceremonial; and commercial fisheries. DFO has longstanding and extensive fisheries advisory processes for the major fisheries, through which input on management measures and decisions is sought from industry (harvesters and processors), Indigenous groups and provinces who generally attend these sessions, environmental and conservation groups, and smaller working groups to collaborate on specific projects.

With respect to provincial and territorial governments, officials often participate as members or observers in fisheries management advisory committee processes. Provinces and territories are consulted on matters related to access, allocation, and fisheries management decisions including catch limits. The degree to which a province or territory engages with DFO can vary by fishery, depending on, for example, the nature of the species (e.g. offshore marine vs. species that migrate from fresh to sea water), and the province's or territory's economic stake in the fishery (e.g. they may have views on a total allowable catch or distribution of quotas given potential impacts on processing plants and related employment). This input is included and considered by the Minister as part of the final decision-making process. In addition to formal processes, partners and stakeholders are regularly connected to regional DFO officials through ongoing communications as part of the recurring annual fisheries seasons and respective activities. DFO also regularly launches working groups to investigate particular changes in fisheries management approaches as required, including engagement to develop rebuilding plans and Sustainable Fisheries frameworks.

The Department has legal obligations to Indigenous groups, including Modern Treaty and Self-Government partners, under the Constitution and Court decisions: *Marshall* (moderate livelihood), *Sparrow* (Food Social Ceremonial), *Ahousaht* (right to sell fish from their territory). Additionally, there are unique fisheries co-management decision processes for land claims groups outlined in legally-binding agreements. These co-management processes include the consideration of science advice for sustainable harvest levels, along with Indigenous and treaty rights and socio-economic impacts, and involve consultation processes.

As well, DFO leverages the committees and task groups within CCFAM to enable cooperation and information sharing between federal, provincial and territorial scientists and managers on issues of shared jurisdiction and concern. For example, one of the various mandates of CCFAM's Fish and Fish Habitat Protection Committee is to collaborate across federal, provincial and territorial governments to provide advice on the regulatory and policy framework for the conservation and protection of fish and fish habitat required to successfully implement the *Fisheries Act*. Provinces and territories are consulted multi-laterally through CCFAM, and may also be engaged bilaterally on international issues impacting their region such as salmon-related treaties involving the United States.

The Government of Canada recognizes that threats like climate change, habitat loss and fishing pressures have negatively affected Pacific salmon throughout their lifecycle. In 2009, Canada established the Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River. The goal was to investigate the decline of sockeye salmon stocks and provide recommendations. As previously noted in the Cohen Commission response, DFO continues to share responsibility for the fish and seafood industry with other federal partners. It is important to note that DFO's role is primarily regulatory in nature, and is less focused on promotion of the sector. Subsequently, the Department also launched the 2018-2022 Wild Salmon Policy Implementation Plan (WSPIP) and has supported the conservation of this species by working towards the restoration of their habitat. Most recently to build on these actions, the Government of Canada invested in the Pacific Salmon Strategy Initiative in 2021 to take a transformative and coordinated approach to stabilize and restore Pacific salmon and salmon habitat for those who depend on them, and has created a new group within DFO to oversee this important work.

DFO continues to implement processes that are inclusive of Indigenous knowledge, ecosystem, and precautionary thresholds. The vital leadership role of Indigenous Peoples, including Modern Treaty and Self-Government partners, in marine conservation was recognized most recently in the establishment of the Gwaxdlala/Nalaxdlala marine refuge, the Northern Shelf Bioregion Network Action Plan, and the proposed Tang.gwan – hačxwiqak – Tsigis Marine Protected Area. The Department will continue to work towards achieving shared ecological, economic, cultural, and social objectives in the marine environment by using marine spatial planning as a collaborative and transparent approach to managing ocean spaces. This helps to balance the increased demand for human activities with the need to protect marine ecosystems, advancing marine conservation while also allowing for sustainable growth in our ocean sectors. Canada is committed to conserving and protecting our oceans, coasts, and sensitive ecosystems for current and future generations in a spirit of collaboration, mutual respect, and reconciliation with Indigenous Peoples including Modern Treaty and Self-Government partners.

Decision-Making and Communication

(Recommendations: 12, 14, 15, 27, 29, 32-36)

The Department shares the Committee's view that a robust and rigorous decision-making process that takes into account science advice, socio-economic analysis, and other factors is necessary to deliver on our mandate. The Department also recognizes that clear and timely communication of those decisions is important for the harvesters whose livelihoods depend on them. Scientific information, analysis, and advice is used to inform decision-making in several policy and regulatory domains, including: stock assessment, species at risk, aquaculture, environmental and risk assessments, oceans management and navigation, and emergency response.

With regard to fisheries management decisions, Section 2.5 of the *Fisheries Act* lists the following, which I may consider in the decision-making process: the application of the precautionary approach and an ecosystem approach; Indigenous knowledge; the sustainability of fisheries; scientific information; community knowledge; co-operation with any government of a province, and any Indigenous governing body — including a co-management body — established under a land claims agreement; social, economic and cultural factors in the management of fisheries; the preservation or promotion of the independence of license holders in commercial inshore fisheries; and the intersection of sex and gender with other identity factors.

When making decisions related to fisheries management, conservation of the stock is my first priority, with an eye at all times to ensuring that decisions maintain the longevity of this important economic sector. Formal science advice through the CSAS process, socio-economic impact analysis, and feedback from consultation and engagement sessions with harvesters and Indigenous peoples, are carefully reviewed by departmental officials, who present me with all the relevant factors that must be considered for a decision. As per the CSAS process, the science advice that informed the decision-making process is ultimately publicly available on our website. Other considerations that were taken into account are often included in public-facing documents found on the departmental website, as appropriate.

The *Fisheries Act* Fish Stock Provisions (FSP) (section 6.1-6.3) introduced obligations for me, as the Minister, to implement measures to maintain stocks prescribed by regulation at levels necessary to promote their sustainability and to develop and implement rebuilding plans for depleted stocks. The FSP are based on DFO's 2009 policy *A Fishery Decision-Making Framework Incorporating the Precautionary Approach* (PA Policy), which is a science-based framework to make decisions about harvest levels in fisheries. DFO applies its PA policy to key harvested fish stocks and their fisheries and is implementing the Fish Stock Provisions by applying the precautionary approach policy to those stocks subject to the Fish Stock Provisions. The provisions allow me, as the Minister, to change fishery management measures if the measures could result in adverse cultural or socio-economic impacts. The decision-making process occurs in a dynamic environment, but I, as the Minister, retain discretion and authority.

Fisheries management is only one area of decision-making linked to my mandate. Different areas of my mandate will have their own decision-making processes and frameworks. For example, establishing Marine Protected Areas (MPAs) under the *Oceans Act* also requires rigorous scientific assessment, as well as consideration of other important factors. This is a regulatory decision and requires that consultations be conducted in accordance with applicable legislation and directives, including the Cabinet Directive on Regulation. While DFO prioritizes the conservation and protection of marine areas, the Department must also consider legal obligations, such as Indigenous fisheries rights, and the socio-economic impacts that this level of protection could have on Indigenous and coastal communities and on industry. DFO relies on sound scientific information, socio-economic analysis, and public consultations to ensure decisions are in the best interest of all Canadians.

Regarding the Committee's recommendation to factor socio-economic impacts into decision-making processes, DFO undertakes various socio-economic analyses to serve a variety of departmental functions, including to support decision-making and policy development. In fisheries management, socioeconomic analysis is one of the key inputs that I may consider, and this analysis is reflected in publicly available fisheries management plans published on our website. Socio-economic analysis is also an integral part of all regulatory proposals. The publication of the Regulatory Impact Analysis Statement (RIAS), as part of the regulatory process, includes the analysis of impacts on stakeholders. The publication of the RIAS of a proposed Regulation in Canada Gazette, Part 1 also serves as a consultation tool as stakeholders can provide comments to DFO on the proposed regulation and the accompanying analysis. The detailed cost-benefit analysis study supporting the RIAS is also available to the public upon request in accordance with the federal regulatory requirements outlined in the Cabinet Directive on Regulations. DFO's analyses align with the federal regulatory requirements and international best practices.

Finally, the Department agrees with the Committee that timely decisions are important, and strives to achieve timely decision-making while considering the best available and most up-to-date science information, including stock assessments. As data must be collected and analyzed prior to providing recommendations for sustainable harvest levels or other management measures, decisions are made as soon as practical. Decision-making must also consider respective co-management regimes and their prescribed decision-making procedures and timelines, and include the consideration of information provided through that specific co-management consultation processes.

Domestic and International Collaboration

(Recommendations: 4, 16, 39, 40, 44)

The Department shares the Committee's views that collaboration with our international partners and neighbours, as well as with members of the Canadian ocean community (e.g. international governments, ENGOs), is highly beneficial to advancing the Departmental mandate. Further, access to external expertise is essential to generating the best available science to support policies and decisions. As such, DFO engages in a variety of science initiatives with international science-based organizations, intergovernmental organizations, regional fisheries management organizations (RFMO), and bilateral and multilateral partners from around the world.

Through national networks and initiatives, DFO partners with hundreds of scientific experts from Canadian academic institutions, other government departments, non-governmental organizations, Indigenous communities including Modern Treaty and Self-Government partners, and industry. One such innovative partnership with the Canadian Space Agency and Transport Canada, known as SmartWhales, will help support space-based research that could enhance Canada's ability to detect and monitor the presence of the North Atlantic right whale in Canadian waters and predict their movements. The resulting information will help to inform the protection and recovery of this incredibly important species.

The above noted breadth of collaboration culminate in a comprehensive science program that expands the scope of expertise DFO is able to draw on to conduct its work. For example, DFO's pinniped science program recognizes the value of collaborating on science. Activities underway include at-sea sampling of seals by members of the fishing industry, supporting internal and external research, and regular engagement with external experts. These projects are complementary to several active DFO research projects in across DFO's regions to examine the diets of key seal and/or sea lion species. All these efforts are helping us to continuously improve our understanding of pinniped populations and their impacts on fish stocks.

Domestic and international collaboration is also invaluable when conducting fisheries stock assessments, particularly for transboundary species. DFO scientists lead and/or actively participate in scientific committees and working groups on priority commercial fisheries under relevant RFMOs and engage in bilateral fisheries science projects of mutual interest and benefit to DFO and its partners. Further, through Canada's membership in intergovernmental organizations, DFO has access to the knowledge and expertise of thousands of scientists from international science organizations with linkages to the North Pacific, the Atlantic and Arctic oceans. For example, through membership in the International Council for the Exploration of the Sea, a world-leading international science organization with over participating 6000 scientists from 700 marine institutes, DFO is helping to advance knowledge in the Atlantic Ocean. In the central Arctic ocean, DFO is working with scientists and Indigenous Knowledge holders through the Scientific Coordinating Group with nine other parties in support of the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean. DFO also contributes scientific expert analyses and advice for a large number of transboundary and straddling stocks (fish stocks that migrate between or in one or more national waters) to RFMOs. Beyond fisheries, DFO is also active in oceanographic and hydrographic organizations including the International Hydrographic Organization (IHO), the body which sets international standards for nautical charts and publications to support safe navigation, whose Council was chaired for the last three years by a DFO official.

DFO continues to identify new opportunities to leverage international expertise to support its

domestic science programming. For example, Canada recently became a founding signatory to the All-Atlantic Ocean Research and Innovation Alliance (AAORIA), which provides a concrete and coordinated framework for advancing marine research, innovation, and cooperation on marine science across the Atlantic.

DFO Science Capacity

(Recommendations: 5-8, 13)

The Department shares the Committee's views on the importance of allocating sufficient resources to carry out scientific activities. DFO's Science organization prioritizes scientific research and monitoring activities in alignment with the Department's mandate and Government of Canada priorities. Resources are allocated through various science research programs, and DFO Science capitalizes on the synergies across the research programs to ensure the best and most coordinated results are achieved, while continuing to deliver world-leading research outcomes for Canadians.

To complement the work of DFO's scientists, the Department's Science sector also provides funding for scientific research and related scientific activities to external organizations, through the DFO Science Contribution Framework. This funding builds expertise in ocean and freshwater science in areas that support the mission of the Department to increase our understanding of ocean and freshwater environments.

Fisheries science is critical to the Department, and as the Committee noted, ecosystem science as well as science activities on climate change and ocean monitoring contribute to our understanding of fisheries and generate information that can be used to better understand stock dynamics and to help predict future trends. Many of the activities to support fisheries science require the use of vessels and other types of assets. DFO Science and Canadian Coast Guard (CCG) staff work collaboratively to optimize available CCG assets and ensure that key science activities are carried out (e.g., stock assessments for commercial fish species), the importance of which was noted in the Committee's report. Where gaps are identified by DFO's scientists and resources allow, opportunities to work with external partners to secure platforms are pursued. The Department continues to work with domestic and international partners to charter vessels, and has recently streamlined the process by creating a list of qualified suppliers to draw on as needed.

DFO carries out extensive annual off-shore multi-species scientific surveys which monitor many key commercial species. The appropriate frequency of stock assessments depends on a range of factors.

The Department will continue to review its processes, allocations, and resources to ensure that science program funding is aligned with the Departmental mandate and broader Government of Canada priorities. The Department remains committed to ensuring that decisions on sustainably managed fisheries and healthy aquatic ecosystems are informed by sound science, while recognizing the commercial, social, and cultural importance of fisheries in coastal communities.

Once again, on behalf of the Government of Canada, I would like to thank the members of the Standing Committee on Fisheries and Oceans for their diligence and commitment in studying and providing recommendations for Science at Fisheries and Oceans Canada.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Joyce Murray', with a long horizontal flourish extending to the right.

The Honourable Joyce Murray, P.C., M.P.

Minister of Fisheries, Oceans and the Canadian Coast Guard