

Canada's Ocean Policy: Assessing enabling governance conditions
for implementation of a national blue economy strategy

By

Jillian Elizabeth Conrad

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Abstract

The world has reached an international consensus regarding the need for sustainable ocean management practices to ensure the health and wealth of our global ocean. Such practices can be implemented through various marine-based strategies for sustainable development that focus on ecological, social, and economic domain integration, broadly known as Blue Economy development. States such as Seychelles and Australia have existing Blue Economy strategies; however, many maritime nations have yet to develop similar government-supported plans. Canada is in the initial phases of developing a Blue Economy strategy, which will build upon and integrate current marine development programs. These programs are supported by regulatory tools such as legislative and policy instruments; intrinsically, governance capacity for Blue Economy development must be evaluated prior to successful implementation. This study conducts a two-part federal policy and legislative analysis to determine Canada's regulatory capacity for developing a national Blue Economy strategy. First, a natural resource assessment was conducted across seven Canadian ocean sectors. Second, an analysis of enabling federal governance conditions was conducted based on federal legislation, policies and strategies supporting Blue Economy pillars and respective indicators identified by a Blue Economy Capacity Framework (BECF) (Cisneros-Montemayor et al., 2021). Overall, governance capacity is well-developed across environmental sustainability and economic viability domains, though department-specific regulations are lacking across multiple subsets of social equity. Further development of equitable federal policies and legislation will allow Canada to optimize marine and coastal industry processes and identify new areas for expansion while recognizing diverse coastal needs.

Keywords: Blue Economy, Canada, policy, equity

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Chapter 1: Introduction

Following a century of rapid maritime industrialization and overexploitation of global marine resources, ocean nations are modernizing ocean governance strategies. The importance of ocean health and wealth gained international recognition in the 1990s following severe resource depletion and fisheries collapses, highlighting the need for sustainable management regimes (Pauly et al., 2002). The United Nations Millennium Campaign launched shortly after in 2002, and officially recognized the need to ensure environmental sustainability as the seventh of eight key development goals to be met by 2015 (United Nations (UN), n.d.). Target 7.B identified the need to significantly reduce the rate of biodiversity loss by 2010 through the protection of terrestrial ecosystems and coastal marine areas, establishing the foundation for future targets (UN, n.d.). In 2015, 17 sustainable development goals were adopted by United Nations members via the 2030 Agenda for Sustainable Development (United Nations Department of Economic and Social Affairs (UNDESA), 2015). Goal 14 titled “Life Below Water,” calls for conservation and sustainable use and development of the oceans, seas and marine resources (UNDESA, 2015). Concurrently, the UN Decade of Ocean Science for Sustainable Development (2021-2030) was developed to actively reverse the global decline in ocean health and establish a common framework for ocean stakeholders to ensure ocean science can support members in improving conditions for sustainable development (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2021). Holistic ocean management is now a priority for ocean nations; through solution-making supported by the international community, an ocean governance approach that integrates principles of economic viability, environmental sustainability, and social equity has been created: this is the Blue Economy.

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The concept of a Blue Economy was developed to provide maritime nations with a sustainable and resilient development model built around an ocean economy, where a holistic approach to marine spaces and resource management creates economic opportunities, food security, poverty alleviation, and sustainable livelihoods (Voyer et al., 2020). This term was first coined at the 2012 United Nations Convention on Sustainable Development, when the Small Island Developing States identified an area of opportunity for ocean nations: the development of a marine-based Blue Economy that is parallel to a terrestrial-based Green Economy and transitions away from the status quo (Cisneros-Montemayor et al., 2021). To date, the concept of a Blue Economy remains nonspecific; a universal framework for operationalization has not been developed presumably as a result of significant variations in both enabling conditions and place-based needs. Although a specific definition and exclusionary criteria are lacking, the balance between pillars of economic viability, environmental sustainability, and social equity have been identified as critical to successfully shifting away from former industrial approaches to ocean development and toward a transformative Blue Economy (Cisneros-Montemayor et al., 2019).

Global progress on Blue Economy strategies and initiatives exists at different phases across the global ocean. Nations have recognized the importance of ocean health, wealth, leadership, and inclusion through SDGs and related commitments; as such, ocean management strategies have evolved over the past decade to include Blue Economy themes. At national and multinational levels, the Commonwealth Blue Charter was adopted in 2018 by all 54 Commonwealth countries, agreeing to collaboratively solve ocean-related problems and fulfill commitments for sustainable ocean development, in particular SDG 14 (Life Below Water) (GLOBE Advance, 2020). 2018 also marked the world's first Sovereign Blue Bond established by the Seychelles, where financial support was funneled exclusively into Blue Economy

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initiatives (International Institute for Sustainable Development (IISD), 2018). Support for Blue Economy development via multilateral institutions exists through various United Nations initiatives. For example, the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) agenda functions to actively reverse declining ocean health, and the United Nations Development Programme's (UNDP) Ocean Governance Programme aids local development through the Global Environmental Facility (GEF) Small Grants Programme (GLOBE Advance, 2020). Additionally, regional progress is supported by UNDP's Large Marine Ecosystems programme, and global actions on sustainable shipping are supported by collaborative efforts with the International Maritime Organization (IMO) and GEF (GLOBE Advance, 2020). The World Bank launched an Umbrella Multi-Donor Trust Fund (MDTF) that supports active regional programs contributing to Blue Economy strategies, namely in the areas of West Africa, South West Indian Ocean, and the Pacific Island region (GLOBE Advance, 2020; The World Bank, 2021). In 2020, the High Level Panel for a Sustainable Ocean Economy (Ocean Panel) collectively committed to sustainable management of 100% of national waters, under sustainability criteria ("transformations") of ocean health, wealth, equity, knowledge, and finance (Stuchtey et al., 2020). 14 global leaders form the Panel and have committed to Blue Economy development: Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau, and Portugal (Ocean Panel, n.d.).

Canadian Context

As a developed ocean nation with the world's longest coastline, Canada has positioned itself as a leader in ocean governance. However, despite Canadian membership within the Ocean Panel, and the leadership in Oceans Plastic Charter development, Canada has yet to establish a comprehensive Blue Economy strategy. Noting that the post-COVID-19 world provides a unique

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opportunity for development and the opportunity to “build back better,” the federal Department of Fisheries and Oceans Canada (DFO) initiated the formulation of a nation-wide Blue Economy Strategy built around stakeholder engagement in early 2021 (Department of Fisheries and Oceans (DFO), 2021). Under the tagline “Your oceans. Your voice. Your future,” the Blue Economy Strategy Engagement Paper requested ocean stakeholder feedback over a four-month period which aimed to collectively identify the national focus of Blue Economy growth and prosperity for all, position Canada’s Blue Economy for growth and success factors, and assess advancement for sustainable and prosperous ocean sectors (DFO, 2021b). The federal government has yet to identify existing policies and legislative pieces that support the development of a Canadian Blue Economy, and gaps within them.

Research Statement

The purpose of this research is to provide an in-depth assessment of federal policies and legislation (collectively, regulations) specific to Blue Economy capacity-building at the national level, complementing previous work (Cisneros-Montemayor et al., 2021). Three focal study questions include: 1) Does Canada have the governance capacity to develop a National Blue Economy Strategy in line with the fundamental meaning of the term? 2) How can national approaches to integrated management change to avoid fragmented development? 3) Which enabling conditions provide the basis for development, and which must be strengthened to transition away from ocean activity and towards a Blue Economy? These questions were selected to identify strengths, weaknesses, and gaps in existing regulatory measures to guide future governance development. Additionally, answering these questions can help guide decision-makers to reaffirm Canada’s ocean leadership through the modernization, integration, and information-based ocean management that is aligned with Blue Economy pillars.

History of Canada's Modern Ocean Governance Development Programs (Figure 1)

Over-exploitation of fish stocks and degradation of Canadian marine environments were officially recognized by the Government of Canada in 1994, following the collapse of the Atlantic groundfish industry and the impact of ship-generated oil waste on marine bird populations from coast to coast (Office of the Auditor General of Canada (OAGC), 2005). The *Oceans Act* (Oceans Act, 1996) was subsequently generated, with the overall objective to “conserve and protect our oceans’ environment, ecosystems, and resources while managing those resources in ways that were economically sustainable and environmentally acceptable,” “...to ensure that our oceans are clean, safe, productive, and accessible” (OAGC, 2005, p. 1). At the time of establishment in 1996, the *Oceans Act* premiered as the world’s first ecosystem-based, holistic law, positioning Canada as a global leader in sustainable ocean management (West Coast Environmental Law (WCEL), 2021). This act consists of three functional parts for establishing Canada’s ocean estate, sustainable ocean management, and designation of functional responsibility. Part one established Canada’s maritime zones which were incorporated into Canadian law as per the United Nations Convention on the Law of the Sea (UNCLOS) (Spicer, 2015). Part two outlined a national oceans management strategy founded on the principles of sustainable development, integrated management, and the precautionary approach. Part three mandated ministerial functions, powers, and duties, calling upon the Minister of Fisheries and Oceans and the Canadian Coast Guard to establish a national Marine Protected Area (MPA) network and national oceans strategy (WCEL, 2021). The *Oceans Act* provides the basis for modern-day Canadian ocean governance; this assessment focuses on national policies that provide a foundation for the development and implementation of a Canadian Blue Economy,

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exclusively (for a list of key ocean governance federal statutes and regulations identified by various federal departments, see Appendix 1).

Where the establishment of maritime zones under the *Oceans Act* was largely a formality for legally enforcing the results of territorial boundaries as per UNCLOS, the development of an MPA network was next to see progress. Shortly after the *Oceans Act* enactment in January 1997, the Department of Fisheries and Oceans (DFO) released a discussion paper in February of the same year titled “An Approach to the Establishment and Management of Marine Protected Areas under the *Oceans Act*” (DFO, 1999a). A public review period followed, with DFO leading 18 Information Sessions and obtaining feedback from over 400 Canadians that indicated citizen support of the MPA network (DFO, 1999a). Such consultations led to the birth of the March 1999 National Framework for Establishing and Managing Marine Protected Areas, outlining reasons for establishment, DFO’s approach to the MPA program, a framework to establish and manage MPAs, and interim MPAs for emergency situations (DFO, 1999a). This framework was formalized through the publication of DFO’s 1999 Marine Protected Areas Policy and included additional information such as program objectives, goals, and federal department responsibilities (DFO, 1999b).

The first comprehensive deliverable under the *Oceans Act* was the 2002 publication of a legislative and policy framework outlining a national oceans management strategy. Titled Canada’s Ocean Strategy (COS), this document presented a governance model built on the pillars of sustainable development, integrated management, and the precautionary approach, to be implemented by the Oceans Management Program (formerly known as the Integrated Oceans Management Program) (Fisheries and Oceans Canada (DFO), 2002; DFO, 2016). Years following the COS release showed minimal progress, and Canadian ocean management

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arrangements remained complex, fragmented, reactive, and lacked transparency. Ocean health continued to decline (observed through increased species at risk and invasive species, coupled with declining biodiversity and fish stocks), maritime stakeholder conflicts were increasing, and the ocean industry was operating significantly below economic potential (DFO, 2005a). After recognizing these issues in 2005, the federal government responded by developing an Oceans Action Plan (OAP) and associated funding under the broader COS, providing more specific goals and the means to achieve them (DFO, 2016). The OAP aimed to fulfill Canada's commitment to modern ocean governance and improved ocean management (DFO, 2005a; DFO, 2016). The plan identified the need for a phased approach toward implementation; phase one was allocated 24 months with four main initiatives and respective projects: i) International leadership, sovereignty and security, ii) Integrated oceans management for sustainable development, iii) Health of the Oceans, iv) Ocean Science and technology (DFO, 2005a). 2005 audit work, to which the Department of Fisheries and Oceans (DFO) responded in agreement, showed that both the *Oceans Act* and Canada's Ocean Strategy targets were not prioritized nor met, and that the new Oceans Action Plan failed to address critical barriers to implementing a national oceans strategy, including "strong leadership and co-ordination over the long term, adequate funding, and an accountability framework with appropriate performance measures and reporting requirements" (OAGC, 2005, p. 2).

Despite its lack of comprehensiveness, the OAP achieved targets through various projects and deliverables. The 2005 Canada's Federal Marine Protected Areas Strategy was a key outcome that built upon the 1999 MPA policy document and aimed to develop a more systematic approach to MPA planning and establishment (DFO, 2005b). Following OAP phase one completion in 2007, the Health of the Oceans (HOTO) initiative was announced as a part of the

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Oceans Management Program to build on OAP achievements and continue COS implementation efforts (DFO, 2016). HOTO was a five-year, \$61.5 million commitment by the federal government to fulfill MPA, pollution control, and collaborative oceans management goals through horizontal regulation by DFO, Transport Canada (TC), Environment Canada (EC), Parks Canada (PC), and Indigenous and Northern Affairs Canada (INAC) (DFO, 2012). This collaborative design led to “(strong) efforts between Health of the Oceans Initiative partners to maximize the benefits of operational activities,” and increased engagement between departments and regulating authorities throughout management processes (DFO, 2012, Recommendations section). Notable HOTO DFO outcomes include various MPA development efforts including the 2011 National Framework for Canada’s Network of Marine Protected Areas, Arctic Council ecosystem projects, integrated management and Canadian Environmental Act assessment tools, spill capacity study and emergency response strategy, and numerous collaborative projects (DFO, 2012). Future priority areas were identified as continued MPA development, meeting regulatory enforcement requirements, fulfilling international commitments, focusing on ocean management in the Arctic, and continued collaboration (DFO, 2012).

HOTO was succeeded by the National Conservation Plan (NCP) in 2014, which allocated \$31.5 million over five years to DFO to support coordinated national conservation efforts (DFO, 2016). A concurrent federal initiative supported by the Oceans Management Program was supported from 2014-2017, designating \$3.6 million over five years to DFO for the implementation of the World Class Tanker Safety System (WCTSS) (DFO, 2016). WCTSS aimed to identify and collect data analyzing “socio, economic, cultural and ecological data to establish local sensitivities for the four designated areas for tanker safety and their environmental conditions for risk assessments and response planning” (DFO, 2016, Section 2.0 para. 4). 2016

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marked the announcement of the Oceans Protection Plan (OPP), Canada's most current federal horizontal initiative. The five-year \$1.5 billion plan was established "to improve marine safety and responsible shipping, to protect Canada's marine environment, and to offer new possibilities for Indigenous and coastal communities" (DFO, 2019). OPP is implemented by TC (lead department), Environment and Climate Change Canada (ECCC), Natural Resources Canada (NRCan), DFO, and the Canadian Coast Guard (CCG), and includes 57 initiatives under four broad pillars: i) state-of-the-art marine safety system, ii) stronger evidence base, increased community participation and public awareness, iii) preservation and restoration of marine ecosystems, and iv) Indigenous partnerships (DFO, 2019). In December 2020, Canada endorsed the *Transformations for a Sustainable Ocean Economy: a Vision for Protection, Production and Prosperity*, which "outlines a set of priority ocean actions that countries can take to build a sustainable Blue Economy across five areas: ocean wealth, ocean health, ocean equity, ocean knowledge, and ocean finance, as well as a commitment to sustainably manage 100 percent of the ocean area under national jurisdiction by 2025, guided by sustainable ocean plans" (DFO, 2020a, para. 2). The federal government has requested feedback via online engagement from citizens, stakeholders, and provincial departments until June 2021 (DFO, 2021c); initial drafts have not yet been released to the public.

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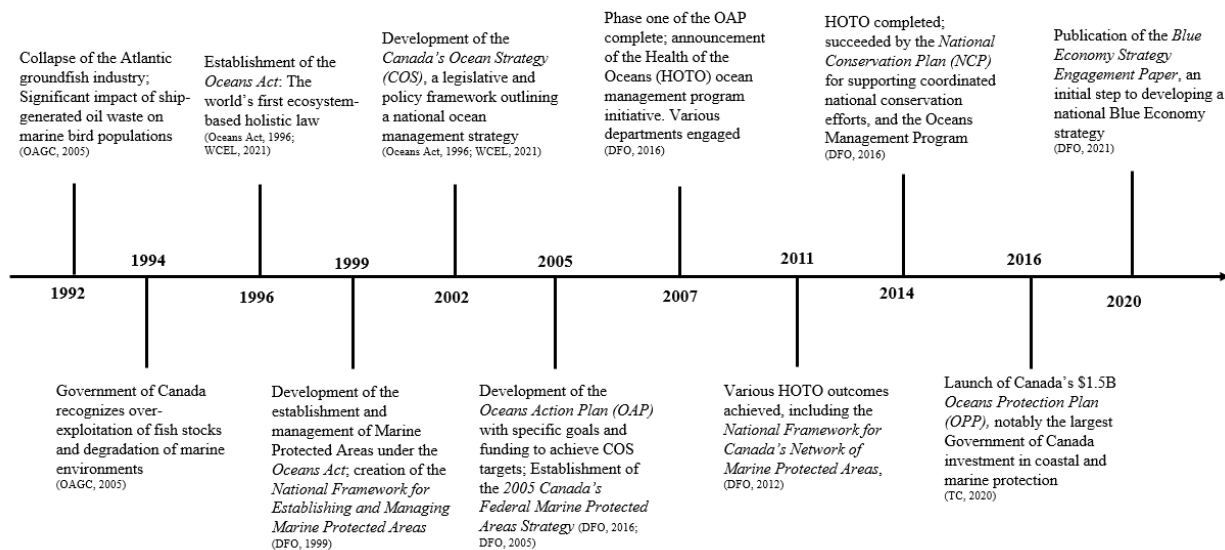


Figure 1. A summary of key historical ocean governance development programs contributing to Canada's current ocean management arrangements.

Chapter 2: Methodology

To formally assess Canada's enabling governance conditions supporting the development and implementation of a national Blue Economy Strategy, a Blue Economy Capacity Framework (BECF) was adapted based on (Cisneros-Montemayor et al., 2021) (Fig. 2). The BECF was built upon dimensions of biophysical resource availability and enabling conditions, where the former leads to development and the latter, overall well-being and societal progress (Cisneros-Montemayor et al., 2021). As per the original framework, a two-part assessment was conducted to determine overall national Blue Economy capacity, focusing on dimensions of (1) natural resource availability and (2) enabling governance conditions. Where Cisneros-Montemayor et al. (2021) relied on various global indicators to inform an enabling conditions assessment, this assessment evaluates enabling conditions based on how indicators are represented through federal legislations, policies, and strategy.



Figure 2. Lens for assessing governance capacity across Blue Economy dimensions of social equity, environmental sustainability, and economic viability. Indicators for social equity include human rights, Indigenous rights, group equity, economic equity, employment equity, and gender equality. Indicators of environmental sustainability include biodiversity, habitat, water quality, and stability. Indicators for economic viability include infrastructure, investment risk, national stability, and research and development.

Part I: Natural resource availability

Natural resource evaluation was conducted through an assessment of sectoral significance to justify Blue Economy development within Canada, complementing the enabling conditions dimension. This model was modified from the prior global assessment to align with the seven sustainable and prosperous ocean sectors in Canada as identified by the Canadian Blue Economy Strategy Engagement Paper (BESEP): (1) ocean-based energy, (2) marine transport, ports, and

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shipbuilding, (3) aquaculture, (4) commercial fisheries, (5) coastal and marine tourism, (6) ocean technology, and (7) future-oriented ocean industries (DFO, 2021b). Furthermore, the resource availability dimension was expanded into sectoral significance to include broad economic and social impact statistics, such as sectoral GDP and employment rates. Information was primarily retrieved from the BESEP and was supplemented by various grey and peer-reviewed literature.

Part II: Enabling governance conditions

The main focus of this research is a federal policy and legislative review to assess the state of existing governance mechanisms that support a Canadian Blue Economy strategy, identify gaps in governance, and prioritize areas for development and refinement prior to strategy implementation. The BECF enabling conditions dimension was adapted to reflect Canadian priorities. The three pillars of social equity, environmental sustainability, and economic viability remained constant as they comprise the conceptual foundation of Blue Economy at large. The original five indicators of social equity were (1) corruption, (2) economic equity, (3) gender equality, (4) group equity, and (5) human rights. According to the Corruption Perceptions Index (Transparency International, 2020), Canada is one of the least corrupt countries in the world; as such, the corruption indicator was removed from the analysis criteria. This is not to deny that corruption is not an issue within Canada, particularly on a case-by-case basis, rather it is not a systemic issue. Economic equity remained and was supplemented by an employment equity indicator to account for and assess the governance of barrier-free workspaces and places across marine sectors. Gender equality, group equity, and human rights remained present in the Canadian model. The indicator of Indigenous rights was added to recognize and account for the legal rights of Indigenous peoples in Canada, which cannot be appropriately accounted for when grouped within indicators such as group equity and human rights. Within the environmental

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sustainability pillar, the BECF presented three indicators of (1) biodiversity, (2) habitat, and (3) water quality, which was included in our model. The fourth indicator of stability was added to account for risks associated with climate change impacts. The pillar of economic viability remained consistent with the original model, including three indicators of (1) infrastructure, (2) investment risk, and (3) national stability, supplemented by a fourth indicator of research and development.

The BECF provides a method for indexing policy and legislation under Blue Economy targets. To determine Blue Economy capacity, ocean governance documents were sourced from Fisheries and Oceans Canada (DFO), as they are the leading federal institution for overseeing the safeguarding and management of marine resources (DFO, 2021g). Reports and publications were retrieved from the publicly available DFO online database, which provides categorized federal ocean legislation and policies (DFO, 2021d; DFO, 2021e). Following identification, documents were matched with appropriate indicators based on the central governance issue.

Recommendations were made based on the overall presence and development of governance mechanisms across each indicator.

Chapter 3: Natural Resource Assessment

Developing a National Blue Economy Strategy is critical to the modernization of current marine management practices and optimizing priorities of equity, sustainability, and viability across ocean governance mechanisms. With the world's longest coastline bordering three oceans, Canada's access to marine spaces and resources contributes to the economic, social, and cultural well-being of Canadians alike. Canada's ocean economy accounts for 1.6% of the national total GDP and employment, valued at \$31.7 billion annually with over 300 000 jobs in aquaculture, energy, fisheries, recreation, shipping, and tourism sectors (DFO, 2021a; DFO, 2021b). To justify Blue Economy development and position the growth and success of the ocean economy, sectoral significance is assessed across the seven sectors identified by the BESEP: 1) ocean-based energy, 2) marine transport, ports, and shipbuilding, 3) aquaculture, 4) commercial fisheries, 5) coastal and marine tourism, 6) ocean technology, and 7) future-oriented ocean industries. Overall, Canada has significant access to and effectively utilizes marine natural resources across marine transport, ports, and shipbuilding, aquaculture, commercial fisheries, and coastal and marine tourism sectors. Ocean-based energy, ocean technology, and future-oriented ocean industries require further scientific and infrastructure developments to optimize sectoral potential. All sectors have the potential for transformative development resulting from the implementation of an equity-focused Blue Economy (Cisneros-Montemayor et al., 2019).

Ocean-based energy

Canada defines marine renewable energy as the production of power from the world's tides, ocean waves and river currents, to produce electricity sustainably and reduce our dependence on fossil fuels (NRCAN, 2017). Interest for marine renewables in Canada began in 2001 and showed no significant developments until the release of the 2011 Canada's Marine

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Renewable Energy Technology Roadmap (MRC, 2011). The 2011 Roadmap projected that if generating capacity in the amount of 2000 MW is installed by the year 2030, Canada could benefit from \$2 billion annually in revenue (MRC, 2011). By 2040, the *Value Proposition for Tidal Energy Development in Nova Scotia, Atlantic Canada and Canada* study forecasts that the industry could contribute up to \$1.7 billion to Nova Scotia's GDP, generate up to \$815 million in labour income, and create up to 22 000 full time employment opportunities (MRC, 2021).

Currently, the Canadian ocean-based energy sector is largely governed by Marine Renewables Canada (MRC), a non-profit, government supported society that aims to fully realize Canada's ocean energy potential, technologies, and capabilities (MRC, 2021). MRC has active projects in wave energy, river current energy, offshore wind energy, and tidal energy across the nation, while working toward supply chain development (MRC, 2020). Beyond economic valuation, this sector also provides unique energy solutions for northern and rural communities that operate on diesel generation, creating social equity opportunities for community participation and ownership while abiding by sustainable and viable practices (MRC, 2021). At the federal level, all projects related to ocean-based energy must adhere to applicable legislation such as the *Canadian Environmental Assessment Act (2012) (CEAA 2012)*, *Canadian Environmental Protection Act (1999)*, *Fisheries Act*, *Migratory Birds Convention Act*, *Navigable Waters Protection Act*, and *Species at Risk Act (SARA)* (Tethys, 2021). The *Oceans Act* outlines ocean-based energy rights explicitly (s.14a) (*Oceans Act, 1997*).

Potential applications of ocean-based energy within Blue Economy development include:

- 1) providing power at sea that is cost-effective and sustainable, 2) enhancing resiliency within coastal communities by supplying marine energy support in the face of extreme events, and 3) crosscutting markets based on furthered Blue Economy-specific research (U.S. Department of

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Energy, 2019). In Canada, this could prove to be particularly valuable within northern, rural, and Indigenous communities. These applications would provide environmentally sustainable power solutions that enhance Canadian social equity and increase economic viability.

Marine transport, ports, and shipbuilding

Marine transport, ports and shipbuilding are a major driver of Canadian trade and the national economy. In 2019, marine transport carried 20.6% of Canada's total international trade, valued at \$246.5 (DFO, 2021b). This sector provided 25 431 jobs in 2019, of which a large proportion were in coastal and port communities (DFO, 2021b). In addition to, 2019 ship and boat building manufacturing contributed a net revenue of \$5.2 million, \$2.2 billion in shipments, and \$1.1 billion in value added, while 2019 building lead to \$283.9 million in exports and \$2.0 billion in imports (Government of Canada, 2021). As the government moves to increase sectoral capacity, guiding legislation and policies have been implemented to ensure safe, secure, and environmentally responsible development while promoting economic growth. The *Canada Shipping Act (2001)* and the *Oceans Protection Plan (2016)* both aim to, under the federal jurisdiction of Transport Canada- with support of other departments- establish guiding regulations, objectives and infrastructure. Such regulations are critical for shaping sectoral growth throughout the global economic recovery resulting from the COVID-19 pandemic. Within the context of the Blue Economy, this sector can offer contributions through sustainable shipping, using alternative fuels, improving port infrastructure, and constructing vessels that are clean, safe, and energy efficient (Scholaert et al., 2020).

Aquaculture

Canada is a global leader in aquaculture production and sustainable aquaculture practices (DFO, 2018a). Canada's aquaculture sector was established in response to increasing global demands for fish and seafood in the 1970's and is now recognized as a key contributor to Canada's total ocean economy, with a direct contribution of over \$300 million to the national GDP (DFO, 2021a; DFO, 2021b). The aquaculture sector contributes 20% of total seafood production and one third of the national total fisheries value (DFO, 2013). In 2019, Canada's aquaculture industry produced 187,026 tonnes of product, valued at \$1.2 billion in 2019, with Atlantic salmon and oysters as leading species for finfish and shellfish respectively (POC, 2021). 45 species are currently cultivated commercially through five main types of aquaculture: Freshwater net pen, land-based systems, bottom culture/enhancement-intertidal, long-line/raft, and net pen (POC, 2021). Aquaculture presents economic solutions for remote and rural coastal communities and Indigenous populations within Canada, while expanding the seafood sector and food security. In 2019, Canada reported over 260 aquaculture-based businesses, with micro establishments (1-4 employees) representing 55.3%, small establishments (5-99 employees) accounting for 41.3%, and medium establishments (100-499 employees) contributing 3.4% (Library of Parliament (LOP), 2021). In 2019, the aquaculture sector generated 4100 jobs (DFO, 2021b).

Looking forward, the world consumption of salmon is projected to increase by 40%, in the amount of approximately 2 million tonnes, by 2027 (DFO, 2018b). Canada is forecasted to remain a small player in the international salmon aquaculture industry, however, however "production is projected to grow faster than domestic consumption, increasing export capacity" (DFO, 2018b, pg. 3). It is also projected that, given the high costs associated with feed,

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diversification of feed formulas and increased production of species that do not require feeds will likely remain priorities (DFO, 2018b). By 2028, overall Canadian aquaculture production is projected to reach nearly double by 2028 and continue to provide both direct and indirect economic and employment benefits to communities across the nation (DFO, 2020c). Given rapid industry development and a lack of legislation providing infrastructure to support growth, a federal *Aquaculture Act* is in the process of being developed (DFO, 2020c). Aquaculture has the potential to contribute significantly to the Blue Economy through social, environmental, and economic roles, particularly to remote communities. As such, development should focus on ocean and animal health and welfare, effective management services, productive investments, and innovation (Scholaert et al., 2020).

Commercial fisheries

The Canadian commercial fisheries sector is well developed and has been a long-standing critical component of the Canadian economy at the local, provincial, and national levels. Commercial fisheries and fisheries resources are federally regulated by the well developed *Fisheries Act* (1985). In 2018, the direct sectoral contribution to the national economy was valued at \$3.7 billion, employing 45 907 individuals (LOP, 2020). Indirect contributions from fish and seafood processors contributed over \$6.6 billion and employed an additional 26 429 individuals (LOP, 2020). At the local level, “more than 1,100 Canadian communities rely on commercial fisheries and its spinoff activities” according to the Canadian Council of Professional Fish Harvesters (LOP, 2020, para. 2). Sectoral growth has dramatically increased over the past decade as a result of increased consumer demand for high-value species and elevated market prices, observed through the 123% increase in wild capture fishery total landing value when comparing 2009 to 2017 (DFO, 2021b). The global COVID-19 pandemic caused

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significant sectoral disruption, resulting in decreased demand, low market prices, shipping limitations, port closures, storage facility access issues, and overall reduced capacity. Applying a Blue Economy lens, a transition toward using sustainable fishing gear and vessels will not only support responsible resource use, but will also provide quality fish and fishery products that are sustainably sourced, increasing overall market value.

Coastal and marine tourism (DFO, 2021b)

Canada's coastal and marine tourism sector relies on rich, protected, and biodiverse marine spaces and places in areas such as the cruise industry, boating tours, recreational fishing, and diving. This sector is critical to both Indigenous and non-Indigenous tourism industries and job security, and contributes to the national economy through both direct and indirect streams. In 2016, direct contributions were valued at \$1.7 billion with an employment total of 32 700 jobs, while indirect contributions were valued at an additional \$2 billion and 19 800 jobs (DFO, 2021b). This sector has not been equally developed from coast to coast to coast, and remains particularly underdeveloped in the Arctic region as a result of inadequate infrastructure as well as safety and security challenges and risks. The global COVID-19 pandemic significantly impacted this sector as it neared complete eradication due to public lockdowns. In response, the sector is in the midst of redevelopment which has been supported by the government's Regional Relief and Recovery Fund (RRRF); 25% of the \$2 billion RRRF was dedicated to tourism exclusively (DFO, 2021b). Looking forward, the post-pandemic growth of the coastal and marine tourism sector provides a unique opportunity to reimagine coastal and marine tourism through a Blue Economy lens, including "new ideas and opportunities for coastal and marine conservation, Indigenous-led initiatives, and coastal community capacity building" (DFO, 2021b, pg. 43). Within the Blue Economy, sustainable, eco-friendly, and responsible tourism practices that are

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supported by a regulatory framework can lead to job creation and sector viability, environmental benefits, and social equity (Scholaert et al., 2020).

Ocean technology

The ocean technology sector within Canada “is a cross cutting advanced technology industry focused on products and services to understand and work in or use the ocean” (Government of Canada (GOC), 2017). This sector is centered around small companies offering specialized products or services for marine-specific technologies that help to advance ocean science and research from coast to coast to coast (DFO, 2021b). Four ocean technology projects identified by the federal government are: i) Canada’s Oceans Action Plan (OAP), which aims to develop national ocean resources to benefit coastal communities and marine ecosystems, ii) NEPTUNE, a technology for streaming real-time data and images from the deep ocean to further understand ocean activity and ocean life, iii) VENUS, an oceanography tool used to observe dynamic ocean characteristics, and iv) COVE, a collaboration facility for applied ocean innovation (DFO, 2021b). Canada is world-leading in the following ocean technologies: “sensor technology, remote sensing (radar and acoustic), subsea vehicles/robotics, autonomous systems, harsh ocean environment technology, and marine simulation” (DFO, 2021b, pg. 45). While no ocean technology specific legislation exists, Section 42 of the *Oceans Act* establishes departmental and ministerial functions for developing this sector (GOC, 2017). Ocean technology can contribute to a Blue Economy through creating sustainable, viable, and equitable solutions for large-scale problems, such as using desalination technology to address freshwater shortages (Scholaert et al., 2020).

Future-oriented ocean industries

The BESEP outlines future-oriented ocean industries as the development of emerging industries “based on and enabled by cutting edge science and new technologies”, and identifies examples of marine biotechnology, offshore aquaculture, and seabed mining (DFO, 2021b, pg. 47). The BESEP identifies the vast applications of marine biotechnology to other industries, such as in the health and pharmacology field through testing anti-viral marine compounds in pre-clinical and clinical trials, using marine compounds for bioremediation purposes, and exploring the use of algae as a biofuel source (DFO, 2021b). Sectoral regional development has been observed in Prince Edward Island, Quebec, and British Columbia (DFO, 2021b). Overall, this sector has the potential to enhance the quality of Canadian fish and seafood exports, develop pharmaceuticals, and enhance bioremediation efforts (DFO, 2021b). Currently, this sector remains undefined and unregulated; regulatory restructures, de-risking novel technology development, and financing access have all been outlined as next steps to ensure sectoral growth that aligns with Blue Economy dimensions (DFO, 2021b). Moving forward, future-oriented ocean industries have unmapped potential within the Blue Economy context. These industries can work toward harmonizing Blue Economy pillars that lead to holistic development.

Chapter 4: Enabling Governance Conditions

The following analysis presents an assessment of key federal legislation and policy that supports the development and implementation of a national Blue Economy strategy. Relevant ocean policies identified by DFO alongside broader federal legislation were assessed to determine existing governance capacity (for additional legislative tools, see Appendix 1). Regulatory mechanisms are divided into four distinct categories: i) Integrated regulations, ii) Social equity, iii) Environmental sustainability, and iv) Economic viability. All governance documents were analyzed for objectives and key elements. Overall, individual tools support growth and development at the indicator level, whereas integrated regulations provide a foundation for a multi-sectoral Blue Economy.

Integrated regulations

The following integrated regulatory governance mechanisms are robust pieces of Canadian policy and legislation that pave the way for the development of a Blue Economy strategy. The key pieces of integrated legislation identified by DFO include the *Oceans Act*, *Canada's Ocean Strategy*, *Marine Protected Areas Policy*, *Aquaculture Act* (proposed), *Fisheries Act*, and *Canada's Oceans Protection Plan*. Each of these tools has a strong focus upon environmental sustainability to ensure that Canada's waters are resource abundant for generations to come; presence of social equity and economic viability elements varies across each document. It is critical to assess past attempts to develop and implement integrated policy at the national level to develop an understanding of associated challenges, opportunities, and gaps. Integrated oceans governance tools have seen significant developments throughout the past several decades; adopting a Blue Economy strategy has the opportunity to comprehensively

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connect existing regulatory mechanisms and associated commitments for future-oriented ocean governance that is equitable, sustainable, and viable.

Oceans Act (1996)

The Blue Economy aims to functionally integrate pillars of social equity, environmental sustainability, and economic viability to holistically optimize the human-ocean relationship. The conceptual foundations of the Blue Economy were first introduced by Canada through the establishment of the 1996 *Oceans Act* (Oceans Act, 1996), which formalized Canada's maritime zones and outlined a national oceans management strategy alongside the assignment of respective powers, duties, and functions. Specifically, the management approach was based on principles of sustainable development, integrated management, and the precautionary approach. The *Act* identifies nine points, highlighting elements from each pillar, as a basis for development:

- 1) Recognition of Canada's three oceans as a source of common heritage;
- 2) Reaffirmation of Canada's global leadership in ocean and marine resource management;
- 3) Affirmation of Canadian rights, jurisdiction and responsibilities in the maritime EEZ via domestic law;
- 4) Fostering sustainable development through furthering understanding our oceans and their activity, and our marine spaces and resources;
- 5) Acknowledging the critical nature of ecosystem-based conservation in the maintenance and preservation of biological diversity and marine productivity;
- 6) Promoting the precautionary approach across ocean and coastal management to protect and preserve the marine environment;

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- 7) Recognizing our oceans and coastal spaces as a source of potential economic growth and diversification to benefit Canadians, particularly coastal communities;
- 8) Promoting an integrated approach to marine management; and
- 9) Encouraging the collaborative development and implementation of a national management strategy for estuarine, coastal and marine ecosystems.

The aforementioned justification points prefacing the *Oceans Act* do not explicitly recognize the term ‘equity,’ nor does the term appear throughout any section of the legislation. Although the social equity dimension within this *Act* is not significantly developed, it is clear that management best practices at the time of publication were considered. Part II and Part III include sections that recognize the importance of social justice in the development and implementation of a national strategy and integrated management plans for the management of estuarine, coastal and marine ecosystems in Canada. Section 29 mandates a collaborative approach between “...the Government of Canada, with provincial and territorial governments and with affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements,” recognizing the importance of group equity and engagement (pg. 15). Section 33 builds on group equity through the commitment to cooperate with the aforementioned stakeholder groups, while recognizing the possibility of consultation (Section 32). Alongside group equity, human and Indigenous rights are explicitly recognized through Section 2.1, which issues a statement to clarify that the *Oceans Act* does not “abrogate or derogate from any existing aboriginal or treaty rights of the aboriginal peoples of Canada under section 35 of the Constitution Act, 1982” (pg. 3). Moreover, Section 42(j) outlines that the DFO Minister may “conduct studies to obtain traditional ecological

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knowledge for the purpose of understanding oceans and their living resources and ecosystems” (pg. 46). Indicators of gender equality, employment equity, and economic equity remain absent.

The *Oceans Act* is renowned for its holistic approach to oceans management, due to the progressive recognition of environmental sustainability as a necessary component in ocean development. Foremost, Section 14(b)(iii) recognizes the Canadian right to protect and preserve the marine environment within the EEZ. To exercise this right, Part II of the *Act* outlines Canada’s oceans management strategy that outlines environmental sustainability priorities. Section 32(d) permits the implementation of marine environmental quality guidelines, objectives and criteria. Section 35 permits the designation of a marine protected area network to conserve and protect Canadian marine resources and spaces, issuing special protection for one or more of the following reasons:

- (a) the conservation and protection of commercial and non-commercial fishery resources, including marine mammals, and their habitats;
- (b) the conservation and protection of endangered or threatened marine species, and their habitats;
- (c) the conservation and protection of unique habitats;
- (d) the conservation and protection of marine areas of high biodiversity or biological productivity;
- (e) the conservation and protection of any other marine resource or habitat as is necessary to fulfil the mandate of the Minister; and
- (f) the conservation and protection of marine areas for the purpose of maintaining ecological integrity. (pg. 18)

Compliance orders are identified in Section 39 and remain consistent with protection and preservation priorities. Additional measures for understanding ocean resources, habitats and ecosystems through marine sciences are outlined in Section 42. Overall, indicators of biodiversity, habitat, and water quality are present; however, stability is not recognized.

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The economic viability dimension is present throughout each part of the *Oceans Act*, beginning with the establishment of Canada's maritime zones (Part I), which together create the foundational infrastructure for the nations' ocean economy. Canada's territorial sea and contiguous zone is first established in Section 4, followed by the national EEZ boundaries in Section 14, which is supported by the right to "exploring and exploiting, conserving and managing the natural resources...with regard to other activities for the economic exploitation and exploration of the exclusive economic zone of Canada" (pg. 7). The continental shelf (Section 17-21), court jurisdiction (Section 22), miscellaneous provisions (Section 23 and 24), and regulations (Section 28-34) are then identified, all of which contribute to Canada's marine-based economic infrastructure. Section 40(2) recognizes the importance of fostering sustainable development in marine trade, commerce and safety and encouraging such activities. Investment risk was included in the *Act* through Section 41(2), where a cost-effective approach to Coast Guard services was mandated to ensure the safe, economical and efficient movement of ships through Canadian waters. Opportunities for research and development are supported by the right to marine scientific research (Section 14(b)(iii)), and are identified explicitly in Section 42(d) and 43(b)(ii) for developing marine ecosystem and habitat knowledge, and Section 43(b)(i) and (ii) to conduct research, investigations, and economic studies to increase national understanding of ocean resources and ecosystems. Section 44 outlines rules pertaining to foreign ships regarding marine scientific research in Canadian waters. In summary, economic indicators of infrastructure, investment risk, and research and development are present within the *Act*, however national stability is not explicitly addressed.

Overall, the *Oceans Act* is the leading piece of legislation providing a basis for Blue Economy development. It is critical that Blue Economy development and implementation is not

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a rebranded *Oceans Act*, rather than it identifies challenges, opportunities, and gaps within social equity, environmental sustainability, and economic viability that can be modernized and renewed to enhance Canada's ocean health, wealth, leadership, and inclusion. It is imperative that the *Oceans Act* remain a current legislative tool for mandating Blue Economy actions, which can be achieved through amending and supplementing the Act as it stands today.

Canada's Ocean Strategy (DFO, 2002)

Canada's Ocean Strategy (COS) was developed as a result of the 1996 *Oceans Act*, and marked the first "policy and operational framework for integrated management of estuarine, coastal and marine environments in Canada" (pg. 1). The COS recognizes fragmentation as a result of the sectoral management approach, and identifies twelve critical components of integrated management : i) Using natural and economic systems for the planning of ocean and coastal areas, ii) identifying goals and targets to guide activities, iii) acknowledging the need to understand diverse and interconnected coastal and ocean uses, iv) gathering a full range of knowledge to guide planning and decision-making, including scientific, local, and traditional knowledge forms, v) creating a process for uniting diverse stakeholders, vi) building upon the strengths of sectoral management to develop a collaborative and cooperative management process, vii) Use governance structures to stress the importance of social, cultural, environmental and economic impacts, viii) analyze development impacts in the interest of harmonizing sectoral coastal and ocean activities, ix) identifying opportunities for economic and information growth, x) consideration of cumulative effects and sustainable practices within ocean and coastal management, xi) implementing integrated, adaptive management with monitored outcomes, and xii) "harmonizing planning, management and regulatory policies and actions to increase effectiveness of sustainable development and conservation efforts" (pg. 9).

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The COS also outlines guided principles and a governance model that uses collaboration and co-management to achieve holistic ocean and coastal management across all Canadian marine spaces. Overall, the COS provides a strong foundation guiding the development of a national Blue Economy strategy as it recognizes all Blue Economy pillars. All indicators of environmental sustainability and economic growth are recognized, while human rights and Indigenous rights indicators of social equity are recognized. Notably, the term “social” and “cultural” are frequently used throughout the document.

Marine Protected Areas Policy (DFO, 2021f)

Marine Protected Areas (MPAs) are legally protected and managed marine spaces that are designated for the purpose of achieving long-term nature conservation; they contribute to a healthy marine environment, support economic goals of society, and contribute to Canadian culture (DFO, 2021h). While the *Oceans Act* provides the legislative basis for Canadian MPA implementation, the National Framework for Canada’s Network of Marine Protected Areas provides strategic direction for achieving a national MPA network that fulfills three central goals: “1) To provide long-term protection of marine biodiversity, ecosystem function and special natural features; 2) To support the conservation and management of Canada’s living marine resources and their habitats, and the socio-economic values and ecosystem services they provide; and 3) To enhance public awareness and appreciation of Canada’s marine environments and rich maritime history and culture” (DFO, 2011, pg. 6). In addition to, the Canada’s Federal Marine Protected Areas Strategy operationalizes marine conservation through three core programs: i) *Oceans Act* Marine Protected Areas, ii) Marine Wildlife Areas, and iii) National Marine Conservation Areas (DFO, 2005b).

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Current achievements in Canadian marine conservation include the 14 MPAs established under the *Oceans Act*, three National Marine Conservation Areas, one marine National Wildlife Area, and 59 Marine Refuges that together protect a total of 13.81% of Canadian coastal and marine areas (sect. 3, para. 1). Within the context of developing a Canadian Blue Economy, marine protected areas contribute strongly to environmental sustainability efforts by regulating activities that threaten biodiversity, habitats and water quality. A study conducted by the European Commission found that sustainable and equitable MPA management can drive multi-sectoral economic benefits, acting as a tool for operationalizing Blue Economy goals and objectives (European Union, 2018). Through the development of modernized MPA management that incorporates equity, viability, and conservation targets, Canada will significantly advance its current approach to marine protection while simultaneously fulfilling international commitments.

Aquaculture Act (2021) *Proposed (DFO, n.d.a)

In Canada, legislative gaps and inconsistencies throughout federal and provincial/territorial legislation regulating the aquaculture industry led to the proposed federal Aquaculture Act. The Act is currently in the development process, however a discussion paper was released to the public for engagement in 2020 and 2021. Based on the discussion paper released by DFO, elements of social equity, environmental sustainability, and economic viability are all present, indicating that Canadian legislation follows management best practices. Through the proposed Act, DFO intends to “foster national consistency, while respecting federal, provincial, and territorial jurisdiction; improve clarity and certainty for the industry; enhance environmental protection; and help sustainably grow the industry for the benefit of Indigenous and rural communities” (pg. 3). The discussion paper identified eight elements of the proposed Aquaculture Act: (1) Application, purpose, and definitions, (2) leases, licenses, and fees, (3)

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Indigenous reconciliation, (4) cooperation, (5) environmental protection, (6) enforcement and alternative compliance measures, (7) regulations, and (8) public reporting and other. The Aquaculture Act will be supported by the Fisheries Act, however elements will differ to fulfill sector-specific needs and foster industry development.

Although each Blue Economy pillar is recognized, not all indicators remain present within the discussion paper. To fulfill the social equity dimension, Indigenous rights are recognized through the Element 3 of Indigenous Reconciliation, where appropriate definitions, rights, and knowledge specific to the Indigenous peoples of Canada are recognized (pg. 13). Indigenous rights and group equity are identified through Element 4 of Cooperation, as the engagement of diverse stakeholders is recognized through the development of aquaculture-specific advisory panels and authorities for making equivalency agreements, programs, and projects (pg. 13). The discussion paper does not explicitly identify or acknowledge human rights, economic equity, employment equity, and gender equality indicators.

The environmental sustainability dimension is recognized through Element 5 of Environmental Protection. The Act will “develop authority to design standards, codes of practice, guidelines, or recognizing existing ones” in accordance with Section 34.2 of the Fisheries Act (pg. 13). Prohibitions to the death of fish (s.34.4), harmful alteration, disruption, or destruction of fish habitats (s.35), and deposit of deleterious substances (s.36) will be developed (in equivalence to the Fisheries Act) and amended as required, fulfilling biodiversity, habitat, and water quality indicators. Developments exclusive to the Aquaculture Act include the proposed development of authorities for the management of animal husbandry that may have environmental impacts, and mechanisms for enabling are-based management protocols, fulfilling the stability indicator.

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Economic viability was a driver for Aquaculture Act development, as the need for legislative reform for regulating aquaculture in Canada was identified through the February 2017 report of the Advisory Council on Economic Growth (pg. 3). Element 6 of Enforcement and Alternative Compliance Measures establishes infrastructure through the designation of power, and development of aquaculture-specific authorities, “offence, punishment, ticketing, administrative monetary penalty, and alternative measures agreement sections” through a tiered approach (pg. 14). Investment risk is considered in Element 8 of Public Reporting and Other, through the development of cost recovery mechanisms for allowing others to utilize DFO facilities. Research and development is outlined through Element 2 of Leases, Licences and Fees, which aim to establish “a clear mechanism to enable alternative forms of aquaculture in federal jurisdiction, including offshore waters, as well as an experimental leasing and licensing system to facilitate the development of novel or experimental aquaculture methods” (pg. 5). The indicator of national stability is not explicitly addressed in the discussion paper.

Fisheries Act (1985)

The *Fisheries Act* is the main federal law governing Canadian fisheries, designed to establish a framework for “(a) the proper management and control of fisheries (and) the conservation and protection of fish and fish habitat, including by preventing pollution” (pg. 3; West Coast Environmental Law, 2013). The *Act*, amended in 2019, integrates components of social equity, environmental sustainability, and economic viability for the effective and complete regulation Canadian fisheries, while incorporating best management practices (s.89-92). Social equity is the least developed dimension of the three Blue Economy pillars; indicators explicitly recognized include the rights of the Indigenous Peoples of Canada (s.2.3, 2.4, 2.5), group equity (s.2.5), and gender equity (s.2.5). The prevention of adverse socioeconomic impacts is

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recognized in regard to setting a fish stock limit reference point (s.6.1.2) and rebuilding a fish stock following a stock decline (s.6.2.2). The economic viability domain is critical to the *Act*, as it provides the legislative foundation for fisheries management economic infrastructure.

Elements such as *Fishery leases and licenses* (e.12), *Fish allocation for financing purposes* (e.14), *Fees* (e.15), *Lobster fisheries* (e.16), *Vacant public property* (e.26), and *Disposition of seized things* (e.30) create the infrastructure under which Canadian fisheries viably operate.

Broad considerations for environmental sustainability are present throughout the *Act* through mandating overall fisheries sustainability (s2.5(b)) and measures to promote and maintain the sustainability of fish stocks (s6.1). Regulations regarding biodiversity are addressed throughout section 43.3, where possible ministerial regulations for the purpose of conservation and protection of marine biodiversity are outlined. These regulations include: “(a) prohibiting fishing of one or more species, populations, assemblages or stocks of fish; (b) prohibiting any type of fishing gear or equipment from being used; (c) prohibiting any type of fishing vessel from being used; (d) prescribing classes of persons in respect of whom the prohibitions set out in paragraphs (a) to (c) apply; and (e) prescribing types of fishing vessels in respect of which the prohibitions set out in paragraphs (a) and (b) apply” (pg. 57). The habitat and water quality indicators are primarily acknowledged through sections 34-42.1 under Element 18, *Fish and fish habitat protection and pollution prevention* (pg. 23). Through this component of the *Fisheries Act*, topics such as the death of fish (s.34.4), harmful alteration, disruption or destruction of fish habitat (s.35), ecologically significant areas (s.35.2), and prohibition of overboard disposal of certain substances (s.36) are addressed, alongside sections for coordination and implementation of such regulations.

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In 2019, an open-access online *Fisheries Act* (FA) Registry was released to the public, including information on projects and assessments “relating to fish and fish habitat protection and pollution prevention,” (para. 3) including “project-specific information on authorizations that have been issued since the amended Fisheries Act came into force on August 28, 2019” (DFO, 2021j, para. 1). This dataset includes a variety of government supported actions under the *Fisheries Act*; moving forward, this method for exhibiting transparency would likely prove beneficial for public access to all Blue Economy related programs and content.

Canada’s Oceans Protection Plan (Office of the Prime Minister, 2016)

In 2016, the Government of Canada launched a \$1.5 billion project to ensure the health of Canadian coastlines and waterways, and to protect them from the potential impacts of marine shipping. Known as the *Oceans Protection Plan* (OPP), the Government of Canada integrated various departments in collaboration with a diverse group of stakeholders, particularly Indigenous and coastal communities, to protect Canada’s ocean environment, ensure responsible shipping, improve marine safety, and create opportunities for Indigenous and coastal communities. Transport Canada is the designated lead department, and is supported by inter-departmental collaboration with Fisheries and Oceans Canada, the Canadian Coast Guard, Environment and Climate Change Canada, and Natural Resources Canada. The Plan states that “all Canadians, and especially coastal communities, need confidence that commercial shipping is taking place in a way that is safe for mariners and that protects and sustains the economic environmental, social, and cultural health of our oceans and coasts” (pg. 1). Although the Plan is based on Blue Economy pillars, goals within the OPP have primary priorities of social equity and environmental sustainability and have modernized Canada’s approach to marine safety and

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security. Overall, economic viability remains a key driver for marine shipping and is critical to the Canadian economy.

The OPP outlines specific goals that fall under the implementation of a world-leading marine safety system. Various components of social equity are recognized and prioritized through the OPP, including the following goals: improved information sharing of marine traffic with coastal communities, safer navigation in Canada's waters through better information in the hands of mariners, safer resupply in Arctic communities, negotiating meaningful Indigenous partnerships, Indigenous community response teams, and improve localized ocean circulation knowledge to inform oil spill trajectories. In addition to social equity, the remainder of the objectives foremost prioritize environmental sustainability. These objectives include: tougher requirements for industry response to incidents, proactive monitoring and response capacity on water, development of comprehensive response systems for spills on water, preservation and restoration of marine ecosystems, development of a coastal environmental baseline and cumulative effects program, coastal habitat restoration fund, new whale protections, baseline data for Northern British Columbia coast, xii) reduce abandonment of ships, and clean up existing ship wrecks, better Indigenous capacity in design and delivery of marine safety, multi-partner oil spill response technology research for spill clean-up, and the better ability to predict behaviour of oil in water.

A diverse and abundant array of government supported actions have been implemented since the introduction of the OPP in 2016. Such actions fall under the following categories: 1) The prevention of marine accidents and ship-source pollution, 2) Responding to marine incidents, 3) Preserving and restoring marine ecosystems, 4) Indigenous partnerships, 5) Building a stronger scientific evidence base, and 6) The Whales Initiative: Protecting Canada's

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endangered whale populations (DFO, 2021i). Moving forward, the OPP can transition to better align with the Blue Economy development model pending incorporation of economic viability goals and targets, particularly regarding research on economic drivers that support social equity and environmental sustainability simultaneously.

Social Equity

The human-ocean connection drives coastal and marine activity, yet is the weakest component of Canadian ocean governance. This pillar remains significantly underdeveloped at the departmental level to date; however, broader federal governance mechanisms were assessed to support Blue Economy development and a governmental transition to equitable governance. It is imperative that department- and non-department-specific regulatory mechanisms that enable social equity are clearly connected to indicators within this pillar of the Blue Economy to clearly identify challenges, opportunities, and gaps. On-paper recognition of marginalized groups by ocean managers and decision-makers is not enough: specific social-equity goals with supporting targets and timelines must be developed to ensure growth, prosperity, and overall accountability. Specifically, Indigenous rights must be upheld and respected throughout all management phases; collaboration and direct communication with Indigenous communities, alongside the incorporation of Traditional Knowledge is a critical component to developing a strategy that contributes to the process of reconciliation. These actions are essential to implementing a Blue Economy strategy; one that will impact Canadians from coast to coast to coast.

Canadian Human Rights Act (1985)

The *Canadian Human Rights Act* (1985) serves the purpose of extending Canadian laws that proscribe discrimination. The *Act* legislates that all individuals should have equal

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opportunity “to make for themselves the lives that they are able and wish to have and to have their needs accommodated, consistent with their duties and obligations as members of society, without being hindered in or prevented from doing so by discriminatory practices based on race, national or ethnic origin, colour, religion, age, sex, sexual orientation, gender identity or expression, marital status, family status, genetic characteristics, disability or conviction for an offence for which a pardon has been granted or in respect of which a record suspension has been ordered” (pg. 1). The *Act* includes three key parts. Part one outlines proscribed discrimination including sections on general grounds and orders (s.3-4) and discriminatory practices (s.5-25); part two legislates the formation of the Canadian Human Rights Commission (s.26) and associated infrastructure; and part three establishes discriminatory practices and general provisions, including the establishment of the Canadian Human Rights Tribunal (s.48.1-48.9). Within the context of building a Canadian Blue Economy, the *Act* provides a strong foundation for fostering discrimination-free ocean spaces and places. It is recommended that the Department of Fisheries and Oceans assess the role of human rights in its social equity Blue Economy goals and targets.

Canadian Charter of Rights and Freedoms (The Constitution Acts, 1867 to 1982) and the United Nations Declaration on the Rights of Indigenous Peoples (UNDESA, 2007)

Canada is recognized as a nation that respects and abides by human rights and Canadian rights, as legislated by the aforementioned *Canadian Human Rights Act (1985)* and the *Canadian Charter of Rights and Freedoms (1982)*. The Charter is an extensive, well-developed legislative mechanism that “guarantees the rights and freedoms set out in it subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society” (pg. 47). Whereas all Canadian legislation is created with the assumption that human and Canadian

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rights are followed at the time of development, this has not been the case for Indigenous rights within Canada, despite making an international commitment to recognizing and fulfilling the United Nations Declaration on the Rights of Indigenous Peoples (2021). Moving forward, it is critical that a national Blue Economy strategy be designed to explicitly recognize human, Canadian and Indigenous rights within ocean governance. Moreover, it is of utmost importance that Indigenous partners are engaged collaboratively by helping build the table for Blue Economy development, and that the “us versus them” colonial perspective is not perpetuated through exclusionary practices.

Canada Labour Code (1985)

The *Canada Labour Code (CLC)* outlines federal labour law, legislating the rights and responsibilities of Canadian workers and employers in federally regulated workplaces. The Labour Program at Employment and Social Development Canada is the appointed CLC regulator, responsible for protection of well-being and rights of workers and employees under the four main sections: I) Industrial relations, II) occupational health and safety, III) standard hours, wages, vacations and holidays, and IV) administrative monetary penalties. Although the CLC is well-developed, its impact upon DFO and within ocean governance is not specified, applying generally to federally regulated workplaces. The CLC contributes to the Blue Economy dimension of social equity under the employment equity indicator as it formed the legislative basis for the *Employment Equity Act (1995)*.

Employment Equity Act (1995)

The 1995 *Employment Equity Act* was established with the purpose of achieving workplace equality for women, Indigenous peoples, persons with disabilities, and members of

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visible minorities (s.2). As of 2021, the groups identified within the Act remain unchanged. Five central employment equity initiatives are currently in place: 1) Federal Contractors Program (FCP), 2) Workplace Opportunities: Removing Barriers to Equity (WORBE), 3) Pay transparency, 4) review of the *Employment Equity Act*, and 5) other legislative initiatives in support of inclusive workplaces (Employment and Social Development Canada (ESDC), 2021a). The FCP works to advance social and economic development objectives through mandating employment equity within the workplace, and WORBE encourages private sector employers to improve representation and participation of employment equity groups through the disbursement of grants and contributions (ESDC, 2021a). Pay transparency advancements have been made under the 2020 amendment of *Employment Equity Regulations* which requires employers to report new salary data in annual employment equity reports (ESDC, 2021a). In 2020, the government made a \$4 million commitment to modernizing the *Employment Equity Act* to “help ensure that Canada’s economic recovery is equitable, inclusive and fair” (ESDC, 2021a, pg. 46). Other legislative initiatives that currently support inclusive Canadian workplaces include the 2018 *Pay Equity Act*, the 2019 *Accessible Canada Act*, and the 2021 *Workplace Harassment and Violence Prevention Regulations* (ESDC, 2021a). This act demonstrates national ability to action social equity priorities which provides a foundation for developing ocean-specific social equity policy, however, department-specific application should be assessed for Blue Economy integration.

Pay Equity Act (2018)

The *Pay Equity Act (2018)* forms the legislative basis for both economic and employment equity indicators of social equity on a federal scale. The Act is based around the requirement for employers to “establish and periodically update a pay equity plan,” where employers must

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“a) identify the different job classes made up of positions in their workplace, b) determine whether each job class is predominantly male, predominantly female or gender neutral, c) determine the value of work of each predominantly female or male job class, d) calculate the compensation of each predominantly female or male job class, and e) compare the compensation between predominantly female and male job classes doing work of equal or comparable value.” (ESDC, 2021b, s.2)

Once respective plans are established (within three years of becoming subject to the *Pay Equity Act*), employers are mandated to increase pay for predominantly female job classes who are in receipt of pay less than that of male counterparts (ESDC, 2021b). Where gender inequality is observed throughout ocean sectors and governance (Gissi et al., 2018), programs to supplement the *Pay Equity Act* should be put in place through a national Blue Economy strategy to ensure ocean and coastal-specific pay equity issues are addressed.

Accessible Canada Act (2019)

In 2019, the *Accessible Canada Act* was released to build upon existing legislative recognition that supports equality for people with disabilities within Canada “through a proactive and systemic approach for identifying, removing and preventing barriers to accessibility” (s.3). The goals of the Act include realization of a barrier-free Canada, culture change, standards development, proactive compliance and enforcement measures, and monitoring and oversight (ESDC, 2021a). This legislation is critical to ensuring that Canada’s Blue Economy considers people with disabilities within all ocean sectors across areas of employment, transportation, communications, a built environment, procurement, and service design and delivery (ESDC, 2021b). A Blue Economy strategy has the opportunity to set an example for other departments

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and future strategies through the establishment of a Blue Accessibility program that incorporates and operationalizes these priorities.

Gender-Based Analysis Plus (GBA+) (est. 1995) (Women and Gender Equality Canada, 2021) and Department for Women and Gender Equality Act (2018)

Canada's commitment to gender equality is outlined in the *Charter of Rights and Freedoms*, overseen by the *Department for Women and Gender Equality Act*, and operationalized through Gender-Based Analysis Plus (GBA+). The Department for Women and Gender Equality Act (2018) established a department responsible for “the advancement of equality, including social, economic and political equality, with respect to sex, sexual orientation, and gender identity or expression” and “the promotion of a greater understanding of the intersection of sex and gender with other identity factors that include race, national and ethnic origin, Indigenous origin or identity, age, sexual orientation, socio-economic condition, place of residence and disability” (s.2a) and (s.2b). Supplementary to the Act establishing the department, GBA+ is “an analytical process that provides a rigorous method for the assessment of systemic inequalities, as well as a means to assess how diverse groups of women, men, and gender diverse people may experience policies, programs and initiatives” (Women and Gender Equality Canada, 2021). The GBA+ process is applicable to all federal sectors and domains; the BESEP outlines the commitment to applying a GBA+ lens to Blue Economy development initiatives to identify barriers to inclusive growth and mitigate inequalities while promoting equity (DFO, 2021b). In developing a national Blue Economy strategy, the department has the potential to oversee the development of a program that oversees equal gender-based opportunity within ocean sectors, works towards the aforementioned goals included within the BESEP, and applies GBA+.

Environmental Sustainability

The 1990's global fisheries highlighted the need for effective resource management; since, environmental sustainability has been the cornerstone for modern, holistic ocean management. This pillar is significantly developed within Canada, particularly through the aforementioned integrated policy and legislative tools and specifically supplemented through the *Species at Risk Act (2002)*, *Great Lakes Fisheries Convention Act (1985)*, and the *Canada Shipping Act, 2001*. Biodiversity, habitat, and water quality indicators have a wide range of provisions in place for protection and sustainable use; stability and climate-change responsiveness requires marine-specific regulatory tools. It is imperative that legislation and policy objectives are based in science to ensure that measures are appropriate and up to date. Canada promotes its commitment to environmental protection as a mechanism of action for achieving sustainability; additional methods should be identified and outlined through marine-specific policy and subsequently integrated into a Blue Economy strategy to ensure ocean governance is innovative and progressive.

Species at Risk Act (2002)

Marine-specific legislation has been developed to effectively regulate Canada's commitment to sustainability of the ocean environment. The *Species at Risk Act (SARA) (2002)* was first introduced to fulfill Canada's Biodiversity Strategy- a plan developed as a result of Canada's commitment to the United Nations Convention on Biological Diversity, which outlined the goals of preventing wildlife extinction, securing recovery mechanisms, mandating biodiversity conservation, and providing legal protection of wildlife across nations (Government of Canada, 2019). SARA legislates mechanisms for protecting extirpated, endangered, or threatened wildlife species due to human activity, including ideas implementation approaches

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such as species assessment processes for species protection and recovery, and collaborative management techniques (Environment and Natural Resources Canada (ENRCan, 2016). SARA legislates key advancements in species protection, including the establishment of the Canadian Endangered Species Conservation Council (CESCC) (s.7), the Stewardship Action Plan (s.10.1-10.2), wildlife species listing processes (e.9), measures to protect listed wildlife species (e.10), and enforcement and assessment measures. The *Act* also outlines permits or conclusion of agreements for educational, scientific, and special emergency situations (ENRCan, 2016).

SARA also supports the public's habitat protection and species at risk recovery initiatives known as the Habitat Stewardship Program (ENRCan, 2016). The Department of Fisheries and Oceans has information on the application of SARA within the marine environment, providing various services and information on species recovery information and habitat protection for marine mammals, reptiles, molluscs, and fish (DFO, 2020b). Resources are available for areas of: aquatic species at risk search, how SARA protects critical habitat and affects industries and communities, recovery planning, habitat protection and new protective measures, permit application, aquatic species at risk maps, and various funding/program information regarding species at risk in Canada (DFO, 2020b). Annual reporting shows that SARA has been effective in achieving marine environmental sustainability, social equity, and economic viability through various projects and initiatives such as the multi-species planning and recovery initiative for the Saint John River Watershed (Environment and Climate Change Canada (ECCC), 2021). Although this piece of Canadian legislation is primarily driven by environmental sustainability goals, it effectively integrates Blue Economy pillars.

Great Lakes Fisheries Convention Act (1985)

The *Great Lakes Fisheries Convention Act* was enacted to regulate great lakes fisheries between Canada and the United States. Such legislation is critical to guiding the advancement of fishery research in the Great Lakes, considering the interrelation with fishery conservation issues, declines in some Great Lakes fisheries, and the damage to fisheries caused by parasitic sea lamprey. The document primarily outlines conventions and regulations of such fisheries, jurisdiction of courts, and duration. Overall, the act recognizes the importance of habitat protection through Article 1, and the foundational nature of the document which intends to pave the way for future research and development (Schedule (Section 2)). As of 2021, the Great Lakes Fishery Commission continues to focus on three main areas of sea lamprey, the fishery, and science and research (Great Lakes Fishery Commission (GLFC), 2021). Main areas of research regarding sea lamprey include risk, status, control, lampricides, assessment, chemosensory communication systems, and barriers and trapping (GLFC, 2021). Key fishery research focuses on management, habitat, invasive species, the human dimensions of Great Lakes fishery management, re-establishment of native deep-water fishes, physical processes and fish recruitment in large lakes, and energy and nutrient dynamics of Great Lakes food webs (GLFC, 2021). Other science and research includes science transfer, FishPass Lake Michigan restoration project, the Great Lakes acoustic telemetry observing system, and the formation of Council of Lake Committees (GLFC, 2021). Overall, these contributions have incorporated Blue Economy domains through modernized approaches to Great Lakes research and development, which should be mandated through modernized amendments (last amended in 2007).

Canada Shipping Act, 2001

The *Canada Shipping Act, 2001* extensively outlines shipping and navigation legislation in Canadian waters, to “(a) protect the health and well-being of individuals, including the crews of vessels, who participate in marine transportation and commerce; (b) promote safety in marine transportation and recreational boating; (c) protect the marine environment from damage due to navigation and shipping activities; (d) develop a regulatory scheme that encourages viable, effective and economical marine transportation and commerce; (e) promote an efficient marine transportation system; (f) develop a regulatory scheme that encourages the viable, effective and economical use of Canadian waters by recreational boaters; (g) ensure that Canada can meet its international obligations under bilateral and multilateral agreements with respect to navigation and shipping; (h) encourage the harmonization of marine practices; and (i) establish an effective inspection and enforcement program” (pg. 4-5). The Act is based on 17 parts that identify various areas for regulation, namely under environmental sustainability and economic viability dimensions. Environmental regulations are mainly outlined throughout parts 8 and 9, which contain pollution prevention regulations and directly fulfill the water quality indicator. Additionally, economic infrastructure is outlined throughout all parts of the Act. Notably, safety and justice are repeated themes that tie in human rights under the social equity dimension. The revision and advancement of environmental sustainability, economic viability, and social equity efforts and actions are outlined in annual reports (Transportation Safety Board of Canada, 2020); mandating such efforts through revision of the Act is pertinent to ensuring sustainable, equitable, and viable marine shipping practices.

Economic Viability

The BESEP identifies a unique opportunity presented by the COVID-19 global pandemic: the possibility to build back better (DFO, 2021b). While deployment of a national Blue Economy strategy would aid in guiding sectoral economic recovery, it is imperative that the concept of a Blue Economy is not marketed as a tool for economic development. Harmonizing the three pillars is essential to making significant and modern changes to existing Canadian ocean governance; it is critical that a Blue Economy strategy is not simply outdated policies, rebranded. This considered, there are both developed department- and non-department-specific legislation and policy that provide a strong economic framework across all economic viability indicators (infrastructure, investment risk, national stability, and research and development) for guiding Blue Economy implementation. Moving forward, a Blue Economy strategy can aid in instilling holistic and viable human-ocean connections that are mutually-beneficial, shifting the public mindset from exploitative to sustainable.

Financial Administration Act (1985)

The *Financial Administration Act* (1985) provides infrastructure for the general financial management framework under which the Government of Canada operates. Part I establishes the Treasury Board role and authority (s.5-10), the Department of Finance (s. 14-16), and outlines human resources management (s.11-13). The *Act* provides authorization for collection and disbursement of public monies through Part II (s.17-25) and Part III (s.26-42.8), and outlines regulations associated with public debt through Part IV (s.43-60.1). National economic stability is directly legislated through Part IV.1 *Stability and efficiency of the financial system*. Investment risk and appropriate management thereof is established through Section 42.5 *Management of risk*. Overall, economic infrastructure, national stability and investment risk indicators are clearly

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identified through the *Act* with appropriate regulations for providing a foundation for Blue Economy development.

Fishing and Recreational Harbours Act (1985)

Canada's *Fishing and Recreational Harbours Act* (1985) fulfills infrastructure and research and development indicators of the economic viability dimension by enacting administration and development of fishing and recreational harbours in Canadian waters. The Act outlines regulations that establish permissions and prohibitions within fishing and recreational harbours (s.9a-n). The Small Craft Harbours (SCH) Program was established in 1977 under the Act, through which DFO "has managed and maintained a network of harbours to provide commercial fishers and other users with safe harbour facilities" (House of Commons (HOC), 2019, pg. 5). These harbours are "indispensable to the communities in which they are situated and to those who utilize them," as "it is through this program that most of Canada's commercial fishing fleets are serviced on all three coasts, as well as freshwater waterways" (HOC, 2019, pg. 5). The 2019 assessment of the SCH Program recognized the opportunity for continued economic growth via tourism, recreation, aquaculture, and expanded fishing fleets, as well as challenges posed by climate change and other environmental concerns (HOC, 2019). Pending confirmed implementation of the 2019 recommendations to the SCH Program, it will operate according to Blue Economy pillars; this considered, the guiding legislation should be amended (no previous amendments) to mandate the inclusion of environmental sustainability efforts.

Freshwater Fish Marketing Act (1985)

The *Freshwater Fish Marketing Act* (1985) was enacted for the purpose of regulating interprovincial and export trade in fish, fish products, and fish by-products in and outside Canada (pg. 1; Office of the Auditor General of Canada (OAGC), 2017). To effectively regulate this area of marine trade, the *Act* established a federal Crown corporation known as the Freshwater Fish Marketing Corporation (s.3). Corporation infrastructure is outlined (Part I), as well as measures for the regulation of interprovincial and export trade in fish (Part III). In 2017, a special examination report of the Corporation was conducted to ensure assets were safeguarded and controlled, effective management of operations, and efficient and economical management of resources (OAGC, 2017). It was found that significant deficiencies existed within operations, such as poor management, a lack of strategic plan and risks/risk mitigation measures, unequal and inequitable hiring practices, irresponsible expenditures, lack of health and safety training, and the lack of a hazard prevention program (OAGC, 2017). To ensure that the *Act* meets Blue Economy standards, the recommendations in the 2017 audit report (based on the aforementioned deficiencies) should be adopted immediately as the Corporation will then fulfill economic viability and social equity pillars. Methods for sustainable exportation should be assessed and incorporated to achieve environmental sustainability.

Atlantic Fisheries Restructuring Act (1985)

The *Atlantic Fisheries Restructuring Act* (1985) was developed to provide economic infrastructure concerning the restructuring of competitive and privately-owned Atlantic fishery enterprises. The *Act* was developed in response to recommendations of a Government of Canada task force project, which recognized that “the present condition of the fishing industry does not permit the fullest and most efficient utilization of the resource,” requiring the urgent

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restructuring of Canadian fishery enterprises (pg. 1). The task called for the establishment and maintenance of viable fishery enterprises on the Atlantic coast, taking into account economic and social development in affected provinces. Three central objectives for restructuring were recognized: “first, that the Atlantic fishing industry be economically viable on an on-going basis, second, that employment in that industry be maximized subject to the constraint that those employed receive a reasonable income and third, to the extent that this objective is consistent with the first two objectives and with Canada’s international treaty obligations, that fish on the Atlantic coast of Canada be harvested and processed by Canadians” (pg. 1). The *Act* also recognizes that Atlantic fish stocks are an integral part of Canada’s natural resource base and the economy at national, provincial, and local levels.

The Ice Assistance Emergency Program (IAEP) is supported by the Act, which provides financial assistance to “eligible fish harvesters in affected areas of Newfoundland and Labrador and Quebec who have been prevented or delayed from fishing because of ice conditions in their fishing areas” (DFO, 2020d, s.4). In the 2019-2020 fiscal year, Fisheries and Oceans Canada contributed \$383,080 through the IAEP to 224 recipients through the Ice Assistance Emergency Program to eligible fish harvesters. Currently, the *Atlantic Fisheries Restructuring Act* primarily serves to expand economic opportunities, operational efficiency, and social development. Moving forward, integration of environmental sustainability components such as stock and habitat assessments as well as the use of sustainable fishing gear, will help further align this policy with Blue Economy development.

Coastal Fisheries Protection Act (1985)

The *Coastal Fisheries Protection Act* (1985) was established to protect the coastal fisheries from foreign harvesters through the regulation of fisheries resources within Canada’s

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EEZ, alongside legislating management and protection of sedentary species on the continental shelf beyond Canadian waters (DFO, n.d.b.; s.2). This *Act* ensures Canada's national stability and reaffirms control over fisheries resources through the establishment of infrastructure, aligning priorities with two indicators within economic viability. Reasoning and appropriate measures for regulating foreign fishing vessels are established through Element 3, outlining provisions for vessel entry (s.3), fishing and related activity (s.4), and transportation of fish into Canadian fisheries waters (s.5). The *Act* explicitly recognizes the importance of abiding by and further enforcing conservation and management measures such as that of the NAFO Regulatory Area, where straddling stocks that are a major renewable global food and livelihood source are threatened (s.5.1, 5.2).

In 2015, the *Act* was amended “to implement the Port State Measures Agreement, to prohibit the importation of fish caught and marine plants harvested in the course of illegal, unreported and unregulated fishing (IUU fishing) and to clarify certain powers in respect of the administration and enforcement of the *Act*” (*Port State Measures Agreement Implementation Act*, 2015, para. 1). Although foremost a piece of legislation supporting ocean and coastal economic viability, the prohibition of imports sourced from IUU fishing contributes to environmental sustainability efforts. Introduction of social equity elements such as employment equity for diverse representation could present an opportunity to provide sustainable livelihoods to members of coastal communities and further develop Canada's Blue Economy.

Fisheries Development Act (1985)

The Fisheries Development Act (1985) legislates commercial fisheries development for fishery products and resources in Canada. Currently, rationales for development projects include: “a) more efficient exploitation of fishery resources and for the exploration for and development

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of new fishery resources and new fisheries; b) introduction and demonstration to fishermen of new types of fishing vessels and fishing equipment and of new fishing techniques; and c) development of new fishery products and for the improvement of the handling, processing and distribution of fishery products” (s.3.1, pg.1-2). For the 2019-2020 year, federal funding in the amount of \$34.79 million was expended under the Fisheries Development Act “through (four) targeted contribution programs fostering Indigenous participation in integrated commercial fisheries and in the management of aquatic resources” (DFO, 2020e, s.2). The programs include the Atlantic Integrated Commercial Fisheries Initiative (AICFI), Pacific Integrated Commercial Fisheries Initiative (PICFI), Northern Integrated Commercial Fisheries Initiative (NICFI), and the Certification and Market Access Program for Seals (CMAPS).

The AICFI program offers support and funding to Mi’kmaq, Maliseet and Peskotomuhkati First Nations (MMPFN) affected by the Marshall decision with the following goals: “(to) strengthen economic self-sufficiency of MMPFN communities by supporting opportunities for commercial fisheries enterprises (CFEs); maximize the economic potential of these CFEs; increase accountability and transparency in CFEs by ensuring sound business and management practices; and advance common harvest rules and decision-making processes with other commercial harvesters, contributing to one fishery for all” (DFO, 2020e, s.3.1). The PICFI program was designed with the intention of integrating Blue Economy pillars into commercial fisheries, with a specific focus on fostering participation and integration of Indigenous nations in commercial fisheries “by providing commercial fishing access, funding and capacity building to support the development of successful and sustainable First Nation owned and operated CFEs” (DFO, 2020e, s.3.2). The NICFI program aims to enable Indigenous groups to fully participate successfully in fisheries operations in a self-sustaining manner by “building capacity for business

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development, participation in harvester training, providing opportunities for expansion and diversification of existing fisheries businesses and providing opportunity to participate in aquaculture development” (DFO, 2020e, s.3.3). Lastly, the CMAPS program “supports the development of certification and tracking systems so that seal products derived from seals harvested by Indigenous communities can be certified,” to enable and promote sales within the European Union (DFO, 2020e, s.3.4).

Fisheries development is critical to the growth and development of Canada’s Blue Economy and for the viability of Canadian coastal communities. The Act and its supporting programs currently fulfill economic viability and social equity pillars. To shift towards the Blue Economy development model, environmental sustainability considerations should be incorporated such as using resources within science-supported sustainable limits, mandating the use of sustainable fishing gear, and introducing certifications for sustainable fishery products from sourcing, to handling, processing, and distribution.

Chapter 5: Discussion

It is evident that policies and legislation produced by the Government of Canada for ocean governance provide a strong regulatory foundation for the development and implementation of a national Blue Economy strategy. Although Canada continues to reaffirm its position as a global ocean leader, the national forerunning position in legislative leadership for environmental stewardship and holistic ocean management has been lost. Based on this analysis, development of a Blue Economy strategy for national implementation that builds upon existing legislation and policy will fulfill five central objectives: 1) reaffirm Canada's position as a global ocean leader, 2) modernize Canada's ocean governance priorities, 3) ensure that best management practices are put into place to foster equitable, sustainable, and viable marine spaces and places, 4) preserve the health and wealth of our global ocean, and 5) explore untapped economic potential that Canadian waters and coastlines have to offer.

This study found that the social equity dimension is underdeveloped; although supporting governance documents were found for indicators of human rights, Indigenous rights, group equity, economic equity, employment equity, and gender equality, there is a need for marine-specific development as each policy and legislation piece identified are not department-specific. The environmental sustainability dimension is highly developed at the departmental level, with extensive regulations in place for protection of biodiversity, habitat, and water quality; this robust environmental protection legislation will ensure long-term marine resource sustainability and provides a solid foundation for further development. The economic viability dimension is developed, with federal legislation supporting infrastructure, investment risk, national stability, and research & development; application to marine sectors has not been outlined at the departmental level. Overall, it is recommended that decision-makers and governors develop

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policies that support social equity development to modernize its existing policies, and outline the marine-specific application of economic viability policy and legislation.

Notably, the main caveat in this research is the discrepancy between policy, procedure, and practice. Although strong legislation and policy exists, it is not always the case that the implementation of regulatory governance mechanisms results in a straight path for achieving outlined objectives. Within the context of Blue Economy development, the implications of such discrepancies could lead to inequitable processes and outcomes, and sources of contention with Canadian citizens that are connected to the ocean and ocean sectors, including transparency and presumed lack of action. Recognizing such challenges, the results of this assessment are critical to modernizing and improving upon existing Canadian ocean governance and supplementing it where required. To narrow the gap between policy ideals and the realities of implementation, it is recommended that a Blue Economy Assessment Panel composed of a diverse group of stakeholders be formed. The formation of such a panel will ensure that Canadians working in Blue Economy sectors are effectively represented and that recommendations for aligning policy with practice can be streamlined and adopted.

To ensure a true Blue Economy approach to ocean governance is adopted, lessons learned from the development and implementation of previous integrated ocean governance programs must be considered and accounted for throughout the development of a renewed national strategy. Critical barriers identified through past projects include lack of coordination and strong leadership, inadequate funding, and the absence of an accountability framework that accounts for performance measures and reporting requirements (OAGC, 2005). Alongside these, the BESEP recognizes barriers to inclusive growth. It recommended that governors and decision-makers develop a modernized adaptive management system that blends together previous findings and

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future goals for the development of an optimized and evidence-based Blue Economy that is customized for Canadian-specific development. The implementation of such a system is projected to significantly enhance capacity building and steer Canada toward the direction of equitable, sustainable, and viable blue development.

Conclusion

As the United Nations Ocean Decade progresses and Canada works towards fulfilling its ocean governance commitments, it is critical that Canada takes the necessary steps to develop and implement the national Blue Economy strategy while effectively differentiating it from past policies. This study analyzed Canada's natural resources and regulatory capacity using the Blue Economy Engagement Framework (Cisneros-Montemayor et al., 2021) to position the nation's level of development for implementing a national Blue Economy strategy. Following the two-part analysis, it was concluded that Canada does have the governance capacity to develop a national Blue Economy strategy. Through assessing existing policy and legislation for application across marine sectors, an integrated management plan that considers strengths and weaknesses of previous plans can be created to avoid fragmented development. The social equity pillar requires significant development, while the economic viability requires moderate development prior to the launch of a nation-wide Blue Economy strategy. Overall, Canada has significant potential to transition away from ocean activity and become a global Blue Economy leader.

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Appendix

Key Canadian Federal Acts Pertaining to Ocean Governance (https://www.dfo-mpo.gc.ca/acts-lois/regulations-reglements-eng.htm)					
Legislation/ Regulation	Department	Description	Sector	Pillar (Social Equity (SE), Environmental Sustainability (ES), Economic Viability (EV))	Source
Arctic Waters Pollution Prevention Act, 1985	Transport Canada (TC)	“An Act to prevent pollution of areas of the arctic waters adjacent to the mainland and islands of the Canadian arctic.”	Marine transport, ports, and shipbuilding	ES	https://tc.canada.ca/en/corporate-services/acts-regulations/arctic-waters-pollution-prevention-act-rs-1985-c-12
Atlantic Fisheries Restructuring Act, 1985	Department of Fisheries and Oceans (DFO)	“An Act to authorize investment in and the provision of financial assistance to the Atlantic Fisheries for the purpose of restructuring fishery enterprises”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/A-14/page-1.html#h-6864
Canada Labour Code, 1985	TC	“An Act to consolidate certain statutes respecting labour.”	All sectors	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/canada-labour-code-rs-1985-c-2
Canada Marine Act, 1998	TC	“An Act for making the system of Canadian ports competitive, efficient and commercially oriented, providing for the establishing of port authorities and the divesting of certain harbours and ports, for the commercialization of the St. Lawrence Seaway and ferry services and other matters related to maritime trade and transport and amending the Pilotage Act and amending and repealing other Acts as a consequence.”	Marine transport, ports, and shipbuilding	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/canada-marine-act-1998-c-10
Canada National Marine Conservation Areas Act, 2002	Parks Canada (PC)	“An Act respecting the national marine conservation areas of Canada”	All sectors	ES	https://laws-lois.justice.gc.ca/eng/acts/c-7.3/page-1.html
Canada National Parks Act, 2000	PC	“An Act respecting the national parks of Canada”	Coastal and marine tourism	ES	https://laws-lois.justice.gc.ca/eng/acts/n-14.01/page-1.html

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Canada Shipping Act, 2001	DFO, TC	“An Act respecting shipping and navigation and to amend the Shipping Conferences Exemption Act, 1987 and other Acts”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/C-10.15/page-1.html
Canada Transportation Act, 1996	TC	“An Act to continue the National Transportation Agency as the Canadian Transportation Agency, to consolidate and revise the National Transportation Act, 1987 and the Railway Act and to amend or repeal other Acts as a consequence.”	Marine transport, ports, and shipbuilding	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/canada-transportation-act-1996-c-10
Canada Wildlife Act, 1985	Environment Canada (EC)	“An Act respecting wildlife in Canada”	All sectors	ES	https://laws-lois.justice.gc.ca/eng/acts/w-9/page-1.html
Canadian Environmental Protection Act, 1999	TC	“An Act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development”	All sectors	ES	https://laws-lois.justice.gc.ca/eng/acts/C-15.31/
Canadian Transportation Accident Investigation and Safety Board Act (1989)	TC	“An Act to establish the Canadian Transportation Accident Investigation and Safety Board and to amend certain Acts in consequence thereof.”	Marine transport, ports, and shipbuilding	SE	https://tc.canada.ca/en/corporate-services/acts-regulations/canadian-transportation-accident-investigation-safety-board-act-1989-c-3
Coastal Fisheries Protection Act, 1985	DFO	“An Act to protect the coastal fisheries”	Commercial fisheries	ES	https://laws-lois.justice.gc.ca/eng/acts/C-33/page-1.html
Coasting Trade Act, 1992	TC	“An Act respecting the use of foreign ships and non-duty paid ships in the coasting trade.”	Marine transport, ports, and shipbuilding	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/coasting-trade-act-1992-c-31
Department of Fisheries and Oceans Act, 1985	DFO	“An Act respecting the Department of Fisheries and Oceans”		SE, ES, EV	https://laws-lois.justice.gc.ca/eng/acts/F-15/page-1.html
Department of Transport Act, 1985	TC	“An Act respecting the Department of Transport.”	Marine transport, ports, and shipbuilding	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/department-transport-act-rs-1985-c-t-18

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Federal-Provincial Fiscal Arrangements Act, 1985	TC	“An Act to provide for the making of certain fiscal contributions to provinces”	All sectors	EV	https://laws-lois.justice.gc.ca/eng/acts/f-8/page-1.html
Financial Administration Act, 1985	DFO	“An Act to provide for the financial administration of the Government of Canada, the establishment and maintenance of the accounts of Canada and the control of Crown corporations”	All sectors	EV	https://laws-lois.justice.gc.ca/eng/acts/F-11/page-1.html
Fisheries Act, 1985	DFO	“An Act respecting fisheries”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/F-14/page-1.html
Fisheries Development Act, 1985	DFO	“An Act to provide for the development of the commercial fisheries of Canada”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/F-21/page-1.html
Fisheries Improvements Loan Act, 1985	DFO	“An Act respecting loans to assist fishermen engaged in a primary fishing enterprise”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/F-22/page-1.html
Fishing and Recreational Harbours Act, 1985	DFO	“An Act respecting the administration and development of certain fishing and recreational harbours in Canada”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/F-24/page-1.html
Freshwater Fish Marketing Act, 1985	DFO	“An Act to establish the Freshwater Fish Marketing Corporation and to regulate interprovincial and export trade in freshwater fish”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/F-13/page-1.html
Great Lakes Fisheries Convention Act, 1985	DFO	“An Act to implement a Convention on Great Lakes Fisheries between Canada and the United States”	Commercial fisheries	EV	https://laws-lois.justice.gc.ca/eng/acts/F-17/page-1.html
Marine Atlantic Inc. Acquisition Authorization Act, 1986	TC	“An Act to authorize the acquisition of Marine Atlantic Inc. and to provide for other matters in relation thereto”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/M-0.58/page-1.html
Marine Insurance Act	TC	“An Act respecting marine insurance”	All sectors	SE	https://laws-lois.justice.gc.ca/eng/acts/M-0.6/page-1.html
Marine Liability Act, 2001	TC	“An Act respecting marine liability, and to validate certain by-laws and regulations”	Marine transport, ports, and shipbuilding	SE	https://laws-lois.justice.gc.ca/eng/acts/m-0.7/page-1.html

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Marine War Risks Act, 1970	TC	“An Act respecting marine war risks insurance and reinsurance agreements”	Marine transport, ports, and shipbuilding	SE	https://laws-lois.justice.gc.ca/eng/acts/M-0.56/page-1.html
Marine Transportation Security Act, 1994	TC	“An Act to provide for the security of marine transportation”	Marine transport, ports, and shipbuilding	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/marine-transportation-security-act-1994-c-40
Migratory Birds Convention Act, 1994	EC	“An Act to implement a Convention for the protection of migratory birds in Canada and the United States”	All sectors	ES	https://laws-lois.justice.gc.ca/eng/acts/m-7.01/page-1.html
Montreal, Port Warden, 1882	TC	“An Act to amend and consolidate the Acts relating to the office of Port Warden for the Harbour of Montreal”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/O-2.6/page-1.html
Navigation Protection Act, 1985	TC	“An Act respecting the protection of navigable waters”	Marine transport, ports, and shipbuilding	ES	https://tc.canada.ca/en/corporate-services/acts-regulations/navigation-protection-act-rs-1985-c-n-22
Non-smokers’ Health Act, 1985	TC	“An Act to regulate smoking in the federal workplace and on certain modes of transportation”	All sectors	SE	https://laws-lois.justice.gc.ca/eng/acts/N-23.6/page-1.html
Northumberland Strait Crossing Act, 1993	TC	“An Act respecting the Northumberland Strait Crossing”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/N-26.5/page-1.html
Oceans Act, 1996	DFO	“An Act respecting the oceans of Canada”	All sectors	SE, ES, EV	https://laws-lois.justice.gc.ca/eng/acts/O-2.4/page-1.html
Pilotage Act, 1985	TC	“An Act respecting pilotage”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/P-14/page-1.html
Quebec Harbor, Port Warden Act, 1871	TC	“An Act to provide for the appointment of a Port Warden for the Harbor of Quebec”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/Q-1.7/page-1.html
Safe Containers Convention Act, 1985	TC	“An Act to implement the International Convention for Safe Containers”	Marine transport, ports, and shipbuilding	ES	https://laws-lois.justice.gc.ca/eng/acts/S-1/page-1.html
Shipping Conferences	TC	“An Act to exempt certain shipping conference practices from the provisions of the Competition Act, to repeal the Shipping Conferences	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/S-10.01/page-1.html

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Exemption Act, 1987		Exemption Act and to amend other Acts in consequence thereof”			
Species at Risk Act, 2002	DFO, PC, EC	“An Act respecting the protection of wildlife species at risk in Canada”	All sectors	ES	https://laws-lois.justice.gc.ca/eng/acts/S-15.3/page-1.html
Transportation Appeal Tribunal of Canada Act, 2001	TC	“An Act to establish the Transportation Appeal Tribunal of Canada and to make consequential amendments to other Acts”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/T-18.5/page-1.html
Transportation of Dangerous Goods Act, 1992	TC	“An Act to promote public safety in the transportation of dangerous goods”	Marine transport, ports, and shipbuilding	EV	https://tc.canada.ca/en/corporate-services/acts-regulations/transportation-dangerous-goods-act-1992-1992-c-34
United States Wreckers Act, 1985	TC	“An Act respecting aid by United States wreckers in Canadian waters”	Marine transport, ports, and shipbuilding	EV	https://laws-lois.justice.gc.ca/eng/acts/U-3/page-1.html

Table A1. A summary of additional federal Canadian Acts across various departments supporting Blue Economy development and implementation (DFO, 2017; DFO, 2021a; TC, 2016).