

Exploring perceptions of commercial fisher representation in management:

A case study of the North Atlantic right whale UME, 2017-2021

By

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## Positionality Statement

Victoria Cullen is an early career marine policy researcher from Dartmouth, Nova Scotia. She is a first-generation university graduate, with extensive experience working in the inshore fisheries in Atlantic Canada. Her professional experience working in the commercial fishing industry has given her a growing knowledge base about the nature and dynamics of fisheries science, policy and management in Atlantic Canada. The methodology and approach utilized in this graduate project intend to produce results that are participant-led and unbiased, however, it is acknowledged that the researcher has personal experience and core beliefs that fundamentally guide the research questions, analysis and resulting recommendation (Moon et al, 2016). Her research is informed by a commitment to social equity, active listening and the incorporation of interdisciplinary principles and community-based knowledge.

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## Abstract

There is a growing recognition of the importance of involving stakeholders in marine governance and management to enable the inclusion of the knowledge and interests of those whose livelihoods are directly linked to the marine ecosystems. This study aims to understand the perceptions of fish harvester organizations as mechanisms to represent the interests of commercial fish harvesters during a resource use conflict in Atlantic Canada. It employs a case study approach, utilising semi-structured interviews and qualitative analysis to evaluate the perceptions of fisher representation during the development of the mitigation measures to protect the critically endangered North Atlantic right whale from fishing gear entanglements. The North Atlantic right whale population have faced an Unusual Mortality Event (UME) with 34 confirmed fatalities since 2017, with human interaction by gear entanglements and vessel strikes as the leading cause of death. This case study has been selected for its urgency and the consequences of the mitigation measures on the operations of commercial lobster and snow crab fish harvesters throughout the Gulf of St. Lawrence. It is argued that the effective participation of fish harvesters in the design and implementation of mitigation measures can contribute to improved outcomes, whereby fishers can contribute to measures that are reflective of local priorities. The outcomes of this study indicate that there is a clear and valuable role for fisheries organization in the governance of Atlantic Canadian fisheries, but that strategic efforts are needed to overcome the barriers of distrust and poor governance, as identified in this study.

Keywords: fisheries governance; stakeholder engagement; adaptive management; resource conflict; stakeholder perceptions



## Chapter 1: Introduction

### 1.1 Fisheries in Atlantic Canada

The commercial fisheries of Atlantic Canada (including Quebec) have long been a cornerstone of the region's economic, social and cultural identity (Alexander et al., 2010). Coastal communities are deeply connected to the resources that their adjacent seas provide. Commercial fishing activity is formally regulated through a number of Federal and Provincial departments, with primary authority coming from the Department of Fisheries and Oceans (Alexander et al., 2010). The Department of Fisheries and Oceans has a mandate to manage safe and sustainable fishing activity through the implementation of key fisheries Acts and Regulations (such as the Species at Risk Act, or the Fisheries Act) (Alexander et al., 2010). While the Department of Fisheries and Oceans has a mandate related to considering the socio-economic well-being of fish harvesters, the department is primarily concerned with the provision of fisheries management services to ensure sustainable fish harvesting, such as Integrated Fisheries Management Plans, stock assessments and other fisheries science (Alexander et al., 2010).

### 1.2 Contextualizing fisher involvement in decision making

There is a widespread recognition that the inclusion of user groups in participatory processes is an effective pathway to achieve good marine governance that minimises social costs and improves perceived outcomes, compliance and trust between fishers and managers (Pita et al., 2010; Reed, 2008). This ideology is driven by the idea that decision-making processes should involve the actors that are affected by them and that fish harvester participation can increase the legitimacy of governance processes. Despite the widespread appreciation for this ideology, there is a lack of knowledge surrounding the mechanisms through which these user groups engage with governance processes. Further, there is a need for reflexive assessments of recent or ongoing crises in order to enhance the adaptative management capacity of the governance system (Plummer et al., 2013). Bennet et al. (2021) defines governance as the “policies, institutions and processes that determine who participates in decisions and how decisions are made from management which is the resources, plans and actions that result from applied governance”. In

this study, the governance system generally refers to the nuanced stakeholder relations, and the processes by which decision are made, by whom and for whom.

This study focuses primarily on perceptions of the level of representation and influence of fish harvesters in the governance process. Fish harvesters gather collectively under associations or organizations to work collaboratively to address issues of common concern that threaten the environmental and social viability of their livelihoods. Fishing organizations have been identified as the focus of this research due to their growing role at the interface of fisher representation in fisheries management issues. These organizations are the fundamental mechanism through which fishers work together to provide a unified voice to otherwise independent operators. The evaluation of the role and influence of fishing organizations will lead to the identification of challenges and opportunities to improve the way that fishers' interests and livelihoods and integrated into policy and management decisions.

### 1.3 Management Problem: North Atlantic right whale mitigation measures

Beginning in 2017, the North Atlantic right population has been experiencing an Unusual Mortality Event (NOAA's National Marine Fisheries Service, 2018) have been 34 confirmed fatalities, with human interactions by fishing gear entanglement and large vessel strikes as the leading cause of death. In response, the Department of Fisheries and Oceans has implemented unprecedented measures to protect the whales from fishing gear entanglements, including static and dynamic fishing closures and new fishing gear marking requirements (Department of Fisheries and Oceans, 2021a). This case study has been selected for its urgency, with respect to the vulnerability of the North Atlantic whale population as well as the consequences of the mitigation measures on the operations of commercial lobster and snow crab fish harvesters throughout the Gulf of St. Lawrence.

### 1.4 Research overview and main questions

This study aims to evaluate the role and influence of commercial fishing organizations who were directly involved in the development of the 2017-2020 management measures to protect the North Atlantic right whale. Generally, I am investigating the perceptions and

experiences of commercial fisheries organizations as mechanisms for providing collective representation in the fisheries governance processes.

The following three questions are answered directly in chapters 5 and 6:

1. To what extent do fisheries organizations perceive their engagement with the NARW decision-making process to have been meaningful?
2. In what ways do harvesters feel that their interests were represented by their organization during engagement with the NARW decision-making process?
3. What are the barriers and opportunities to improve the collective representation of fishers' interests?

It is argued that the effective participation of fish harvesters in the design and implementation of mitigation measures can contribute to improved outcomes, whereby fishers can contribute to measures that are reflective of local circumstances and priorities. The outcome of this study will identify challenges and opportunities to improve the way that fishers' livelihoods are integrated into policy and management measures, for the minimisation of social costs in the protection of the marine ecosystem.

## Chapter 2: Key Concepts of Participation, Collective Representation and Organizations

### 2.1 Key Concepts

The governance of marine and fisheries resources contains considerable uncertainty and complexity given the dynamic and invisible nature of the underwater environment, as well as the heterogeneity of the communities of actors involved. It is rarely clear what sort of impact a change in fisheries policy or management is going to have, and what trade-offs will be required (Marshall, 2007). Bennet et al. (2021) classify governance as the “policies, institutions and processes that determine who participates in decisions and how decisions are made from management which is the resources, plans and actions that result from applied governance”. In this sense, the governance of fisheries resources encompasses the processes by which decisions are made.

Traditionally and still commonly, the governance of fisheries resources is conducted by a top-down approach, driven primarily by technical and ecological expertise (Aanesen et al., 2014; Pita et al., 2010; Turnhout et al., 2010) and characterised by a lack of involvement of the people and communities that depend on them. These top-down approaches to fisheries management have historically focused on single-species management and are not equipped to account for the complexities of ecosystem level changes nor the socioeconomic dimensions of fisheries systems (Ghosh & Kar, 2013; Giron-Nava et al., 2018). It is acknowledged by academics and user groups alike that this system of top-down control is a contributing factor to the failure of fisheries management approaches (Ghosh & Kar, 2013; Nielson & Vedsmand, 1999). In addition to ecological shortcomings, top-down centralized approaches have been known to generate a condition of distrust, resistance and lack of cooperation by fish harvesters who feel that their practices and livelihoods have been unfairly imposed upon by managers and scientists who are disconnected from the resource (Marshall, 2007; Pita et al., 2010). This condition is often characterized by a sense of overburdening with regulations that are deemed impractical or excessive, with industry bearing the burden of increased social costs and conflict (Marshall, 2007; Reed, 2008).

Over the past 40 years, there has been a growing recognition that increased participation of user groups, and thus attention to procedural equity, can greatly improve the design and outcomes of natural resource and fisheries management (Bennet et al., 2021; Marshall, 2008; Pita et al., 2010; Reed, 2008). The use of participatory approaches has evolved to become a norm in the sustainable development agenda (Reed, 2008). Despite the widespread recognition of its values, there remains ambiguity over the definition and best practices of participatory approaches. The ambiguity has allowed for a wide range of interpretations and applications of participatory approaches in different contexts, with diverse ideological, political and methodological underpinnings (Reed, 2008). Despite these differences, it is generally accepted that participatory approaches to decision-making in fisheries management can contribute to improved outcomes in the ecological, economic and social components of fisheries systems (Aanesen et al, 2014; Pita et al., 2010; Reed, 2008). Depending on the nature and quality of the initiative, the involvement of fishers can alleviate some of the shortcomings of traditional top-down control by facilitating the inclusion wider scope of knowledge, enhancing shared learning, building trust and a sense of shared responsibility, reducing or avoiding conflict, and enhancing the legitimacy and acceptance of decisions and regulations (Pita et al, 2010; Quimby & Levine, 2018; Turnhout et al, 2010). Ultimately, proponents of increased participation argue that the outcomes are more reflective of local needs and priorities while still ensuring the conservation and protection of the resource (Quimby & Levine, 2018).

Participation may take place in various forms depending on the local context, existing power dynamics and the intended objectives (Quimby et al., 2018). The numerous forms and functions of stakeholder participation has allowed for the concept to be used by practitioners to refer to any initiative that involves people in some capacity, regardless of whether that involvement is meaningful or influential (Cornwall, 2008). Criticism arises in cases where the claims of stakeholder participation are not realized and participatory processes further embed existing power structures with very little (or no) influence from stakeholders (Cornwall, 2008; Pita et al., 2010; Reed, 2008). In these cases, poorly implemented participatory processes have led to disillusionment with the concept and can further alienate user groups who feel that the processes for their participation fail to result in improved outcomes that are representative of their interests (Reed, 2008). Consultation fatigue is a commonly referenced condition in the

literature, where stakeholders are increasingly asked to contribute to participatory processes that do not actually take their voices into account or provide them with any improved capacity to influence the decisions that are affecting them (Reed, 2008; Wondolleck and Yaffee, 2000). The nature and potential benefits of a participatory decision-making are thus highly dependent on the intentions and quality of the process that led to its development.

In order to evaluate and understand the nature of participation, several typologies have been developed (Arnstein, 1969; Cornwall, 2008; Pretty, 1995; Reed, 2008). Typologies provide a system of classification of different types of participation, typically ranging on a scale from “bad” to “good” forms of participation, with the assumption that “good” participation is reflective of the meaningful involvement of user groups to generate decisions and processes where the power is shared, and outcomes are based upon transparent decision-making and a more comprehensive knowledge base (Cornwall, 2008; Reed, 2008). These typologies can provide useful insights at different stages in participatory processes, for example, they may be used prior to participation to choose the type of participation that is appropriate for the given context, or after the initiative has taken place to evaluate and categorize the type of participation that has occurred (Reed, 2008). The latter application will be used in this study to evaluate the perceptions of fisher representation and involvement in the development of the management measures and initiatives to protect the North Atlantic right whale. When participatory approaches are contextualized, we see that the initiatives may have characteristics of multiple types, and not always easily categorized into one specific form. Further, while the normative interpretation of the continuum from “bad” to “good” is useful, it is important to recognize that some of the “bad” forms may actually be important steps in the overall process of legitimizing participation (Pita et al., 2010).

In the context of this study, meaningful participation is conceptualized as the active and influential involvement of commercial fish harvesters throughout the entire decision-making process, from shaping the interpretation and objectives of the management problem, to the development and implementation of the resulting management measures. While the analytical framework will be further described in Chapter 4 *Methodologies*, the typology will be introduced here. The typology used in this study is a modified version of Pretty’s *Typology of Participatory Learning for Sustainable Agriculture* (1995). Pretty’s Typology is an adaptation of the most well-known typology of citizen participation, Arnstein’s *Ladder of Citizen Participation* (1969). The *Ladder of Citizen Participation* presents a view of participation as eight rungs on a ladder, where the lowest rungs represent manipulation and non-participation, middle rungs as tokenistic participation through placation and consultation, and the highest rungs describing active engagement as “citizen control” and genuine partnership (Figure 1) (Arnstein, 1969).

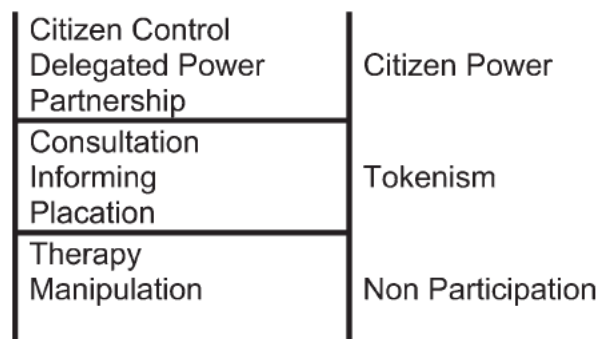


Figure 1. Arnsteins Ladder of Citizen Participation (1969).

Similarly, Pretty’s typology presents a continuum of participation that is described by an increasing degree of the user groups capacity to control and influence the process (Pretty, 1995). Pretty argues that knowledge and understanding are socially constructed and so the “correct” understanding of a problem depends on the framework of knowledge and assumptions that are taken into account, highlighting the importance of the wide involvement of multiple actors and groups in sustainable agriculture management (1995). Pretty’s original typology is a modified version of Arnstein’s Ladder and contains seven types of participation ranging from manipulation and passive participation up to interactive and self-mobilized participation (Pretty, 1995). In this analysis, I will utilise a condensed version of Pretty’s typology, where several of the groups will be considered together due to their similar characteristics and to represent more accurately the dynamics of the management problem in this case study. The following table

outlines the modified typology and the description of characteristics for each type of participation (Table 1).

*Table 1. Typology of the 4 categories of participation to be used in the analysis, adapted and condensed from Pretty's Typology of Participatory Learning for Sustainable Agriculture (1995).*

<b>Informed</b>	<ul style="list-style-type: none"> <li>▪ One-way flow of information from authority to fishers</li> <li>▪ Participation is simply a pretence</li> <li>▪ People participate by being told about a decision that has already been made</li> <li>▪ People have no power</li> <li>▪ Authority does not listen to people's input</li> </ul>
<b>Consulted</b>	<ul style="list-style-type: none"> <li>▪ Some participation, no power sharing</li> <li>▪ Participation by consultation as informants</li> <li>▪ Authority defines the problem and information gathering processes and controls the outcomes</li> <li>▪ No concession of decision-making power</li> </ul>
<b>Involved</b>	<ul style="list-style-type: none"> <li>▪ People may participate by forming groups and sharing in decision-making</li> <li>▪ Participation may be viewed by authority as a means to achieve project goals</li> <li>▪ Tends to take place only after major decisions about the problem definition and objectives have been made, by the authority</li> <li>▪ Conditional on [decisions made by authority]</li> </ul>
<b>Self-Mobilized</b>	<ul style="list-style-type: none"> <li>▪ Groups may take control over analysis and decisions</li> <li>▪ People participate in joint analysis, development of action plans and the formation of local institutions</li> <li>▪ Participation is seen as a right</li> <li>▪ Process involves interdisciplinary methods and structured learning processes</li> <li>▪ Activities may take place independently of authority agency</li> <li>▪ Development of contacts and external networks to develop technical advice</li> <li>▪ Groups may take control over local decisions</li> </ul>



## 2.2 Collective Representation and Atlantic Canadian Fishing Organizations

Looking beyond the definition and function of participatory process, there is a fundamental question of participation for *whom*. This question has been addressed in participation and development literature; however, it is often through the lens of which stakeholder groups are included or excluded (Cornwall, 2008). In this report, participation will be evaluated through the lens of collective action organizations. In Atlantic Canada, inshore and mid-shore fish license holders operate primarily as independent owner operators, essentially generating a collection of small independent businesses (Alexander et al., 2010). This independence promotes a viable and community-oriented fishery, where the wealth that is derived from the resource flows through the hands of the harvesters into the coastal communities in which they live and work (Canadian Independent Fish Harvester's Federation, n.d.). While the independence of fisher operations is valued as a management strategy, it does mean that harvesters (and their crew) are not vulnerable to economic insecurity due to changes in resource health, market conditions or fishery access (CBC News, 2021). A recent example of the magnitude of this vulnerability was the extreme uncertainty faced by harvesters during the onset of the Covid-19 pandemic, when global markets for fish were essentially halted (CBC News, 2021). The exposure to vulnerabilities at an individual level will accumulate and result in a ubiquitous weakening at the community level, where most fishers are susceptible to some level of economic or social instability (Child, 2018).

Throughout history, collective representation through the formation of fish harvester organizations has been the integral mechanism through which fish workers aim to reduce these vulnerabilities and to protect the livelihoods of present and future generations of harvesters (Kurien, 2014). The early history of collective action initiatives is scarcely documented; however, the common origin of fishing organizations is that they were formed by the leadership of individual fishers who recognized that despite their numbers, their fleets were effectively voiceless in the eyes of the government. In Atlantic Canada, this voicelessness was especially evident in the development of comprehensive fishing regulations for new target species following the failure of the groundfish resource in the 1980s and 1990s (CCPFH, n.d.). Further, harvesters had little to no leverage in dealing with the shore-based companies that controlled the price and sale of harvests, and thus organizations also intended to curtail exploitation by these

companies by advocating for a fair share of the wealth from their harvest (Prince Edward Island Fishermen's Association, n.d.; Boudreau et al., 2002). It became clear that there was a growing need for fishers to communicate amongst themselves in order to approach government with a collective voice and so organizations emerged throughout the region to address the localized needs of their fish harvesters.

Today, these organizations have become an essential component in the general affairs and governance of Canadian fisheries, enabling fish harvesters to contribute to the protection and development of opportunities that affect their livelihoods. The structure, size and function of each organization varies significantly based upon local history and contexts; however, it is generally understood that the role of fisher organizations is to provide a unified space and a collective voice for fish harvesters to work collaboratively to address issues of common concern (Kurien, 2014). A 2014 review by John Kurien provides a summary of the fundamental organisational forms that have evolved throughout history in global fisheries. Looking specifically at the relevant modern organisational forms, Kurien (2014) categorizes the most common types to be: cooperatives, associations, and "new 'supported' organisational forms". Cooperatives and associations will be described below in Table 2. The "new supported organisational forms" have emerged predominantly in the two decades since 2000 and are described as organisations that are "co-operational, multi-interest (cross-class) and multi-layered with revived interest by state, international organizations and NGOs" (Kurien, 2014). Generally, these organisations are initiated by the state, rather than by local fisher leadership. While this organisational form has not been formally realized in Atlantic Canada, it will be shown that some of the attributes are present within the dynamics of the informal social networks that exist between cooperatives, fisher associations, NGOs and governments in Atlantic Canada. The following section of this report will provide an in-depth examination of the structure, functions and core values of fishing organizations in Atlantic Canada.

This section will elaborate upon the current role of fishing organizations in the self-governance of fish harvester interests throughout Atlantic Canada by analysing organization mission statements. Scholars in the public management field recognize that mission statements are designed with the goal of conveying "what the organization stands for", and to provide a

common interpretation of the organization’s essence, by making the organizational values and goals explicit to its members, employees and or external actors (Desmidt, 2016). With this understanding, it is proposed that mission statements of fishing organization are representative of the aspirational essence of the purpose and values of collective fishing communities. In the following section, a thematic content analysis will be conducted as a foundational analysis of fishing organization mission statements. The methodology utilised in this analysis is described in detail in Appendix A. The following table describes the three main types of fisherfolk organisations which were identified through this analysis.

*Table 2. Description of the three main types of fisherfolk organisations identified in Atlantic Canada. The types were defined by the author through desktop research.*

<b>Type</b>	<b>Description/Characteristics</b>	<b>Type of membership</b>
Multi-function representation association	<ul style="list-style-type: none"> <li>• Broad representation and services</li> <li>• Local, regional or fleet scale</li> <li>• Multi-species</li> </ul>	Individual fishers
Sectoral Issue association	<ul style="list-style-type: none"> <li>• High-level representation, “umbrella”</li> <li>• Specific objective: safety, professionalization, licensing policy</li> </ul>	Often a coalition of general representation organizations or other relevant businesses
Cooperatives	<ul style="list-style-type: none"> <li>• Commercial entity, market-based</li> <li>• Offer alternative way of doing business for independent operators</li> </ul>	<ul style="list-style-type: none"> <li>• Members are owners of the company</li> <li>• Company may have clientele/support of non-member fishers</li> </ul>

In the following analysis, fishing organizations have been classified according to three main categories. First, general representation organizations are considered to be organizations that offer broad based representation and services to fish harvesters at the local, regional or fleet level. Membership of general representation organizations is made of individual fish harvesters or small local associations. Members of these organizations will often hold licenses to fish for multiple species, and so representatives of the organization will engage with any matters that pertain to those species such as conducting science projects or attending meetings that deal with stock assessments or quota allocations. Secondly, sectoral issue organizations are considered to be “umbrella” organizations that provide representation on sector specific issues to member organizations. Sectoral issue organizations are made up of a coalition of general representation organizations, providing high-level representation to a larger group of fish harvesters and often including representatives from the shore-based fishery operations such as buying, processing, and marketing of seafood. Relative to the broad role of general representation organizations, sectoral issue organizations typically have a narrower mandate to work on a specific focused issue area; for example, safety, professionalization or the advancement of policies to protect the independence of fish harvesters.

Lastly, distinctly different from the former two categories, are fisher owned co-operatives. Fisher owned co-operatives are jointly owned and funded commercial enterprises that offer member harvesters and alternative model of doing business in the fishery. Under the co-operative structure, a collection of fish harvesters become the intermediary and supply their catches to the market, without relying on a separate shore-based interest to purchase and distribute their catch. The pooling of assets provides cooperatives with the ability to finance the infrastructure required to conduct post-harvest activities, such as storage, processing and transport.

Upon analysis of the mission statements of forty-three mission statements, there were 12 key attributes or themes identified. These 12 themes were then sorted into two main categories: core values and functions. Core values represent the overarching purpose and essence of the organization and its initiatives. The functions of organizations are representative of specific actions, initiatives and services that the organization provides. Inherently, the functions

are guided by and intend to achieve the organizational values. Lastly, the themes were summarized quantitatively according to the number and proportion of organizations which referenced each theme in their mission statement. The following table summarizes the results of the organizational mission statement analysis Table 3.

*Table 3. Summary statistics of the core values and functions of generational representation (27), sectoral issue (10) and cooperative fisher organizations (6), as identified by content analysis of mission statements.*

	<b>General Representation</b>		<b>Sectoral Issue</b>		<b>Cooperatives</b>	
	(N)	Proportion	(N)	Proportion	(N)	Proportion
<b>CORE VALUES</b>						
Strengthening Fisher Livelihood	11	40.7%	2	20%	1	16.7%
Resource Stewardship	11	40.7%	3	30%	0	-
Future Generations	4	14.8%	3	30%	0	-
Safety at Sea	2	7.4%	2	20%	0	-
Unified Representation	15	55.6%	3	30%	0	-
<b>FUNCTIONS</b>						
Partnerships	9	33.3%	0	-	0	-
Information Sharing	3	11.1%	0	-	0	-
Human Resources	2	7.4%	0	-	0	-
Management Services	4	14.8%	0	-	0	-
Market Access and Value Enhancement	0	-	1	10%	0	-
Product to Market	0	-	0	-	6	100%
Employment	0	-	0	-	4	66.7%

The mission statements demonstrate the wide range of roles, values, functions of fishing associations in the governance of Atlantic Canadian fisheries. While there were many similarities among the descriptions, each association has a unique history and context that shapes its objectives and strategies to achieve them. Most notably, the most commonly expressed value was associations who support the unified representation of their membership. The following section provides a brief description of each core value and function identified.

## Core Values

The mission statements identified five core values of these fishing organizations. Core values are representative of the overarching purpose and goals of the organizations, which are upheld by the representatives and members of the organizations.

### Unified Representation

The most widely referenced value of General Representation (55%) and Sectoral Issue (30%) organizations was to provide a representation, through a unified voice, to their membership. This concept of a unified voice was expressed in various ways, but generally it refers to the role of organizations as providing a formal mechanism to engage with, advocate or lobby the Government about a variety of issues that are affecting fish harvesters. One organization describes their role in representation as one that “represents fishers in the Inverness South area and beyond, addressing their concerns, keeping them informed and acting as their voice within the fishing industry” (Inverness South Fishermen’s Association). The unification of fisher voices is not often an easy task, but typically takes place through democratic processes at organization meetings, where fishers provide input to guide the leadership to speak on their behalf. In Sectoral Issue organizations, the membership is typically made up of a number of General Representation organizations, so the representation that occurs is broad-based and generates strength in numbers through the collaboration of different groups across regions and or fleets.

### Strengthening Fisher Livelihoods

As described above, the fisheries of Atlantic Canada provide coastal communities with significant economic benefits through the provisioning of livelihoods to thousands of fish

harvesters, as well as supporting additional economic benefits along the supply chain for shore-based buyers, processors and in the transportation and sale of seafood. The underlying priority of most fishing organizations is thus to strengthen and protect traditional fisher livelihoods through their various activities. The protection of independent owner-operator livelihoods was a common theme among organizations. 44.4% (12) of General Representation organizations, 20% (2) of Sectoral Issue organizations and 16.7% (1) of Fisher Cooperatives referred to the importance of fisher livelihoods, with some identifying the importance of fisher livelihoods in shaping community and familial traditions over time: “For our harvesters, fishing is a way of life and a family tradition, with knowledge and skills passed down through generations. We work to support, protect and develop opportunities for our fishermen” (Eastern Shore Fishermen’s Protective Association).

#### Future Generations

Similarly, a related value that was less often explicitly stated but is closely aligned with the value of strengthening livelihoods, is working to protect fishing livelihoods for future generations of harvesters (14.8%, 4 General Representation organizations, 30%, 3 of 10 Sectoral Issue organizations). Many fisheries are rooted deeply in familial and community traditions, where fishing licenses are passed down through generations of families, or alternatively to neighbors or crew who have become like family over decades of working together. These familial and community-based relations evoke a strong sense of responsibility for harvesters, and their organizations, to consider how the decisions taken today will affect fishers in future generations. The Canadian Council of Professional Fish Harvesters states that their main objective is to “ensure that fish harvesters have the required knowledge and skills for their trade and to meet the human resources needs of the Canadian fishing industry now and in the future”.

#### Resource Stewardship

Another value held by fishing organizations is the importance of long-term resource and ecosystem sustainability. Fishing organizations, and their harvesters, recognize the importance of the health of the resource to the long-term viability of their livelihoods. Many of the General Representation organizations (40.7%, 11 organizations), and a few of the Sectoral Issue organizations (30%, 3 organizations), identified that the long-term sustainability of the resource

is a common value and priority of their organization. The shared value of sustainability emphasizes that these organizations and their harvesters aim to be stewards of the resource. For example, the South West Lobster Science Society conducts industry led by-catch monitoring and a lobster tagging program to promote and ensure the sustainability of the fishery for future generations. The collective nature of organizations allows for the sharing of local ecological knowledge and the implementation of industry-led science and conservation measures, enabling harvesters to contribute to the responsible management of the resource.

### Safety at Sea

While relatively fewer mission statements explicitly stated that safety is a priority, only 7.4% (2) of General Representation organizations and 20% (2) of Sectoral Issue organizations, it is recognized that safety at sea is a value that is on the mind of all fish harvesters. Commercial fish harvesters are exposed to a number of safety hazards in their day-to-day operations, such as poor and unpredictable weather conditions, fatigue, strenuous physical activity and slippery or dangerous surfaces aboard vessels (Nova Scotia Fisheries Sector Council, n.d.). Given these hazards, the fishing industry accounts for a disproportionate amount of workplace accidents and fatalities relative to any other industry in Atlantic Canada (Nova Scotia Fisheries Sector Council, n.d.). Between 2011 and 2019 there were 91 fishing related fatalities from 66 fishing accidents in Canada (Transportation Safety Board, n.d.). Two Sectoral Issue organizations, the Nova Scotia Fisheries Sector Council and the Fisheries Safety Association of Nova Scotia, worked in collaboration with the Workers Compensation Board and the Nova Scotia Department of Labour and Advanced Education to launch Fishing Safety Now in 2015, a 5-year plan to improve safety in the fishing industry. This plan includes recommendations and initiatives to generate prevention, safe practices, learning and increased rescue capacity (Nova Scotia Fisheries Sector Council, n.d.). Safety culture changes are further championed by dedicated action such as wharf-based man overboard drills by the Fisheries Safety Association of Nova Scotia and through the purchase of Personal Floatation Devices for all fishers' in the Gulf of Nova Scotia by the Gulf Nova Scotia Fleet Planning Board (Gorman, 2017).



## Core Functions

The functions of organizations are described as the direct activities, practices or initiatives that are undertaken in order to achieve its overarching values.

## Partnerships

The most commonly referenced function of fishing organizations was the engagement in partnerships with like-minded organizations and other actors (29.6%, 8 General Representation organizations, 20%, 2 of Sectoral Issue organizations). Forming partnerships across organizations and Government agencies is an important activity that promotes the capacity, efficiency and strength of fishing organizations. Partnerships may take place through both informal and formal channels, where organizations cooperate with external groups to address common objectives. The formation of partnerships across the fishing industry provides organizations with the opportunity to share the burden of undertaking research and governance activities. Many General Representation and Sectoral Issue organizations have limited financial and human resource capacities, so working collaboratively and cost-sharing allows for an increased capacity to tackle projects of interest. Further, the formation of partnerships naturally results in relationship building across geographic or sectoral boundaries: the Maritime Fishermen's Union works "in collaboration with a great array of international, national, regional and local associations mostly in direct link with the fisheries, and in some cases, related to the socio-economic affairs of the coastal and rural population of Atlantic Canada". Positive relationships can increase trust and understanding between groups, which is fundamental to the earlier identified value of gaining unified representation. Groups who work together find strength in their numbers and are able to more effectively address the dynamic and complex issues that the fishing industry is faced with.

## Information Sharing

Another function of fishing organization's is to act as an information liaison for their membership; 11.1% (3) of General Representation organizations and 40% (4) Sectoral Organizations referred directly to information and awareness efforts. The harvesting industry is complex in that is regulated by a number of different federal, provincial and regional bodies, and is operating in concert with different actors, along the supply chain. Ensuring that harvesters

have access to relevant and up-to-date information is increasingly important in this regulatory environment (Berkes. 2009; Kurien, 2014). Widespread awareness of industry changes and initiatives can work to improve compliance with regulations and to maintain a well-informed group of harvesters (Berkes. 2009; Kurien, 2014). Further, this information exchange works in both ways, where fishing organizations also provide government bodies and external actors with information related to the practices and experiences of fish harvesters: “To act as an information liaison between inshore fishermen and the Dept. of Fisheries and Oceans, as well as provide effective representation within the industry and other associations” (Guysborough County Inshore Fishermen’s Association). This is especially important when regulators are developing new programs and policies where fishing organizations can provide insight that can limit the occurrence of unintended consequences or oversights that can occur when the regulators do not have direct information about the demographic which will be affected.

#### Human Resource Development

Another function that is aimed at supporting the protection of fisher livelihoods for current and future generations is the development of human resources initiatives, highlighted by 7.4% (2) of General Representation organizations and 40% (4) of Sectoral Issue organizations. Traditionally, fishing has been a decentralized profession with self-employed harvesters operating as a collection of independent actors. Prior to the development of more explicit regulatory controls, behaviour of individual harvesters was mostly mediated through informal community-based relations, where the “rules and codes” for conduct were mostly implicit and not governed by any formal mechanisms (Johnsen et al., 2009). Now, there is a movement within the industry to develop more comprehensive human resource and professionalization standards with the goal of achieving the highest quality standards for seafood production and a formal recognition of the harvesting profession. Newfoundland, Nova Scotia and Quebec have a formally established professional certification boards, which provide an industry-led certification process to formally recognize the unique and specialized skills of fish harvesters (Professional Fish Harvesters Certification Board, Bureau d’accreditation des pêcheurs et aides-pêcheurs du Québec, Fish Harvester Registration and Certification Board of Nova Scotia). These boards develop regionally specific training and certification criteria, and work to develop content and courses for their professionalization programs. The industry organizations promote the

importance of professionalization as a means to secure the fish harvesters place in the future of the fishery. Similarly, the Nova Scotia Fisheries Sector Council has established itself as the primary organization for fisheries human resource and training within Nova Scotia, developing Labour Committees, HR Toolkits other initiatives to support labour and demographic challenges in the fishery. Additional human resource efforts that were identified include the implementation of a health plan for harvesters, capital gains exemption plan, and a license retirement program (Maritime Fishermen's Union).

### Management Services

Several General Representation organizations (14.8%, 4 organizations) referred to the provision of services that are directly related to the management of harvesting activities. Management services refers to activities that are aligned with functions to meet regulatory requirements that have been traditionally conducted by the Department of Fisheries and Oceans. Essentially, the Department has delegated these activities from their portfolio to be the responsibility of the fishing organizations. These activities may facilitate the enhanced utility and legitimacy of an organization in the operation of their harvesting activities; however, they represent a transfer of capacity requirements and costs from the Department onto the shoulders of the industry (SFRS, 2002). The mission statements referred to a number of functions such as: the distribution of tags, calculation and administration of fishing quotas, access to sharing agreements, coordination of logbooks and at-sea monitoring programs (Cape Breton Fish Harvesters Association, Eastern Shore Fishermen's Protective Association, Maritime Fishermen's Union, Office des pêcheurs de flétan du Groenland du Québec).

### Market Access & Value Enhancement

One Sectoral Issue organization, the Lobster Council of Canada, fulfills a unique role in the governance of the Canadian lobster fishery. The Lobster Council of Canada (LCC) deals with issues of market access and value enhancement of Canadian lobster, through initiatives related to "sustainability certifications, food safety, traceability requirements". The LCC represents members from along the continuum of the entire supply chain, from harvesters, buyers, dealers, processors, shippers, associates and First Nations. The activities of the LCC are guided by a general mandate to enhance the value of the lobster industry but addressing these various issues

of importance. Given Lobsters relative importance to Atlantic Canadian fisheries, as the leading seafood export in both volume and value, the LCC works to identify and develop opportunities to enhance the long-term value of this crucial fishery. The market access and value enhancement initiatives directly contribute to the earlier identified values of protecting fisher livelihoods for current and future generations.

### Product to Market

As defined above, fisher-owned cooperatives are distinctly different from the other two categories of organizations. The analysis of cooperative mission statements identified that the primary function is to provide fresh, premium seafood products to the market through the most direct pathway (100%, 6 cooperatives). Cooperatives, owned and managed by fishers, purchase seafood that is caught by their members, and sell that product either directly to the market or to processors. Cooperatives provide fish harvesters with a greater degree of control over their fishing activity and the wealth that is derived from it by eliminating the reliance on shore-based companies to purchase, store and distribute their catch to the market. The financial organization of cooperatives allows harvesters to pool their financial resources to invest in the infrastructure that is required to produce seafood from wild harvest to market. The existence of fisher-owned cooperatives directly supports the strengthening of fisher livelihoods.

### Providing Employment

3.7% (1) General Representation organization and 66.7% (4) Cooperatives referred to their role in the providing employment opportunities through their operations. Two of the cooperatives identified that during their peak seasons, they employ around 125 (Victoria Coop. Ltd.) to 200 (Acadian Supreme Fishermen's Coop.) employees in their purchasing and processing facilities. This seasonal labour generates significant economic activity for their local coastal communities, Victoria Coop Ltd. states that their operations contribute approximately \$2 million in payroll to the surrounding economy. Further, the Groundfish ITQ Association, a General Representation organization, identifies that the activities of their fleet provides hundreds of "full-time middle-class" jobs along the supply chain, from boats to wharves and processing facilities. The majority of fisheries in Atlantic Canada and Quebec take place in rural coastal

communities where employment opportunities are limited, and so these organizations contribute to the viability of these vibrant resource-based economies in a very tangible way.

## Chapter 3 Case Study: NARW Unusual Mortality Event

The following chapter will introduce the scope, context and problem statement of this case study on the North Atlantic right whale Unusual Mortality Event (2017-ongoing). This case study exhibits many characteristics of the complex and dynamic nature of marine resource use conflicts. Ostrom (2009) characterizes marine and land-based resource systems as socioecological systems, whereby there are engrained social and ecological components that interact and generally work in harmony to generate coastal livelihoods. There can be both natural, regulatory or market-based impacts to the socioecological system that have the potential to impact the wellbeing of the ecosystem and the communities that depend on it (Ostrom, 2009).

### 3.1 The Ecological System: Gulf of St. Lawrence

The Gulf of St. Lawrence (GoSL) is a large semi-enclosed marine estuary which connects the North American Great Lakes to the Atlantic Ocean by way of the St. Lawrence River (Gilbert & Dufour, 2008). The GoSL covers about 226,000 square kilometers and has an average depth of 152 meters. The Gulf contains a high degree of biological diversity and abundance and was identified in 2005 as a priority area for the Department of Fisheries and Oceans Ecosystem-Based Large Ocean Management Areas (LOMAs) (Gilbert & Dufour, 2008). The biological and physical attributes of the Gulf of St. Lawrence provide the necessary components to support the coastal and marine activities which influence and enable the social, cultural and economic wellbeing of many coastal communities (Gilbert & Dufour, 2008). The GoSL ecosystem is largely influenced by fluctuations in seasonal conditions as well as human activities. In the spring and summer, the Gulf of St. Lawrence is dense with inshore and mid-shore commercial fishing, commercial shipping and transport (through the St. Lawrence River and other major ports), recreational and scientific activity (Gilbert & Dufour, 2008).

In the winter, seasonal ice cover limits human access and influences the circulation and characteristics of the water (Gilbert & Dufour, 2008). This seasonal replenishment on nutrients contributes to the biodiverse productivity in the GoSL ecosystem. Even though the Gulf of St. Lawrence is an abundant and productive marine area, a number of anthropogenic threats alter the health and integrity of the ecosystem. Resource overexploitation, pollution from industrial

activity, invasive aquatic species are some of the key ecosystem issues. Further, climate change has already begun to influence the marine ecosystem. Hypoxia, ocean acidification and changes to the seasonal ice-cover are altering baseline conditions and ecosystem functioning (Benoît et al., 2020; Claret et al., 2018). Specifically, the changing oceanic conditions have begun to alter the phytoplankton assemblage, shifting the volume and distribution of copepods, a popular food source for migratory marine mammals (Benoît et al., 2020). This has been proposed as one of the factors linked to increased marine mammal interactions with marine industries (

### 3.2 The Social System: Fisheries Governance

The Gulf of St. Lawrence is a complex multi-jurisdictional marine estuary, with governing bodies from five Atlantic provinces (Newfoundland and Labrador, Nova Scotia, New Brunswick, Prince Edward Island, Quebec) and several relevant federal departments. The communities surrounding the Gulf are inherently linked to coastal marine environment due to the density of marine industries and activities that take place (Benoît et al., 2020). These activities provide Atlantic Canadians with the ability to earn a livelihood, as well as opportunities to engage in cultural, ceremonial and recreational practices (Benoît et al., 2020; Gilbert & Dufour, 2008). The long-term viability of human activities (and resource dependence) depends on the sustainability of the marine ecosystem, so it is important that the governing authorities ensure that the activities exert minimal stress on the marine environment.

Throughout the Gulf of St. Lawrence, there are commercial fisheries for nearly 50 different target species, ranging from groundfish to marine plant harvesting (Gilbert & Dufour, 2008). Most economically valuable, and relevant to this case study, the Snow Crab and lobster fisheries generate the greatest economic contribution to the region (Benoît et al., 2020). Together, these fisheries make up a majority of commercial fishing revenue and productivity in Atlantic Canada. The lobster fishery generates an annual landed value of around \$250 million, and Snow Crab produces around \$480 million (Department of Fisheries and Oceans, 2020b). The inshore lobster fishery is conducted at 130 harbours in the Gulf region and is directly linked to over 10,000 seasonal jobs (sea and shore-based employment). The Snow Crab fishery generally takes place in the mid-shore, and despite the use of quota systems and brief seasons, it contributes significantly to the coastal economies throughout the Gulf of St. Lawrence

(Department of Fisheries and Oceans, 2010). Both fisheries produce premium seafood for a lucrative export market, with a stable supply to the United States and growing demand from Asian and European countries (Department of Fisheries and Oceans, 2020b; Department of Fisheries and Oceans, 2010).

The challenging multi-jurisdictional governance structure has led to a history of inconsistent legislation and overlapping (or gaps) regulatory mechanisms, with experts calling for a review of the regulatory approach to governance. Under the Large Ocean Management Area approach, there are Integrated Fisheries Management Plans for each of each individual lobster and Snow Crab fishery. The fishing activity is subject to the legislation in the Fisheries Act, which contains the Atlantic Fishery Regulations (1985) and Species at Risk Act (2002). These regulations provide a decision-making and governance framework that is underpinned by peer-review processes and the precautionary approach to assessing quotas and fisheries management regulations. The governance processes are supported by stakeholder input through formal advisory committee processes, which are generally coordinated by the Area Director. At these regular meetings, industry and First Nations representatives have the opportunity to engage with leadership and contribute input and preferences to the decision-making process (Department of Fisheries and Oceans, 2020c).

The primary stakeholders and governance actors are described in the figure below, according to their general sector. It is important to note that within each of these actor groups, there is significant heterogeneity in terms of position, preferences and overall objectives (Reed, 2008). The mandate and role of the government departments are varied, there is significant diversity within the commercial and First Nations fisheries, and the role of the “other actors” can range from ambiguous to influential (Reed, 2008). Within the Gulf of St. Lawrence, there are 21 Mi’kmaq groups, 7 Innu, 1 Maleite and 1 Métis (Gilbert & Dufour, 2008). While each of these nations and their communities have a unique history and context, they all share a common interest in the management of coastal resources. Further, the commercial industries, such as fishing, energy, aquaculture and transportation, all contribute to the economic and cultural fabric of the Gulf of St. Lawrence.



An important distinction to note here is that while the Snow Crab and lobster fisheries will be discussed at times as one distinct concept, in reality, they operate with different types of gear, in different locations and with varied proximity to the North Atlantic right whale aggregations. However, despite their differences, because at a fundamental level they use similar gear (fixed pots/traps with surface buoys and floating line), the fisheries are generalized to have the same level of threat. Thus, both fisheries are generally subject to the same mitigation measures in response to the NARW unusual mortality event, with some exceptions that will be described later in Chapter 5.

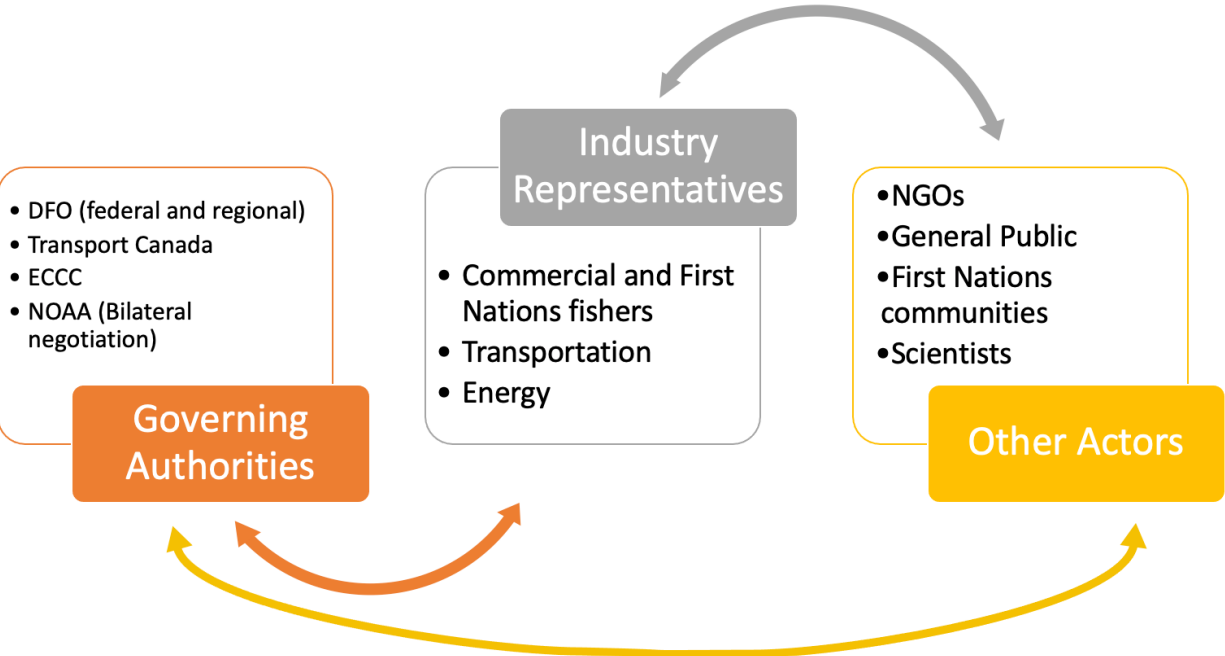


Figure 2. Diagram of key actors in the socioecological governance system.

### 3.3 North Atlantic right whale

Since 2017, there has been a growing presence of North Atlantic right whale (*Eubalaena glacialis*) in the Gulf of St. Lawrence (NOAA’s National Oceanic and Atmospheric Association, 2018). The NARW is critically endangered and given ongoing environmental degradation and climate change, it’s distribution and behaviours are changing (NOAA’s National Oceanic and Atmospheric Association, 2018). The whales occur primarily in coastal waters along the

continental shelf of eastern North America. As migratory mammals, the whales migrate seasonally from the warm southern waters of Florida, north to the Gulf of Maine and more recently, to the Gulf of St. Lawrence (NOAA's National Oceanic and Atmospheric Association, 2018). This species has an average (without additional threats) lifespan of 70 years, and an average length of 45-55 feet. They are baleen whales, preferring to feed on blooms of copepods, large planktonic crustaceans found in virtually the entire Atlantic Ocean (NOAA's National Oceanic and Atmospheric Association, 2018). Recent studies have shown that the biomass and distribution of these copepods has begun to shift further north, in response to oceanic warming and altered oscillations (Claret et al., 2018; Beaugrand et al., 2002)

From 2017-2021, the National Oceanic and Atmospheric Association (United States) has classified the North Atlantic right whales as undergoing an "Unusual Mortality Event" (UME) (NOAA'S National Marine Fisheries Service, 2018). Defined by the Working Group on Marine Mammal Unusual Mortality Events, a UME is triggered by a marked increase in the mortality, harmful behaviour, or general physical conditions of marine mammals (NOAA'S National Marine Fisheries Service, 2018). A UME is enacted by the United States government under the Marine Mammal Protection Act (U.S. MMPA) generating an immediate response to better understand and investigate indicators of ocean health, environmental issues related to the UME (NOAA'S National Marine Fisheries Service, 2018). Here, the UME has been triggered by 34 dead stranded whales from 2017-2021, as well as an additional 16 free-swimming but seriously injured whales have been observed (NOAA'S National Marine Fisheries Service, 2018). In response to the UME, the Department of Fisheries and Oceans implemented a swift and severe management response. Figure 3, below, summarizes the main timeline of events and key contextual factors. In the following sections of this report, the outcomes and evolution of the management response will be described and analyzed through the lens of fish harvester representation

The NARW population had previously been listed as an Endangered species under the Species at Risk Act in 2005, which produced a recovery strategy led by the Department of Fisheries and Oceans Maritimes Region (Department of Fisheries and Oceans, 2009). The success of the recovery efforts is directly linked to the ability of DFO to cooperate across

multiple agencies, user groups and regions to develop an adequate management response. The NARW is vulnerable to a number of threats throughout its entire geographic range, including but not limited to (NOAA's National Marine Fisheries Service, 2018):

- Changes in prey species assemblage due to climate change
- Vessel strikes (marine shipping, tourism transportation)
- Fishing gear entanglement
- Habitat degradation
- Ocean noise
- Changes in reproductive physiology

The cumulative impact of these threats has resulted in a status of critical endangerment for this species, with recent estimates suggesting as few as 350 individuals remaining, and birth rates steadily declining (NOAA's National Marine Fisheries Service, 2018). Under this conservation mandate, it is crucial that the governing authorities conduct and support scientific research that can be used to inform management decisions. Examples of scientific efforts to better understand the NARW issue are include the identification of habitat, the investigation of unusual mortality events, performing stock assessments to gather population information, tracking individuals over time to monitor important habitat usage and life history traits (Department of Fisheries and Oceans, 2021a).

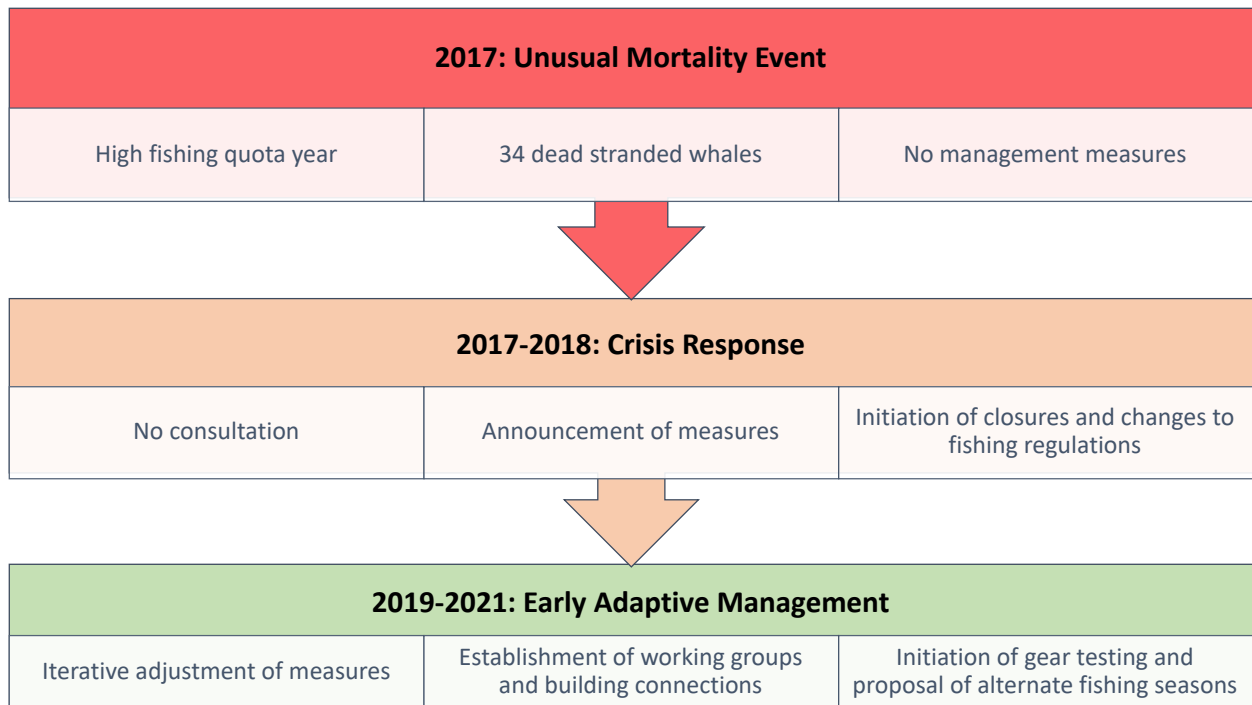


Figure 3. A timeline of key events and contextual factors in the North Atlantic right whale resource conflict (2017-2021).

## Chapter 4 Methodology

### 4.1 Study Boundaries

This research is focused on the geographic area of the Gulf of St. Lawrence, from a socioecological perspective. Described above, the North Atlantic right whale distribution extends throughout the entire Eastern Seaboard. For the purpose of this research, the investigation is limited to the Gulf of St. Lawrence (and associated fisheries), as this is the area of changing distribution and growing threats to survival. Also noted above is that the Unusual Mortality Event is considered to be ongoing, from the years of 2017-2021 (NOAA's National Marine Fisheries Service, 2018). For this reason, the semi-structured interview questions and analysis is generally bound within those years.

### 4.2 Study Sample

Interviews were conducted with three participant groups. First, Commercial fisheries organization leaders are generally volunteers or staff who act as the voice of industry and are the individuals who are called upon to attend consultation and engagement sessions on behalf of commercial fish harvesters. Second, commercial fisheries organization members are the fishers on the water who provide their leadership with direction to protect their interests. The third group, Department of Fisheries and Oceans, is responsible for the coordination of engagement and decision-making processes. The interviews are considered key informant interviews, as the three stakeholder groups have been identified to develop a holistic understanding of the multiple perspectives of fisher representation in this resource use conflict.

The organizations were identified by an initial web search for commercial fishing organizations in the Gulf of St. Lawrence. The relevant organizations were multi-species, lobster or snow crab organizations, as these fisheries utilize gear types that are associated with entanglements and thus would be involved with the mitigation measures to protect the North Atlantic right whale. The initial list of relevant associations was then verified by two local industry experts to ensure its validity (Personal communication M. Sonnenberg, L. LeBlanc). These industry experts also identified two representatives from the Department of Fisheries and Oceans who were involved and or leading this file on behalf of the Federal government. Potential

participants were then contacted by email with an overview of the research purpose, objectives and an invitation to participate at their earliest convenience. The interviews were conducted in the summer months of 2021. Due to the timing of the interviews coinciding with the summer fisheries, there were three associations who were unable to participate in the interviews due to time constraints. Only one of the two Federal Department of Fisheries and Oceans representatives responded to the request to participate.

#### 4.3 Data Collection

Qualitative interviews were conducted through a video meeting on Microsoft Teams, and lasted approximately 45 minutes to 1 hour. There were two interviews (Fisher-2 and Fisher-4) that were conducted by a phone call as a video meeting was not available for them. The interviews were designed to be semi-structured, to ensure that the researcher and interviewee discussed the fundamental guiding questions, while allowing for open-ended dialogue on the range of concepts that each interviewee raised (Bernard, 2006). There were three sets of interview questions designed so that the questions were relevant for the specific interview group (Fisheries organization leaders, fish harvester, government representatives).

All interviews began with a general discussion of the interviewees background and experience within the Atlantic Canadian fisheries. Then, the interviewees were prompted to provide a high-level overview of the timeline of events relating to the North Atlantic right whale entanglement events. Next, the interviewees were asked a series of questions which required them to reflect on their perceptions and experiences in dealing fisher representation and the Department of Fisheries and Oceans. The questions were designed to elicit the in-depth experiences and perspectives about stakeholder involvement and representation. Beyond the guiding questions, the interview was largely shaped by the individual's responses and comments which would lead the conversation in various directions.

#### 4.4 Data Analysis

The interviews resulted in a rich data set composed of multiple perspectives and detailed personal accounts. The interviews were transcribed by the researcher, during which initial insights were noted. The transcribed data was analyzed qualitatively, using a hybrid approach

that merged elements of both inductive and deductive thematic analysis. The deductive approach refers to the use of the participatory framework presented earlier in chapter 2. The characteristics presented Table 1 were used to generate a codebook which was used to identify themes according to the perceived level of representation (Hudson, 2014). Beyond the use of the codebook, inductive thematic analysis was also utilised to identify themes and categorized for analysis. When using the hybrid approach to content analysis, the researcher generally tried to analyze the data through the lens of opportunities and challenges to enhancing the perceived level of representation and engagement. The challenges often emerged when looking at questions that elicited a negative response from one or more interviewees.

Further, research question 2 was answered utilising a similar qualitative content analysis, however the general codebook was made up of the terms (functions, values) that were identified in the analysis presented in chapter 2, in addition to the participation classifications. This approach was used to focus on the mechanisms through which the fishers perceive their organizations to provide representation. Following the coding of themes, the researcher looked for trends, themes, insightful comments to generate a qualitative response to each question.

Table 4. Qualitative codebook to be used to classify the interview results according to the four categories of participation as outlined in Chapter 2.

<b>Classification</b>	<b>Coding</b>
Informed	<ul style="list-style-type: none"> <li>- No influence</li> <li>- One-way</li> <li>- Decisions already made</li> <li>- Told what is happening</li> </ul>
Consulted	<ul style="list-style-type: none"> <li>- Consulted</li> <li>- No influence</li> <li>- Decisions already made</li> <li>- Have a say, but they likely won't listen</li> </ul>
Involved	<ul style="list-style-type: none"> <li>- Working groups</li> <li>- Some influence</li> <li>- Share in decision-making</li> </ul>
Collaborative or self-mobilized	<ul style="list-style-type: none"> <li>- Initiated</li> <li>- Organized by</li> <li>- Influence</li> <li>- Partnerships with external groups</li> </ul>



#### 4.5 Limitations

Due to scheduling and timing constraints, the sample size for the study was limited to only six organizations (supplemented by individual members and one government representative). The interviews took place in the summer months which generally coincides with a busy fishing and meeting season for the fishing organizations. While the study sample does cover several major fleets involved in the issue, there are a few other associations who did not participate who were noted to also play a valuable role in the governance and leadership of fish harvesters. In addition, of the three groups interviewed, the participants were weighted towards industry leaders. While this provided very rich and detailed results, it does limit the cross-analysis and comparisons among the three target groups. The applicability of the findings will be elaborated upon below, however, it is worthwhile to note that the analysis and results of this research are case-study specific and thus highly linked to the localized dynamics and context.

## Chapter 5 Results

The survey questions were designed to gather information about the level and quality of involvement and influence of fish harvester organizations in decision-making processes. From these perceptions, I have identified various themes that describe the participants' interpretations of the policy and conservation effectiveness. By evaluating the perceptions and interpretations of the governance response, it was possible to prioritize several recommendations which are described later in chapter 7. The two main research questions are addressed separately in this chapter. The first question, relating to perceptions of representation, utilizes thematic content analysis directly from the interviews. The second question combines the results from Table 3 to identify which of the core values and functions were exhibited in this case.

5.1 Q1 - To what extent do fisher organization perceive their engagement with the North Atlantic right whale to have been meaningful?

Content analysis led to the identification of 5 key management response measures, which will be presented under two main categories: regulatory measures and novel adaptations. Regulatory measures are the mitigation measures that aim to control or reduce fishing activity in order to prevent entanglements. Secondly, “novel adaptations”, are generally non-regulatory efforts that aim to find alternative strategies or solutions to traditional fishing activities. These novel adaptations are generally industry-led initiatives, with some logistical support from the Department of Fisheries and Oceans. The perceptions of the quality and value of participation within these two categories was quite varied. In terms of the novel adaptations, both of the response measures were perceived more favorably by the industry.

The interview participants were asked about their perceptions of the role and influence of fisheries organizations in the decision-making process. The responses were analyzed thematically and were then “ranked” according to the framework outlined in chapter 2 based upon attributes of representation (Table 1). Attributes include but are not limited to communication, information sharing, agency, trust, collaborative problem solving. In addition to the perceptions of representation, the thematic analysis also resulted in the identification of the specific management measures, a timeline of events and a description of the historical context.

The following analysis focuses on perceptions of the specific management response measures. By evaluating the individual management measures, it is possible to assess and compare specific factors related to representation, and how these factors are connected to the perceptions held by the interview actors (fishers, leaders and DFO representative). Generally, the factors that have influenced the perceptions of management measures include things such as:

- Who initiated the response?
- Who was involved, and at what point?
- How was information shared among groups?
- Was there an opportunity to engage in collaborative decision making?

Tables 5 and 6 summarize the management measures and their category of participation, along with quotes that exemplify the general sentiment expressed by the interviewees. Based upon the above, the following themes are a synthesis of the main attributes that were used to determine the ranking in the framework of perceptions of representation.

Table 5. Summary of regulatory based mitigation measures categorized according to the perceived level of participation with quotes from the interviews.

<b>Regulatory Measures</b>	<b>Category of Participation</b>	<b>Representative Quotes</b>
Fishery Closures	Informed	<p>“We’ve seen these closures expand year after year”</p> <p>“On average, we left about 20% of the quota that we were unable to catch because of the seasonal closures. Not able to attend areas where the snow crab was in high levels. 2020 was the toughest season for that.”</p> <p>“The seasonal closures are a poor, poor system, I argued against it. I was very shocked with the Minister’s decision”</p>
Shallow Water Protocol	Involved	<p>“DFO did listen and modify their regulations to allow us to have the 20-fathom line, which was great. It helped to moderate the nervousness that fishermen were feeling”</p> <p>“This was refused in 2018, but we stuck to our guns. That’s when fishermen were talking science, saying you guys [DFO] aren’t listening to us, we’re stating the best available science here”</p>
Gear Marking	Consulted	<p>“There was some consultation about what would be contained within gear marking. But that was kind of a shock and a slap in the face for us. We thought we had good communication until we heard what was coming down.”</p> <p>“Take the marking ropes, different fisheries have a unique colour. That string doesn’t stop the whale from getting tangled. It just lays the blame on the person who did it. The Americans and Canadians pointing fingers – what’s the difference who killed it? How we fix it?”</p>

Table 6. Summary of novel adaptation response measures categorized according to the perceived level of participation with representative quotes from the interviews.

<b>Novel Adaptations</b>	<b>Category of Participation</b>	<b>Representative Quotes</b>
Whale “Safe” Gear Testing	Self-mobilized	<p>“I think in theory the ropeless idea makes perfect sense, it’s fabulous. But I don’t see how it will ever work in a large area. Maybe in closed areas.”</p> <p>“We’ve collaborated to a large extent to bring successful results to mitigation measures. Such as ropeless gear analysis, initiated and executed by the industry, producing interesting results in terms of ways to accommodate the presence of whales in fishing territory. Also, in ways of raising awareness to harvesters to look at new ways of operating their harvesting activities.</p>
Potential Fall Fishery (for Snow Crab)	Involved	<p>“We are looking forward to develop a fall fishery. After the whales are gone, can we start the fishing season then? We did a small test fishery last year. These are the type of options we’re trying to see if it’s worthwhile doing.”</p> <p>“Right now, we are working on a potential fall season. We have to check the quality of the crab, and whether the market is ready to buy it. It’s one thing we have to look at seriously. Why not permit 30% of the quota to be caught in the fall, to relieve the pressure in the Spring.</p>

## **Communication**

There were many facets of communication within the governance process touched upon in the interviews. The key factors that contributed to perceptions of the governance process relate to the communication between the DFO and fishing communities, communication approaches utilized by organizations, and general challenges regarding communication in the context of a complex resource issue. The fundamental role of the organization was established through discussions surrounding communication. This theme will be explored further below.

The perceptions of communication quality were varied among the interview participants. Some organization leaders expressed a sense of optimism regarding the communication efforts and channels put in place by the Department of Fisheries and Oceans. Specifically, organization leaders stated that they have very positive relations with their regional DFO representatives (such as DFO Gulf or Maritimes). Regional representatives are seen to have “on the ground” knowledge and experience related to the conditions of local fisheries. Fisher actors distinguish this localized knowledge to give regional representatives a stronger understanding of the socioeconomic realities of coastal communities, relative to their DFO colleagues who are based in the Ottawa headquarters. However, in contrast to the more positively viewed communication with regional representatives, there was a strong sentiment about a lack of effective engagement

There was also a common sentiment that there were clear and existing channels for communication and to provide fisher input. In some limited cases, such as the shallow water protocol or the 48-hour extension for moving traps due to safety concerns, channels of communication were accessible and utilized by fish harvester organizations. However, there were a greater number of comments about the ineffectiveness of the existing channels, and that despite the ability to provide input to regional or Federal representatives, the message rarely moves beyond the consultation. Generally, harvesters and the organization leaders expressed that they felt they generally did not have the ability to communicate with the decision-makers, and that the bureaucratic channels were not effective.

Failures of communication channels push the fishing organizations to take advantage of the political channels (via private meetings with their local Member of Parliaments or whatever

minister can provide relevant support). These connections are rarely formal, but generally provide fishing organizations with a more straightforward path to communicate their preferences, solutions or dissatisfaction with a management problem. However, there were mixed interpretations among the fishing actors about the utility of this method. One representative made a comment that the fishing organizations who have the biggest “clout”, meaning the greatest number of members and thus influence in their community, have greater access to their local politicians. This individual linked this difference directly to the “voting power” of a specific fleet or fishery, suggesting that smaller or more specialized organizations (i.e., the crab fleets) may have less influence within this political route depending on the context of the solution.

Lastly, two of the interviews discussed communication in the context of the general narrative that was being told surrounding the resource issue generally. One of the fisheries organization representatives described how the narrative being told through the popular media was one that painted all fishermen as “whale killers”. This narrative is an oversimplification of the idea that the Canadian fisheries regulations do not provide adequate protection to marine mammals or other species at risk of anthropogenic harm. The narrative was driven by the provisions of the United States Marine Mammal Protection Act (NOAA’s National Marine Fisheries Service, 2018) which requires the Canadian government to actively prove that their marine mammal protection measures at least “comparable” in effectiveness to the measures taken by the United States government (CBC News, 2019). The fishing industry representatives suggest that this narrative has been endorsed by Non-Governmental Organization actors, expressing to the general public that fishing activity must be reduced or eliminated in order to protect the North Atlantic right whales (Ferguson, 2019).

In order to address this one-sided perspective of fish harvester wrongdoing, one of the “umbrella” fishing organizations worked with their membership to develop educational and promotional materials that displayed the work that the Canadian government and fishing industry have done to address the mitigation and protection of the North Atlantic right whale. The Lobster Council of Canada representative described their unique role in responding to the resource conflict, in which they were able to advocate and communicate on behalf of the fishing industry in an effort to reduce any impacts of a diminished reputation in the marketplace. The

communication materials were developed collaboratively by the Canada-wide membership of fishing industry actors and were distributed to market-based consumers and Federal trade experts. This is an example of a commercial fishing organization utilizing its resources to maintain market access through the use of educational materials, rather than a regulatory based mechanism.

### **Role of Organization**

In every interview, whether from an individual fisher, organization leader, or the DFO representative, there was a clear expression of the intended role of fish harvester organizations in the governance process. The role of organizations was generally defined as providing the real, “on the water”, experiences and interests of fish harvesters. Some participants conveyed this concept in a more positive tone, suggesting that organizations provide a flow of fundamental information that contributes directly to the decision-making process. However, some others recognize that the organizations while organizations do fulfill that purpose to a certain degree, the processes are overburdened with bureaucracy which limits the overall influence of the organizations in the governance process. Despite the varied perceptions, this form of representation is the channel through which harvesters can contribute localized, specific knowledge related to their fishing activity and the marine resources. In this case, the knowledge base of fisher actors has been utilized to support the adaptation of key management measures. These adaptations incorporated harvester feedback to reduce the barriers to fishing and enhance safety considerations.

The positive perceptions about the fisher-led initiatives, novel adaptations, indicates that fishing organizations recognize they have a responsibility to commit to finding progressive solutions to the problem at hand. The organizations that were directly involved in the testing of alternative gear emphasized that industry control in this process was crucial to ensure that the development and testing of gear takes practical considerations into mind. The sense of ownership and pride conveyed in this example demonstrates a sense of validation of the importance of the role of the organization in this case study. It is perceived as crucial that the individuals who are conducting the fishing should be involved in the development and deployment of gear for scientific testing, otherwise the work will likely not be practical once it is on the water. It was



interesting to note that despite the positive tone in which the gear testing was discussed, almost every representative acknowledged that the actual potential of this solution is very limited and that there remains significant controversy over the effectiveness of ropeless (or otherwise) whale safe gear.

### **Governance Process and Outcomes**

Participants generally agreed that the governance system does have existing channels for participation and communication, mostly through advisory committees and roundtables, and that these channels are accessible to fishing organizations. However, the overall effectiveness of these channels is limited due to the centralized decision-making that takes place at the higher levels of the bureaucratic structure. There were several comments made regarding the differences between regional and headquarters representatives for the Department of Fisheries and Oceans. Organization leaders generally perceive their local and regional DFO staff to be operating with the best interest of harvesters, and the resource, in mind. However, they despite their best intentions and efforts, the centralized decision-making in Ottawa limits the overall capacity in which the regional staff are able to influence or contribute to the final policy and management decisions.

One of the key components that determines the quality of representation and participation is the nature of the processes through which the problem is scoped, in terms of defining the causes, objectives and potential solutions. The nature and intent of the scoping phase determines the degree of participation that will be possible throughout the program. The analytical framework shows that in the lower ends of participation, the authority is solely responsible for defining the problem and they maintain full control over the analysis (Table 1). the informed and consulted categories, the authority has no legitimate obligation to account for the perspective or input from the user groups. Looking at the two higher levels of participation, involved and self-mobilized, user groups are generally able to actively participate in (or facilitate) the scoping of the problem and the potential solutions.

There is a general perception by all harvesters and organization leaders that despite the existing and new processes of engagement and consultation, the simple participation of

organizations does not necessarily contribute to enhanced governance outcomes. This perception is driven by a historical lack of integration of the needs and input from fish harvesters. Common rhetoric is that the final decision-making processes are driven by bureaucracy, where final decisions are made by the Minister without an adequate consideration of the input from regional officers. Looking to the involved and self-mobilized categories, fisheries representatives view the novel adaptations as a more effective means of contributing to the governance and response processes. Overall, there was a genuine expression of shared stewardship and a willingness to work together towards actionable solutions.

### **Partnerships and Allyships**

The fisheries organization leaders, as well as the Department of Fisheries representative, talked about the importance of the network of partnerships between fish harvester organizations throughout Atlantic Canada. In the involved category, the shallow water protocol and potential fall fishery (proposed), are both characterized by a high degree of partnerships. In both of these management response measures, fisheries organizations worked together to provide a singular, united voice to the governing authorities. This united voice enabled direct dialogue between the two groups and allowed for the industry groups to increase their capacity by cost-sharing. The partnerships are generally long-standing, and produce outcomes such as: letter writing, scientific gear testing, hiring of consultations, travel costs to meetings. In these cases, the collaborative nature of the participation provides a stronger, unified voice for fish harvesters. This contributed directly to the adaptation of the management measures to be more representative of the needs of the fishing communities (example: the shallow water protocol closure exemption allowed inshore lobster harvesters to continue their operations as usual).

Due to the heterogeneity of the fisheries involved (lobster versus Snow Crab), there remains a degree of controversy among the membership of fishing organizations, in terms of the appropriate or ideal way to respond to the NARW crisis. When organization leaders were asked how they approach situations of conflicting opinions of requests, the leaders explained that first and foremost a consensus based, and democratic based approach should always take priority. However, in some cases, the leadership must move forward with the best interest of the membership in mind, despite differing perspectives (to the best of their ability). This can

contribute to feelings of distrust or the potential erosion of trust of fisher members in their leadership. Ultimately, given the high-risk and urgent nature of this conflict, maximizing the utility of partnerships to find a unified voice has enabled multiple associations (and fleets) to work together to alleviate the conflicting views.

### **Political Influence**

The NARW crisis has drawn international attention and is subject to impacts of bilateral legislation from the United States (U.S. MMPA). Considering the migratory nature of the whale population, there is an inherent responsibility for the Canadian government to work collaboratively with the United States government, and other relevant actors, to identify a pathway forward. Canada's reaction to the Unusual Mortality Event was swift, and rather strict (Chisholm, 2018). There was a common perception expressed among the participants that the sweeping measures put in place by the Department of Fisheries and Ocean were primarily driven by the fear of repercussions from the United States government, due to the interconnectedness of the seafood market conditions and the political perceptions of a fishery. Further, interview participants suggested that the DFO was concerned with maintaining Canada's reputation under the watchful eye of the international and NGO stage. One interview participant stated that the DFO is making decisions based upon the external agenda of the United States, and not based on the true risk of the Atlantic Canadian fisheries. They suggested that the department is utilizing select and incomplete science advice to advance their political agenda. To contrast this perspective, the interviewed DFO representative described that DFO's decision-making is based upon principles of peer review (CSAS) and the precautionary approach (DFO, 2020a).

The negative sentiments of political influence here are based upon the extreme nature of the resulting management measures (i.e., the financial impacts of the fishery closures on coastal communities). Without an adequate program in place to identify and monitor the consequences, the Department is unaware of the extent of the burden to the industry. Within the Departments "Fisheries management decision-making" framework, the DFO has a mandate to include socio-economic considerations. Specifically, an "analysis of short and long-term impacts of fisheries decisions on the fishing industry and reliant communities" should be utilized to inform decision-making. When asked about this mandate, in 10/10 interviews, not a single participant was aware

of any efforts by the DFO (or other relevant body) to identify, monitor and evaluate the financial burdens faced by coastal communities in response to the NARW crisis. The DFO representative suggested that the provincial governments may be tracking the loss (or changes) to annual landings, however, the costs and burden of the NARW issue goes beyond the annual fluctuation of landings and demands a more extensive investigation of the consequences.

## **Uncertainty**

In 2017, at the onset of the crisis, there was unprecedented uncertainty over the cause and consequences of the ongoing Unusual Mortality event. An incident report from the fall of 2017 indicates that a total of 12 Right Whales were found dead in the Gulf of St. Lawrence that year. Of these twelve, only two were found to have been entangled in fishing gear (Ferguson, 2019). This high volume of mortalities triggered the onset of the resource crisis, which was initially characterized by a complete lack of information about the presence, distribution and habitat use of right whales in the GoSL (Ferguson, 2019). Despite a handful of historical sporadic sightings, there is a major knowledge gap related to the abundance and behaviour of NARW in the Gulf. In addition to the basic distribution knowledge, there remains a need to better understanding the fundamental and underlying reasons for the rapidly changing distribution of this species. With this in mind, the interview results contained a high volume of references towards the inherent uncertain nature of this resource conflict.

The initial uncertainty led to a period of “informed” response, where the Department of Fisheries and Oceans was focused on a) providing immediate protection from entanglement and b) conducting scientific research to understand why these whales are dying (Table 5, Table 6). The government representative provided an example of the depth of the uncertainty, stating that in the initial response, the DFO had to rule out whether there was an underlying catastrophic health or environmental issue what was causing the mortalities. The government representative acknowledged the uncertainty and explained that the objective for the Department is to “manage the highly complex situation in a way that gives us enough assurance that we’re adequately protecting the whales but not overburdening the industry with measures that aren’t effective”.

Given the lack of transparency over the bilateral negotiations and discussions, there is a significant sentiment of distrust and uncertainty about the potential management measures and thus burdens for the fishing industry. Despite the general incremental improvements, and a subtle tone of positivity, there remains significant concern about how the situation will evolve into the future. Fishing representatives have questions about what would take place if the whale population continues to grow and aggregate in large numbers, and how will the DFO approach any resulting changes to fishing strategies or opportunities? Considering this, it is important that the government makes a deliberate effort to share information and to provide a fair and representative voice to the Canadian fishing industry during bilateral negotiations and discussions.

5.2 Q2 In what ways do harvesters feel that their interests were represented by the organization during engagement with North Atlantic right whale decision-making process?

In chapter 2, it was theorized that fisheries organizations play an important role in the governance and general affairs of Atlantic fisheries. Earlier analysis identified the general attributes and characteristics of fishing organizations in Atlantic Canada, presented through the lens of “functions” and “values”. In order to respond to the second question, “In what ways do fish harvesters feel that their interests were represented by their organization during engagement with the NARW decision-making process?”, an analysis of the interview results identified which of the values and functions of fishing organizations were present in the context of the North Atlantic right whale crisis. The following table summarizes the perceptions related to the core values and functions of fishing organizations as governance actors in the North Atlantic right whale management crisis.

Table 7. A summary of the core values of Atlantic Canadian fishing organization as exemplified in the North Atlantic right whale management conflict.

	<b>Summary of the perceptions related to core values</b>
<b>Core Values</b>	
Strengthening Fisher Livelihood	<ul style="list-style-type: none"> <li>• Fundamental purpose of all efforts</li> <li>• Protecting fishers’ livelihoods</li> <li>• Mixed perceptions. Some view as influential while others see organizations as “damage control”.</li> </ul>
Resource Stewardship	<ul style="list-style-type: none"> <li>• Many recognize their role to be supporting the conservation efforts of the NARW, seeing themselves as the “key” that is central to putting the management measures in place.</li> <li>• Harvesters can be perceived as “whale killers” by the general public but they recognize that their efforts are crucial to the conservation efforts</li> </ul>
Future Generations	<ul style="list-style-type: none"> <li>• Not directly referenced</li> <li>• Long-term sustainability of industry influences future generations</li> </ul>
Safety at Sea	<ul style="list-style-type: none"> <li>• Fishing organizations supported the adaptative improvements of management measures to include safety provisions</li> <li>• DFO has mandate for safety</li> <li>• Ex: 48-hour weather window</li> </ul>
Unified Representation	<ul style="list-style-type: none"> <li>• Same as Strengthening Fisher Livelihood</li> <li>• Providing one unified voice generates increased political representation and value</li> </ul>

The value-based attributes of fishing organizations are a more general conceptualization of the impetus and purpose of the collective representation organizations. To a limited degree, this implies that the motivations and commitments of the fishery organization members are aligned with the central values of their organization. In the table above, it is shown that the most prominent, or directly referenced core values, were strengthening fisher livelihood, resource stewardship and safety at sea. Specifically, the core values of strengthening fisher livelihoods and unified representation captures the fundamental purpose of the work conducted by fishing organizations to represent the interests of their members. While some participants perceive the organizations to play a more influential role than others, there was a general agreement that the participation of organizations, at the very least, provides a degree of “damage control” for the industry at large.

Alongside the protection of livelihoods is the value of resource stewardship. This core value is the primary motivation of all actors, including industry. Fishing organization leaders acknowledge that the fishing communities have an inherent responsibility to protect the marine resource. This sense of stewardship has prompted select organizations to undertake activities that promote the protection of the North Atlantic right whale such as the scientific testing for alternative fishing gears or the proposal of an alternative fishing period (given proper scientific assessments and approvals). However, to contrast the sentiment of stewardship through action, some representatives view those novel adaptations as simply “damage control”. In this context, the efforts by fishing organizations are driven more by a desire to reduce the impact of the management measures rather than an inherent sense of responsibility to protect the resource. However, ultimately, it was clear that regardless of the motivation, fisher organizations do intend to contribute to the tangible efforts to protect the North Atlantic right whale. One representative noted that without input and direction from fisher organizations, the Department of Fisheries and Oceans is working “against the current” in terms of protecting the whales.

Safety at sea is a core value that was directly referenced by the majority of fisheries organization representatives, as well as the government representative. The Department of Fisheries and Oceans has a mandate to ensure that commercial vessels (and recreational boaters) can safely navigate our waters (Department of Fisheries and Oceans, 2021b). Considering this

mandate, it is crucial that the Minister and their associated decision-makers are fully informed about the potential safety risks (and solutions) with new management measures. The interviews described that for several of the management measures, fisheries organization leaders provided feedback with specific requests to improve the safety of their harvesters. In the Closed Area management measures, fisheries organization leaders advocated to amend the measures with a time-limit extension to from 24 to 48 hours. With this amendment, fish harvesters have a larger window of time to move their traps in the case of a fisheries closure. This factor enables harvesters to make safer choices regarding fatigue and weather quality. This role by fishing organizations contributes to the enhancement and adoption of safety culture for both the industry and the government representatives. In this example, the fishing organization provided crucial input that supported the Department in achieving their mandate of ensuring the safety of commercial vessels in our waters.

The core value that was directly referenced the least was future generations. Future generations relates to the efforts by industry organizations to protect and enhance the fishing industry so that generations to come will be able to access the same, or better, opportunities into the future. While this core value was not explicitly referenced, it is noted that the value is inherently linked to the general purpose of strengthening fisher livelihoods, described above. In this specific resource issue, the threat to fishers and their communities has both present and future consequences. Due to the dire nature of the North Atlantic right whale crisis, the efforts of organizations were focused primarily on the present-day threat and implications. These efforts are intended to protect the industry throughout the duration of this challenge, to ensure that Future Generations do not have to carry the burden of any significant long-term impacts.



Table 8. A summary of the core functions of Atlantic Canadian fishing organization as exemplified in the North Atlantic right whale management conflict.

Core Functions	Summary of the perceptions related to core values
Partnerships	<ul style="list-style-type: none"> <li>• Talked about it generally in the context of strategy to represent</li> <li>• Identified key partnerships (between associations, NGOs etc.)</li> <li>• Used for political motivations, also to complete projects and build capacity</li> </ul>
Information Sharing	<ul style="list-style-type: none"> <li>• Important especially in the early stages when announcements were being made without proper communication</li> <li>• View central role of providing harvester information/input to government</li> </ul>
Human Resources	<ul style="list-style-type: none"> <li>• Rarely mentioned</li> </ul>
Management Services	<ul style="list-style-type: none"> <li>• Rarely mentioned. Some administrative support.</li> </ul>
Market Access and Value Enhancement	<ul style="list-style-type: none"> <li>• Organizations focused on conveying a truthful narrative to maintain market access amidst whale entanglements.</li> <li>• The DFO viewed their role as the agency responsible for maintaining market access via the conditions of the USMMPA.</li> </ul>
Product to Market	<ul style="list-style-type: none"> <li>• Similar to the above.</li> </ul>
Employment	<ul style="list-style-type: none"> <li>• Not specifically referenced but is related to long term viability of the industry.</li> </ul>

The analysis in chapter two identified seven key functions that are carried out by various fishing organizations in Atlantic Canada. Of these seven, there were four that were directly referenced or discussed by interview participants: information sharing, partnerships, market access and value enhancement and product to market. The three that were not exhibited in this case study were human resources, management services and employment. The most prominent functions were described by all interview participants, including the government representatives, were partnerships, information sharing and market access and value enhancement. The core functions which were less explicitly identified were human resource, management services and employment. This section provides a further analysis of the core values and functions embodied in the NARW case.

As described above, the core function of forming partnerships was a valuable strategy employed by all organizations in this case. The use of partnerships enables the maximization of resources, provides a strengthened and unified voice for decision-makers, and generally improves the capacity of individual organizations by amplifying the resources and voices. Beyond the intersectoral partnerships (i.e., between fishing organizations, a number of organizations also identified the importance of partnerships with other actors such as Environmental Non-Governmental Organizations, research consultants and provincial government departments. The existence of partnerships and networks promotes good resource governance where trust and accountability are shared among user groups. In the NARW case, a partnership between the fishing organization the Canadian Wildlife Federation has ensured that the scientific protocols and analysis of alternative fishing gear is conducted by a third party (other than the industry or federal government).

Information sharing is a fundamental function for all of the stakeholders involved in this resource use conflict, including both industry organizations and government representatives. This function involves the sharing of up-to-date information along every relevant channel, such as the state of the resource, the outcomes of negotiations, the perspectives of fish harvester communities and more. For the leaders of fisheries organizations, it was made clear that there is an expectation that leaders are providing their members with all relevant information regarding the NARW management response. Similarly, the leaders and government representatives

described the fishing organizations as the primary source for “on the water” information that can be used to develop or improve management measures and compliance. One interview participant highlighted the important function of information sharing during the initial onset of the crisis, as the Minister was making expedited decisions with little to no communication with the industry. At this stage, it was incredibly important for the organization leaderships to generate dialogue and provide fisher input to the governance actors.

The two functions of market access and value enhancement, and product to market, will be discussed as similar functions here. The product to market function was differentiated in chapter 2 in order to describe the unique role that fisher owned cooperatives play in the marketplace. In a governance context, cooperatives generally operate under the same principles as the general representation organizations. This function was highlighted in the discussion surrounding the work done by the Lobster Council of Canada to develop educational and promotional materials that conveyed a positive and accurate representation of Canada's response to the NARW incidents. This organization is an umbrella organization, so the membership is composed of a number of local general representation organizations (as well as some shore-based commercial businesses). The collaborative nature of these efforts was made possible by the cooperation of a large number of industry organizations, in which a large number of voices were able to develop a unified message. The primary target audience of these information packages was consumer and market-oriented actors. In this sense, the LCC and its many members, contributed a direct function of maintaining market access and value enhancement.

The core functions were less explicitly identified relative to the core values. There were three core functions: human resources, management services and employment, that were not directly discussed in any of the interviews. This does not indicate that the organizations are not actually carrying out these functions, but rather that they may not be relevant in these specific initiatives. For example, human resources refer to the long-term professionalization goals of the fishing industry, which is not related to the immediate response to protect the NARW population. While in a sense, efforts to restore and protect the reputation of the fishing industry does contribute to professionalism in general, this is not the intent or focus of the fisheries organization leaders' efforts. Similarly, employment is a function that was linked to commercial

organizations such as cooperatives or shore-based producers. This expression of this function is comparable to the future generations value described above. The fishing organizations do intent to maintain regular market activities, and thus support regular rates of employment and livelihood provisions. However, the employment rate is not a direct intention or objective of organizations who are responding to the NARW challenge.

## Chapter 6 Discussion

Fish harvesters, organization leaders and government representatives provided in-depth and nuanced descriptions of their experiences. The analytical framework provided a systematic mechanism to evaluate, compare and contrast the perceptions of fish harvester representation and involvement in the NARW management case. The results above demonstrate how perceptions of distrust, communication and historical context can fundamentally alter the interpretation and acceptance of a management or policy response. The combined effect of these factors ultimately determines the interpretation of the equity and conservation effectiveness of the management measures (Marshall, 2007). Research in the field of policy and social resilience has shown that a negative policy perception was found to significantly and adversely affect the behaviour and emotional response of commercial fishers (Marshall, 2007). In the context of the North Atlantic right whale response, commercial fishers faced reduced access and barriers to operation that weakened their community level resilience (Marshall, 2007). Although there was a marked evolution in the quality of involvement throughout the course of the conflict, it can be said that fish harvesters were generally not satisfied with all of the resulting management measures. Chapter 5 showed that some management measures were viewed more favourably than others, but that the regulatory measures were generally characterized by a one-way flow of information, no sharing of power, and a general lack of involvement. In order to synthesize the key ideas, the main results will be discussed in the context of barriers and opportunities to improve the governance of Atlantic Canadian fisheries.

### 6.1 Barriers to improve participatory governance

The barriers to governance generally arose out of repeated negative comments about a topic or theme, or through the identification of trends or underlying concepts. Barriers may also relate more generally to the context, historic or present, of the socioecological system. The high risk and urgent nature of the NARW conflict is perhaps the greatest barrier to improve the participatory governance. This case is high-risk due to the immense vulnerability of the critically endangered whales, and there is high profile attention on the governing authority to respond. Due to the protected status of the whale, and the authority's guiding principle of the precautionary approach, it is clear that the survival of the whales is the most important priority in this issue.

Undertaking effective stakeholder engagement requires a significant commitment of time and resources, which were not necessarily possible in the first few years of the NARW conflict.

Another common and pervasive negative notion conveyed by the fishing organizations was that the Department of Fisheries and Oceans decisions were driven primarily by political pressure from the United States Marine Mammal Protection Act. The governance process, specifically the centralized decision-making in Ottawa, appears to be far-removed from the realities and input of regional department staff and fishing organization industry leaders. The high-profile and high-risk nature of this conflict has driven a dichotomization of the issue, presenting fish harvesters as antagonists who do not care for the protection of whales. Although it is false, this notion has driven the narrative as perceived by the public. Harvesters believe that DFO has allowed the pressure from the US MMPA to influence their agenda and decision-making processes.

Participants described a history of poor engagement by the Department of Fisheries and Oceans, which has generated a deep-rooted and engrained perspective that the involvement of industry only contributes to the governance of fisheries at a superficial level. This history is the result of years of decisions and management that was misinformed or unanticipated by the industry, generally coming from high-level decision-making in Ottawa. Many harvesters commented specifically on the process of the final decisions being made by the Minister, with no mandate to incorporate the input from regional staff or industry representatives. In contrast to these negative perceptions, there was an obvious positive perception towards the industry relations with local and regional DFO staff and representatives. The fishing representatives generally feel that the local representatives are informed and understanding of the issues faced by harvesters but recognize that these individuals have a limited role in the decision-making process as well.

## 6.2 Opportunities to improve participatory governance

The opportunities to improve the governance approach were generally informed by evaluating the optimistic or positive comments made by interview participants, as well as identifying areas of progress or evolution throughout this governance process. Evaluating the shortcomings of a program or initiative can provide important lessons for improvement, but it is also important to identify and amplify what elements currently are working, leading you towards a pathway to improve in other areas. The interviews described a concise and clear timeline of events which started out in a crisis mode and has gradually evolved to a ‘business as usual’ operation regarding the NARW crisis. In 2017 and 2018, there was a significant amount of anxiety and uncertainty related to the ongoing Unusual Mortality Event. Over the following 3 years, the government, fishing industry stakeholders, and other interested stakeholders, worked together to develop and refine the management measures. While the participation of fishing industry stakeholders was not always perceived as effective or adequate, there was a sense of positivity regarding of the iterative development of processes of engagement. These processes include the use of dedicated working groups and roundtables with fishing representatives. These working groups are now engrained in the management cycle of the major fisheries for Snow Crab and lobster.

The values and functions described above demonstrate a dedicated willingness of both fishing organizations and government departments to work together to respond to the ongoing NARW crisis. Specifically, the resource stewardship and protecting fisher livelihoods provide the direction for fisheries organizations to contribute in whatever way possible. The governing authority, DFO, also acknowledged that the input and participation of fishing organizations is fundamental to the development and improvement of the response mitigation measures. This research shows that when fishing organizations are at the helm, or otherwise meaningfully involved, in the conceptualization and development of management response, they are more likely to have a positive perception of the outcomes. This positive perception is driven by a sense of satisfaction over their involvement in the decision-making process related to their livelihoods. This was extremely evident in the shallow water protocol and the alternative gear testing initiatives. In the regulatory management response measures, fishing leaders and their harvester members perceive the role of the organization here as more of “damage control”, an essential

component to creating a more workable solution or response. The government representative explained that without input from fisher organization, the DFO would not be able to protect the whales as effectively, nor would they have been aware of the burdens faced by the industry in response to the management measures. Resilience research indicates that when fishers are meaningfully involved in the decision-making process, they are more likely to have a positive perception of the outcomes and are able to maintain greater social resilience (Marshall, 2007).



Chapter 7 Conclusions and Recommendations

The analytical framework provided a systematic mechanism to evaluate, compare and contrast the perceptions of fish harvester representation and involvement in the NARW management case. The results, and the following recommendations, are inherently linked to the NARW management issue, however, the general lessons and outcomes can potentially transcend to provide a greater understanding for other dynamic fisheries management issues. It would be worthwhile for the Department of Fisheries and Oceans, as well as the fishing industry, to undertake a formal review of the NARW management response in order to incorporate a double-loop learning approach (Williams & Brown, 2018). Double-loop learning refers to a form of adaptive management where there is a natural evolution and improvement of the resource system through an improved understanding of the perspectives, stakeholder priorities, and the consequences of ongoing management and more (Williams & Brown, 2018). Put simply, double-loop learning allows for managers to integrate the lessons learned, working towards a more effective governance system.

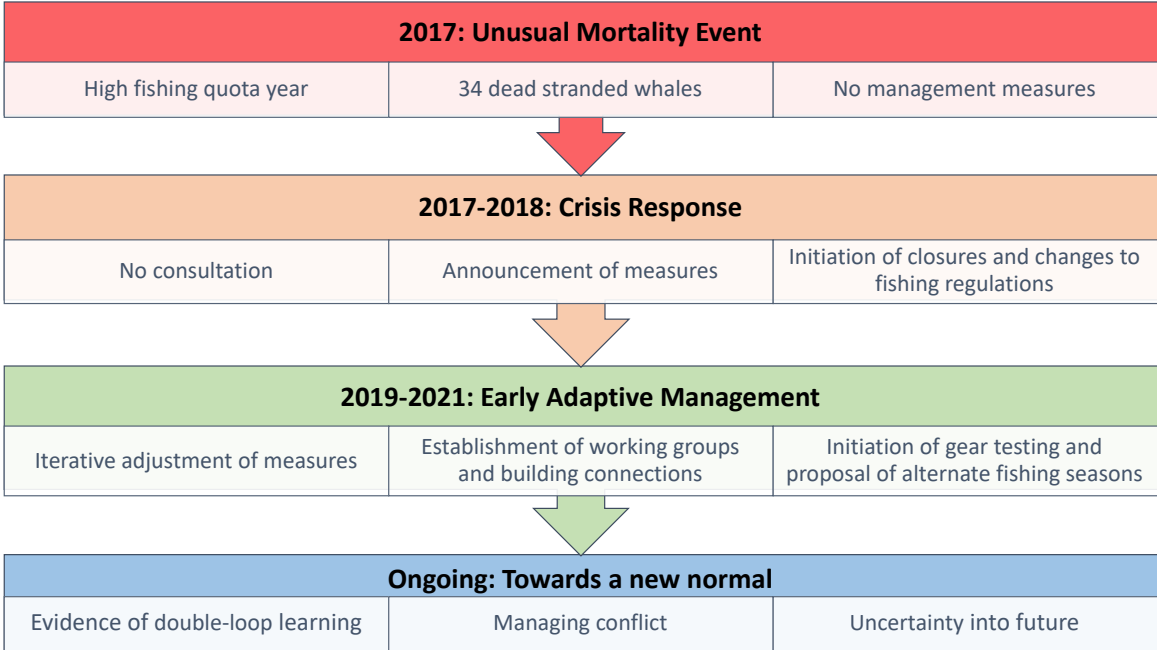


Figure 4. Full synthesis of key timeline and context including the current status and priorities moving into the future.

Fish harvesters, organization leaders and government representatives provided in-depth and nuanced descriptions of their experiences. The results above demonstrate how perceptions of distrust, communication and historical context can fundamentally alter the interpretation and acceptance of a management or policy response. While there was a degree of diversity among the tone of the perceptions regarding the quality and effectiveness of fish harvester representation, the results have generated three key insights. These three insights are the high-level takeaways and are each supplemented with two specific management recommendations. These recommendations intend to highlight the priorities, main challenges and opportunities that were identified throughout this report.

1. There is an evident role and function for fisheries organizations in the governance of Atlantic Canadian fisheries

Without fish harvester involvement and input in this process, it is likely that the management measures would have had much more excessive and burdensome consequences. These consequences include threats to the safety and well-being of fish harvesters. Thus, the results show that there is a clear and established role for the organizations to participate in the governance of fisheries. However, despite the importance of fisher involvement, it was shown that the existing pathways for representation and communication can be ineffective and encumbered with unnecessary bureaucracy. In order to address the barriers to participation, the following recommendations are made:

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**Recommendation A: Reduce barriers to industry-led initiatives**

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- The novel adaptations (gear testing etc.) were viewed in a positive and progressive light by all participants. This suggests that there is a degree of commitment, satisfaction and accomplishment for organizations that are involved in the leadership of management response initiatives.
- It is recommended that the DFO and industry work together to identify mechanisms to reduce the barriers to industry-led initiatives in future resource crises.

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**Recommendation B: Support the development of a communications team**

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- Canadian fisheries have thrived off a historical reputation for sustainable, healthy, abundant seafood production for years. This case demonstrates how important the consumer perception of the industry is.
  - The Lobster Council of Canadas communication tools demonstrated the value and importance of incorporating a unified voice to represent the industry in the marketplace and in Ottawa.
  - In the future, stakeholders should establish a communications team or protocol to ensure that the narrative being told is representative of the reality. This can potentially limit the sensationalism of issues.
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2. There is an underlying negative perception regarding the trustworthiness of the Canadian federal regulators. Fishing communities generally feel disenfranchised and overburdened.

The fishing industry expressed a degree of concern and distrust regarding the process of bilateral negotiations and discussions between DFO and the U.S. NOAA (responsible for the implementation of the U.S. MMPA). The lack of transparency, and absence of industry involvement, has resulted in fishers feeling that their livelihoods are threatened. Interview participants also described a history of poor engagement by the Department, which contributes to a deep-rooted and engrained perception that the involvement of industry takes place at a superficial level. In order to begin reconciling these negative perceptions, the following recommendations are made:

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**Recommendation C: Increase the transparency of bilateral negotiations and influence**

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- The appropriate level of transparency and disclosure will vary by case, however, considering the NARW issue, it is recommended that the DFO take specific steps to improve the protocols surrounding information sharing and communication of bilateral discussions.
- There is currently no opportunity for fishers to participate or provide input to the bilateral negotiations (outside of roundtable meetings). This gap could be alleviated through the inclusion of an industry liaison representative, or some other neutral body, who can act as an intermediary between the fishing industry and bilateral discussions. This individual could provide a two-way flow of information from the governing authorities to the industry, and vice versa.

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**B. Recommendation D: Harmonize interregional communication and decision-making processes**

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- The perceptions of the quality of engagement and representation varied significantly when participants were discussing their local representatives versus the high-level federal representatives.
  - It is recommended that the DFO works to improve the coordination and inclusion of advice from regional offices to the central decision-making bodies in Ottawa.
  - The regional offices generally maintain extensive localized knowledge and have long-standing relations with their local fishing fleets. This knowledge, and these relationships, should be better integrated into the overall governance process.
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3. The North Atlantic right whale unusual mortality event unveiled both barriers and opportunities to improve the governance of Atlantic Canadian fisheries. A comprehensive reflexive assessment of the management response can provide direction for future marine resource use conflicts.

A common thread for each interview respondent was that the NARW experience had gradually evolved from a state of crisis to a sort of “business as usual” state. While the current state is still characterized with concern and uncertainty, there are now formal advisory committees,

management review cycles and a number of ongoing response initiatives. It is recommended that the DFO and the industry groups work together to conduct a reflexive assessment of the management response to identify key lessons and priorities to improve the general governance of resource conflicts. The following recommendations can serve as starting points to active double-loop learning and adaptative management into the future:

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**Recommendation E: Establish a response model for future conflicts and crises**

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- The GoSL is undergoing dynamic change in its ecosystem health and human uses. It is anticipated that climate change impacts will lead to disruptions in our use of marine resources (Reword this).
- Each new conflict will demand a unique and specific response strategy, however, the NARW case can provide a suitable example of the key processes, stakeholders, challenges and opportunities.
- By establishing a response model (or set of guidelines), the DFO can begin to streamline their response times. This may alleviate some of the strain of the conflict on the socioecological systems, and thus the well-being of coastal communities.

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**Recommendation F: Commit to a systematic program to monitor socioeconomic impacts**

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- The DFO is currently not meeting its mandate to incorporate the assessment of short and long-term socioeconomic impacts into its decision-making framework.
  - Current attempts to address the socioeconomic impacts are superficial and not linked to any objectives.
  - The DFO should work with the industry to develop baseline indicators to monitor the economic well-being of fishers, at both the individual and fleet scale.
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## Appendix A: Methodology - Analysis of Organization Mission Statements

The analysis of fishing organization mission statements was conducted using a web-based search and thematic-content analysis using NVivo 12 qualitative data analysis software. The objective of this analysis was to explore the self-identified attributes and characteristics of fishing organizations throughout Atlantic Canada and Quebec, inferred through the mission statements of organizations.

An extensive web-based search was conducted to identify organization websites, Facebook pages, or other online repositories of fishing organization information. The search was restricted to organizations which primarily represent commercial fish harvesters in Atlantic Canada and Quebec, focusing specifically on the harvesting sector. The objective of this research is to identify the role and characteristics of fish harvesting organizations in collective representation, thus justifying the exclusion of organizations which represent exclusively shore-based actors along the rest of the supply chain. In the case of Nova Scotia, a list of accredited organizations under the Fish Harvester Organization Support Act was used to identify NS based organizations. Additional organizations were identified by checking the member lists of umbrella organizations, of which the membership is made up of other organizations rather than individual harvesters. A French-speaking colleague assisted in the search, identification and translation of information for organizations whose online materials are in French. The following key search terms, using multiple variations and combinations, were used to identify organization websites:

- Nova Scotia, New Brunswick, Prince Edward Island, Newfoundland, Quebec
- Fishermen's, Fish Harvester, Fleet
- Association, Organization, Cooperation, Union, Council

The web-search generated mixed results, with some organizations having an extensive and detailed web presence while some others were much more limited in their presence. The following attributes, where available, were documented in an Excel spreadsheet: organization name, organization type, location, species represented, and mission statement. In some cases, a

mission statement was not clearly stated, but it was possible to gather information that served the same function under titles such as “about us”, “what we do”, or “our priorities” for example. This information was then compiled into an Excel spreadsheet.

The organization names and mission statements were then imported into NVivo 12 for thematic-content analysis. The mission statements were coded inductively to identify emerging themes and concepts without a pre-existing coding structure or guide. Each mission statement was read, and line-by-line coding initially identified 15 themes. Themes were generated by linking the direct text to a generalized interpretation based on repeated and dominant themes across organizations. Following initial coding, the codes were then re-read and summarized into 12 main themes: strengthening fisher livelihood, resource stewardship, future generations, safety at sea, unified representation, partnerships, information sharing, human resource development, management services, product to market, market access & value enhancement, and employment. Once the 12 themes were finalized, the mission statements were then re-read once more to ensure that there was nothing missed or mis-represented.