Nunavut Fisheries Co-Management and the Role of the Nunavut Land Claims Agreement in Fisheries Management and Decision Making.

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Abstract/Summary

The decision-making processes governing the harvesting and allocation of fisheries resources in Canada takes place within the Federal Department of Fisheries and Oceans (DFO) using western science-based knowledge systems and operating under three key pieces of legislation, the *Oceans*, *Fisheries* and *Species at Risk Acts*. This paper examines the structure of fisheries governance in Canada with a specific focus on Nunavut and the co-management framework, created through the *Nunavut Land Claims Agreement* (NLCA). Given the diversity of resources and fishing practices within the Nunavut Settlement Area (NSA), and adjacent waters, this research explores the different major fisheries, the regulating bodies, guiding policies and frameworks for decision-making influencing the fisheries in Nunavut. It discusses how the NLCA directs the co-management framework within the NSA (12 miles limit of Canada's Territorial Sea boundary), and how fisheries management and decision making takes place outside of that boundary. The challenges arising from this form of governance structure for fisheries in Nunavut are highlighted as well as opportunities leading to more effective decision-making, taking into account the use of both Inuit and western knowledge systems in the management of the Territory's fisheries resources.

Acronyms

Assistant Deputy Minister (ADM)

Basic Needs Level (BNL)

Department of Fisheries and Oceans (DFO)

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

Ekaluktutiak Hunters and Trappers Organization (EHTO)

Government of Nunavut (GN)

Hunters and Trappers Organization (HTO, alternately referred to as HT Association)

Indigenous Knowledge Systems (IKS)

Integrated Fisheries Management Plan (IFMP)

Inuit Qaujimajatuqangit (IQ)

Members of the Legislative Assembly (MLAs)

Newfoundland and Labrador (NL)

Non-detriment finding (NDF)

Northwest Atlantic Fisheries Organization (NAFO)

Northwest Territories (NWT)

Nunavut Land Claims Agreement (NLCA)

Nunavut Settlement Area (NSA)

Nunavut Tunngavik Incorporated (NTI)

Nunavut Wildlife Management Board (NWMB)

Total Allowable Catch (TAC)

Total Allowable Harvest (TAH)

Tunngavik Federation of Nunavut (TFN)

Regional Advisory Process (RAP)

Regional Director General (RDG)

Regional Wildlife Organizations (RWO)

Western Knowledge Systems (WKS)

INTRODUCTION

The Inuit's history of harvesting from the Arctic's rich aquatic environment pre-dates contact with Europeans. While the diet and lifestyle of contemporary Inuit is changing with increased access to food from the south, locally harvested traditional food, mainly proteins, continue to be an important part of their diet, cultural identity, and livelihoods (Condon et al. 1995, Sharma et al. 2010).

Nunavut, with a population of over 80% Inuit, means "our land" in the Inuit language of Inuktitut (NTI 1993a) and is one of three Territories in Canada. The ten Canadian Provinces derive their power and authority from the *Constitution Act* (*1867/1982*) with each Province considered a co-sovereign division with a Lieutenant Governor (also known as 'the Crown") and a sovereign entity by the Federal Government. The constitutional difference with territories is that they are delegated powers from the Federal Government and have a commissioner rather than a Lt. Governor. While the Territories have historically been governed by federal officials, over time legislative assemblies and some powers have been transferred or devolved to the Territories allowing them to be "Province-like" (Dubreuil 2011) with financial support through health and social funding (Mayer 2007). The Government of Nunavut (GN) is a public government with no political parties at the territorial level. All residents are eligible to run for office and if elected to the 22 seat (in 2013) legislative assembly, the Members of the Legislative Assembly (MLAs) meet to select the Premier as well as the Cabinet (Mayer 2007). Unlike Canada's other two Territories, the Yukon and Northwest Territories (NWT), Nunavut has yet to reach a devolution agreement with the Government of Canada to receive Province-like powers over its natural resources.

With the discovery of oil and gas reserves in the Canadian Arctic (1960-70), Inuit brought forward land claims against the Canadian government in order to establish their birthright to the land in addition to securing shares of potential revenues. These land claims negotiations took place on behalf of the Inuit of Canada by the *Inuit Tapiriit Kanatami* with the Government of Canada in the late 1970s. The *Northwest Territories division plebiscite* in 1982 where the majority (56.5%) of the voters were in favour of dividing the NWT, initiated the creation of Nunavut (Abele and Dickerson 1985). The Tunngavik Federation of Nunavut (TFN, 1982-1993), later becoming Nunavut Tunngavik Incorporated (NTI) with the implementation of the *Nunavut*

Land Claims Agreement (NLCA) in 1993, negotiated the NLCA (NTI 1993b). The NLCA was the foundation for the *Nunavut Act* (1993) thus creating the territory, and the Government of Nunavut in 1999.

Prior to 1993, the Nunavut Settlement Area (NSA) comprising the whole of Nunavut (Figure 1) was part of the NWT and the fishery and harvests were managed under the same Federal Department of Fisheries and Oceans (DFO) regulations.

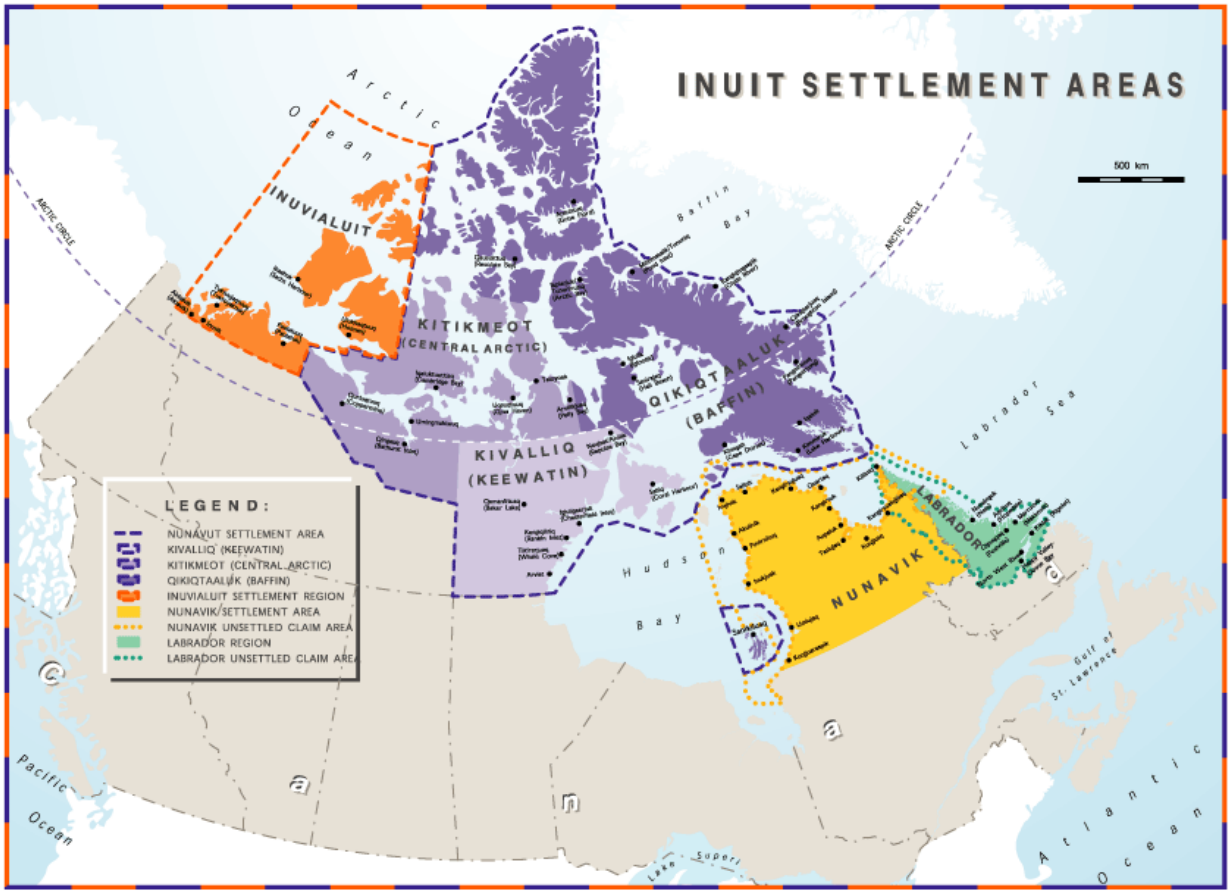

Figure 1: Map showing Nunavut Settlement Area within Canada
(See http://www.makivik.org/nunavik-maps/)

The NLCA established Institutions of Public Government called co-management boards and the board charged with marine life is the Nunavut Wildlife Management Board (NWMB, S. 5.2.1 of the NLCA). The NWMB is the main instrument of wildlife management in the NSA (S. 3.2.33 NLCA), including extensive marine areas adjacent to Nunavut (S. 3.2.1 NLCA) and is mandated

to use the best western science and Inuit Qaujimajatuqangit (IQ, the traditional knowledge of the Inuit) knowledge systems, in making management decisions. Presently the NWMB and DFO make fisheries management decisions in the absence of fisheries regulations specific to Nunavut. The territory's fisheries continue to be managed under the previous NWT regulations, and occasionally those from Newfoundland and Labrador (NL, DFO pers comm., GN pers comm., DFO 2014b). In addition to the Northwest Territories Fisheries Regulations, the other regulations include the Atlantic Fishery Regulations and other laws of general application (e.g. Fisheries Act, Fishery (General) Regulation, and Marine Mammal Regulations). In general, the Northwest Territories Fisheries Regulations apply to inland and freshwater fisheries and the Atlantic Fishery Regulations generally apply to marine fisheries. While there is a co-management framework in place, the Minister of Fisheries and Oceans still maintains the final decision-making authority for marine species.

Aim of paper

Given Nunavut's unique situation within Canada, and the work by NTI to ensure that Inuit rights to fisheries resources were included in the NLCA, this paper examines the major fisheries in Nunavut, the regulating bodies, guiding policies and frameworks for decision-making affecting the fisheries in Nunavut. Specifically, it examines how the NLCA creates the co-management framework and how it guides decision making within the Territory, in addition to exploring the fisheries management of the offshore fisheries outside of, but adjacent to, the NSA. Wherever possible, relevant knowledge systems are highlighted.

KNOWLEDGE SYSTEMS IN PLACE

A knowledge system is, in essence, the process by which knowledge is acquired, valued, controlled, and shared. Acknowledging that knowledge is embedded within socio-cultural contexts and worldviews, it includes networks of actors involved in processes, such as (1) construction, (2) verification, (3) organization, (4) storage and retrieval, (5) transmission, and (6) application (Holzner & Marx 1979, Pentland 1995, Varghese & Crawford in progress). Although different types of knowledge systems, such as Indigenous Knowledge Systems (IKS) and Western Knowledge Systems (WKS) include each of the above processes, how the processes occur within each knowledge system can differ (Varghese & Crawford in progress). For example, the origin or acquisition of knowledge differs between the two knowledge systems and hence the

process of construction differs. Within IKS, knowledge is derived from experience (Agrawal 1995), whereas within WKS, knowledge is possessed and/or accumulated (Sutherland & Dennick 2002).

Inuit Indigenous Knowledge System(s)

The traditional knowledge of the Inuit is named *Inuit Qaujimajatuqangit* (IQ Task Force 2002, Wenzel 2004, Tester & Irniq 2008) and the context underpinning what, how and why it is generated is an example of an Indigenous Knowledge System (IKS). IQ is defined as, "The Inuit way of doing things: the past, present and future knowledge, experience and values of Inuit Society" (IQ Task Force 2002). It has been described as seamless, rather than holistic, and therefore without distinguishable parts, a concept captured by the Inuktitut word *avaluqanngittuq* 'that which has no circle or border around it' (Tester & Irniq 2008). IQ is however governed by six principles (IQ Task Force 2002), "(1) *Pijitsirnjiq*: The concept of serving (a purpose or community) and providing for (family and/or community), (2) *Aajiiqatigiingni*: The Inuit way of decision-making. The term refers to comparing views or taking counsel, (3) *Pilnimmaksarniq*: The passing on of knowledge and skills through observation, doing and practice, (4) *Piliriqatigiingniq*: The concept of collaborative working relationships or working together for a common purpose, (5)*Avatittinnik Kamattiarniq*: The concept of environmental stewardship, and (6) *Qanuqtuurniq*: The concept of being resourceful to solve problems."

Western Knowledge System(s)

Within DFO, the Western Knowledge System (WKS) that influences decision making is primarily science-based, where the process is a systematic method to test questions from observations and designed to reduce bias (Hurlbert 1984). There are five key-components to an experimental approach, (1) hypothesis, (2) design, (3) execution, (4) analysis, and (5) interpretation (Hurlbert 1984). This approach is most commonly presented in stock assessment and research documents upon which policies, frameworks, and management decisions are expected to be based (Figure 2).

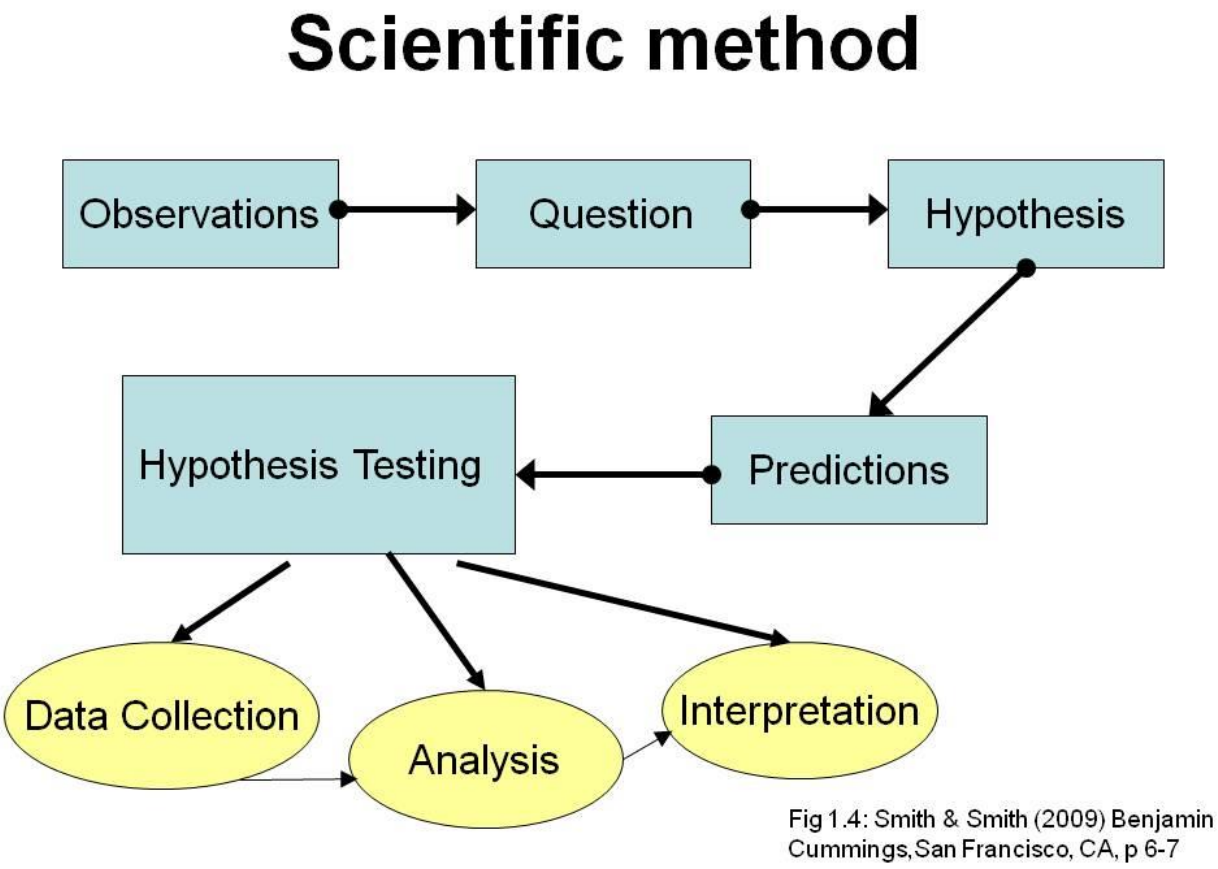

Figure 2: Scientific method, adapted *from* Smith and Smith 2009.

FISHERIES

The fisheries landscape of Nunavut is diverse. There are several different fishery types; traditional food (subsistence), commercial, recreational, and offshore non-traditional commercial. As mentioned above, these fisheries are managed in the absence of Nunavut-specific DFO fisheries regulations. Non-traditional commercial fisheries in the offshore areas of the Territory are relatively new, with turbot, or Greenland halibut (*Reinhardtius hippoglossoides*), and shrimp (*Pandalus borealis* and *P. montagui*) fisheries occurring since the 1980s (DFO 2006, Ernst and Young 2012). With respect to inshore and freshwater commercial fisheries, Arctic char (*Salvelinus alpinus*) and turbot are the landed species (Day and Harris 2013, DFO 2006). In the recreational fishery Arctic char and lake trout (*S. namaycush*) are the

most important species (Lynch 2012). On the whole, fisheries data for Nunavut are not readily available, particularly the personal use, or subsistence, fisheries. However, lack of data does not indicate unimportance as evidenced by trout, Arctic char, bearded seal, muktuk (the skin and blubber of a whale), and polar bear[1] being recently reported as key traditional foods in Nunavut (Sharma et al. 2009). This lack of reporting is a challenge to fisheries managers charged with setting quotas and evaluating stock sizes. Basic Needs Levels (BNLs), are defined in the *NLCA* as the "level of harvesting by Inuit" and "the first demand on the total allowable harvest. However, there is presently discussion around what types of harvest (subsistence and/or commercial) should be included in BNL (NTI 2010).

Current process for fisheries decision-making

Fisheries management in Canada is hierarchical under the Federal Government, with the Department of Fisheries and Oceans operating as the regulating body. Traditionally using western science-based knowledge systems, DFO's authority for seacoast and inland fisheries comes from the *Constitution Act* (S91(12)) and is made operational under five key pieces of legislation - the *Oceans Act*, *Fisheries Act*, *Species at Risk Act, Coastal Fisheries Protection Act,* and the *Canadian Shipping Act, 2001*. Additionally, the Crown (Federal Government) has a legal duty to consult and accommodate Aboriginal and treaty rights (*Constitution Act, 1982*, S35). The *Fisheries Act* allocates fisheries into types, namely recreational (sport), commercial (for sale), or Aboriginal (food, social, and ceremonial), and these allocations are not necessarily interpreted to be in line with the *NLCA* or the Inuit approaches to harvesting. In addition to not expressly including commercial fisheries in the BNL, generally speaking, sport fishing is not a key activity of the Inuit, with subsistence fishing being most common.

With the unique situation within Canada of Nunavut's population being an Indigenous majority, there is some disconnect between the federal *Fisheries Act* and regulations and the fisheries management realities in Nunavut (Kristofferson and Berkes 2005, NTI 2010). An example of this disconnect is illustrated in Table 1 for Arctic char.

[1] In Canada, although the polar bear is a marine mammal, it is not managed by DFO. For the Canadian government, the responsibility rests with Environment Canada as it is designated as a terrestrial species and in Nunavut, with the Government of Nunavut.

Table 1. Distinguishing characteristics of Inuit traditional management practice for Arctic char vs western (conventional) scientific management practice (adapted from Kristofferson and Berkes 2005)

Inuit traditional management practice	Western management practice
Local knowledge of fish biology, e.g. spawning areas and migration times	Universal knowledge of char biology applied locally
Diachronic information (historical, changes over time)	Synchronic data (fixed point in time, present conditions)
Qualitative observations related to management decision-making such as monitoring CPUE, strength of runs, fat content of fish.	Quantitative data on population size by use of counting weir, age-specific growth rates, spawning sizes and frequencies, tagging
Indirect management by rotating fishing areas and spreading out fishing effort in space and time	Management by annual harvest quotas on assumed discrete stocks
Social enforcement of accepted, proper Inuit practice	Tools: quotas, gillnet mesh sizes, closed seasons
Sharing by social agreement and convention	Allocation decisions made by distant authorities
Enforcement by social mechanisms and, under the 1993 NLCA, through co-management mechanisms	Enforcement by the laws of the land, Federal Government fishery-related acts and regulations.

There is recognition from the Canadian Government and Inuit that, "there is a need for an effective role for Inuit in all aspects of wildlife management" (NLCA S. 5.1.5). There are also international agreements between Canada and Greenland which influence harvesting in Nunavut. The Canada-Greenland Joint Commission on Beluga and Narwhal was established to manage the shared stocks and meets every two years (DFO 2012a). However, there is presently no international forum for managing bowhead whale or walrus between the two countries. Similarly, the turbot quota for Canada is shared with Greenland (DFO 2006).

There are six regions managed by DFO[2], each headed by a Regional Director General (RDG), and each region's programs are designed around six national sectors. The national sectors are: (1) Ecosystems and Fisheries Management, (2) Transformation, (3) Human Resources and Corporate Services, (4) Strategic Policy, (5) Program Policy, and (6) Ecosystems and Oceans Science. Each of these National Sectors are headed by an Assistant Deputy Minister (ADM) who designs programs with the regions with the goal of cohesive regional policy tailored to operational realities (e.g. geography, socioeconomics, biology, etc.) (Cohen 2012). Aboriginal Programs and

[2] The six regions are the Pacific Region (responsible for British Columbia and the Yukon), Central and Arctic Region (responsible for Alberta, Saskatchewan, Manitoba, Ontario, Northwest Territories and Nunavut), Quebec Region (responsible for Quebec), Gulf Region (responsible for Prince Edward Island, Northern New Brunswick and Northwestern Nova Scotia on the Gulf of St. Lawrence), Maritimes Region (responsible for southern New Brunswick and eastern part of Nova Scotia on the Atlantic Ocean) and Newfoundland and Labrador Region (responsible for Newfoundland and Labrador). See http://www.dfo-mpo.gc.ca/regions/index-eng.htm

Governance are found in the Ecosystems and Fisheries Management Sector, and Fisheries and Aboriginal Policy are under Program Policy (Cohen 2012). Implementation of policy and programs from the Minister, based on advice from the Deputy Minister, is the responsibility of the region's RDGs. The RDGs deliver programs and activities according to the national and regional priorities within the assigned resources from the Departmental Management Committee in Ottawa, which are delivered from Parliament (Cohen 2012).

Nunavut fisheries are managed by DFO's Central and Arctic Region based in Winnipeg, Manitoba, though the Regional Director General is in Sarnia, Ontario. The role of the RDG is to coordinate the delivery of their specific programs within the region. There is presently one area office for the Territory in Iqaluit. The Nunavut offices report to the Northern Director of Operations responsible for both the Northwest Territories and Nunavut. Additionally, within DFO's headquarters in Ottawa there are two resource management officers for Nunavut.

DFO has several policies and frameworks in place to support the management of the fisheries which are applied to Nunavut. Specifically, *An Integrated Aboriginal Policy Framework* (DFO 2007) aims to support, "healthy and prosperous Aboriginal communities through: building and supporting strong stable relationships: working in a way that upholds the honour of the Crown; and facilitating Aboriginal participation in fisheries and aquaculture and associated economic opportunities and in the management of aquatic resources". The *Policy Framework for the Management of Fisheries on Canada's Atlantic Coast* (DFO 2004a) includes an objective to include Aboriginal People in fisheries management decision-making and to promote collaboration across sectors. It also notes that management decisions should be made as close to those fisheries as possible. There is also the *New Access Framework* (DFO 2002) charged with guiding decisions for new or additional access to Atlantic commercial fisheries. The Framework recognizes Aboriginal and treaty rights and contains a conservation criterion where environmentally responsible and sustainable harvesters who contribute to the knowledge base are granted priority. Additional criteria are that the proponent must be adjacent to the fishery, with a historic dependence on the resource, and that the fishery will be economically viable. The *Sustainable Fisheries Framework* (DFO 2009a) also applies. This framework aims to develop sustainable fisheries that sustain economic prosperity via a suite of conservation and sustainable use policies, and planning and monitoring tools. Additionally, the *New Emerging Fisheries*

Policy (DFO 2001, revised 2008) describes and prescribes the process and procedures to be followed to create a new fishery.

FISHERIES CO-MANAGEMENT

The NWMB has decision making authority within 12 miles offshore in the NSA and all Inuit have free and unrestricted access for harvesting all lands, water, and marine areas within the NSA (save for a few exceptions, such as national defense lands). The NWMB also has authority to advise and make recommendations that must be considered regarding the marine areas of the Territory (*NLCA S.15.4.1).* In addition to the nine-person Board, the co-management partners are DFO, NTI and GN. The Board meets quarterly in person in addition to conference calls or additional in person meetings and hearings as needed. When proposals to modify management plans (e.g. from DFO or a community) are submitted to the NWMB, it must contain the best available western science, community knowledge, and IQ, as well as a record of community consultations and consultations held with relevant affected parties. For important decisions, this all goes to public hearings. Smaller decisions can be done in writing or at a Board meeting. The NWMB makes its decisions based on the best available information and forwards its request to the Fisheries Minister (DFO). The decision does not necessarily need to be based on a preferred consensus basis but rather on the strongest evidence. The weight of the knowledge system used in decision making depends on the decision or situation and what is available. For example, for the offshore (outside of the NSA), there is very little IQ or community knowledge, and the Board consults mostly scientific information. In other areas of the Territory, such as inland and some coastal regions within the NSA, it is possible that the reverse is true; there may be very little survey science data, but good community-level information. The entire process as laid out in Article 5 of the NLCA.

The "public" is comprised of many different actors, including stakeholders, harvesters, and Nunavummiut (people of Nunavut). Each community has a Hunters and Trappers Organization (HTO, alternately referred to as HT Association). Nunavut is divided into three regions, Kivalliq, Qikiqtaaluk (Baffin), and Kitikmeot (Figure 1), with a Regional Wildlife Organizations (RWO) for each region, the HTOs from each region comprise the RWO. The board of directors of each RWO is made up of representatives from each HTO in their region. In addition to the NWMB and the relevant co-management agency (e.g. DFO), harvesting by Inuit is overseen by HTOs

and RWOs (NLCA S 5.7, Figure 3). However, as the RWOs and HTOs often have issues with capacity, management decisions at the local or regional level rarely happen without support from the NWMB or government. Additionally, while these groups have the decision-making power, they lack enforcement capacity and so, decisions do not always work out as planned. The NWMB can make decisions at a community, regional or Nunavut-wide level, or provide recommendations with respect to adjacent marine areas outside the NSA (see Article 15 (15.3.4, 15.3.7 and 15.4.1 NLCA). The relationships illustrated in Figure 3 are not quite as linear as depicted. As an example, the NWMB does not always have to interact with the RWO before it communicates with the HTO if it makes more sense to interact with the latter for a very community specific issue. In such cases, most of the interaction will likely be solely with the HTO. Additionally, co-management partners (such as DFO) do not act through the NWMB when interacting with the RWOs and HTOs on management issues. Depending on the decision, the links may bypass a certain part of the chain e.g. for a public hearing, any individual may attend - so the harvesters could link directly to the NWMB, or the co-management partners (especially NTI) may link directly to HTOs for community-based management. Often DFO does not go through the NWMB, RWOs and HTOs to interact with harvesters (e.g. the fishing companies, HTOs or individual harvesters for some issues). In short, the process appears to be rather difficult to generalize.

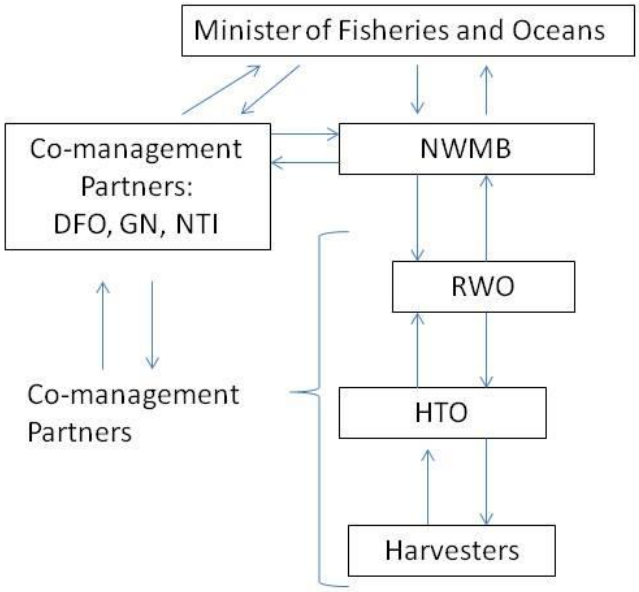

Figure 3: Governance within Nunavut

The Fisheries Minister has 60 days to respond to the NWMB decision and the Minster can accept, reject or modify the decision (Figure 4). If the Minister accepts it, it is then considered a final decision and is therefore made public. If it is rejected or modified, the Board has the opportunity to provide a final decision to the Minister and this can be a modification or the intact original decision and it is resubmitted (NWMB 2012a). The next decision from the Fisheries Minister is considered final and is then implemented by the responsible department (DFO). However, how the Minister arrives at a decision is not obvious from the literature. It is likely that DFO staff responsible for Resource Management reviews the NWMB decision and the Minister then makes a decision based on this review. Nonetheless, the NLCA specifies that '… a person may kill and consume wildlife where it is necessary to prevent starvation" (NLCA S. 5.6.53).

How a final Ministerial decision is implemented depends on the situation but it generally will take place in a co-management framework. For example, following the new narwhal Integrated Fisheries Management Plan (IFMP) and associated NWMB decisions, RWOs allocate tags between communities while HTOs develop local hunt rules, with DFO responsible for further research and enforcement of regulations. For char, the main agencies are likely to be HTOs and

DFO since stocks are more local and therefore the management would not usually involve RWOs to the same extent. If a decision involves issuing licences or quota, DFO will do this. If the decision involves setting a regional total allowable harvest and BNL, the RWO may have to decide on allocations to specific communities with the HTO in each community responsible for dividing the RWO-provided quota among its members. Or a new management plan may describe the implementation. In summarizing implementation, there is generally a mechanism in place within the existing legislation (e.g. Fisheries Act, NLCA) or it may be further spelled out in the decision.

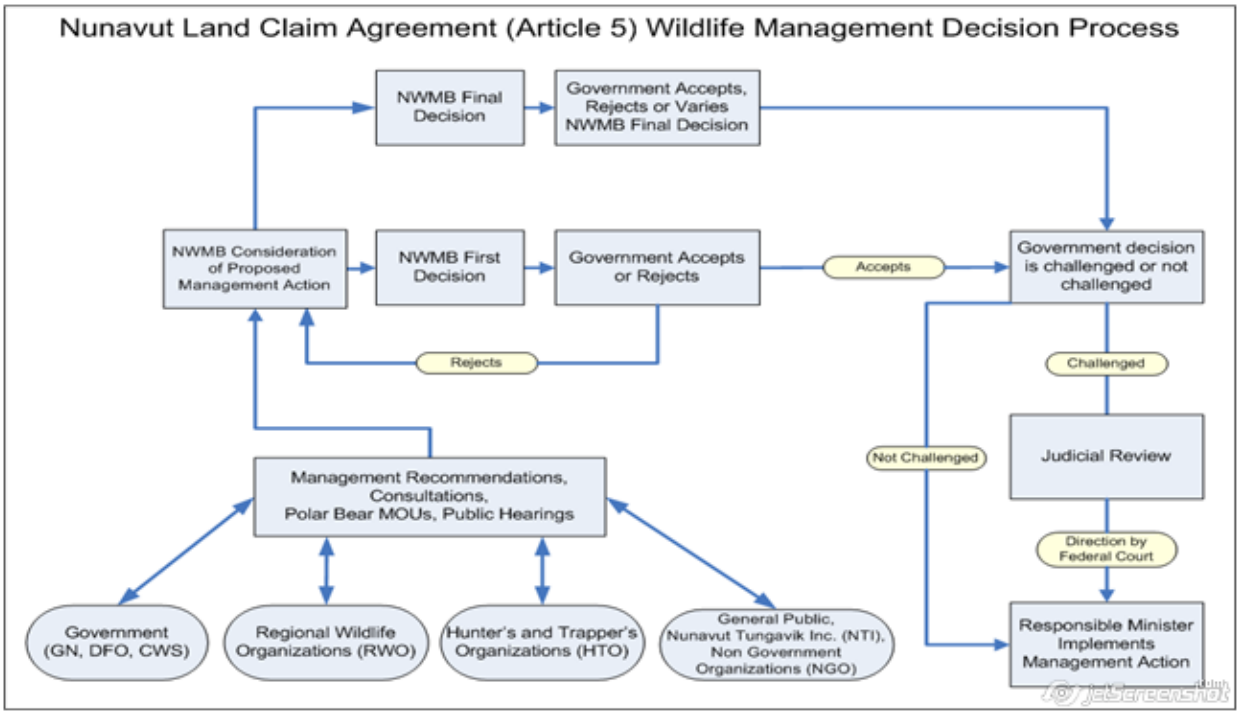

Figure 4: NLCA wildlife management decision making process
(Source: http://www.nwmb.com/en/about-nwmb/co-management-partners)

As per the NLCA, the Board can establish the total allowable harvest (TAH) of a stock for the NSA and also sets a BNL, the first demand on the TAH to meet Inuit basic needs. The BNL does not have to equal the TAH, it can be above or below. If there is surplus from the TAH after the BNL is taken, it can be further allocated according to NWMB guidelines (NLCA S. 5.6.40).

BASIC NEEDS LEVELS (BNL)

"The basic needs level shall constitute the first demand on the total allowable harvest. Where the total allowable harvest is equal to or less than the basic needs level, Inuit shall have the right to the entire total allowable harvest" (NLCA S5.6.20).

Under the *NLCA*, in circumstances of limited availability, Inuit have the right to harvest according to actual amounts fished previously by Inuit, for any purpose, up to the established BNL (NTI 2010). The *Nunavut Wildlife Harvest Study* recorded levels of Inuit harvest (NLCA S 5.4) and was a 5 year Federal Government funded process covering the period 1996-2001 (Priest and Usher 2004). Section 5.4.5 of the NLCA outlines "The purpose of the Study shall be to furnish data, to establish current harvesting levels, to assist the NWMB in establishing levels of total allowable harvest and, in general, to contribute to the sound management and rational utilization of wildlife resources in the NSA". The Study interviewed over 6000 harvesters from Nunavut's 27 communities, recording information and data on more than 60 terrestrial and aquatic species and successfully calculating baseline harvest estimates (Priest and Usher 2004). The majority of the species documented were marine mammals, sea birds, fish and shellfish. Following calculations set out in the NLCA, the collected harvest numbers were then used to set BNL levels; but only once has a TAH been set on a stock.[3]

Most species do not have a harvest level whether it is designated TAH or BNL. There were some reported issues with collecting the traditional use data needed to establish BNLs. For example, it was possible that harvesting levels were inflated to enhance the resulting BNL. However, on the other hand, some hunters did not want to brag and under-reported their catches (Priest and Usher 2004). Additionally, there were concerns from some hunters who were suspicious of the purpose of the survey (Priest and Usher 2004). Regardless, the harvest estimates in the Study are the best data available on subsistence catches of species in Nunavut.

The BNL can be thought of as a permanent baseline amount for Inuit harvests, subject to availability. Periodically, and when there is reason to re-evaluate the BNL, such as times of low abundance or increased use by the Inuit, the BNL can be adjusted with the caveat, "The adjusted basic needs level may expand up to the entire total allowable harvest. In any year the adjusted

[3] As a harvest level would restrict Inuit harvest, TAHs can only be set for three reasons, (1) conservation, (2) to allocate as outlined in the Article, or (3) to provide for public health or safety (S5.3.3 of the NLCA).

basic needs level may float upward or downward, but shall never fall below the basic needs level" (NLCA S 5.6.29). Therefore the adjusted-BNL may be considered a loose upper-limit. All of the data collected during the Study is available to the Governments (NLCA S 5.4.6). If a level can be set for TAH or BNL, the Fisheries Minister may reject these and when there is no consensus on either level by the co-management partners, they must work together with the HTO to find a suitable solution (NTI 2012, NLCA 5.3.14 -.15). Additionally, where a total allowable harvest is established for a species that is harvested by members of First Nations Bands in the NSA and Inuit, the NWMB is to allocate a basic needs level for the Bands, separate from any basic needs level for Inuit (NLCA 40.5.2).

With respect to commercial fisheries, the only stock with a separate TAH and BNL is the Cumberland Sound Turbot Management Area stock. While the NLCA was being negotiated, Inuit and the Federal Government could not agree on how to calculate BNL for beluga, narwhal and walrus, and the NWMB was expected to determine the BNL in the years to follow (NTI 2011a). This has now been agreed to following public hearings in 2013 and the BNL is determined to be equal to the TAH for all three species, beluga, narwhal, and walrus, effectively a 'presumption as to needs' situation (Ashfield 2013).

There are also proposals put forward from HTOs on how to calculate TAHs and BNLs (e.g. NTI 2011a, 2012a). Where a TAH has not been established by the NWMB, an Inuk has harvesting rights on the stock in the NSA up to their full level of economic, social, and cultural needs (NLCA S 5.6.1). An Inuk with proper identification may harvest up to their adjusted BNL without any licence or fee (NLCA S 5.7.26) and they can harvest for subsistence when there is no BNL because there is no TAH, i.e. no limit on harvest at all. The debate (as yet unresolved) is whether Inuit can harvest commercially without a license if no TAH (and therefore no BNL) has been set. However, they may be required to obtain one for the harvest of cetaceans, marine fish, and shellfish not regularly harvested during the 12 months preceding October 27, 1981 (NLCA S 5.7.29).[4] For example, turbot was not a traditionally harvested species and so management of this commercial fishery may be different than that of char, a traditionally harvested fish.

[4] The significance of this date is not explained in the NLCA.

RECREATIONAL FISHING

The co-management NWMB is responsible for the recreational fishery allocations and advises DFO on conservation, fishery management, and science activities. The GN Fisheries and Sealing Division, Department of Environment is responsible for sustainable economic development including that of the fishing industry in the Territory (Lynch 2012). Recreational fishing, the majority of which is freshwater (some 80%), generates high returns for Nunavut, with an average direct expenditure of $181 per fish by the sportsfisher (Lynch 2012).

Nunavut administers sportfish licensing under an Order-in-Council and the licence can be purchased at a variety of locations, including DFO and the GN, lodges and stores (GN 2012a). A sport fishing licence is required by any person who is not a beneficiary of the NLCA (GN 2012a). The DFO set catch and possession limits for all species of sportfish, except suckers, specify gear type (rod or jigging only) and identifies geographic restrictions, but there are no size limits (GN 2012a). Guidance is by the GN Conservation Officers or DFO Fisheries Officers (GN 2012a). The recreational fishing is surveyed every 5 years in Canada by the DFO in collaboration with the Provinces and Territories (DFO 2012e). For Nunavut, the GN provides this support.

There has been a renewed interest in recreational fisheries in Canada. In November 2013, changes to Fisheries Act were introduced to include the *Fisheries Protection Program* (FPP) (DFO 2013b) with the mandate to, "... maintain the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries". Nested within the FPP is the *Recreational Fisheries Conservation Partnerships Program* (DFO 2013c). This Fisheries Conservation Partnerships Program, "aims to bring like-minded partners and their resources together with the common long-term goal of enhancing the sustainability and ongoing productivity of Canada's recreational fisheries. This goal would be achieved through the following program objective: Restore, rebuild and rehabilitate recreational fisheries habitat". In a 2013 update to the NWMB, DFO confirmed an FPP opened an office in Nunavut, staffed by a Senior Fisheries Protection Officer. To date, the FPP has spent most of its time reviewing mining projects in Nunavut (DFO 2013e).

EMERGING FISHERIES

Emerging fisheries were not negotiated in the NLCA, and a number of species have been identified as potential commercial or food fisheries in Nunavut. In order to establish a new commercial fishery, first a test fishery must be undertaken by applying for an experimental fishery licence, as per the *New Emerging Fisheries Policy*, from DFO (2001). The Emerging Fisheries Policy replaced the "Policy on Underutilised Species" to provide applicants with a transparent process, and a procedure that could be consistently applied. The objective is to diversity fisheries, increase economic returns, while ensuring conservation and sustainable use of the resource (DFO 2001). With respect to the NLCA, the policy states,

> In undertaking new fisheries, DFO will work with appropriate Boards or other bodies established under Land Claims Agreements. Where DFO is responsible for implementing obligations under Land Claims Agreements, this policy will be implemented in a manner consistent with those obligations. In the event this policy is inconsistent with obligations under Land Claims Agreements, the provisions of the Land Claims Agreements will prevail to the extent of the inconsistency. DFO has a policy of promoting increased Aboriginal participation in the management of fisheries, especially through co-management agreements, as well as providing economic development opportunities in existing and new fisheries. Accordingly, applications by Aboriginal communities will be given special consideration by DFO.

The Policy has 3 stages to establish the emerging fishery. The first is to determine the **feasibility** with a licence issued under the *Fishery (General) Regulations* (S 52, 2009, enabled by the Fisheries Act). This preliminary assessment phase is to gather data on harvestable quantities, harvesting impacts, and marketability. The second stage is the **exploratory** commercial and stock assessment phase; the licences are issued under the *Fisheries Act* (S 7). The third stage is the **commercial** fishery stage, again under the Fisheries Act (S 7), it is reached once it has been determined that the species can sustain commercial fishing and an Integrated Fishery Management Plan (IFMP) is introduced.

Several species have been identified over time as species of interest in emerging fisheries, including scallops, mussels, crabs, echinoderms, Atlantic cod, sculpins, and kelp (Table 2).

Table 2: Species of interest for emerging fisheries in Nunavut (from Whitford 2002, Brubacher 2004)

Invertebrate Species	Fish Species
Icelandic Scallops (Chlamys islandica)	Atlantic cod
Clams (Mya truncate)	Arctic cod
Clams (Serrepes groenlandicus)	Capelin
Amphipods	Greenland cod
Basket Stars	Round-nosed grenadier
Soft coral	Spiney lumpsucker
Brittle stars	Sculpins
Polychaete Worms	Skate
Blue mussels (Mytilus edulis)	Redfish
Crabs (toad)	Starry flounder
Green Sea Urchins (Strongylocentrotus droebachiensis)	**Marine Plants**
Sis-rayed starfish (Leptasterias polaris)	Kelp (Laminaria spp., Agarum cibrosum)
Greenland cockle	Dulse (Palmaria mollis)
Snails	Rockweed
Brown Sea cucumber (Cucumaria frondosa)	

Many of the species of interest are consumed as food, including green sea urchins and blue mussels (Stewart and Lockhart 2005). Save for a few test fisheries, such as inshore softshell clam (*Mya truncata*) in Qikiqtarjuaq (Whitford 2002), it would appear that only turbot, char, and shrimp have been relatively successful emerging fisheries in the Territory. On the whole, the territory is still working towards identifying and establishing these fisheries. While not all approved exploratory fishery permits are used, Nunavummiut continue to be interested and submit proposals to the NWMB, particularly in gaining access to commercial char quotas. In the absence of Nunavut specific fishing regulations or inclusion in the NLCA, it is a challenge to establish new fisheries, particularly as valuable species are shifting their ranges northward. On the whole, the Nunavut is working from base zero when it comes to information regarding emerging species and fishery development takes time.

CASE STUDIES

Proposals regarding any aquatic or marine species important to the Inuit can be brought before the NWMB. These include the key inshore and offshore commercial species (char, turbot, Northern and striped shrimp), marine mammals such as the narwhal, beluga, bowhead whale, walrus, and some seals that are not considered to be commercial species by DFO, and important species for food such as char. To illustrate the decision-making processes associated with how a

change in these different types of fisheries would take place in Nunavut, we examined the following three case studies: (1) turbot, illustrating how allocation decision making takes place in the offshore of a non-traditionally harvested species (commercial); (2) narwhal, describing a recent community consultation and co-management process initiated by DFO to make changes to a management plan for hunting the marine mammal, considered a fishery in Nunavut (non-commercial); and (3) char, one of the most important species for food (BNL) in the territory, it is also a commercial and recreational fishery and species of interest for exploratory (emerging) fishery quotas.

Turbot

Turbot (or Greenland halibut) are not a species traditionally harvested by Inuit. The fishery was first introduced to the Territories in 1986 during a Government of NWT sponsored visit of Greenlandic fisherman who were invited to demonstrate fishing techniques (Whitford 2002). Since 1995, turbot has been primarily managed by the Northwest Atlantic Fisheries Organisation (NAFO) with the commercial fishery taking place off of Nunavut in NAFO subdivisions 0A and 0B (Figure 5). The commercial fishery in area 0B began in 1981 and the total allowable catch (TAC) of this offshore stock, adjacent to Nunavut and the NSA, is shared equally between Canada and Greenland (GN 2006). This half of the TAC is then further divided amongst Nunavut and other Canadian provinces (Rompkey and Cochrane 2009). Directly adjacent to Nunavut is Division 0A (Baffin Bay and the Northern Davis Strait). With respect to commercial fisheries, in addition to NAFO 0A and 0B, there is also the Cumberland Sound Turbot Management Area in Cumberland Sound.

The NWT began exploratory work on the turbot fishery in Division 0A the 1990s, culminating with an exploratory TAC in 2001 when Nunavut was allocated the entire turbot TAC for NAFO Division 0A (GN 2006). The following year, in 2002, the Fisheries Minister stated that, "no additional should be granted to non-Nunavut interests in the waters adjacent to the territory…" (NWMB 2007). The *NWMB Allocation Policy for Commercial Marine Fisheries*' objective is, "To facilitate a co-operative, professional and diversified approach to ecosystem-based fisheries development, maintaining compliance with the principles of conservation, relying upon re-investment in the fishery by Nunavut fishers, and ensuring the wide distribution of tangible benefits to Nunavummiut" (NWMB 2012b). The Allocation Policy applies only to commercial

harvests of exclusively marine fishes by Nunavut-based fishers in the waters adjacent to Nunavut, not the anadromous char (NWMB 2012b).

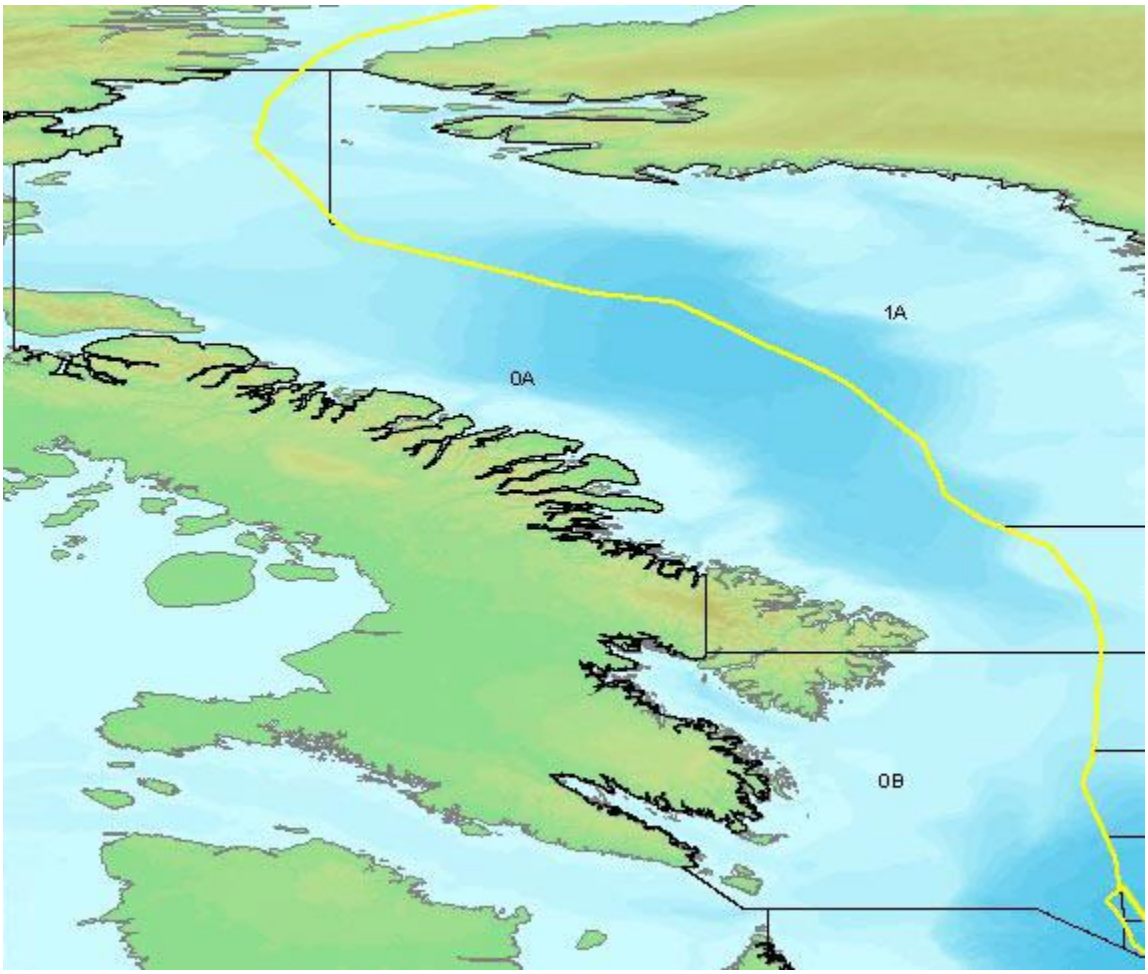

Figure 5: NAFO divisions 0A and 0B adjacent to Nunavut, including 1A and Greenland. (Source: http://www.nafo.int/about/frames/area.html)

The NWMB has decision-making capacity for the marine waters within the NSA (12 miles limit of Canada's Territorial Sea boundary) as per the NLCA (S. 3), including:
(a) To establish, modify or remove levels of total allowable harvest (TAH) or harvesting (NLCA S.5.6.16); (b) To determine the allocation of the commercial portion of any TAH (NLCA S.5.6.31); and (c) To establish, modify or remove non-quota limitations – such as limitations on gear type and season of harvest (NLCA S.5.6.48).

Outside of the NSA, where the NWMB has an advisory role, but not decision-making capacity, the area is split into two zones. To the east, including Baffin Bay and Davis Strait, is Zone I (including Division 0), and to the south, including James Bay, Hudson Bay, and Hudson Strait is Zone II. Where these Zones are subject to Canadian jurisdiction and not part of another land claim, the NWMB plays an advisory role to DFO including:

> *(a) The obligation to provide relevant information to Government that would assist in wildlife management beyond the marine areas of the NSA (NLCA S.15.3.4); (b) The authority to provide requested advice with respect to any wildlife management decisions by Government which would affect the substance and value of Inuit harvesting rights and opportunities within the marine areas of the NSA (NLCA S.15.3.4); (c) The authority to provide advice and recommendations to Government with respect to Government's responsibilities (i) to recognize the importance of the principles of adjacency and economic dependence of communities in the NSA on marine resources, and (ii) to give special consideration to those factors when allocating commercial fishing licences within Zones I and II (NLCA S.15.3.7); and (d) The authority to advise and make recommendations regarding the marine areas of the NSA, which Government must consider in making decisions that affect those marine areas (NLCA S.15.4.1).*

The NWMB makes decisions within the NSA and recommendations regarding adjacent areas outside the NSA to the DFO Minister with respect to individual allocations to Nunavut fishers following an application process outlined in the NWMB's *Allocation Policy for Commercial Marine Fisheries*. The Fisheries Advisory Committee (FAC) is comprised of 5 members, 2 appointed by GN, 2 from NTI, and 1 by NWMB. Each member acting independently of their appointing organization, is mandated to provide advice to the NWMB on the allocation of commercial fisheries resources. The NWMB can decide to follow the FAC's recommendations or make its own based on the best available information, which is all in accordance with the NWMB's Allocation Policy. Presently the FAC makes recommendations on turbot and shrimp but this would apply to other species in the future.

In order to gain access to the available allocations, companies must comply with the "*Mandatory Requirements for Responsible Stewardship*" and submit to the FAC "*Governance, Business,*

Benefits, and Stewardship Plans" and then demonstrate that they have operated consistently with their approved plan and complied with the stewardship requirements by submitting "*Annual Reports*", and verification reports are requested by Transport Canada and DFO (NWMB 2012b). Ultimately they need to demonstrate that benefits are going to Nunavummiut who are the true "owners" of the quota, including Inuit involvement, employment, and ownership of vessels. The companies are held accountable and may lose or gain quota based on the information contained in the verification reports.

Inshore fisheries of turbot within the NSA are of great interest to Nunavut's communities (GN 2006). Inshore commercial fisheries are within the NWMB's jurisdiction and as such, two non-transferable (to the offshore) allocations have been set. However only the Cumberland Sound Turbot Management Area has an actual TAH. In the Baffin Region (Qikiqtaaluk), there is an exploratory allocation of 100 tonnes which is subtracted from the overall Division 0A allocation of 6500 tonnes. The community of Pangnirtung has been allocated a separate TAH of 500 tonnes, and is a separate management area, of an inshore Cumberland Sound stock. While Pangnirtung is in Division 0B, the Cumberland Sound Turbot Management Area 500 tonne allocation is in addition to Nunavut's allocation of 2850 tonnes. In terms of a timeframe to review allocations, extensive consultation between 2010-2012 with the co-management partners and stakeholders during the revision of the NWMB's Allocation Policy recommended replacing annual reviews with a five-year time frame. However, this recommendation was not accepted by the Fisheries Minister who approved 3 year timeframe (NWMB 2012b).

DFO has not shown a willingness to transfer allocations held by outside interests to Nunavut. In Division 0B, of the 5500 tonnes of Canadian TAC, only 1500 tonnes (27.3%) has been allocated to Nunavut interests (GN 2006), 900 tonnes for fixed gear and 600 tonnes allocated to mobile gear (DFO 2006 IFMP). Starting in 2009, Nunavut currently has 9 licences/licence validations in the 0B competitive fixed gear turbot fishery. The decline of groundfisheries to the south in the 1990s has increased interest in fisheries to the north (Schrank 2005). The GN was also concerned that DFO was considering merging the fisheries in Divison 0, likely opening the area to southern interests (GN 2006). In 2006, the GN opposed any effort to establish co-management between DFO and any non-Nunavut group (GN 2006).

In summary, turbot is an example of a non-traditionally harvested species in NU that began as an exploratory fishery which subsequently became commercial. The decision making process affecting its management is clearly complex with the NWMB making decisions within the NSA and recommendations regarding adjacent areas outside the NSA to the DFO Minister with respect to individual allocations to Nunavut fishers. These recommendations are made following an application process outlined in the NWMB's *Allocation Policy for Commercial Marine*. To complicate matters even further, the quota is shared between Greenland and other Canadian Provinces.

Narwhal

In 2012, DFO was put forward a proposal to the NWMB for a new narwhal (*Monodon monoceros*) Integrated Fisheries Management Plan (IFMP). There were three overarching proposed changes to the narwhal management. The first was to manage narwhal harvests by their known summering areas while taking harvests from mixed stocks during annual migrations into account. Second, the proposal sought to "further harmonize narwhal management with the NLCA", and third, to implement measures to strengthen management and co-management of the harvest (DFO 2012a). DFO's plan was for it to be implemented in January 2013, in preparation for the March 2013 meeting of the Conference of Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as the tusks are an important item of trade for Inuit (DFO 2012a, 2012b). An IFMP is used by DFO to "guide the conservation and sustainable use of marine resources". IFMPs combine the best available science and are intended to manage the fishery or harvest of a particular species in a given region (DFO 2013a).

The *Fisheries Act* and regulations enabled by the Act, specifically the *Fishery (General) Regulations* (SOR/93-53) and *Marine Mammal Regulations* (SOR/93-56), regulate the narwhal harvest. In addition, narwhal management is subject to the *NLCA* and some HTOs (DFO 2012c). In Canada, narwhal are harvested only by the Inuit and is not considered a commercial fishery by DFO. Tags to harvest narwhals in communities with quotas are distributed to the hunters by the local HTO which are issued annually by DFO.

Complicating the decision making process was the fact that narwhal has been identified as a species of 'Special Concern' by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, 2004). It is currently being considered for listing under the federal *Species at Risk Act* (SARA) but does not have an 'at risk' status presently in Canada (COSEWIC 2004). Narwhal are listed under Appendix II of CITES implemented in Canada via the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act*. In order to export the parts, products and derivatives of the narwhal, a Canadian CITES Export Permit has to be granted by the Scientific Authority of State of export, which in this case is DFO's CITES office. The permit indicates that the export will not be detrimental to the survival of the species. A non-detriment finding (NDF) indicates that the export products originate from a sustainable harvest. Narwhal tusks provide significant economic value to Inuit communities, fuelling the desire to trade the tusks legally on the international market. Five of the six management units have NDFs (DFO 2012c) and the concern over negative non-detriment findings in one of the 6 management units deficient in scientific data was the reasons why DFO would not issue it an NDF, leading to the creation of the IFMP.

To prepare for the IFMP process, DFO Resource Management created a "Narwhal Planning Progression Chart" beginning in April 2011 with a meeting of the Narwhal co-management working group and ending in January 2013 with an approved IFMP within the NLCA process (DFO 2011a). The proposal was then sent to NWMB using the best supporting western science, IQ, and community-based knowledge, in English and Inuktitut (Table 3). In May 2011, DFO held 6 consultation meetings with invited representatives from RWOs and HTOs from narwhal hunting communities (DFO 2012b) to discuss their collective understanding of narwhal populations (using both Inuit and scientific information). They also addressed the process related to DFO's responsibilities under *the Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) with respect to issuing export permits for narwhal tusks and products. DFO submitted a consultation plan which was approved by NWMB (DFO 2011b) and the 23 community consultations took place in 2012, including co-management partners as observers, and RWOs and HTOs (DFO 2012a, 2012b, 2012c, 2012d). The consultations took the shape of meetings held in 9 communities and representatives from 14 other communities flew in

to some of them. On April 31, 2012, DFO Resource Management, Central & Arctic Region submitted a "Review and approval of the Integrated Fisheries Management Plan for Narwhal in the Nunavut Settlement Area (effective January 2013) and establishment of measures to give effect to the narwhal management regime outlined in the plan" to the NWMB (DFO 2012c). In late June - early July 2012, Nunavut co-management partners in addition to management boards in Quebec sent written responses to the proposed IFMP. (http://www.nwmb.com/en/component/search/?searchword=narwhal%20ifmp&searchphrase=all&Itemid=147). The NWMB decided that the modifications to the IFMP were sufficiently important to bring to a public hearing and the actual in-person public hearings were held July 24-26, 2012. The NWMB made their initial decision during in-camera sessions following the public hearing.

Table 3: Tracing Timeline for Narwhal Decision Making in Nunavut.

Date	Who	What	Source
2008	DFO	Science recommended narwhal fishery be managed on known summering stock aggregations = 6 management units	DFO 2012a
May 2011	DFO	Community consultations to discuss collective understanding of narwhal populations (IQ + science), and the process related to DFO's responsibilities under CITES for export permits of narwhal tusks & products. All narwhal hunting communities & RWOs were invited. Officials from DFO, observers from GN DoE, NWMB, and NTI visited 6 Nunavut communities.	DFO 2012a DFO 2012a
July 2011	DFO	Narwhal co-management working group meeting to determine overarching management measures & IFMP consultation plan	DFO 2011a
Aug 2011	DFO	DFO conducted workshop in narwhal management in Iqaluit with representatives from NTI, Qikiqtaaluk Wildlife Board, Kivalliq Wildlife Board, Kitikmeot Regional Wildlife Board, Nunavut Inuit Wildlife Secretariat, and GN-DoE. The co-management parties agreed to draft an IFMP based on DFOs 6 summering stock management approach. First draft by DFO.	DFO 2012a DFO 2012a
Sept/Oct 2011	DFO	Meetings of 3 working groups: 1) Harvest reporting and tusk tracking, 2) Harvest loss rate reduction, 3) TEK and community involvement in science & surveys	DFO 2011a

Dec 2011	DFO	Narwhal co-management working group meeting to draft IFMP. Second workshop as in Aug 2011. NTI provided a revised second draft of the IFMP based on the initial draft circulated by email. The first and second drafts were reviewed and discussed together. DFO to construct a third draft incorporating comments for further review.	DFO 2011a DFO 2012a
(date not known, maybe Dec 2011)	DFO	Third workshop was held in Ottawa with representatives of NTI and NWMB to review the third draft of the IFMP and seek resolution of outstanding issues. DFO and NTI agreed to work collaboratively with co-management partners past 2013	DFO 2012a
Dec 2011	NTI	NTI requested during NWMB regular meeting that a BNL be established for narwhal, beluga and walrus NWMB issued notice of a public hearing on March 27/28, 2012 in Iqaluit to establish said BNLs	DFO 2012a DFO 2012a
Jan 2012	NTI	Wrote NWMB requesting adjournment of public hearing to resolve the issue with DFO of amending the NLCA, meeting adjourned	DFO 2012a
March 2012	DFO	Narwhal co-management community consultation tour	DFO 2011a
March 2012	DFO	Minister of Fisheries wrote NTI President to reiterate support that NWMB sets the TAH for narwhal stocks serve as their BNL. To meet the Jan 2013 date for an IFMP DFO requested NTI address this after the IFMP process is complete.	DFO 2012a
March 2012	NWMB	Public hearings, all parties provide positions on recommendations	DFO 2011a
March 2012	DFO	Community consultations took place on the proposed changes to the narwhal management regime and draft IFMP.	DFO 2012a
April 2012	NTI	Wrote to NWMB to request BNL hearings be rescheduled.	DFO 2012a
April 2012	DFO	Submitted to NWMB a "Review and approval of the IFMP for Narwhal in the NSA (effective Jan 2013) and establishment of measures to give effect to the narwhal management regime outlined in the plan"	DFO 2012c
June-July 2012		Nunavut co-management partners, QC co-management boards send comments on IFMP to NWMB.	NWMB website
July 2012	DFO	NWMB public hearing on IFMP. Decision sent to Fishery Minister	DFO 2011a
		Decision with Fisheries Minister: There was a reconsideration of one decision in the series of decision that went to the Minister and a final decision which extended the process.	
Sept 2012	NWMB	Public hearings on beluga/narwhal/walrus BNL	
Jan 2013	DFO	Approved IFMP in accordance with NLCA process before COP	DFO 2011a

		16 in spring 2013	
Feb 2013	NWMB	TAH allocations in Iqaluit	NTI 2013
April 2013	DFO	IFMP implemented	DFO 2014a
Feb 2014	DFO	Phase 1 of 3 of the "Interim Narwhal Flex-Quota System" implemented	DFO 2014a
June 2015		Final IFMP has yet to be posted to the DFO website	

DFO's proposal was made available on the website and rules were posted for the hearing. Any member of the public had the opportunity to submit a written statement by early July 2012 (DFO 2012d, NTI 2011b, NTI 2012b). As described by NTI (2013), the IFMP was to be approved by the Fisheries Minister as per the NLCA and a workshop to allocate the new TAH was to take place February 2013 in Iqaluit. The new IFMP was implemented in April 2013 and the first phase of the "Interim Narwhal Flex-Quota System" was implemented in February 2014 for quota reconciliation, with the next two phases in the process being finalized for 2014/2015 (DFO 2014a). In July 2014, the Minister of DFO accepted the NWMB's decision to implement the interim narwhal flex-quota system for the 2014-15 season (NTI 2012 b, DFO 2015a, 2015b).

In summary, under the co-management framework outlined by the NLCA, a proposed change in management, in this case by DFO, triggered the process for decision making affecting a non-commercial species. The NWMB made a decision on the IFMP after consultation with the co-management partners was complete, hearing from the public, and considering the best available information. This IFMP consultation process was large scale in the NSA as it would impact many communities and involved several groups across the Territory. As narwhal are an important cultural and economically important species to the Inuit, the limited capacity of the local organizations and the level of trust between DFO and the stakeholders challenged the process at times. Nonetheless, additional measures were implemented to control the harvest being unfavourable to the hunters. Although complicated and time-consuming, the process seemed to have functioned well, at least on paper. However, there is some evidence that there have been lessons learned to bring forward during the next attempt at modifying or creating a harvesting plan for a significant species to Inuit.

Arctic Char

Arctic char are vital to Inuit, every community has access to the fish and it is of significant cultural importance to the NSA. Char is harvested for food, recreation (by non-Inuit), and commercially, and as a result, char harvest management tends to be approached differently than for other finfish. Char are anadromous, save for landlocked populations, and fished in rivers, lakes, and ocean. In the commercial fishery, individual fishers and owner-operators are the largest stakeholder group with many supplying char to Nunavut fish plants for processing. Most commercial char licences are held by HTOs with some individuals holding a personal licence to sell their catch (Brubacher 2004).

The very first commercial fishing effort of Arctic char began in Cambridge Bay using gillnet in 1960 (Day and Harris 2013). Fisheries continue today in Cambridge Bay and an IFMP has been finalized (DFO 2014b, DFO 2014c). The Cambridge Bay fishery is managed under the *Fisheries Act*, the *Fishery (General) Regulations* and the *NWT Fishery Regulations*, in addition to the *NLCA* (DFO 2014b). The draft Cambridge Bay IFMP was developed with a long term approach to management and was created without an end date, but to be updated and revised as needed (DFO 2014b). The most current assessment of the Cambridge Bay char fishery was in 2013, and prior to that, in 2004 (Day and Harris 2013). The data presented, when available, are catch per unit effort (CPUE), catches of exploratory quotas and scientific surveys, and commercial landings with data collection occurring by sampling catches from commercial fish plants, occasional gillnet or weir fishery-independent surveys, in addition to tagging and genetic sampling for stock structure (DFO 2013d, Day and Harris 2013). This assessment acknowledges the Ekaluktutiak Hunters and Trappers Organization (EHTO) for contributing traditional knowledge but is not expressly discussed in the document as a source of information (Day and Harris 2013).

DFO has *A Fishery Decision Making Framework Incorporating the Precautionary Approach* (DFO 2009b), with the precautionary approach intended to assess and prevent the over-exploitation of a stock. For the Cambridge Bay fishery for example, the data required to model the stock information, such as spawner-recruit relationships or stock size estimates, are not available. As such, a precautionary approach, or the ability to predict the long term sustainability of the harvest is not possible at this time (Day and Harris 2013). As the Cambridge Bay

population is acknowledged to be a data-poor fishery, there are scientific research programs taking place to learn more about the status of char in the region. For example, a weir survey has taken place on the Halokvik River, one of the harvested rivers in Cambridge Bay, conducted by DFO Winnipeg (Freshwater Institute) (Tallman and Harris 2014). The data collected was used to provide advice to DFO Fisheries Management and the NWMB on the sustainability of harvest levels for Cambridge Bay char (Tallman and Harris 2014). After 5-years of fishery-independent data have been collected, a regional advisory process (RAP) for the Halokvik River has been planned for 2016 (Tallman and Harris 2014). With respect to IQ (or traditional knowledge as it is referenced in Tallman and Harris 2014), the Ekaluktutiak HTO manager was contacted to discuss the project and to incorporate IQ into the sampling locations. Project details were presented, approved, and comments sought during both field seasons (2013 and 2014) (Tallman and Harris 2014).

The Cambridge Bay IFMP process was initiated in 2009 by DFO and formally began in March 2010 (Table 4) and was then driven by the Ekaluktutiak Hunters and Trappers Organization. The EHTO, "recognized the importance of developing a management plan to highlight the long history of successfully co-managing the Cambridge Bay Arctic Char commercial fishery in a sustainable manner, using effective management measures and best practices" (DFO 2014b). Like the narwhal IFMP process, in the submission by DFO and the EHTO to the NWMB, the Cambridge Bay Arctic Char Working Group (established to develop the IFMP) submitted timelines, including public consultations, research, and plans to accomplish implementing the IFMP for the start of the fishery in July 2014 (DFO 2014b). The Cambridge Bay char IFMP was under consideration and subsequently approved by the NWMB in 2014 (DFO 2014c). In lieu of an in-person public hearing, comments were solicited in writing. The working group developed the IFMP cooperatively but only the NWMB had the authority to accept it.

Table 4: Timeline to develop and approve the Cambridge Bay Arctic Char Commercial Fishery IFMP

Date	Who	What
Sept 2009	DFO	DFO requested a meeting with the EHTO to discuss developing an IFMP at the next Board meeting
Nov 2009	EHTO	The EHTO approved the meeting with DFO
March 2010	Working Group (EHTO, commercial fishers, Kitikmeot Foods Ltd. management, GN DOE wildlife officers, DFO Resource Management + Conservation and Protection)	Drafted working group terms of reference, prepared for IFMP, identified fisheries issues/objectives.
	Working group?	Public consultations including commercial fishers, elders, other resource users, reviewed the IFMP process, discussed fishery issues, & collected TK.
Sept 2010	Working group?	Invited NWMB, EHTO, NTI, Kitikmeot Regional Wildlife Board, KFL, DFO RM, DFO Science, and DFO C&P to participate in the working group
April 2011	Working group?	GN DOE sealing division invited to participate in the working group
	NWMB	Letter to EHTO & DFO in support of the working group and the IFMP development.
May 2011	Working group	Meeting to update members, review science, refine goals of IFMP
	Working group	Public consultation of commercial fishers, elders, and resource users to review preliminary objectives of the IFMP.

May, July, Nov 2012	EHTO board member and manager, KFL, monitors, commercial fishers, DFO RM & Science	3 meetings to develop community-based monitoring program, contributing to the Nunavut General Montoring Plan http://www.ngmp.ca/eng/1363792048577/1363792058944.
March 2013	Working group?	Public consultation progress to date, review recent fishery and science activities, feedback on the community-based monitoring program
	Working group	Approved terms of reference, information, data, objectives, and progress to date, invited research scientist to participate.
July 2013	Working group	Implemented 2013 community-based commercial monitoring program, Nunavut General Monitoring Plan.
Sept 2013	Working group	Draft IFMP distributed for review and comment
Oct 2013	Working group	Finalized draft IFMP including everything collected from all meetings, monitoring, science, and consultations.
Nov 2013	Working group?	Distributed draft IFMP to stakeholders for review, NWMB, NTI, KRWB, GN DOE
Dec 2013	Working group?	Final draft of IFMP with incorporated comments distributed to stakeholders and working group.
Jan 2014	EHTO and DFO	Co-submission package sent to NWMB requesting decision regarding the IFMP for the Cambridge Bay Arctic Char commercial Fishery
Jan 2014	NWMB	Written hearing on the IFMP

March 2014	EHTO and DFO	Presented IFMP at the NWMB Regular meeting
2014	NWMB	Decision on approval
July 2014	DFO	Minister decision, IFMP accepted and implemented?

Source: DFO 2014b.

At the time that the NLCA was ratified, there were very few commercial fisheries and those in existence were all managed in the commercial water bodies under Schedule V of the *Northwest Territories Fishery Regulations*. Additionally, there was little expectation that more would be anticipated, apart from the commercial stocks in Cambridge Bay and Cumberland Sound (NTI 2010). In recent years, many communities have expressed interest in commercially harvesting char, thus far limited to an owner-operator framework through the HTOs (GN & NTI 2005). DFO has been granting exploratory fishery permits to develop the char fishery in the NWT and Nunavut since the 1970s (DFO 2010). Presently there are several exploratory fisheries (e.g. DFO 2013d) and submissions and plans for permits and quota for char under the emerging fisheries framework throughout Nunavut continue to be submitted to the NWMB (e.g. DFO 2012f, 2013f).

To summarize the Arctic char case study in terms of its decision making process, the species is of utmost cultural and economic importance to the Inuit being harvested as food, commercially and recreationally (by non-Inuit fishers). As a food source, all Inuit have the ability to harvest the species under the terms of the NCLA. Commercially, Cambridge Bay has a relatively long history, since the 1960s of harvesting the fish. While the fishery has been operating pre-NLCA, a joint proposal by a local HTO and DFO to develop an open-ended IFMP for Cambridge Bay triggered the NLCA co-management process, with the NWMB was the decision maker. While it is not clear how much IQ was incorporated into the assessment, there is evidence that the harvesters were brought in to the process early and that their knowledge was valued.

DISCUSSION

The decision-making processes governing the harvesting and allocation of fisheries resources in Nunavut is implemented by the co-management framework created through the *Nunavut Land*

Claims Agreement (NLCA). While decisions are made by the NWMB after considering the best available information and public consultation, ultimately, the final decision is subject to the Ministerial discretion of the Federal Minster of Fisheries and Oceans. Presumably this decision is made using western science-based knowledge systems within the regulations of three key pieces of legislation, the *Oceans Act*, *Fisheries Act* and *Species at Risk Act*. There is a diversity of fisheries and fishing practices within the Nunavut Settlement Area (NSA), and adjacent waters, including marine mammals, crustaceans, and fish of all life histories and waters.

All co-management decision making processes begin with a proposal to the NWMB for something to be changed, or adapted, or introduced, to a harvested species in the NSA. These proposals must contain the best available science, Inuit and community knowledge, and evidence from consultations communities and affected parties. The proposal then goes to a hearing, the shape of which is decision-specific. The NWMB, as the decision-making body, then makes a decision based on the best available information, and submits it to the Federal Fisheries Minister who then has 60 days to accept, reject, or modify the decision. If it is the latter two, the NWMB sends a second decision to the Minister and the Minister's response is considered to be final and implemented.

The three different case studies focusing on turbot, narwhal, and char, demonstrate that the framework for decision making through the NLCA is very well defined and implemented by the NWMB to guide them to making a final decision, or provide advice outside of the NSA. At the same time, it also illustrates the complexity and non-linearity of working with stakeholders, and the other co-management partners, over a large Territory, while valuing, and expecting, flexibility to be incorporated into the decision-making process with respect to communication, meetings, interpretation, information, etc. For example, the large scale consultation process for the narwhal IFMP, and the smaller process for the Cambridge Bay char took place in much the same way. However, narwhal was a much more involved process because of the number of people involved, including those involved with the international CITES Convention. Collecting and incorporating the different types of information and knowledge is a challenge for the NWMB and co-management partners but decision making through the Board is one way that IQ has the opportunity to be incorporated into Federal decision making.

Founded within a consensus-based decision making framework and, as an institution of public government, the NWMB makes all regular meeting and public hearing submissions and correspondences available online as part of the public record to be reviewed. Additionally, the NWMB is working to have all records online, for example creating a public decision database to increase transparency as the process and commitment to transparency is valued. While reconstructing timelines for this research, it was a challenge to do so with the number and variety of documents to review and also because these processes were generally recent decisions or still in progress. For example, when meeting dates were changed, it was not always possible to locate the record of the new date. In the case of the narwhal IFMP, the NWMB posted the hearing documents, while the final version of the IFMP was relatively recently completed by DFO and not yet posted on the DFO (nor NWMB) website. In short, the record keeping is in different places at different stages and makes it a challenge to follow a decision from start to finish.

The co-management framework creates an opportunity for progressive management decision making but its application is still a work in progress. Incorporating the Inuit worldview, the remoteness of Nunavut, the *NLCA*, the economy, food security, and the lack of Nunavut specific fisheries regulations are only a few of the opportunities and roadblocks that need to be taken into consideration during decision making. However, consultation and both western science and Inuit knowledge systems are important and mandatory pieces of the management framework and any new Federal fisheries regulations will need to take this into account. The most remarkable aspect of fisheries co-management processes and decision-making in Nunavut under the guidance of the *NLCA*, is the interaction of the *NLCA* and DFO regulations and legislation. Additionally, what also makes this process unique is how the on-the-ground realities and implementing both of these management practices, (i.e. DFO regulations and legislation and the NLCA), meshes with life and hunting in Nunavut.

The NLCA protects the right of Inuit to harvest from the land and waterways within the NSA and takes precedence when DFO regulations are in conflict with the NLCA. Initially we expected to find the decision making processes to be less-westernized. However, throughout this research, it was discovered that the 1993 *NLCA* is western in its language which we assume was necessary in order for the Tungavik Federation of Nunavut to negotiate the Land Claim with the Crown (Canadian Government). With the recognition that the Federal Government retains

ultimate responsibility for wildlife management in the NSA (NLCA 5.2.33), it is important to also acknowledge most of the decision makers within the co-management partnership are originally not from Nunavut, nor Inuit, and likely bring a western worldview. While many "southerners" work for the GN and NWMB, the Board itself, which has decision-making authority in the NSA, is made up mainly of beneficiaries, Inuit of Nunavut. One of the examples of how the decision making process is western in its approach is the paperwork and the submission processes. In addition to the workshop-style consultations, a specific example would be one of the presentations for the narwhal community consultation tour by DFO which had 105 power point slides, similar to those delivered at Regional Assessment Processes for stock assessments, i.e. not for the general public (DFO 2012g). However, with respect to harvest levels, TAHs can be set using the best available information, implying that this does not always have to be science-evidence based. When there is no TAH, there is no harvest limit, thus ensuring Inuit harvesting rights. However, formulas in the land claim for establishing TAH and BNL have proven to be an issue to deal within the context of Canadian fisheries management instruments and the NLCA.

In the near future, it may be increasingly challenging for decision makers to accomplish effective management of resources that fulfils the goals of economic prosperity while ensuring long-term sustainability of the species needed for food, like char. The territory of Nunavut is over 80% Inuit and the population is estimated to be increasing, up 18.7% since 2006 to 36,585 in 2014 (GN 2015). Nunavut also has a young population with a median age of 24 years. There has been a renewed interest in commercial fishing in Nunavut due to an increasing population putting pressure on food resources in addition to a decrease in sealing activities which used to bring a source of income (GN 2012b). There appears to be conflicting goals, from a western perspective, that Nunavummiut want increased access to commercial fisheries versus the priority of a food fishery. NTI argues that the *NLCA* allows for harvesting up to their full level of need for economic, social, and cultural needs (NLCA 5.6.1). This would include commercial harvests, particularly when there is a surplus, in addition to access to allocations (NTI 2010). With climate influencing the accessibility to local foods, there are safety concerns of sea ice changes in addition to Inuit access to seal and walrus seasonal hunting areas (Laidler et al. 2009).

The *NLCA* is a very comprehensive document with positive and innovative decision making processes,[5] albeit complex, but it also has some shortcomings. For example, it has not been able to predict or accommodate for the interests of contemporary Nunavut such as emerging fisheries. Additionally, DFO has excluded the Inuit of Nunavut from benefiting from the *Aboriginal Fisheries Strategy* (DFO 1992) and the *Aboriginal Aquatic Resource and Oceans Management Program* (DFO 2004b) due to the existence of the *NLCA* (Brubacher 2004).

Throughout the documents and strategies published by or for Nunavut, common themes are increased infrastructure for commercial fisheries, allocations, and more marine science (e.g. GN and NTI 2005). The Government of Nunavut has developed its own scientific sampling program on their research vessel *Nuliajuk* (http://env.gov.nu.ca/node/124) which also hosts scientists and researchers from universities and governments from the southern part of Canada. While the training of DFO scientists is with the scientific method, to begin any research in Nunavut, DFO has to start at the community level and build in multiple feedback mechanisms throughout the duration of the research. The HTOs need to sign off on research and by including the community from the beginning, it is more likely that the program will be successful. In many fisheries, Canada is trying to reduce capacity, or employ the precautionary principle. However, given the unique nature of Nunavut in terms of its legal relationship under the NLCA, its geography, demographics, socio-cultural context and level of economic activity with respect to the fisheries, federal level decision making must necessarily be context specific. Furthermore, respecting the terms and conditions of the NCLA, a concerted effort must be made to increase the level of both IQ and scientific knowledge available to better inform decision making affecting aquatic species in the Arctic, their habitats, and larger ecosystems.

CONCLUSIONS

The co-management decision-making process was created, and mandated, by the *NLCA* and has many strengths. The process is driven by Nunavummiut, and food security and harvesting rights are ensured though the BNL, and if there is no TAH or BNL, there is no harvest limit. Decision making by the NWMB, an institution of public government, takes place after evaluating the best available information which can include science, or IQ, or other sources of knowledge, all part of

[5] Key examples include the Fisheries Advisory Committee, and fishing companies being asked to be accountable to Nunavummiut through the NWMB's Allocation Policy.

the public record. The *NLCA* supersedes IFMPs when they are in conflict within the NSA. Outside of the NSA, the NWMB makes recommendations to DFO and assigns quota through the Allocation Policy for Commercial Marine Fisheries.

There are still some challenges to be addressed such as the lack of Nunavut-specific fisheries regulations. However, there does not seem to be consensus on whether or not these are necessary going forward. Additionally, with respect to the BNL, some have still to be set and NTI is working to include commercial harvests in the BNL. Further, there is some discordance in how fisheries are designated in Canada. For example, recreational fisheries have the potential to bring a lot of revenue to the region, and yet the concept of a sport fishery is not an Inuit practice per se. Emerging species and fisheries are of great interest to Nunavut. However, they are not represented in the *NLCA*, and gaining additional access to commercial fisheries has proven to be difficult.

Key operational challenges also exist such as the need for more capacity in terms of trained personnel, enforcement, infrastructure, research, and so on. However, another more substantive issue with fisheries decision making in general, including in Nunavut, is Ministerial discretion. In Nunavut, there is much careful planning, execution, and consideration that goes into fisheries decision making through the co-management framework. While this process has the potential to enhance Ministerial support for decisions made under the framework, not only is it possible for the Minster to overturn the decision but s/he is not required to provide the rationale for their decision-making.

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