Institutional challenges for effective governance of consumptive wildlife tourism

Case studies of marine angling tourism in Iceland and Norway

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Abstract:

Fishing takes the lead as the most popular product offering within the niche sector of consumptive wildlife tourism worldwide. The inter-dynamics of governance issues within consumptive wildlife tourism are examined using a multiple case study analysis of marine angling tourism — one from Iceland and one from Norway. The fish, as a common pool resource, are shared by tourists and local residents alike, potentially giving rise to conflicts that can work against the benefits of tourism for regional development. Iceland's management strategy for marine angling tourism prioritizes ecosystem-based management, and requires a full accounting of all statistics related to marine angling tourists' extraction of fish as a living resource. Norway's approach, on the other hand, relies on estimates. Applying an interdisciplinary theoretical framework for the analysis, this paper investigates possible reasons for the contrariety, and explores how these differences contribute to and/or result in conflict creation and mitigation. Such an institutional analysis demonstrates how governance is influenced by institutional structure, conditions, and inter-dynamics; and serves as an example of how such an analysis can be utilized to meet the challenges faced in governing complex socio-ecological systems such as consumptive wildlife tourism.

Keywords: marine angling tourism, consumptive wildlife tourism, sustainable tourism management, common pool resources, institutional pillars, interactive fisheries governance, socio-ecological systems, natural resource management, Iceland, Norway

1.0 Introduction

Tourism is one of the fastest growing economic sectors in the world, and serves as a key driver for socio-economic progress and job creation (UNWTO 2014)[a]. While tourism can breathe life into remote communities, and play a major role in driving regional development (Hall and Richards 2000); it is also increasingly being recognized as a major source of resource exploitation, degradation, and depletion (Gössling and Hall 2006(a); Gössling 2002(b)). Consumptive wildlife tourism, a specialized niche sector (Lovelock 2008(a)) is an example. It is steadily growing in popularity, with fishing taking the lead globally (Bauer and Herr 2004) as the most popular product offering within this niche. Sustainable tourism scholars have identified that reconciling the conflicts, and finding balance between the socio-economic benefits of tourism development and sustainable use of natural resources are necessary pre-requisites for sustainable tourism development (Briassoulis and Straaten 1992; Farrell and Twining-Ward 2004; Gössling 2002(a); Hall 2001; Briassoulis 2002; McKercher 1993(a); Robinson 1999). However, resource management policies related to tourism development

are often made outside the tourism domain (Bramwell 2011; Hall 2008), for example within fisheries management.

Research in political science reinforces findings from conflict research in tourism. Ostrom's research on governance within common pool resource (CPR) institutions identifies conflict resolution as one of the critical institutional design principles for long-enduring CPR institutions (Ostrom 1990, p. 90). Research in fisheries governance has similarly shown that resolving and mitigating conflicts between resource use and conservation efforts requires the creation of an effective, adaptive interactive governance strategy, in order to find balance between these two competing interests (Pascual-Fernandez et al. 2005; Jentoft et al. 2010).

For the purpose of this article, focus is placed on fisheries in the marine environment only, not freshwater; and marine fisheries only related to tourism activities, not recreational fishing activities by the resident population. This allows for use of the term: *marine tourism fisheries* - an industry growing so large, that it has the potential to come into resource competition with small-scale and commercial-scale fisheries.

Remote coastal communities in Iceland and Norway serve as host destinations for marine angling tourism (MAT)[b], a popular form of consumptive wildlife tourism in the Arctic fjords. These small communities have relied on the fish in the fjords for hundreds of years as part of a long-standing sea fishing tradition. With the rise in MAT, the locals must now share "their" fish with foreign tourists, potentially creating scenarios for tourism-related conflicts (Arlinghaus 2005; Yang et al. 2013; Butler 1974; Robinson 1999; Budowski 1976). Conflict, in this context, is defined as a serious incompatibility between two or more opinions, principles, or interests[c] — referring here only to *sources* of conflict behaviour (e.g. divergence of interests or values), not the conflict behaviour itself (e.g. acts of violence) (Pruitt 1998). Conflict can have a positive social function and is not necessarily an indicator of dysfunctionality from a governance perspective. A certain degree of conflict is an essential element in group dynamics and group formation, and is considered a learning and growth opportunity for institutions (Coser 1956), but this is in part dependent upon how the institution adapts to resolve or mitigate emergent conflicts.

This article begins with a short description of the methodology and theoretical framework being applied to the data for the analyses presented. The reader is then introduced to an empirical example resulting from Iceland and Norway's differing governance approaches with regard to monitoring MAT activities and tourists' extraction of fish. Using an interdisciplinary theoretical

approach modified from Scott's institutional theory (1995, 2008(b), 2014)[d], and modification of Scott's theory of institutions to fisheries management following Jentoft (2004) and Johnsen and Eliasen (2011), this article investigates possible reasons for the contrariety, and explores how these differences contribute to and/or result in conflict creation and mitigation. The following research question will be answered with this analysis: From an institutional perspective, how is governance influenced by institutional structure, conditions, and inter-dynamics? This article builds upon Berkes' (2010) call for a reconceptualization of 'natural resources' and 'management' — serving as an example of how such an analysis can be utilized to meet the challenges faced in governing complex socio-ecological systems such as consumptive wildlife tourism, where resource use and conservation come into conflict.

2.0 Methods

For this article, qualitative data was examined from multiple perspectives, effectuating cross-validation, and enabling a more comprehensive, holistic analysis of MAT (Denzin 1978; Jick 1979; Yin 2009, p. 114; Decrop 1999; Denzin and Lincoln 1994). The collection of qualitative data followed Yin's six sources of evidence (Yin 2009, p. 101-112): detailed direct field observations; open-ended focused interviews with stakeholders at several operational levels (tourists, camp owners/daily leaders, commercial fishers, and government officials); participant observations; collection and analysis of formal documentation such as newspaper and web-based articles at the community and national levels; archival data including government laws, regulations and statistics; and photography.

2.1 Field area

The field area for this article included the Western Fjords of Iceland and the fjords of the three northern-most counties of Norway — Nordland, Troms and Finnmark (Figures 1 and 2).

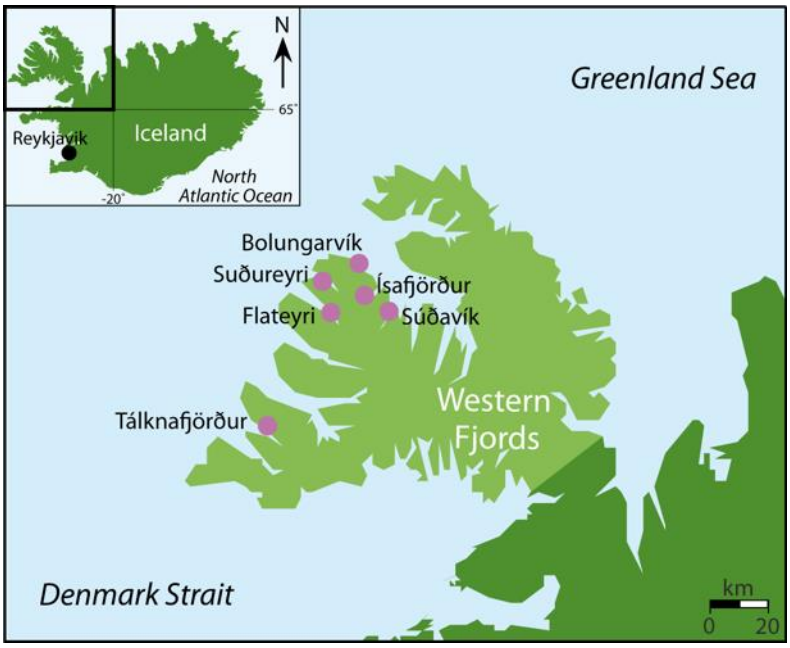

Figure 1: Map showing field sites visited in the Western Fjords, Iceland. Ísafjörður is not the site of a fishing camp, but is marked as a reference point.

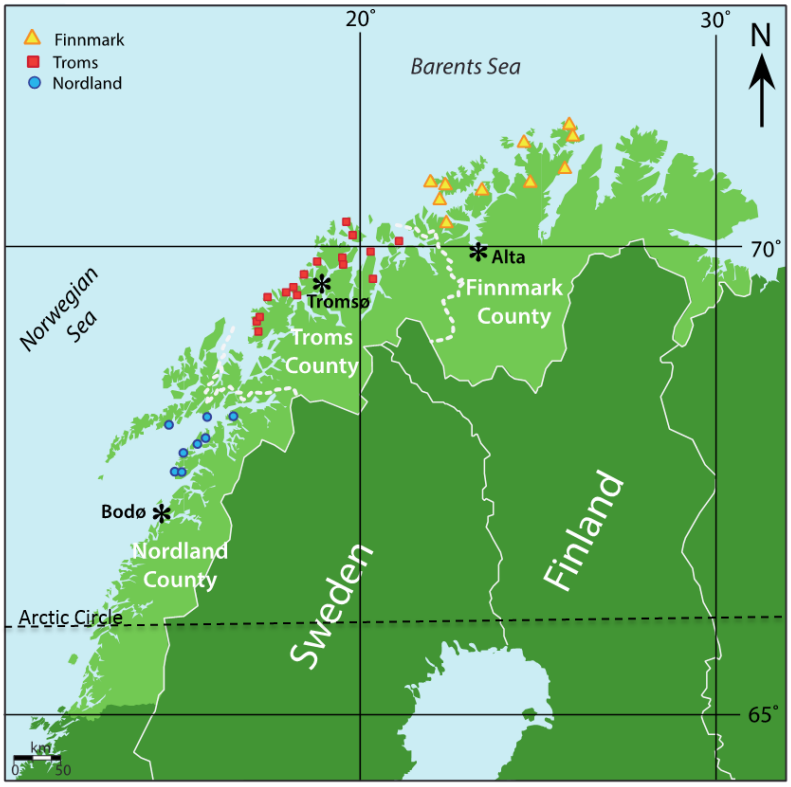

Figure 2: Map showing the 34 field sites in the three northern-most counties of Norway — Nordland, Troms and Finnmark - regionally known as Northern Norway.

2.2 Field work

Fieldwork in Iceland was conducted in September 2010 and in June 2011. The fishing camps that operate in a similar fashion to those in Norway are located in the Western Fjords, in the small fishing villages of Súðavík, Suðureyri, Flateyri, Bolungarvík and Tálknafjörður (see Figure 1). All camps but one were visited twice, for a total of 9 camp visits.

Fieldwork involved interviewing government officials (6 in total), making direct field observations at each fishing camp, conducting open-ended focused interviews with the camp owners/daily leaders (3 in total), photographing the facilities, and collecting formal and archival documentation.

Fieldwork in Northern Norway (Figure 2) was conducted from April-August 2009 and April-August 2010, by driving in geographic order from North Cape to Northern Nordland. Data collection included all above listed qualitative methods for Iceland, as well as participant observations, where the researcher personally experienced going out on a boat with the tourists, fishing as a tourist, and filleting the fish as a tourist. There were 20 camp visits in 2009, and 25 camp visits in 2010. 34 different camps were visited that met the qualifications for data collection criteria. Some of these camps were visited more than once, making a total of 45 camp visits. 77 open-ended interviews were conducted in Northern Norway, with stakeholders at several operational levels. This included 44 interviews with fish camp owners (12 female); 6 daily leaders; 12 interviews with 32 tourists (1 female); 7 fishing guides; 3 charter fishing operators; 2 tour operators; 1 professional fisher; and 2 government officials. Inclusion criteria for the tourists who gave interviews were specialist knowledge and experience as a marine angling tourist; ability to communicate in Norwegian, Swedish or English; and willingness to be interviewed. A detailed description of the qualitative methodology for the research project, as well as criteria used for selecting the camps is found in Solstrand (2013).

3.0 Theoretical framework

To comparatively examine the institutional structure of MAT the theoretical framework begins with MAT as a complex socio-ecological system (SES) (Berkes et al. 2003; Berkes and Folke 1998; Ostrom 2009; Solstrand 2013; Solstrand and Gressnes 2014). SESs can be defined as integrated complex systems, consisting of nested social (human) and ecological (biophysical) subsystems, integrated by two-way feedbacks through institutions of governance. Human-ecosystem interactions are a primary and highly complex component of MAT, coupled, and co-evolutionary (Berkes 2011; Berkes and Folke 1998; Berkes 2010). The interdependent living resource management and tourism management

dynamics are multi-sectoral, with adaptations to change occurring along unpredictable pathways (Berkes 2010; Levin 2006; Berkes et al. 2003).

MAT as an institution can be seen as nested within the overarching institution of CPRs (Ostrom 1990; McCay and Acheson 1987(a); Jentoft 2004; Scott 2014). Institutions are linked to each other and form networks that are themselves institutions. None are self-sufficient, in that their viability is dependent upon the type of relations established within the larger systems of which they are a part; therefore institutions must be analysed as "semi-open" systems that receive input from external sources, e.g. from other institutions (Pascual-Fernandez et al. 2005; Scott and Davis 2014). Institutions cannot remain static, isolated, or ignorant of change. Mechanisms must be in place for institutions to remain flexible and learn (Jentoft et al. 2010), especially with regard to emergent conflicts, with the implicit understanding that change is inevitable, and that adaptation is necessary for maintaining balance.

A modified version of Scott's institutional theoretical construct of three pillars of institutional order: regulative, normative and cultural-cognitive, form the underlying theoretical basis for this article (Scott 2014). Jentoft (2004) applies Scott's three institutional pillars to fisheries governance, arguing that the institutional framework for fisheries management must capture the intricacies of social and cultural processes of change that are essential to making fisheries more sustainable. In Jentoft's model, the cultural aspect is not only assigned to the cognitive pillar of the institution, but is a crucial component of both the normative and cognitive elements. Jentoft stresses that communities play an essential role — both in fisheries management, and as hosts for tourists — and that the community must therefore be taken into consideration as a key stakeholder. Jentoft asserts that institutions for governance in fisheries must be constructed to allow for institutional learning, and must work from the bottom up as well as from the top down. Co-management that includes communities must be part of the institutional design, adhering to democratic principles of accountability and transparency, with sensitivity, which permits response to all affected interests (Jentoft 2000, 2011(a); Jentoft et al. 2010; Jentoft 2004; Jentoft and Mikalsen 2014).

Building on Scott (2014) and Jentoft (2004), Johnsen and Eliasen (2011) examine the discard problem in fisheries management, adding a fourth institutional pillar titled the 'natural' pillar. Adding the natural conditions as a fourth pillar is consistent with emerging research in fisheries, and the recognition that the social and ecological aspects of the management of fisheries can be considered as an integrated socio-ecological system (SES) (Berkes 2010, 2011; Ommer and Perry 2011). Figure 3, modified after work by Scott (2014), Jentoft (2004), and Johnsen and Eliasen (2011), depicts a

graphical representation of the four institutional pillars, and represents the theoretical framework used for the analyses in this article.

Following what is presented in Figure 3, the natural pillar holds the conditions of the natural environment — the biology, ecology, geology, geography and ecosystem functioning within the natural environment (Johnsen and Eliasen 2011). The regulative pillar functions through rule-setting and monitoring, and sets the terms for sanctions in the event of non-compliance (Scott 2014). Non-compliance within the regulative pillar acts as a stressor to the system. Sanctions and their enforcement are created to counterbalance this stressor. Non-compliance can affect all pillars, and has the power to bring down the entire system, if not addressed. It cannot necessarily be eliminated from the institutional system, but can be mitigated depending on how the institution responds.

The normative pillar holds the evaluative and obligatory dimension of social life (Scott 2014) (Figure 3). This pillar holds the norms, values, ethics, and morals — guided by the unwritten rules and understandings shared by society members (Briassoulis 2002; Folke 2007; Levin 2006; McCay and Acheson 1987(a); Ostrom 1990; Ostrom et al. 1999). Cultural underpinnings are applied under the normative pillar, consistent with the argument by Jentoft (2004) that norms specify how things should be done (e.g. the measure of appropriateness), according to the cultural framework of the society, providing legitimacy for how values are applied. Values in this context are held values, not assigned values (such as economic worth), and refer to the expressed relative importance or worth of an object to an individual or group in a given context (Brown 1984, p. 233). Through the normative element, the goals and objectives of the system are defined, as well as the expected roles that actors should play stemming from the shared cultural understanding. As a result, there is societal agreement and pressure to conform to the rules. Compliance here means behaviour of the individual reflects the norms and values held by the society, not self-interests. Therefore, *within* the society, non-compliance results in social judgement, shame, or disgrace (Scott 2014). However, this does not apply to people who sit outside this cultural context.

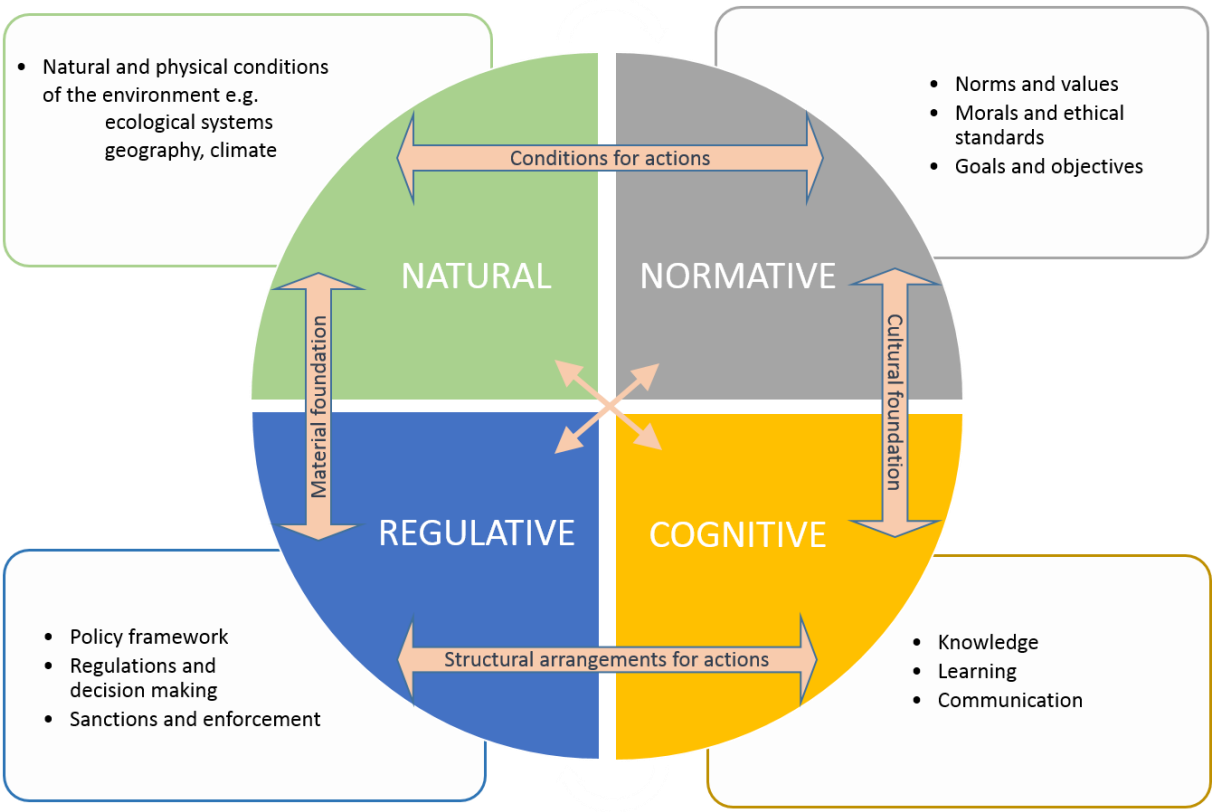

Figure 3: A graphical representation of the four institutional pillars (modified after Scott (2014), Jentoft (2004), and Johnsen and Eliasen (2011)).

Cognition, by definition[e], is the mental action or process of acquiring knowledge and understanding through, for example, thought, and experiences. The cognitive pillar (Figure 3) provides the deeper cultural understanding forming the foundation upon which the regulations and norms rest. Under this pillar, compliance occurs because other types of behaviour are essentially inconceivable. Rules are followed, driven by an attitude of "of course this is the way we do things". Legitimacy is measured essentially by what makes sense — in other words, a common "taken from granted" attitude through a shared understanding of what is considered acceptable (Scott 2014). The continual process of knowledge acquisition and processing, which subsequently affects institutional learning, is happening via the cognitive pillar. Institutional responsiveness and adaptation are stimulated in both the regulative and normative pillars, if communication mechanisms are in place to transfer the knowledge.

An institution is a dynamic system that is continually subject to stressors — forces of varying characteristics (including conflicts), acting both from within and external to the system. The system must be flexible enough to adapt in order to minimize disruption from such stressors (Kooiman et al. 2005; Ostrom 1990; Scott 2014). In a stable system, no one single pillar functions alone, nor does any

single pillar dominate. When the system is in balance, the capacity to adapt is high, and the chances for sustainability are far greater. When the system moves out of balance, it means that stressors are exerting force on one or more pillars, and that adaptation to re-establish balance becomes necessary (Strange and Sine 2002).

4.0 Monitoring the fish as a resource – empirical examples from Iceland and Norway

In comparing Iceland and Norway, the single most significant difference in the institutional structure for MAT rests in how the tourist activities are monitored. This difference has far-reaching consequences for how MAT functions in the two countries, although the tourist activity itself is essentially the same. Refer to Solstrand (2013) for a full description of why these two countries can be compared with regard to MAT.

4.1 Iceland

In Iceland, the marine angling tourist businesses must adhere to the same strict regulations designed for the commercial fishing fleet with regard to the fish. Due to the regulations in place, the government has full accounting of MAT statistics - how much and which species of fish are delivered from each boat, from each camp, for every day of the season. These statistics are no different from those gathered for the commercial fishing fleet. The number of boats has remained essentially constant over the last four years at approximately 48 (Table 1), shared by three companies.

In Table 1, the average kg/boat/day is calculated for MAT in Iceland, by starting with published figures for total seasonal catch (in tonnes), the number of boats, and using a realistic low and optimistic high for the number of fishing days (calculations moving from right to left). Total seasonal catch (kg) ÷ fishing days ÷ boats = kg/boat/day. Over a four-year period, the total seasonal catch has been fairly consistent with a calculated average daily catch of 48-61 kg/boat/day (Table 1). Such a statistic remains independent of the number of marine angling tourists doing the fishing, but the interviews conducted revealed an average of four tourists per boat.

Table 1: The average kg/boat/day is calculated from known statistics in Iceland: the total seasonal catch and the number of boats, for years 2010-2013. Calculations move from right to left.

				← calculations	
	Season	**Average kg/boat/day** [(a)]	**Number of boats**	**Number of fishing days (low/high)**	Total seasonal catch (tonnes)
Iceland	2010	53 to 66 kg/boat/day	47 [(b)]	80/100 [(a)]	247 [(b)]
	2011	48 to 60 kg/boat/day	48 [(c)]	80/100 [(a)]	232 [(c)]
	2012	49 to 62 kg/boat/day	49 [(d)]	80/100 [(a)]	242 [(d)]
	2013	43 to 55 kg/boat/day	48 [(e)]	79/100 [(f)]	207 [(e)]
	Average	48 to 61 kg/boat/day	48		232

(a) Government regulations reserve quota for the months of May, June, July and August (123 fishing days). Based on the interviews conducted, 80 reflects a realistic figure for a typical season. 100 is an optimistic high, with only 23 days of the season lost due to bad weather and wind conditions. In Iceland, not all boats are fishing all days due to a varying number of guests, and weather is always a factor.

(b) Fiskistofa (2010, pg. 10) modified after interview with Fiskistofa October 2011. 227 tonnes cod (92%); 14 tonnes wolffish (6%); 3 tonnes haddock; 2 tonnes saithe; 1 tonne halibut

(c) Fiskistofa (2011): 219 tonnes cod (94%); 10 tonnes wolffish (4%); 1 tonne each saithe and haddock

(d) Fiskistofa (2012): 228 tonnes cod (95%); 10 tonnes wolffish (4%); 1% other

(e) Fiskistofa (2013): 182 tonnes cod (88%); 19 tonnes wolffish (9%); 3% other – The drop in total tonnage was attributed mostly to weather, but there was also a noted change in the number of guests and group composition (i.e. more families).

(f) Personal communication with fish camp owner, 19 March 2014, confirmed 79 fishing days for 2013. For this camp, average seasonal take is from 120-160 tonnes. For 2013, the total catch was 150+ tonnes. For 21 boats, the average was approx. 90 kg/boat/day. The average group size was 3.8 fishers.

4.2 Norway

In contrast to Iceland, Norway currently performs no systematic monitoring of MAT activities. Neither the species, how many of each species are landed and/or exported, nor the catch and release mortality are monitored. There is no central registry to collect data on how many marine angling tourists are travelling to Norway, or are registered in formally established fishing camps. There is no central registry of businesses offering marine angling as a tourist product or the number of boats engaged in MAT activities. Although the empirical data for this article came from fishing camps in Northern Norway, it must be noted that tourists can camp and fish along the entire Norwegian coastline, if they have their own boat. The amount of fish extracted by these tourists is also unmonitored. Similarly, no monitoring programme is in place for recreational fishing activities by Norwegian residents. "*At present, there are no precise and unbiased annual statistics available for total recreational fishing effort along the coast of Norway or on how much and which species are caught… Hence, there is a need for more and better information on the coastal zone to mitigate conflicts among stakeholders and to ensure sustainable fisheries*" (Vølstad et al. 2011(a), p. 1786).

To compensate for the lack of official statistics, three major studies have been conducted over a ten-year period in an attempt to estimate total seasonal catch for MAT in Norway (Table 2). These studies have produced widely differing results depending on how the question was approached, and how the calculations were done. Although field data for the current project shows that MAT is increasing in Northern Norway, the estimates for how much fish is actually being harvested have decreased significantly with each successive estimate of total seasonal catch. The only number one can claim to know with any certainty might be the number of boats. Based on Vølstad et al. (2011(a)), the total number of boats used for MAT is calculated to be 2,393 for all of Norway in 2009; and Borch et al.'s (2011) figure of 907 boats is used for Northern Norway as of 2009. Vølstad et al.'s study (2011(a)) uses a figure of 445 official marine fish tourism businesses in Norway as of 2009, while the study by Hallenstvedt and Wulff (2001) estimates that 939 businesses were in operation in 2001. The estimates of total seasonal catch from these three reports are compared in Table 2.

Table 2: Seasonal catch estimates from MAT in Norway - studies done over a ten-year period.

Year	Authors (Date of report) Institutions	Estimated Seasonal Catch	All of Norway	Northern Norway
2001	Hallenstvedt and Wulff (2001) Norwegian College of Fishery Science, University of Tromsø	13,400 tonnes with a range of 12,000-15,000 tonnes per year[(a)]	~ 10,000 boats 939 businesses	
2003	Cap Gemini Ernst & Young (2003) Int'l consulting firm (now known as Capgemini Consulting)	6,000-9,000 tonnes per year		
2011	Vølstad et al. (2011(a); 2011(b)) - Institute of Marine Research under Ministry of Fisheries and Coastal Affairs, Bergen	3,335 tonnes per year[(b)]	2,393 boats 445 businesses	907 boats [(c)]

(a) For 2001-2002, based on all of Norway, with an average per fisher of 60 kg per vehicle. An estimate of approximately 10,000 boats of varying sizes was used — available to tourists staying in organized accommodations.

(b) For 2009, based on all of Norway with an error margin of 17%; 1,613 tonnes cod (22% error margin). For Northern Norway, 2,298 tons annually. Calculation based on catch diaries where only the harvest (fish kept) was recorded. This figure does not include fish mortality from catch and release.

(c) Estimate taken from Borch et al. (2011) based on a study performed in 2009.

Catch-and-release, as a fishing practice, has significant bearing on fish stock management from a biological, ecological, and socio-cultural perspective (see for ex. Arlinghaus 2007; Ferter et al. 2013; Arlinghaus et al. 2007). The fjords are deep in Norway and for several Arctic fish species this means

death on arrival to the surface, no matter which catch-and-release techniques are applied. However, no reliable estimates for catch-and-release mortality are available for MAT activities in Norway.

Table 3: Total estimated seasonal catch in Norway calculated by using a range of figures for kg/boat/day taken from Table 1. Calculations move from left to right.

	Estimate of seasonal catch			
	All of Norway (tonnes) [a]		**Northern Norway (tonnes) [b]**	
	Fishing days		**Fishing days**	
calculations →	low [c]	high [d]	low [c]	high [d]
61 kg/boat/day[e]	22 334	31 092	8 465	11 785
48 kg/boat/day[e]	17 574	24 466	6 661	9 273
30 kg/boat/day	10 984	15 291	4 163	5 796
20 kg/boat/day	7 323	10 194	2 775	3 864
10 kg/boat/day	3 661	5 097	1 388	1 932
8 kg/boat/day	2 929	4 078	1 110	1 546

[a] Based on the reported figures for number of boats in Vølstad et al. (2011(a)) - 2,393 boats for all of Norway.
[b] Based on the reported figures for number of boats in Borch et al. (2011) - 907 boats for Northern Norway.
[c] Based on a *low estimate* of 153 possible fishing days in peak season: ½ April (15 days), May (31 days), June (30 days), July (31 days), August (31 days), and ½ September (15 days). All camps visited reported full bookings for the season. Not even the newly established camps had vacancies.
[d] Based on a high estimate of 213 possible fishing days. Several camps in Northern Norway open in mid-March and run into mid-October.
[e] Starting with the averages (high and low) from the calculations for Iceland (Table 1).

Table 3 allows for a comparison of the Norwegian estimates from Table 2 with the known data from Iceland presented in Table 1. Working the calculations from left to right in Table 3, the starting point is the average kg/boat/day found in Table 1. It is important to note that the estimates in Table 3 do not take into account the tourist fishing activities occurring along the coastline outside of fishing camps, unknown landings from illegal fish smuggling activities, or the recreational fishing activities by Norwegian citizens. These activities represent numbers of boats not accounted for. With an increase in the number of boats, the figure for total seasonal rises significantly.

With the estimate of 3,335 tonnes as a total seasonal catch for all of Norway, Vølstad et al. (2011(a); 2011(b)) conclude that the tourist catch of coastal cod is insignificant in comparison to commercial scale and recreational fishing by Norwegian residents. The random field observations at the fishing camps in Northern Norway in 2009 and 2010, however, documented that marine angling tourists (average of four per boat) were typically landing a full box of fish after a day on the sea - with an

average estimated weight of between 45 to 60 kg, but field observations often recorded far higher — well over 60 kg. Average-sized cod are approximately 5-15 kg, and the tourists were typically coming in with over six cod (> 30 kg), one to four wolfish (3-7 kg each avg.), a few saith (2-4 kg each) and haddock (2-3 kg each)[f] and/or redfish. If a halibut was in the box, the total number of kilos rose considerably, as just one small 1 meter halibut can be 50 kg or more. It was very seldom fishers were coming into camp with no fish. If it was just the fish for dinner they were landing, then it was still up from 20 kg (e.g. 3-4 average sized cod) to feed the group (on average 25% of the fish is fillet).

The purpose of this empirical comparison is not to prove or disprove the estimates of Norway's total seasonal catch from marine angling activities. Such a definitive calculation is not possible given the number of unknown variables. The purpose is rather to create a different framework from which to evaluate the current Norwegian estimates. Each estimate has produced a vastly different result, leading to speculations and far reaching conclusions that could have serious implications for resource management and institutional functioning that affects sustainable MAT development. Finding any type of statistical correlation between estimates, or attempting to say which study is the most accurate is not possible due in part to the widely differing methodologies that were used. Many government statistics controlling commercial-scale fisheries management in Norway distinguish between areas north and south of 62°N. The overall sizes of the fish and composition of species caught in Northern Norway increases the kg/boat/day statistic substantially, in comparison to southern Norway, which also has bearing on attempting to find an estimate for the entire country.

In a study by Pitcher et al. (Pitcher et al. 2009; Pitcher et al. 2006; Ward et al. 2002) to evaluate progress in implementing ecosystem-based management (EBM) of fisheries in 33 countries (in connection with evaluation of global compliance with the UN Code of Conduct for Responsible Fisheries), Norway was listed among the top six countries evaluated on the top five principles for EBM; and Iceland listed among the top nine. Norway and Iceland were listed among the top four for the six indicators developed to evaluate successful EBM. One of the most obvious questions that emerges after reading the above empirical example is what are the reasons behind such a discrepancy from an EBM perspective? Due to the lack of a formal monitoring programme for MAT in Norway, a "black hole" of knowledge exists, introducing doubt as to whether the fjord stocks are being managed sustainably or not. This uncertainty creates a significant stressor to all four institutional pillars.

The following section, combining results and discussion, presents a comparative analysis of the four institutional pillars for both Iceland and Norway in an attempt to understand more clearly what might be influencing the governance mechanisms leading to the contrariety in management for the same form of consumptive wildlife tourism.

5.0 Comparative institutional analysis

The institutional pillars for MAT are analysed in the following order: natural, regulative, normative, and cognitive. However, it must be stated that what is being analysed are the inter-dynamics of the pillars, not which comes first in order of priority – something that is very difficult to assess in any institutional system because of the interconnectedness of all pillars.

5.1 Natural pillar

Elements under the natural pillar include but are not limited to, the geography, climate, ecosystem functioning, and biology. Species common to both Northern Norway and the Western Fjords of Iceland are cod (*Gadus morhua*)*;* Atlantic halibut (*Hippoglossus hippoglossus);* wolffish (*Anarhichas spp);* anglerfish (*Lophius piscatorius*); and haddock *(Melanogrammus aeglefinus*). Saithe (*Pollachius virens*), redfish *(Sebastes spp.*), and tusk (cusk) (*Brosme brosme*) are part of the fishing experience in Northern Norway but are not typically found in the Western Fjords.

Iceland

Iceland lies between latitudes 63° and 67°N. A volcanic island of 103,000 km^2 in the middle of the North Atlantic, often with challenging weather conditions, Iceland has an exotic appeal (Jóhannesson and Huijbens 2010; Jóhannesson et al. 2010) for marine angling tourists. Transportation is a significant issue for MAT in the Western Fjords. The Western Fjords are a remote location, even for Icelanders. To get to one of the fishing camps, tourists coming from Europe must travel by plane to Keflavík International Airport (southwest of Reykjavík), bus transport to Reykjavik, then board a domestic charter flight from Reykjavík to Ísafjörður, and finally bus transport to the fishing camps. If weather conditions ground the charter flights out of Reykjavík, tourists must take a bus, which can add over 12 hours to the travel time – a significant amount of time for a one-week holiday.

The Western Fjords have average sea depths from 30-60 meters. The most common fish species caught by tourists is cod (>90% - see Table 1). When south-west winds dominate off the western coast of Iceland, fishing outside the protection of the fjords is more challenging, but often leads to catching larger fish. For this reason, larger boats are used in Iceland, and boat safety regulations for

MAT are far more stringent than in Norway. It can happen that tourists are prevented from fishing for up to three or four days of a one-week holiday due to bad weather.

Until recently, the most marketed species for MAT businesses advertising Iceland as a destination was the Atlantic halibut. A halibut caught in the Western Fjords by a marine angling tourist in 2010, set a new official world record (220 kg – 485 lbs). The effect that the halibut ban has had on marketing is not known.

Due to the country's geography, the marine angling tourists are flown to and from Iceland mostly as part of organized charter groups. The camp owners cooperate and coordinate transportation such that all tourists arrive and leave on the same days (approximately 90 tourists per week during peak season). This helps keep costs down for the tourists, especially if weather disturbs the transportation logistics. However, the geography has another — more subtle, but just as significant — role here. Iceland as an island geographically provides a natural deterrent to fish smuggling by marine angling tourists. It cannot be said with any certainty that smuggling does not occur in Iceland, but for smuggling to occur, marine angling tourists would need to overcome some challenging obstacles, e.g. paying for additional luggage on the return flight, and the fact that the tourists arrive and depart in large charter groups with all luggage (and extra luggage) clearly visible and monitored. For tourists who arrive on their own, perhaps by car ferry, smuggling might be somewhat easier, but the price of the holiday rises significantly, calling into question whether the amount of smuggled fish would actually produce a profit. The tourists would need to have their own boat, and based on information learned from the field interviews conducted, this would be difficult due to licensing restrictions.

Norway

Norway lies between latitudes 57° and 81°N. Including all the majestic fjord formations and hundreds of islands, Norway has a total coastline of 83,281 km[g], more than twice the earth's circumference of 40,075 km. The field area for this project lies between 67° and 71°N, above the Arctic Circle, along a coastline of islands, fjords, and quaint coastal communities connected by car ferries and bridges. Fishing depths can vary from 15 to 200 meters even inside the fjords. As in Iceland, the one species most used in marketing brochures and which invites the most attention from extreme sport fishers is the halibut, which can grow to over 200 kg, just as in Iceland. World-record sized halibuts caught using only a rod and reel have been caught by marine angling tourists in Northern Norway in years 2009 (210 kg or 463 lbs) and 2011 (245 kg or 540 lbs — beating the world record set in Iceland in 2010 by 25 kg), but halibuts up to 175 kg are caught regularly each fishing season.

In addition to the sheer quantities and enormous sizes of the different fish species, the geography also plays a key role in the governance of MAT. The geography makes it possible for tourists to drive their own vehicles from mainland Europe and Russia. Theoretically, tourists can fish wherever they wish along the extensive coastline, without breaking Norwegian law, as long as they use only rod and reel and do not sell their catch. If tourists' primary motivation includes taking illegal amounts of fish out of the country, the geography assists. Sanctioning violations of the export quota can only be done at the border crossings, because as long as the tourists remain in Norway and do not sell their catch — although they may have acquired hundreds of kilos of fillet over the export quota during their stay — they have not broken Norwegian law until they have crossed over the border.

A resource management plan based on estimates of the total seasonal catch has the potential to seriously impact the natural pillar. The temporal and spatial stressors on fjord stocks intensify during the summer months as a result of MAT activities. Genetic studies suggest that the coastal cod living in the fjords may be genetically different from the open-sea Arctic cod stocks migrating from Lofoten to the Barents Sea (e.g. Fevolden and Pogson 1997; Pogson and Fevolden 2003). This would mean that the tourists are most likely fishing distinct populations of non-migrating, local stocks of cod residing in the fjords. For some fjords, these increased temporal and spatial stressors may increase stock vulnerability; however, without the availability of baseline statistics, there is no way to further evaluate this. The 2013 report from the ICES Arctic Fisheries Working Group outlines a rebuilding plan for coastal cod, adopted by the Norwegian government in 2010, as the result of a drastic decline of coastal cod stock in recent years (ICES 2013). "*The management regime employed is aiming for improved ecosystem monitoring in order to understand and possibly enhance the survival of coastal cod*" (ICES 2013, p. 98). ICES considers their proposed plan to be provisionally consistent with the precautionary approach; however, the lack of monitoring statistics for such a significant portion of coastal cod mortality and landings (tourist and recreational activities) is not consistent with EBM or the precautionary approach. Vølstad et al.'s (2011(b)) latest estimate for the total seasonal catch for MAT quieted the debate on stricter regulations for coastal cod, another example of the complex interconnectedness between the natural, regulative, and cognitive pillars.

5.2 Regulative pillar

Regulations for MAT are nested within a fisheries institution of common pool resources in both Iceland and Norway. The laws that control CPR for both countries share congruent goals. Both laws

state, first and foremost, that the wild living marine resources are common property; both laws state the priority to promote stable employment and regional development in the vulnerable coastal communities; and both laws state the importance of caring for the wild living resources in a sustainable manner with consideration given to future generations (Table 4).

Table 4: Comparison - Fisheries Management Act of Iceland and the Marine Resources Act of Norway

	Iceland **Fisheries Management Act**	**Norway** **Marine Resources Act**
Common pool resource	*Fish stocks in Icelandic waters are the common property of the Icelandic nation*	*The wild living marine resources belong to Norwegian society as a whole*
Employment and regional development	*[*To*] ensure stable employment and regional development*	*[*T*]o promote employment and settlement in coastal communities*
Sustainability and conservation of fish stocks	*[*T*]o promote the conservation and efficient utilization* [of the fish stocks]	*[*T*]o ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them*

Iceland

In Iceland, the regulations governing MAT are nested in the Fisheries Management Act, which was first signed into law in 1990. This Act states the fish are a CPR, and establishes the Individual Transferable Quota (ITQ) system for Icelandic fisheries where quotas represent shares in the national Total Allowable Catch (TAC). In August 2006, the Fisheries Management Act was re-issued as Law nr. 116/2006, incorporating all changes made to the original Act of 1990. In 1996, the law on the treatment of exploitable marine stocks banned catch-and-release fishing (Alþingi 1996). An exception to this law was passed in December 2011 (Alþingi 2011), due to a serious decline in the halibut population. If a halibut is caught and remains viable it must be released. Marine angling tourists are required by law in Iceland to use only a rod and reel, and the sale of catch is forbidden.

Iceland's regulatory system for MAT makes essentially no distinction between tourist businesses and commercial-scale fishers with regard to how the fish are handled as a resource, i.e. ITQ as a part of TAC. The fish camps own the boats, boats must be registered, and quota must be purchased for each boat engaged in tourist fishing. If the tourist boat registers no fishing activity, it loses its quota. The tourists must deliver their fish catch daily to the local fish factory for processing, and the amount of the fish is weighed in against the quota of the boat, which must be regularly replenished throughout the summer months by the camp owners. The tourists cannot use the boat if it does not hold a quota. Tourists are permitted to take fish home with them, but they must buy this fish separately.

The strict regulatory framework allows Iceland to demonstrate full transparency with regard to important catch statistics for MAT activities — e.g. total seasonal catch, total of each species landed, total number of active boats, total number of fishing days in the season, and the number of fishing tourists annually, statistics consistent with EBM principles.

The field research primarily identified MAT conflicts in the regulative pillar — i.e. MAT businesses having to adjust to operate under the same strict regulations designed for the commercial fleet. As discussed in detail in Solstrand (2013), from a regulative standpoint, multiple examples exist where the Icelandic government has prioritized conflict resolution in the MAT sector, through relatively rapid and consistent changes in regulations and laws, but none of the changes in the regulative pillar create exemptions. The Icelandic regulative system for MAT is strict, but the government has demonstrated flexibility in mitigating conflict through interactive governance strategies that include interactions, institutional learning processes and adaptation.

Norway

Unlike in Iceland, the MAT regulations are separate from those for the commercial fleet. The overarching law that governs wild living marine resources in Norway is the Marine Resources Act (Table 4) enacted 6 June 2008 (MFCA 2008). Another regulation enacted in 2006 (FKD 2006), controls how much fish foreign tourists can export. §2. Export quota: *It is not allowed to take out of the country more than 15 kg of fish or fish products per person, including processed products such as fish fillet, within a period of 24 hours … In addition to this export quota, it is permitted to export one whole trophy fish, independent of weight. With violations over the allowed quota, the fish or fish products can be confiscated.* Another regulation, enacted in January 2010, sets the minimum sizes for each species of fish, and requires that undersized fish be released. As in Iceland, tourists can only use a rod and reel, and the sale of catch is forbidden. The tourists, by law, are allowed to fish as much as they want; therefore, the 15 kg export quota can in no way be interpreted as a means to control fish mortality.

ICES (2013) reports that the commercial fleet tonnage of coastal cod for all of Norway in the last four years is as follows: 31,907 (2012); 28,594 (2011); 22,925 (2010) and 24,821 (2009). However, ICES cannot report statistically on coastal cod landings from tourist and recreational fisheries. "*Recreational fisheries take an important fraction of the catches in some local areas, especially near the coastal cities and in some fjords where commercial fishing activity is low. There is no reporting*

system for the amount of Norwegian coastal cod (NCC) taken by recreational or tourist fishers in Norway." (ICES 2013, p. 90).

Based on estimates, the government of Norway has assigned a quota of 12.700 tonnes of coastal cod for all recreational and tourist fishing for the entire country. This figure includes all Norwegians who are fishing for their own personal use, as well as MAT fishing activities. As of 1 February 2013, recreational fishers north of 62°N can fish up to two tonnes of cod per calendar year under recreational fishing regulations[h]. Looking at Table 3, if 48 kg/boat/day is used as an example of average catch for Norway, the numbers do not differ to any great degree from the figures for commercial catch. Figures for Northern Norway alone approach approximately half of the commercial landings for coastal cod for 2009 and 2010, without taking into consideration catch-and-release mortality, unmonitored fishing along the coastline, and recreational fishing by Norwegian residents. Therefore, it is not unreasonable to suspect that the reserved quota of 12.700 tonnes of coastal cod is too low; but with the regulative pillar based on estimates, this is a difficult quota to assess. Reserving coastal cod quota for the recreational and tourist fishing sector, means there would be less available for the commercial fleet, so making a decision to increase the tourist and recreational quota would have economic consequences for the commercial fishers.

5.3 Normative pillar

The normative pillar is driven by societal norms, values, morals and ethical understandings of responsibility — which are in many cases guided by the unwritten rules and cultural understandings shared by the society members. The normative pillar is quite broad, with many cultural underpinnings. Due to space restrictions, this pillar cannot be adequately addressed in its entirety here, so for the purpose of this article, focus is placed on the interconnectedness of non-compliance. Applying a normative perspective to the empirical example of how total seasonal catch is calculated for both countries, reveals that this sought after figure is both the result of: 1) the natural, regulative, and cognitive pillars; and 2) a stressor to the natural, regulative normative and cognitive pillars (in Norway only). Though not overtly obvious, this becomes evident by analysing the dysfunctionality of the feedback loops.

In the sport of fishing, the temptation to catch/take more is always present; but for societies that have their identities rooted in sea-fishing traditions going back for hundreds of years, those members who break written or unwritten rules are often subject to peer judgement. Under the normative

pillar, sanctioning through shame or disgrace comes in addition to any sanctions for non-compliance levied under the regulative pillar (Scott 2014).

Iceland's Fisheries Management Act and Norway's Marine Resources Act are rooted in the same socio-cultural values that respect and honour the fish as a CPR, the marine fishing heritage, and protection of the wild marine living resources for future generations. This can be seen through the similarities in the stated goals listed in Table 4, the regulations that govern the commercial fishing fleets, and the country rankings produced by Pitcher et al.'s study (Pitcher et al. 2006; Pitcher et al. 2009; Ward et al. 2002). However, fieldwork identified conflicts in Norway that were not found in Iceland, and which appear to have direct bearing on how MAT is influencing and stressing the institutional system.

Marine angling tourists, coming from other countries, may or may not share in the values held by the Icelanders and Norwegians with regard to the fish as a resource. The tourists are not part of the local community, nor do they have a sense of belonging. Therefore, to them, the fish is part of the experience they are paying for (Solstrand 2014). For the tourists, the "voice" of the community creates no consequences for them. The sheer volume and sizes of fish that can be caught creates an enormous economic temptation, since Norwegian fish fillet can be sold in mainland Europe for a substantial profit (Solstrand 2013; 2014).

Iceland

As discussed under the regulative and natural pillars, the system in Iceland does not make it easy for tourists to exercise non-compliance, should they be so inclined. By choosing Iceland as a destination, tourists are essentially choosing compliance with Iceland's regulations.

Iceland's values with regard to the fish became evident in a quote from one of the camp owners, after being asked why Iceland does not offer tourists the ability to fillet and freeze their own fish. In 2006, one company began to offer the tourists filleting as a tourist product, modelled after Norway:

> *"It was a complete mess. 90 guests filleting fish and they did not even know how to hold a knife. The fish would be so messed up, they ended up throwing half the fish away."*

According to this camp owner, this was an unacceptable waste of perfectly good fish, and justified for him why filleting and freezing would not be a product offering in the future, even though it might make Iceland more attractive as a destination for MAT.

No evidence of non-compliance was observed during the field visits in Iceland, nor was it mentioned by the camp owners as an issue. If tourists wish to take fish fillet home with them, it must be purchased. The fish will not be the fish the tourists have themselves caught. The frozen fillet is delivered in specially prepared boxes directly to Keflavik International Airport, in compliance with export regulations.

Iceland's regulatory system, in combination with geography under the natural pillar, appear in large part to support the norms, values and morals that underpin the normative pillar. Thus, non-compliance in MAT does not appear to be challenging the system to change or adapt to stressors within the normative pillar.

Norway

As discussed under the above section on the natural pillar, because marine angling tourists might be tempted to take more fish home with them than is allowed by the 15 kg export regulation, a certain percentage of them do. Marine angling tourists (and also camp owners) can be driven primarily by self-interests rather than the collective interests of the host society (Briassoulis 2002; Folke 2007; Hardin 1968; Levin 2006; McCay and Acheson 1987(a); Ostrom 1990; Ostrom et al. 1999), thus generating conflicts rooted in both differing values and interests. In such conflict scenarios, motivations are not rooted in the protection of the fish stocks for future generations, but in personal gain.

Whereas commercial fishers who break the law would most likely have to answer to their peers, tourists who choose non-compliance do not experience any form of societal judgement as a sanction, or a feeling of shame. If caught (and under 10% of illegal exports of fish fillet are confiscated according to interviews with Customs officials), the tourists receive a fine and the fish fillet is thrown away. Nevertheless, individual confiscations at the borders, which can total hundreds of kilos of fillet over what is permitted by law, are consistently and sensationally reported in the local media each fishing season (Solstrand 2013; 2014), impacting local communities' perceptions of the tourists and the camp owners. If the tourists who are fined so wish, there is nothing stopping them from

returning to Norway to try again. While foreign tourists typically do not read Norwegian newspapers, non-compliance by tourists is a theme familiar to residents of the local communities.

Non-compliance creates conflict and this conflict is not contained locally. The non-compliance issue has a ripple effect, reaching every aspect of the institutional structure and beyond into the local communities, commercial fisheries, and the nation. Some might even argue that non-compliance has created a vicious circle effect. There is no legal mandate for fish camp owners to act as enforcers of the 15 kg export regulation, though the fish camps might be one of the few places where non-compliance could be effectively monitored. This challenges the moral and ethical responsibility of the camp owners with regard to this regulation. However, if such a mandate of responsibility were issued, how would it affect MAT for these tourism businesses in the remote coastal communities?

What has already been established is that tourists sit outside the values, morals, and ethics underpinning the normative pillar. However, many of the camp owners operating MAT businesses in Northern Norway are former professional fishers or have other ties to commercial-scale or small-scale fishing. Three quotes represent the range of thought on their moral and ethical responsibility.
Fish camp owner in Finnmark:

> *"Let's say you travel to Sweden to buy cheap alcohol and tobacco. Would you want the hotel manager to inspect your bags before leaving the hotel? Would you return to that hotel again? Is it the hotel manager's job to inspect your luggage?"*

Fish camp owner in Troms:

> "*Media reports of tourists getting caught at the border are free publicity for me, and this sends a good message to other tourists to come to my camp because I have lots of fish!"*

Fish camp owner in Troms:

> *"If we see tourists taking too much fillet, we report their license plate number to the Customs authorities at the borders."*

The institutional structure does not reward those camp owners who choose to take the moral high ground to enforce the 15 kg export regulation. In fact, due to the highly competitive nature of MAT in Norway, camp owners can be penalized if they take a stand against non-compliance, in the form of reduced bookings. A camp owner that condones non-compliance cannot hide this business choice from other camp owners or the local community residents. This sets the stage for host-host conflicts,

and conflicts between camp owners as hosts and the local residents, which can result in intense normative sanctioning through shame and peer judgement — all of which were documented during field visits and in interviews.

Additionally, non-compliance generated two other types of conflict observed during field visits – tourist-tourist, and tourist-host. In the fillet rooms, where tourists of different nationalities fillet the fish after being out on the boat, it was clear who was filleting and freezing with intent to exceed the 15 kg export quota. Tourists who demonstrated compliance with Norwegian law — both with regard to the 15 kg export quota, and the regulation on minimum size — were often witnessed engaging in heated arguments with those clearly intent on breaking Norwegian law. Additionally, tourist-host conflicts emerged when these law-abiding tourists confronted the camp owners regarding their policies on non-compliance. Such conflicts were witnessed or documented in interviews at almost all camps where non-compliance was condoned, and in all cases these conflicts affected the "holiday" spirit at the camp.

Temptations for personal gain, supported by geography under the natural pillar, and in part by the limited ability to enforce sanctioning set up under the regulative pillar, have set in motion a series of conflicts rooted in divergent values and interests. The only mitigating effort that demonstrated any noticeable effect, was when the camp owner personally chose to legitimize the societal values, morals, and ethics that support the 15 kg export regulation by voluntarily enforcing Norwegian law.

Media reports of non-compliance from Northern Norway receive national attention, and have in part prompted the continued attempts to estimate total seasonal catch. The question of how much the tourists are actually impacting the local fjord stocks is of significant interest to local residents. Customs authorities have consistently reported that the confiscations represent just the tip of the iceberg, and that smuggling of fish fillet has approached the level of organized crime (Solstrand 2014). The estimates listed in Table 3 do not take any of this illegal activity into account. The data for Vølstad et al.'s (2011(a)) estimate was taken from tourists who willingly filled out catch reports in fishing camps; however, the interviews with camp owners and customs officials conducted for this study suggest that some camps are in operation primarily to support large-scale smuggling. It is highly doubtful, though of course not completely unlikely, that any tourists from these camps would participate in such a study to estimate total catch. This type of large-scale smuggling is impacting the fish stocks in a way that is nearly impossible to estimate, given Norway's geography.

5.4 Cognitive pillar

The cognitive pillar holds the common cultural understandings and awareness based on the best available knowledge. An important function under this pillar is the ability to communicate this knowledge through to the other pillars through interactions and feedback loops, with legitimacy under this pillar essentially measured against what makes sense (Scott and Davis 2014; Scott 2014). The structure of the institution should work to allow the creation of new knowledge, communication of this knowledge, and adaptation to new knowledge. There is no automatic relationship, however, between the learning by participants as stakeholders and institutional learning; nor is it a given that the institution will adjust or adapt even if the lessons learned by the participants clearly indicate the necessity of such a change (Jentoft 2004). If communication channels are not in place, learning cannot take place. This was confirmed through the field research for MAT in both Iceland and Norway (Solstrand 2013). Mechanisms for communication (e.g. in the form of interactions and feedback loops) are critical for institutional learning and adaptation; however, there must also be flexibility in the system to adapt and change based on what is being communicated and learned.

Iceland

Evidence presented in Solstrand (2013) shows that communication mechanisms for learning and adaptation were working in both directions. The MAT businesses were regularly communicating their problems to the government officials, and the government was responding in relatively short time frames with modifications to regulations and laws. For the institution as a whole, having the same regulatory structure as for commercial fisheries makes sense, and there are no doubts around how much fish is being extracted. Although the business owners expressed frustration with the day-to-day operational problems encountered as a result of the regulations — for example, having to replenish boat quotas for 20+ boats all summer long — all problems identified during the field visits were resolved through modifications to the regulations and laws, sometimes within just a few days of the government being made aware of them. The institutional structure, though rigid in one way, was demonstrating learning and flexibility to adapt, in the same way that MAT business owners were being asked to be flexible and adapt.

In interviews, government officials stated that building a robust tourism industry in the Western Fjords is a top priority, and that the regular modifications made to laws and regulations for MAT have reflected this commitment. The feedback loops between business owners and government for MAT are a best practice example of interactive adaptive governance (Jentoft et al. 2010; Solstrand 2013),

where conflict resolution and mitigation are taking place through institutional learning and adaptation in a balanced, ongoing process.

In this system where control of the fish as a resource is paramount — whether or not the tourists themselves share in the cognitive pillar's underpinnings of societal understanding that supports this control — seems to be irrelevant to how MAT functions as an institution, except for one very significant point. The tourists, considered as stakeholders, it is argued also should have the right and the power to communicate. They can exercise their dissatisfaction by not choosing Iceland as a tourist destination. This would communicate a clear message that perhaps Iceland's institutional system for MAT has too many restrictions that keep tourists from feeling they are getting the best value for their money. It may also serve as an explanation for why growth is not evident to any great degree. The number of active boats (Table 1), and the number of companies (three) has remained fairly constant over the last four years.

Norway

Applying the same test of legitimacy, does the Norwegian institution for MAT make sense? Tourists asked one camp owner in Finnmark if they could fish as much as they want. The answer was yes, according to regulations. Over the next two days, four tourists landed everything they caught over minimum size — a total of 1.2 tonnes of fish — equivalent to 150 kg per day per person. Some fish was given away to local residents, but most of this fish had to be thrown away, because the fish could not be sold, and could not be exported. Under the cognitive pillar the way that MAT functions as an institution does not make sense, given the way MAT functions in practice — if long-term sustainability of the fish as a resource is the end goal.

In another example, with regard to the trophy fish regulation, what happens when a tourist actually catches one of the prized monster-sized fish being advertised in the marketing brochures? After all the photos are taken, the fish will likely be dead. Freezing a 175-200 kg halibut whole and transporting it home in a personal car or camper as a trophy fish is something that all the tourists interviewed deemed highly improbable. Thus, unless the fisher's dream catch is dumped back into the sea, the tourist could not remain in compliance with Norwegian regulations and do anything responsible with the catch. Example after example emerged in the interviews where the system itself was forcing non-compliance by sport fishers who would have preferred to operate within the regulations. Examples here include the trading of large-sized fish for diesel fuel or accommodations; or fish being sold to local fishers or the camp owner just so the fish would not be wasted.

Growth in MAT in Northern Norway was clearly evident from field observations. All camps visited were fully booked for the entire season, even those in their first year of operation. In addition, most camp owners reported a 70% rebooking rate for the following year. How MAT is developing, however, comes into question under the cognitive pillar. Field research showed that new knowledge, and the communication mechanisms to provide and receive new knowledge are not functional at several organizational levels. One example is the stressors identified under the normative pillar in the form of host-host, tourist-host, and tourist-tourist conflicts. These conflicts are primarily rooted in non-compliance, an element of MAT that has been continuously communicated in the form of media reports reaching both local and national audiences for over seven years. The institutional system has not responded, except to request another estimate on total seasonal catch. One way the institution can react to the conflicts surrounding non-compliance is to strengthen regulations; however, if the regulations become stricter with stricter sanctions for non-compliance, the resources to enforce the sanctions must follow suit. Another consideration here is that such regulatory actions might seriously jeopardize the growth of MAT, thus hurting vulnerable businesses in the remote coastal communities (e.g. Jentoft and Mikalsen 2014). As in Iceland, interviews revealed that camp owners are the stakeholders most likely to contribute valuable suggestions to solving some of these conflicts on a more local level, but the mechanisms for communicating their knowledge are not in place. “The disempowerment of the community and the erosion of local control is one of the more serious consequences of contemporary resource management with its standardized science and command-and-control practice” (Berkes 2010, p. 23).

Under cognitive evaluation, Vølstad et al.’s (2011(a)) latest estimate might or might not have provided sufficient scientific knowledge to justify keeping the regulations as they are, or to support the conclusion that MAT as an institution is too small to justify the resources required to implement a wide-scale, comprehensive monitoring programme. Regardless, the lack of data from a nationally organized monitoring programme will continue to leave a “black hole” of knowledge, inhibiting the cognitive pillar and thereby negatively affecting the inter-dynamics with the other three institutional pillars.

6.0 Conclusions

Globally, the popularity of marine tourism fisheries is driving this sector into competition with small-scale and commercial scale fisheries for resources. Using MAT in Iceland and Norway as case study

examples of this niche sector of consumptive wildlife tourism, this article has demonstrated how the governance of MAT is influenced by institutional structure, conditions, and inter-dynamics. Iceland's Fisheries Management Act and Norway's Marine Resources Act both state the fish are a CPR reflecting the countries' similar marine fishing heritage, and commitment to protection of the wild marine living resources for future generations. However, while stressors to the institutional structures of MAT were identified in both Iceland and Norway, the institutions were found to respond to these stressors differently. By examining these differences, the analyses have revealed useful lessons for governing a socio-ecological system such as consumptive wildlife tourism.

Interactive governance strategies to mitigate stressors were identified as part of Iceland's management of MAT; however, no such strategies were identified in Norway. The overall institutional system for MAT in Norway has essentially remained static since 2006, with the exception of the 2010 regulation on minimum size, and the new estimate for total seasonal catch published in 2011 (Vølstad et al. 2011(a)). Communication mechanisms must be in place for institutions to remain flexible and learn (Jentoft et al. 2010), especially with regard to emergent conflicts, with the implicit understanding that change is inevitable, and adaptation is necessary for maintaining balance. The institution does not exist in a bubble. What happens within the institution affects the surrounding community (Berkes 2010). In Norway, non-compliance is not being addressed at an institutional level. As an institutional stressor, non-compliance cannot necessarily be eliminated from the institutional system, but can be mitigated depending on how the institution responds.

Regulations based on estimates of total seasonal catch have been chosen over the precautionary approach and EBM in Norway, based in part on the assumption that MAT is having a negligible impact on the fish stocks. Indications are that such a strategy may not be sufficient in the case of consumptive wildlife tourism, where institutional stressors related to natural resource extraction can jeopardize the long-term sustainability of the resource. Non-compliance can seriously impact the local communities that rely on the same resources for their livelihoods. Communities are stakeholders and can certainly benefit from sustainable development of this niche sector of tourism, especially in remote regions where tourists would not normally visit. As stakeholders, communities can provide valuable contributions to creating more localized governance solutions, when solutions on the national-scale are difficult to implement and enforce; demonstrating Jentoft's point that governance must work from the bottom up as well as the top down (Jentoft 2000).

Individual elements that comprise the intricate, interrelated institutional dynamics emerge more conspicuously with this type of analysis, demonstrating how labyrinthine the relationship is between the social and ecological dimensions of a complex SES such as consumptive wildlife tourism. Although the two countries share similar cultural values with regard to protecting the fish as a natural resource for future generations, the strategies for realising this protection are different. The natural pillar clearly plays a significant role, and as such, cannot be considered or managed separately from the rest of the institution. As the case study analysis has shown, Norway faces challenges that Iceland does not experience. From a regulatory perspective, the management of marine tourism fisheries based on estimates goes against all global efforts to date to support ecosystem-based monitoring and the precautionary approach in fisheries management worldwide. Another risk with estimates is that they might give a false impression of stock integrity, undermining sustainable management. Under the cognitive pillar, Norway's management strategy is demonstrative of a type of 'institutional constipation', where communication mechanisms are not functioning correctly, allowing the flow of knowledge throughout the system. This has the effect of inhibiting the pillars' functionality, and thereby institutional learning, adaptation, and ultimately balance.

As this study demonstrates, consumptive wildlife tourism creates a highly complex, intertwined relationship with the wild living marine resources and host communities. It cannot exist in a bubble of its own design, but affects and is affected by the institutions it sits within — on the regional, national, and international levels. It is recommended that design principles of institutions should be aligned with the principles of interactive adaptive governance, and principles for sustainable resource use through ecosystem-based management, in order for sustainable tourism development to be realized. Equal attention must be given to each institutional pillar as it affects the others, and thus the entire MAT institution — in addition to how the institutional system as a whole affects the community — also to be considered a key stakeholder in a consumptive wildlife tourism SES.

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[a] UN World Tourism Organization Secretary-General Mr. Taleb Rifai, press release PR 11084, Madrid, 27 October 2011.

[b] A detailed justification for why these two regions can be compared is found in Solstrand (2013), and therefore will not be repeated here. One of the MAT businesses in Iceland boasts on their website the following: "*Fishing on the West part of Iceland can be compared to fishing in northern Norway.*"

[c] http://www.oxforddictionaries.com/definition/english/conflict. Accessed 14 March 2014.

[d] From this point forward, Scott (2014) will be used to refer to and include all previous editions of the book titled *Institutions and Organizations* by Scott.

[e] http://www.oxforddictionaries.com/definition/english/cognition. Accessed 14 March 2014.

[f] These weights represent average ranges, but some individual fish can be much larger.

[g] Norge 2011 Statistisk Årbok 2011: http://www.ssb.no/aarbok/kart/i.html (Norway's Statistics Yearbook for 2011). Accessed 14 March 2014

[h] Directorate of Fisheries: http://www.fiskeridir.no/fritidsfiske/salg-av-fangst. Accessed 14 March 2014