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Sustainable whale-watching tourism or vulnerable "wild west" in the sea: The management and perceptions of different whale-watching actors in the Tromsø and Skjervøy regions

Min Tao
MSc International Environmental Studies

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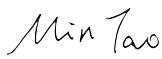
skyetm@icloud.com

Noragric
Department of International Environment and Development Studies
The Faculty of Landscape and Society
P.O. Box 5003 N-1432 Ås
Norway
Tel.: +47 67 23 00 00
Internet: https://www.nmbu.no/fakultet/landsam/institutt/noragric

Declaration

I, Min Tao, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature: 

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Abstract

Winter whale-watching tourism has gained increasing popularity in Northern Norway during the last ten years after orcas and humpback whales appeared in the Tromsø and Skjervøy regions. However, this form of tourism activity has become a controversial topic during the most recent seasons. This study set out to investigate whether whale-watching tourism could potentially contribute to the conservation of cetaceans, thereby contributing to making whale-watching an ethical and responsible tourism activity in Northern Norway, or on the other hand, whether irresponsible behaviors and lack of proper regulations could bring humans and the watched whales into a vulnerable predicament.

This research aimed to present an interdisciplinary assessment of whale-watching tourism in Northern Norway based upon the Ecotourism management and assessment framework while evaluating the ecological impacts and practices of existing whale-watching tourism according to International Whaling Commission's general principles for whale-watching. Building on this, the study assesses the vulnerability of whale-watching tourism in the Skjervøy and Tromsø regions by adopting the PAR (Pressure and Release) model.

Based on a qualitative analysis of existing written materials and literature as secondary data, and interviews as primary data, my findings have identified key actors' engagement, understanding, and expectations of Northern Norway whale-watching tourism. Firstly, the long-term and sustainable benefits of whale-watching tourism were found to be limited due to local communities not having adequate access to data, power, and structure to monitor and regulate this tourism activity. Furthermore, certain whale-watching operations and practices in these regions were found to be unethical and irresponsible. Concurrent whale-watching tourism was thus concluded to be unlikely to contribute to the conservation of the watched cetacean species as long as only a small portion of operators were involved. Finally, the lack of adequate regulations and institutions to ensure more ethical and responsible development of this tourism activity was deduced to pose potential causes of hazardous incidents with possible casualties of tourists, while simultaneously increasing risks against the future sustainable growth of whale-watching tourism activity in Northern Norway.

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List of Abbreviations

IWC	International Whaling
NMA	Norwegian Maritime Authority
PAR model	Pressure and Release model
NGO	Non-governmental organization
DMO	Destination Management Organizations
AIS	Automatic identification system
NMA	the Norwegian Maritime Authority
NRK	the Norwegian Broadcasting Corporation
NHO Reiseliv	The Norwegian Hospitality Association
RIB	Rigid inflatable boats
NOS	Norwegian Orca Survey
WDC	Whale and Dolphin Conservation

Photo by Krisztina Balotay, spy hopping orcas in Skjervøy area

1. Introduction

Norway is often promoted and advertised as a sustainable travel destination or refugee for wildlife in Europe (Lonely Planet, 2021). Many different species of cetaceans have been long observed along the coasts and islands of Norway, including sperm whales *(Physeter macrocephalus)*, pilot whales *(Globicephala melas)*, minke whales *(Balaena acutorostrata)*, humpback whales (*Megaptera novaeangliae*), and orcas (*Orcinus orca*) in different seasons and locations (Kramvig et al., 2016). These magnificent marine animals that roam along the waters in Norway have received increasing attention domestically and worldwide through the lens of wildlife photographers with breathtaking fjords in the background. In 2016, the whales were presented as "the new Northern Lights" for Arctic tourism at a business conference for tourism operators, thus becoming a new essential resource for tourism in these coastal communities (Kramvig et al., 2016). Since then, the number of tourists has increased rapidly, along with the further migration of the watched whales from Tromsø into the narrow fjords of the Skjervøy region during winters.

However, whale-watching tourism in Norway also coexists with commercial whaling and underwater seismic investigation that could potentially damage the population of cetacean species (Higham et al., 2014; Bertella, 2017). Many tourism actors and researchers argue that whale-watching tourism could potentially contribute to the conservation of cetaceans (Cunningham et al., 2012), therefore making whale-watching an ethical and responsible tourism activity in Northern Norway. Nevertheless, a marine conservation NGO, WDC (Whale and Dolphin Conservation), and the largest media organization in Norway, NRK, published several articles referring to the chaotic conditions in the northern Norway whale-watching industry during the 2021-2022 winter whale-watching season in Skjervøy[1], where animals and tourists could both face dangerous conditions caused by irresponsible behaviors and lack of proper regulations.

This research aims to present an interdisciplinary picture of whale-watching tourism in Northern Norway based on the Ecotourism management and assessment framework from Ross and Wall (1999) by analyzing previous studies, interviews, and official documents. This study also discusses whether the operations and practices of whale-watching tourism in this region meet the International Whaling Commission (IWC)'s general principles. Building on this, the study will also explore the vulnerability of the current whale-watching tourism in Northern Norway through the Pressure and Release (PAR) model by Wisner et al. (2005).

1 "Here 40 tourists swim with whales: - Potentially deadly for both." (Her svømmer 40 turister med hval: – Potensielt dødelig for begge)- NRK Nordland
"Whales are hunted and cut off on safaris - will tighten control " (Hvaler jages og avskjæres på safari – vil skjerpe kontrollen) – NRK Troms og Finnmark
"No way is this responsible whale-watching Norway"- WDC

1.1 Objectives and Research Questions

The main research question is: To what extent is whale-watching tourism sustainable and responsible in the Tromsø and Skjervøy regions from ethical, socio-economic, and socio-ecological points of view?

Thus, this thesis has three objectives:

1. Investigate different actors of engagement, understanding, and expectations of whale-watching tourism;
2. Evaluate the impacts of existing whale-watching tourism on the conservation and well-being of the watched cetacean species in the study area.
3. Explore the vulnerability of whale-watching tourism in the Skjervøy and Tromsø regions.

1.2 Terms

The **"watched cetacean species"** in this study specifically refer to humpbacks (*Megaptera novaeangliae*) and orcas (*Orcinus orca*) since these two species are the most commonly spotted in these regions for the last few winter whale-watching seasons.

The terms **"whale-watching tourism"** or **"whale-safari tourism"** can be interpreted as the commercial tourist ventures that are designed for humans to interact and observe various cetacean species, including dolphins, whales, and porpoises in their natural habitats from watching spots on land or boats in water (Higham et al., 2014). In this study, "whale-watching" refers to the water-based commercial activities of observing cetaceans via various types of vessels, including both "watching from boats" and in-water activities such as snorkeling and swimming.

"Human disturbance" is defined as a deviation in an animal's occurring behavior patterns without human influences (Christiansen & Lusseau, 2014; Frid & Dill, 2002). In this study, this term explicitly refers to the novel stimuli from whale-watching activities.

1.3 Background of the study

1.3.1 Sustainable Tourism Development in Norway

The past ten years before the Covid-19 pandemic witnessed a continuous increase in tourism development in Norway. In 2018, the travel and tourism industry contributed 4.2 % of gross domestic product with total tourism consumption of NOK 186 billion while providing 7 out of 100 jobs in Norway (Statistics Norway, 2022). This industry has not just brought economic benefits to the country, and it has also drawn attention worldwide. In 2021, the renowned travel guide publisher Lonely Planet awarded Norway "the second-best country to travel to in 2022" for the country's gifted natural landscapes, cultural life, unique wildlife experience, and the efforts to strive for sustainability (Lonely Planet, 2021).

The travel and tourism industry are highly dependent on the seasonal travelers that come from May to August and during winter seasons for specific recreational activities. More than half of these domestic and foreign travelers simultaneously enjoy cultural and outdoor activities. Nature tourism activities such as the experiences with the Northern lights, mountains, fjords, and wildlife are among the most popular. In 2021, to align with Norway's green shift goal to become a low-emission society, the government's most crucial instrument agency of tourism management and promotion, *Innovation Norway*, published a national tourism strategy report for 2030 under the order of the Ministry of Trade, Industry and Fisheries. This report presents the tourism sector's post-COVID goal to reduce carbon footprint, create jobs, enhance value creation and visitor satisfaction, increase add-on sales, and positively impact local communities (Innovation Norway, 2021). Currently, Innovation Norway and the government use "Sustainable Destination" and "Green Travel" as the national scheme and common qualified environmental symbol for promoting and evaluating destinations and businesses that fit the country's sustainable and environmental development regime.

However, the 2021 strategy report also pointed out the growing pains that Norway has been facing over the last few years with the massive development in the tourism sector, where rejuvenated regulations and frameworks are highly needed to be applied to the rapidly growing industry. The tourism industry is currently unable to employ a suitable measure for the service sector due to the lack of instruments to understand the actual management and development in the business community (Innovation Norway, 2021).

1.3.2 Commercial Whale-watching Tourism

The first organized commercial whale-watching trip can be traced to the 1950s, when a Californian fisherman put up the "See the whales: 1$" sign. The migrating grey whales (*Eschrichtius robustus*) along the coast provided the fisherman with an alternative for income during the winter season when there was little fishing activity (Hoyt, 2009). During the mid-1980s to 2000s, commercial whale-watching tourism expanded rapidly from the US to countries across the globe (Higham et al., 2014). According to the special report from International Fund for Animal Welfare (IFAW) on whale-watching, published in 2009, the over 2.1-billion-dollar industry is taking over 15 million people to see the whales every year. The growing popularity also created more than 13,000 jobs worldwide, providing a new source of income for the local coastal community (Hoyt & Parsons, 2014; O'Connor et al., 2009).

Since its beginning, whale-watching has been considered a tourism alternative for the sustainable use of these magnificent marine megafaunas as resources for humans other than commercial whaling. The global body responsible for managing and conserving whales, the **International Whaling Commission (IWC)** put sustainable whale-watching on its agenda in 1975 and pursued to address the educational, social-cultural, and economic development opportunities associated with whale-watching since then (Carlson et al., 2014). This industry has embodied the aim to educate and raise the awareness of conservation and protection of marine ecosystems since the beginning of its bloom (Higham et al., 2016).

IWC has also pointed out that whale-watching tourism could benefit coastal communities where this industry has been successfully introduced. This fast establishing and rapidly growing tourism form has generated income and jobs, then brought significant and long-term contributions to the local community in New Zealand, Scotland, and other coastal areas (Hoyt, 2007; Lundquist, 2014; Parsons et al., 2003; Woods-Ballard et al., 2003). These positive connections between the local community and animals can foster a sense of pride and stewardship for these marine animals (O'Connor et al., 2009).

However, the benefits of whale-watching tourism for conservation and education have been challenged in multiple ways during the last two decades (Cunningham et al., 2012; Suárez-Rojas et al., 2021). There is often a gap between the establishment of businesses to any form of research or impact assessment being done (Higham et al., 2014). In recent years, the whale-watching industry has shown several trends with its fast growth: 1. Whale-watching is becoming more competitive and diverse in the established areas with new activities emerging

for the tour; 2. The overcrowding of boats and people on the water puts specific cetacean populations in danger while also diminishing the tourist experience; 3. Closer encounters with whales are in high demand among the tourists and thus, pushing the practice and advertisements of the operators to change (Hoyt & Parsons, 2014).

Nonetheless, the absence of appropriate and effective guidelines or regulations in specific whale-watching hotspots has allowed for inappropriate practices from the operators, eventually leading to negative impacts on the welfare of these cetaceans in both short and long terms (Lammers et al., 2013; Schuler et al., 2019; Suárez-Rojas et al., 2021). Most of the operations have not yet involved the collaboration between the actors of research, management, and operators, let alone being managed sustainably or alleviating the negative impacts (Kramvig et al., 2016). Duffus and Dearden (1993) pointed out the importance of balancing human and environmental aspects of whale-watching at all management stages to avoid deteriorating the recreational experience and welfare of the animals. Sustainable whale-watching requires innovations and changes to (i) enhance the current measures to protect whales, (ii) differentiate compliant firms from other (non-authorized) operators to competitively position in the market, (iii) make firms' environmental and social awareness-raising efforts visible, (iv) reconcile with pro-sustainable consumer demand, and (v) not come into conflict with other (local) stakeholders over the use of the resource (Hoarau-Heemstra, 2012; Hoarau-Heemstra & Hjalager, 2020; Karlsson & Dolnicar, 2016; Lissner & Mayer, 2020; Mayer et al., 2018).

1.3.3 The potential impacts of whale-watching on cetaceans

Human disturbance, including whale-watching, can induce changes in behavioral strategies for cetaceans, even if coming from non-consumptive activity (Christiansen & Lusseau, 2014). The whale-watching activity could cause potential ecological impacts on whales and dolphins, including short-term, long-term, and non-visible effects, by putting cetaceans at risk of being harassed and injured (Christiansen & Lusseau, 2014; Parsons, 2012).

Short-term effects of whale-watching are more frequent and relatively easy to observed. These adverse effects include changes in swimming behaviors with longer and more frequent diving to avoid whale-watching vessels. Another change in swimming behavior is increased swimming speed and frequency of heading changes (Williams, Bain, et al., 2002). Cetaceans show a strong avoidance reaction when the number of human vessels increases and the distance between them gets shortened. Often, cetaceans would surface when they are in transit, socializing, resting, or feeding. Over time, the watched whales and dolphins that are constantly being disturbed or interrupted during essential activities such as feeding and resting could suffer more "energetic costs" and thus change their distribution patterns and group dispersion (Willliams et al., 2002; Christiansen & Lusseau, 2014).

Long-term effects of whale-watching are more challenging to measure since many cetacean species are long-lived (50-80 years for orcas and 45-50 years for humpbacks) and migratory. To study the long-term impact of whale-watching would require specific populations that have been studied with pre-tourism population numbers, behavior, and distribution (Christiansen & Lusseau, 2014). Two studies have found a decrease in reproductive success and relative abundance might be the long-term effects of disturbance on the dolphin-watching tourism activities in Australia, but many long-term effects on the other cetacean species remain unknown (Bejder et al., 2006; Lusseau et al., 2006).

Whale-watching could also cause non-visible effects which are even more difficult to estimate. The noise from whale-watching vessels could potentially mask communications between cetaceans, disrupting feeding efficiency for these animals that rely on vocalization (Jensen et al., 2009). In addition, the severity of these potential impacts varies significantly between different species, geographical locations, and the group composition of the species. Certain groups of cetaceans could be negatively affected by quiet, non-motorized vessels even if there is no underwater noise (Williams et al., 2011).

The watched whales in this research, humpback whales, and orcas have been documented with potential behavior changes induced by whale-watching disturbance. (Table 1)

Table 1 Potential behavior changes induced by Whale-watching on orcas, and humpbacks whale, adopted from (Parsons, 2012)

Species	***Behavior change (with reference)***
Orca (Killer whale), *Orcinus orca*	▪ Surfacing/diving (Williams et al., 2009) ▪ "Active" behavior (e.g., tail slapping and beaching) (Noren et al., 2009) ▪ Acoustic (Foote et al., 2004) ▪ Swimming speed (Williams, Trites, et al., 2002) ▪ Swimming direction (Williams, Trites, et al., 2002) ▪ Altered feeding or resting (Williams et al., 2006)
Humpback whale, *Megaptera novaeangliae*	▪ Surfacing/diving (Corkeron, 1995) ▪ "Active" behavior (e.g., tail slapping and beaching) (Stamation et al., 2010) ▪ Acoustic (Sousa-Lima & Clark, 2008) ▪ Swimming speed (Scheidat et al., 2004) ▪ Swimming direction (Scheidat et al., 2004) ▪ Altered feeding or resting (Stamation et al., 2010)

1.3.4 Whale-watching Tourism in Northern Norway

Several studies have been dedicated to understanding whale-watching tourism's geographic, socio-economic, and cultural dimensions in northern Norway by Bertella (2017, 2019a, 2019b); (2021; 2019) and Kramvig et al. (2016). Few studies have examined whale-watching tourism's ecological impact on the two cetacean species in Norway. Researchers from Multiwhale (link) project and Whaletrack project (link) have started investigating whale-watching tourism's impacts on Norwegian orca and humpback whale populations from ecological perspectives in recent years.

In the studied area, the migratory routes of the watched cetacean species remain unpredictable (Dietz et al., 2020). The distribution of herrings drives the emergence of whale-watching tourism in Northern Norway. Norwegian Whale tourism was first established in Andenes, the northernmost village of Andøya island in the Vesterålen district in Nordland county, back in the late 1980s (Kramvig et al., 2016).

In 2012, as humpback whales and orcas changed their migration and feeding routes, whale-watching activities began to emerge in other coastal cities and villages in Troms, organized by private recreationists and commercial tourism operators. From 2013 to 2017, There has been a substantial growth of whale-watching tourism products in Tromsø, the largest urban area in Northern Norway (Kramvig et al., 2016). After 2018, the herrings moved further north to Skjervøy, a municipality with around 3000 inhabitants, which has fishing and shipbuilding as their primary industries.

Contrary to many other countries with whale-watching tourism, there is no active regional or national whale-watching association here in Norway, where the operators can communicate and collaborate through discussions (Bertella, 2017, 2019a). Local destination management organization (DMO), Visit Tromsø, released the regional guideline of whale-watching**,** co-written with two scholars from UiT, The Arctic University of Norway, in 2017. The winter tourism collaboration network, Arctic 365 formed a whale-watching association and published its own guidelines after Visit Tromsø (Bertella, 2019a). But this association has not appeared in the recent whale-watching discussions. Two years later, after continuous efforts from researchers, operators, and conservation organizations, the Directorate of Fisheries published the first National Whale-watching Regulation**.**

1.4 Conceptual framing and Theoretical approach

1.4.1 What are sustainable, responsible, ethical, and eco-tourism?

According to the UN Environment Program and UN World Tourism Organization, sustainable tourism is "tourism that takes full account of its current and future economic, social and environmental impacts, addressing visitors' needs, the industry, the environment, and host communities. (UNWTO, 2012)". Sustainable tourism aims to minimize the negative impacts on a destination, including economic leakage, degrading the natural environment, and overcrowding, while also striving to bring positive impacts through job creation, preserving wildlife and cultural heritage. This form of tourism emphasizes the importance of balancing the environmental, economic, and socio-cultural aspects of tourism development (UNEP, 2005). In this thesis, "sustainable tourism" refers to the long-term economic, social and environmental impacts of the whale-watching tourism, especially with unpredictable migratory patterns of the watched whales. Such a concept was used in the sustainable and environmental development regime of the Norwegian government and Innovation Norway.

Building on sustainable tourism, responsible tourism aims to hold both service providers and consumers accountable. "Tourists" were considered the prominent stakeholder among all the involved actors in most past studies on responsible tourism (Caruana et al., 2014). Tourists' choices of destinations shall be based on their ethical, political, and racial sensitivities, along with concerns for the environment and the local community (Leslie, 2012). The term "Responsible" was mainly used in Visit Tromsø's guidelines for whale-watching tourism.

Often associated with responsible and sustainable tourism, ethical tourism calls for applying ethics to the business and practices of tourism. This form of tourism encourages all actors to consider ethical issues such as social injustice, human rights, animal welfare, and the environment and avoid participating in activities that could potentially negatively impact these issues (Smith et al., 2010). In this thesis, "ethical tourism" specifically refer to the ethical consideration in the whale-watching tourism industry for the wellbeing of the watched cetacean species.

According to the definition from the International Ecotourism Society (TIES) of ecotourism, it means "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people and involves interpretation and education" (Bricker, 2017). Sustainable travel, communities, and conservation are the critical components of

ecotourism. However, in recent years, the development of ecotourism has been widely critiqued for its issues with neo-liberalism and the commodification of nature in many parts of the world (Duffy, 2008). In this thesis, ecotourism is adapted according to the Ecotourism Management framework by Ross and Wall (1999).

1.4.2 Linking Ecotourism Management Framework with Whale-watching tourism

To navigate through the different definitions and concepts of tourism, Ross and Wall (1999) proposed an ecotourism framework to help balance conservation and development through appropriate management between natural areas, local populations, and tourism.

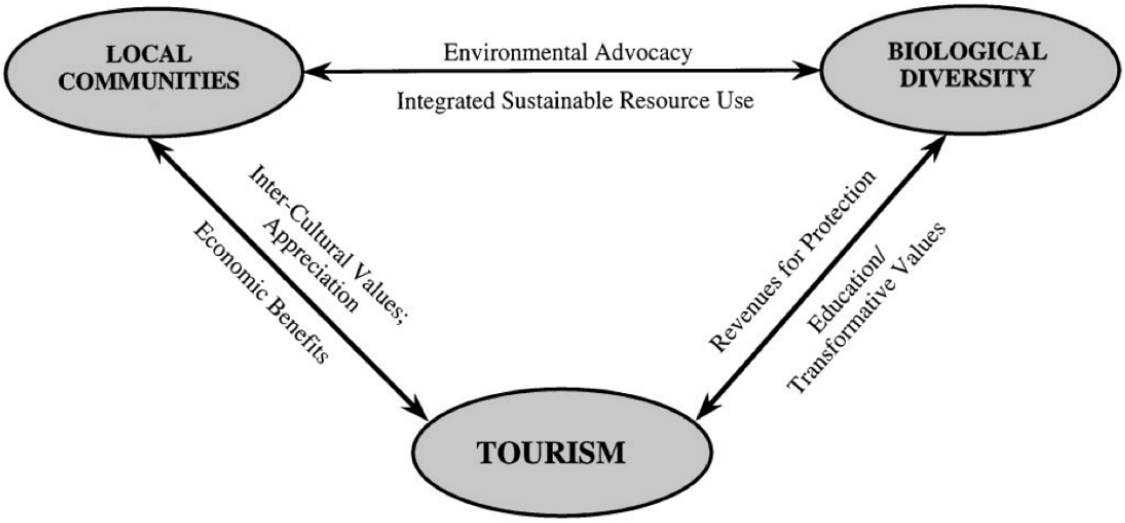

Figure 1 *"A successful ecotourism paradigm" (Ross & Wall, 1999)*

The framework in Figure 1 emphasizes the significance of fostering positive links between local communities, biodiversity and environment, and tourism. A successful ecotourism paradigm could benefit all the three parts of an ecotourism site or destination (Ross & Wall, 1999). However, the unsuccessful practices of ecotourism have been criticized for issues as mentioned with neo-liberalism and environmental justice when there is a lack of effective management (Boo, 1993; Carruthers & Carruthers, 2008). The implementation of effective policies, management strategies, and involvement of different organizations, including NGOs and conservation and development assistance agencies for the watched cetaceans, is a crucial part of the ecotourism paradigm (Figure 2) (Ross & Wall, 1999).

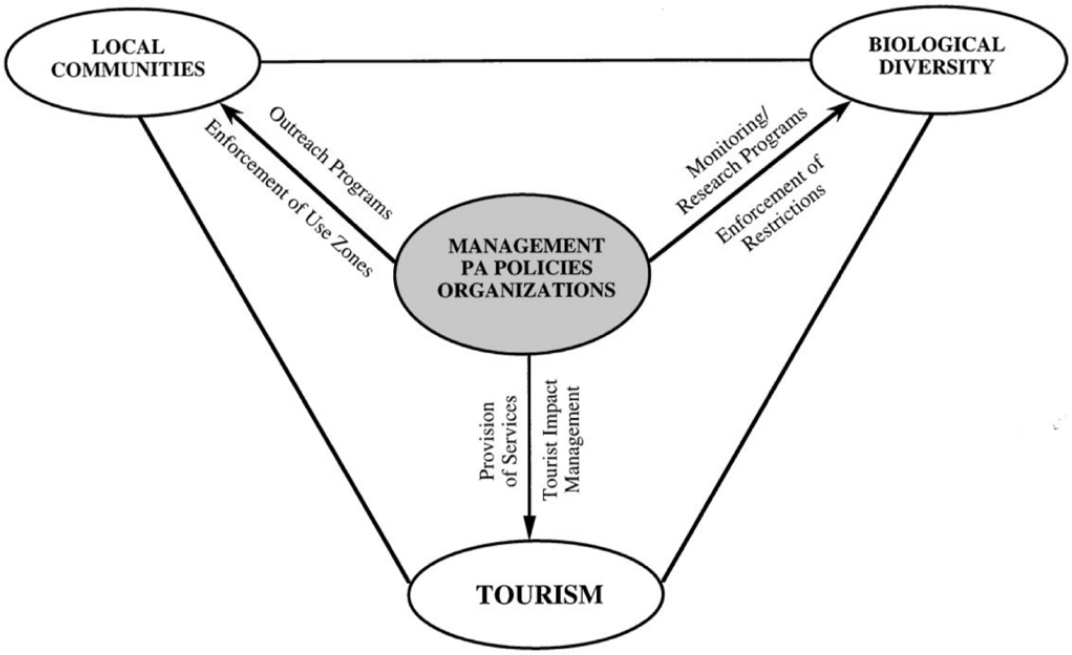

Figure 2 *"Management agencies, protected area policies and other organizations such as local NGO's or development assistance agencies influence the attainment of symbiotic relationships" (Ross & Wall, 1999).*

This framework can be used as the key navigation approach for mapping the actors and their connections in Northern Norway whale-watching tourism's development and management. Several indicators for understanding the benefits and relationship between different actors and factors for successful ecotourism management proposed by this framework are adopted in this research regarding whale-watching tourism (Table 2 and Table 3). The characteristics of local communities refer to the extent to which the tourism activity can affect social changes and attitudes towards tourism and conservation. In this study, "protected area" refers to the conservation of watched cetacean species due to their migratory traits.

Table 2 Factors influencing the success of ecotourism (adapted from Ross & Wall, 1999)

Policies	***Management strategies***	***Protected area employee duties***	***Characteristics of managers and employees***
Entrance fee/permit policies	Active management plan	Species/habitat monitoring	Training:
Taxes	Annual updates of: *species, habitats numbers of tourist surrounding community statistics, conflicts threats, strategies*	Tour guiding	Resource conservation Ecology (scientific research)
Protected area regulations and use restrictions		Park patrolling	Public relations Law enforcement
Punishments	Integrated use zones	Law enforcement	Educational training Economics
Training of employees required	Community outreach programs Participatory planning	Research coordinating	
Support for community involvement	Tourist management (controlling activities, group sizes, carrying capacities, behaviors)	Public relations	
		Community interfacing	

1.4.3 IWC General Principles for Whale-watching

IWC's committed efforts to the conservation of whale species concerning all anthropogenic uses of cetaceans have proved the potential for symbiosis between scientists and tourism operators to strive for a mutual conservation management of whale-watching tourism (Carlson et al., 2014). In 1996, the general principles for whale-watching were published under the agreement by the IWC Scientific Committee (Appendix 1)[2]. These principles can provide a standard guideline for the responsible and ethical management of whale-watching tourism regarding the conservation and wellbeing of the cetaceans.

The principles consist of three parts, with detailed measures:

1) *Manage the development of whale-watching to minimize the risk of adverse impacts;*
2) *Design, maintain, and operate platforms to minimize the risk of adverse effects on cetaceans, including disturbance from noise;*

2 IWC is currently revising these guidelines, the guidelines used in this study were from 1996 version from IWC's archive. URL:https://iwc.int/management-and-conservation/whalewatching

3) Allow the cetaceans to control the nature and duration of "interactions";

This study will examine the practices and management of whale-watching operators with these principles.

1.4.4 Pressure and Release (PAR) model: the progression of vulnerability

Adger (2006) defined vulnerability as "*the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt.*" To assess the vulnerability of the management and practices of whale-watching tourism in the two municipalities to future changes and hazards, it is important to examine the factors that could induce the unprecedented disaster to the industry and cetacean species. This study applies the Pressure and Release (PAR) model by Wisner et al. (2004) as a tool to illustrate these factors and explore the potential disaster or a system collapse.

Figure 3 shows the adapted model with three different stages in the progression of vulnerability: "Root Causes," "Dynamic Pressures," and "Unsafe Conditions," along with potential hazards and disasters related to whale-watching based on the existing literatures.

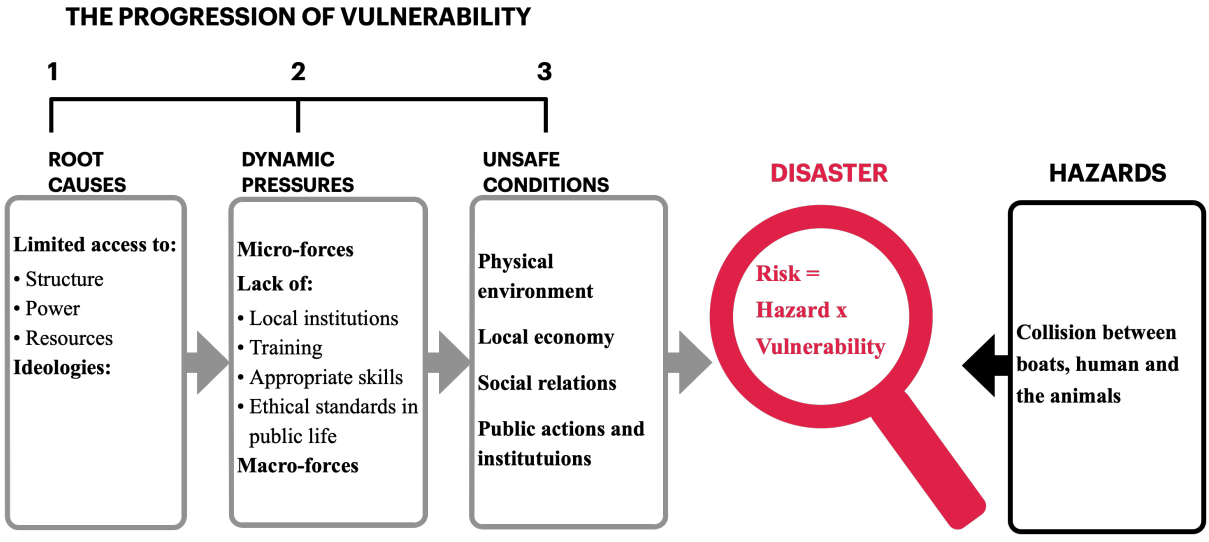

Figure 3 *Pressure and Release (PAR) model: the progression of vulnerability, adapted from Wisner et al. (2004)*

Photo by Krisztina Balotay, humpback whale breaching with a whale-watching boat in distance

2. Methods

2.1 Study Areas

This research was conducted in Skjervøy and Tromsø, two municipalities in Northern Norway, Troms and Finnmark county (Figure 4). Most winter whale-watching activities in Norway were conducted in the vicinity of these two municipalities after the humpback whales and orcas moved to Tromsø in 2013 and then further north to Skjervøy in 2018. The whale-watching sighting in this study mainly took place in Skjervøy.

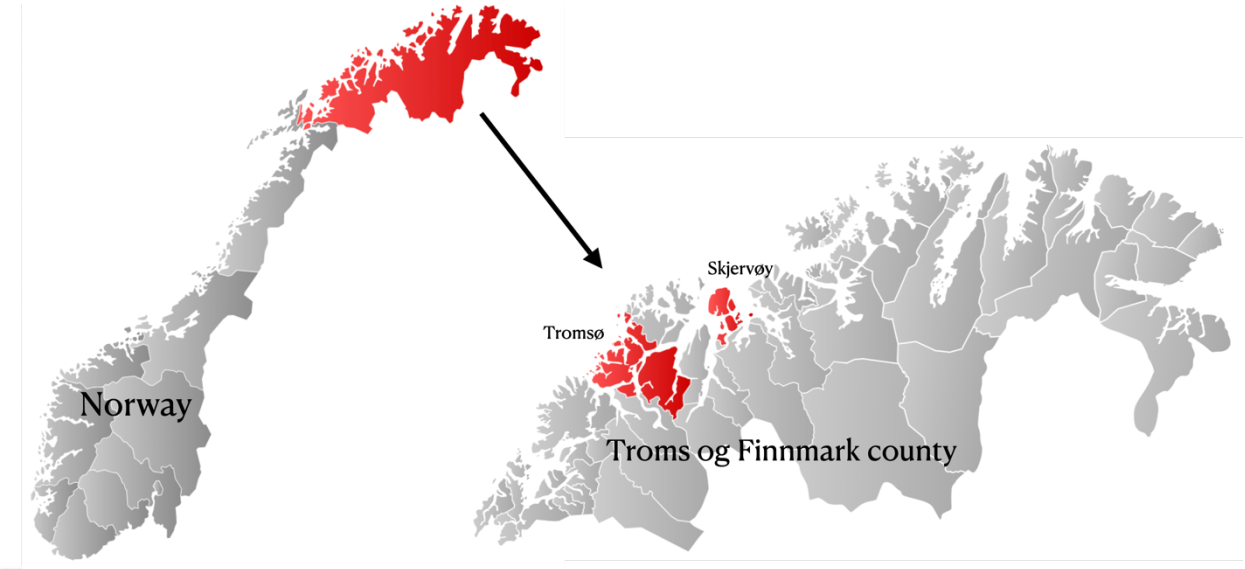

Figure 4 *Maps of Tromsø and Skjervøy Municipalities in Northern Norway*

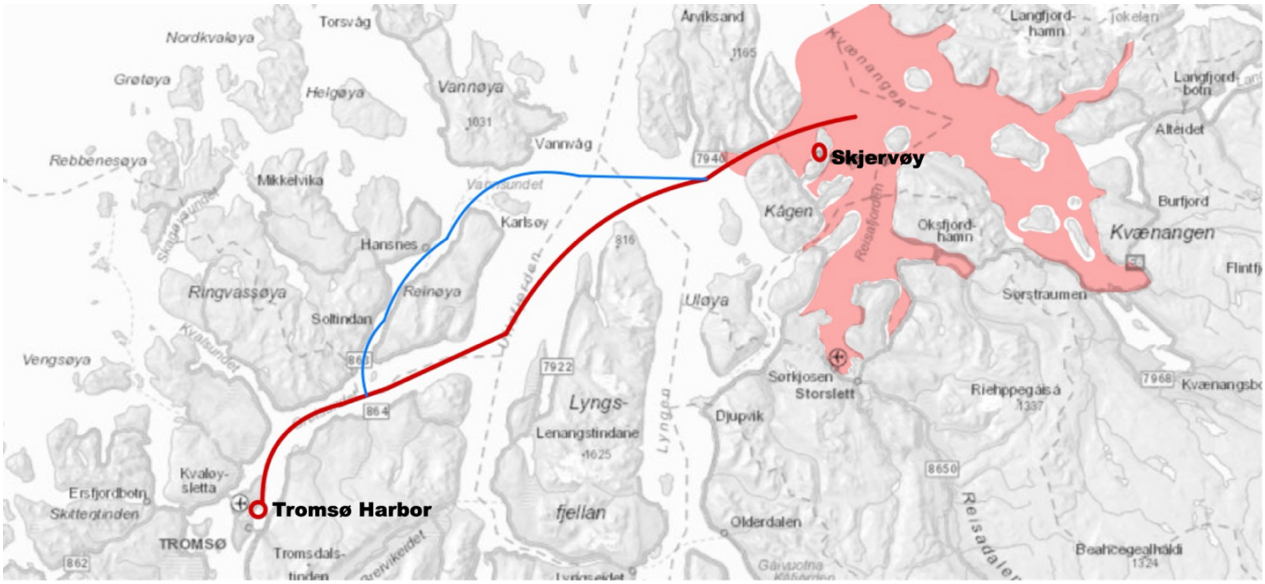

Figure 5 *Map showing the study areas where orcas and humpback whales can be spotted during whale-watching trips (the red shaped area, adapted from the reported spotting in Jourdain et al. (2021)) and the daily routes of operators that located in Tromsø to Skjervøy (The red line is the primary route while the blue line is the alternative for harsh weather conditions).*

The city of Tromsø is the biggest hub for tourism in Northern Norway, with a population of around 65,000 people, serving as a destination and starting point for many arctic adventures. Tromsø is included in the scope of the study due to its importance in the context of Northern Norway's tourism industry and the fact that operators located in both municipalities offer whale-watching products to tourists.

Since 2018, in order to get closer to the animals, more companies have started to establish in Skjervøy, and companies from Tromsø also changed the routes for whale-watching (Figure 5). Skjervøy is a municipality with around 3000 habitants, which traditionally has been a fishing village and a coastal town in northern Troms.

2.2 Research approach: Qualitative research

Qualitative methods were adopted for this research, emphasizing people's observations, understandings, and expectations rather than numbers (Bryman, 2016). The flexibility of the research design enables the possibilities for using interviews, existing literature, and official documents to present an interdisciplinary picture of whale-watching tourism in Northern Norway and discuss the sustainability and ethics of such a tourism activity in this context, especially when there are limited existing quantitative studies and data available.

Qualitative research requires data that is holistic, rich, and nuanced. Therefore I used existing written materials as the secondary data and interviews as primary data to analyze the presence, meanings, and relationships of specific themes and concepts in the whale-watching discussion (Bryman, 2016). Adopted from the Ecotourism management framework, I separated the study's sample population into six groups: Researchers and NGOs, local communities, local destination management organizations, national authorities, tourists, and whale-watching operators.

2.3 Data collection

The data collection methods for this research include in-depth interviews and textual analysis of written texts. The data collection process was carried out according to the requirements of the objectives, which, as mentioned, are:

1. Investigate different stakeholders' levels of engagement, understanding, and expectations of whale-watching tourism;
2. Evaluate the impacts of existing whale-watching tourism on the conservation and well-being of the watched cetacean species in the study area.
3. Explore the vulnerability of whale-watching tourism in Skjervøy and Tromsø.

2.3.1 Written materials

The research objectives required various actors' information regarding the practices and management of whale-watching tourism. To fulfill the study's objectives, NGO or government reports, scientific articles, news articles, and other public documents and websites from different organizations can be used as secondary data sources, where different opinions, understandings, and expectations are presented. Based on the literature review and iterative process of the research, the following websites and documents were examined and included as the key sources of written materials:

- Guidelines for whale-watching in Tromsø, from Visit Tromsø
- Norwegian National regulations on the practice of whale-watching (*Forskrift om utøvelse av hvalsafari*) from the Norwegian Directorates of fisheries (in Norwegian)
- Articles with keywords "whale-safari"/ "whale-watching," "Skjervøy," "Tromsø" from NRK, newsletters from Norwegian Directorates of fisheries and Norwegian Maritime Authority
- Consultation response NHO Reiseliv - proposal for regulation of whale-watching as an industry (Høringssvar NHO Reiseliv - forslag til regulering av hvalsafari som næring, in Norwegian)
- The official websites of Visit Tromsø and Visit Lygenfjord

2.3.2 Sampling

A non-probability sampling strategy was implemented in this research since the studied populations are required to fit into the roles of the chosen framework. Snowball and purposive sampling approaches were adopted in all six groups of actors since the study requires certain actors to have particular knowledge related to the topic, and the participants interviewed can help identify other potential participants of the study (Bryman, 2016).

Voluntary and convenience sampling methods were also conducted to understand the tourists' perspectives and observations of the practices and impact of whale-watching tourism; this population was purposefully selected among those on whale-watching trips during the 2021 to 2022 winter whale-watching season. In order to gather the sample, I went on two whale-watching trips with two different operators. I have also contacted several operators in these two municipalities to spread my contact information to their guests. Later in January 2022, one guide from the two whale-watching trips recommended a Facebook group called "Hvaler

I Nord," with 13,000 members interested in cetaceans in northern Norwegian waters. Due to the low response rate from own travels and posters on the whale-watching boats, I decided to post my research on the Facebook group, inviting tourists who fit into the category to contact me for interviews. As a result, many tourists and operators contacted me and recommended other contacts.

2.3.3 In-depth Interviews

The interview guides were designed based on the literature review and the written materials. The population of the interviewees was separated according to the groups of actors. Both in-depth semi-structured and unstructured interviews were conducted based on the actor's role in the research. Due to the COVID-19 restriction, I conducted all interviews through phone calls and zoom video calls.

Semi-structured interviews can help define the research theme and area with the key questions, allowing the respondent to feel less restricted, and provide new and unexpected responses through the open-ended questions (Bryman, 2016). The semi-structured were conducted with the following samples with three different open-ended questionnaires (see Appendix 2,3,4):

- 14 anonymous interviews with tourists
- 6 anonymous interviews with whale-watching operators
- 1 interview with an advisor from the local DMO, Visit Tromsø
- 2 interviews with 2 advisors from Skjervøy and Tromsø municipalities

On the other hand, unstructured interviews only provide the participants a topic, which offers a great opportunity to get flexible, detailed, and nuanced responses from the interviewees (Bryman, 2016). Unstructured interviews were conducted in the following samples, which helps to cover up the weakness of the semi-structured interviews and gaps in knowledge of the author:

- 1 interview with an inspector from the Norwegian Directorate of Fisheries
- 2 interviews with 2 researchers

2.4 Data analysis

Qualitative content analysis was adopted to evaluate patterns within the written material, while narrative analysis was implemented to analyze the transcripts of the interviews. According to Bryman (2016), qualitative content analysis emphasizes the role of researcher in the construction of the meaning of texts, which helps map the actors of whale-watching. On the other hand, I can focus on the participants' stories concerning sequences of events related to whale-watching using narrative analysis.

NVivo, a software for qualitative data analysis, was used to process the data. I used the hybrid coding approach based on a set of priori codes and new codes added according to the responses to open-ended questions.

2.5 Trustworthiness

Trustworthiness can be used to evaluate the methodological approach of a qualitative study which includes four aspects: credibility, transferability, dependability, and confirmability (Bryman, 2016).

Credibility refers to the extent to which the qualitative researcher is confident in the truth of the research study's findings. Method triangulation was implemented to enhance the study's credibility by asking the participants follow-up questions to clarify and add-on to what they had said. One limitation of this study regarding credibility is that there have been only one or two respondents for certain groups, although I have tried to make contacts. I tried to cover the knowledge gaps by using written materials as the source for cross-checking to counter this issue.

Consistency and reliability of the study were demonstrated and measured by dependability. I presented the audit trails with how I gathered the samples and data to my supervisor throughout the research process. However, some participants of the research are anonymous, and future researchers who wish to replicate the same study might get different data based on the profiles of interviewees.

In terms of confirmability, the researchers need to be neutral and not be influenced by their assumptions or biases (Bryman, 2016). However, it is impossible to be completely

objective as a researcher. All questions in the interviews were designed to be open-ended, which allowed the participants to provide in-depth answers without being influenced. I must inform the interviewees about the study and how the interviews would be used, so my background might have influenced their responses.

Transferability means to what extent are the study's results applicable within other contexts, circumstances, and settings (Bryman, 2016). In order to demonstrate the transferability of the study, a thick description of whale-watching tourism and the context of the Norwegian tourism sector is presented in the background chapter.

2.6 Limitations, Research Ethics, and Reflections

The COVID-19 pandemic prevented my original plan to write my thesis on whales in China due to travel and entry restrictions. Therefore, I decided to write about whale-watching tourism in Norway related to my research interest in conservation and environmental issues. Even so, traveling within Norway was also significantly influenced.

Though I can speak some Norwegian and have lived in Norway for two years, my epistemological background could still influence my understanding and reflections on the research.

The fieldwork was conducted in the whale-watching boats from Tromsø to Skjervøy. The whole trip was 7 hours long since I was based in Tromsø. I chose not to have physical interviews considering the restrictions and health of my partner's family, whom I stayed with during the period of my fieldwork. I tried to post in the same Facebook group, "Hvaler I Nord," to find residents in Skjervøy, but the attempt was unsuccessful; therefore, I chose not to include this group in my study.

Since the study was intentionally made for public use, I obtained consent from interviewees to record, analyze and quote their responses. The processes of data collection, analysis, and storage are approved by the Norwegian Center for Research Data (NSD). Due to concerns for privacy and conflict of interests, the information of two interviewed groups, tourists and operators, was anonymized. One non-anonymous interviewee in the study serves a public role and requested the transcription for accuracy. In this case, I provided the

transcription and got feedback for the final quotes in this thesis. The interviewees can request the final version of the thesis if they wish to read it as discussed in the interviews.

At last, we wished to include as many perspectives in the study as possible, so my supervisor and I made multiple attempts to contact NGOs, the Norwegian Maritime Authority, researchers, NHO, and Visit Lyngenfjord. However, many of these contacts did not respond to requests for information or interviews.

Photo by Krisztina Balotay, orcas feeding around the operating herring fishing boat

3. Results

The results were collected to inform the aim of the research, which is to present a general picture of whale-watching tourism in northern Norway and discuss different actors' roles in the development of whale-watching. This chapter consists of six categories of different actors in whale-watching tourism, based on the interviews conducted during the study and written materials I gathered from the related public agencies. The interaction of different actors is presented in the adapted ecotourism framework (Figure 6).

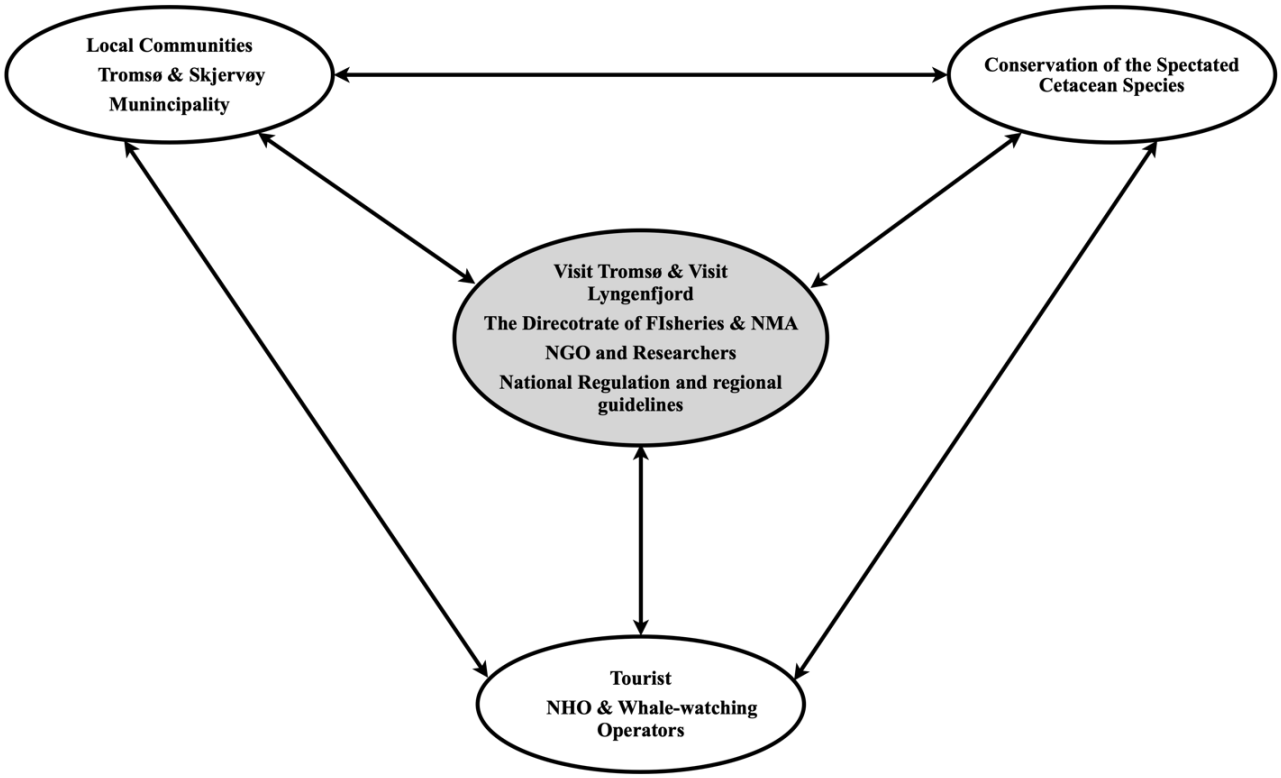

Figure 6 *Map of whale-watching tourism management in Northern Norway adapted from Ross and Wall (1999)*

3.1 Cetacean Species

This section is based on the interviewer's observation of the humpback whales, and orcas.

The distribution of herrings changes rapidly every year, driving the population and distribution of humpbacks and orcas. Eve Jourdain, the founder of the Norwegian Orca survey and researcher on the Norwegian orca population, explained in the interview that the dynamic distribution of herrings is the reason for the change in population and orca's appearance in Skjervøy: "The younger population of herrings moved up Skjervøy then attracted the older ones to follow."

3.1.1 Avoidance Behaviors

The increased occurrence of whale-watching boats and feeding in the same vicinity may have driven behavior changes in orcas, according to an experience snorkeling guide:

"I would say that some pods now have behaviors to avoid contact with boats. They will always leave because of the pressure. I can feel it. A group of orcas have borders in their social zones. If you enter this border in the wrong place with the wrong speed with the wrong angle, this stimulus is not nice. In the orca language, it's not polite, so they will go away. For many years during feeding, they had one technique called the carousel feeding which was static. The bait ball was always pushed up to the surface. Now, this happens less and less. We had only one time with this kind of feeding in shallower water. Now they have adopted this hunting strategy that they don't push the ball up to the surface anymore. Instead, they keep the fish 20 meters below."

One snorkeling tourist who has been diving in the area for years recalled such avoiding behaviors happening much more often than before. The orca researcher pointed out that certain groups and individuals of orcas demonstrated explicit avoidance behaviors during her fieldwork to collect samples. She also proposed possible reasons for such adverse reactions to boats and humans:

"When we are out in the boat and collecting data, we can see that female individuals don't want to get closer to vessels than males. Also, aged individuals that we know clearly show avoidance behaviors. The hypothesis we have is that this might be due to the incidents between fisherman and orcas from years ago in these coastal areas."

3.1.2 Possible Impacts

According to the interviews with guides and researchers, many pods of orcas and humpbacks in the study area travel with younger individuals. Marine biologist Dr. Jourdain pointed out that whale-watching tourism could affect these individuals and pods: *"Some pods may have very young calves even just several hours old, and they are slow and clumsy. So, they might be scared and not able to feed with so many boats around and ending up using more energy to swim away."* The researcher also pointed out that snorkeling or diving activities could negatively influence the hunting efficiency of the orcas since they are in the water.

3.2 Authorities' role in the management of whale-watching tourism

3.2.1 The Norwegian Directorate of Fisheries (Fiskeridirektoratet)

The Norwegian Directorate of Fisheries is a government agency under the Ministry of Trade, Industry, and Fisheries. The primary responsibilities of the Directorate of fisheries include providing professional input to the policy-making process, acting as an efficient manager, cooperating with the trade, industry, and research community, and sharing knowledge with stakeholders and the general public.

Responsibility and daily practices

In the interview with Jørgen Ree Wiig, the inspector at the Sea Surveillance Unit at The Norwegian Directorate of Fisheries. One of the primary daily responsibilities of The Directorate of Fisheries is to control the bycatch of cod and other regulated fishing activities. In Skjervøy, the job is to control boats when herring fishing activity occurs. The monitoring boat can be either from The Directorate of Fisheries or the Coast guard in the vicinity of the operations.

Regarding whale watching, The Directorate of Fisheries mainly has responsibilities related to the welfare of the whales and the fishery operations in the area. The inspector stated that there are some difficulties in the actual daily practices. Herrings prefer to surface when there is little light, so the Directorate of Fisheries boat would usually be out patrolling the fishing boats when the arctic sky darkens, and the lights are changing. However, whale-watching activities usually only occur during the daytime, which has created a time difference between herring fishing. In December and January, daylight in certain areas in Northern Norway can only last up to 2-3 hours. Therefore, herring fishing and whale-watching activities could occur in the same vicinity. When herring activity occurs with whale watching, the safe distance is monitored according to the 2019 whale safari law, specifically 370m for vessels and 740 for individual kayaks, divers, and swimmers. According to the Fishery Directorate, this distance can be easily spotted through either AIS (Automatic identification system) or the radar, which should be equipped for safety when operating in the study area. However, the herring fishing boats are bigger and faster compared to most the whale-watching vessels. Thus, the practicality of keeping distance became an issue when the two operation activities occur simultaneously. Regarding this concern, the inspector said:

"Even though the fishing boats are fast and relatively larger in size, there are still some ways for the whale-watching operators to follow the rules. For example, the herring boats fish in a specific pattern and display fishery lights when they are in active fishing. Everybody that is operating a seagoing vessel in Norway should know what this looks like since they are required by law to have the boat driver's licenses."

In recent years, the number of small-sized operators and foreign vessels has been increasing rapidly[3]; it is unknown from the interviews and data as to whether the captains or skippers on these vessels have adequate knowledge of the regulation and standard practices around herring fishing boats. In an interview with a captain from a whale-watching operator in the area continuously during the last whale-watching season, they pointed out that some small whale-watching ships did not know how to behave when the fishing boats came at high speed. The Fishery Directorate did not mention whether they are responsible for training or informing the whale-watching skippers or captains in this area. Meanwhile, the captain has also brought up issues with keeping distance with fishing boats when they use large trawlers that can be one hundred meters long and at high speed.

Apart from monitoring the behaviors of the boats, the Directorate of Fisheries also has the responsibility to ensure that the orcas, humpbacks, or other whales trapped in fishing nets are freed if they enter purse seine (a large wall of netting deployed around the entire area or school of fish). The fishing vessel is required by law to release the whale(s), even if this means that the herring is lost since it is prohibited to dump herrings once they are caught and die in to prevent local pollution. This is the only circumstance in which the fishing vessels can do so. To the inspector's knowledge, this kind of incident has not occurred in the study area.

During last whale-watching season (November 2021- January 2022), the directorate has made several adjustments to the schedule and amount of patrolling boats, particularly to control whale safari vessels' behaviors before Christmas in 2021. This change of practice happened particularly after a post of irresponsible whale-watching behaviors social media and related news coverage, which then has brought an instant improvement to the chaotic situation:

3 "New rules threaten tourism in the north - the entire fjord can be closed off" (Nye regler truer reiselivet i nord – hele fjorder kan stenges av)– NRK Nordland

"(After the news started to come up), I must tell you that the next day we went out and everybody was behaving admirably, so the post had an immediate effect. Two days later, the Fiskeridirektoratet decided to be on-site, and then they started checking out the whale-watching boats' behaviors, which, to my knowledge, had never happened before. So, the post eventually generated actions from the government and started controlling the behavior of the people. And I must say that within a few days everything has improved." ----- A guide from a whale-watching company in Skjervøy

Collaboration or communication with other agencies

The inspector also mentioned some platforms for communication and collaboration between different agencies and operators at the end of the interview. The Directorate of Fisheries has been working with researchers, particularly from fisheries research, for an extended period. The Directorate also communicates with municipalities, the police, the Norwegian Maritime Authority, whale-watching operators, and local DMOs (Visit Tromsø and Visit Lyngen) through the meetings last year and in the coming whale-watching season.

Challenges

The main challenges for the directorate of fisheries that the inspector mentioned during the interview include the safety issues with snorkelers and divers and the lack of knowledge of how to behave in the specific weather and climate conditions with little lights and strong waves:

"In such a harsh weather conditions here in Skjervøy, I personally think that such activities should only be done by experienced personnel to avoid potential accidents. Also, some foreign boats coming for whale safari might not have the knowledge related to how they should behave in such harsh arctic conditions. Diving here is an entirely different thing than diving in warmer environments"

The weather condition seems to have been the case for some previous incidents. In November 2019, A snorkeler tourist got too close to the vacuum pump and almost got sucked

into the catch with water [4]. In the same month, another snorkeler tourist from Switzerland died from a heart attack during the diving in Skjervøy.[5]

3.2.2 Norwegian Maritime Authority (Sjøfartsdirektoratet)

According to its official website, the Norwegian Maritime Authority (NMA) is "the administrative and supervisory authority in life safety, health, material values and the environment on vessels flying the Norwegian flag and foreign ships in Norwegian waters." To understand the authority's specific role from NMA's perspective, I tried to reach out for an interview in February 2022. By the end of May 2022, there has not been any response. This part of the finding is based on other interviews done in the study and the authority's official website.

Responsibility and daily practices

The main responsibility of this authority is to ensure that Norwegian ships and shipping companies meet high safety and environmental standards, that the vessels shall be good, serious, and safe workplaces manned with qualified seafarers, and that foreign ships in Norwegian territory and ports meet international rules.

Regarding whale-watching, NMA is responsible for controlling the traffic for both domestic and international boats, monitoring safety conditions, ensuring good seaman behaviors, and offering verifications and certifications. The laws and regulations are different regarding the length, types, and passenger capacity. In the last whale-watching season, according to the Fishery Directorate's newsletter published in November 2021, NMA also sent patrolling vessels out on the fishing grounds and spotted misconduct from several whale safari companies[6]. NMA is planning with the Fishery Directorate to participate in herring control at the very beginning of the next whale-watching season to enter the dialogue with whale-watching operators.

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4 "Here the diver is almost swallowed: - This is life-threatening diving" (Her blir dykkeren nesten slukt: – Dette er livsfarlig dykking) – NRK Troms og Finnmark
5 "Snorkeling perished on whale safari" (Snorkler omkom på hvalsafari) - Dykking
6 "Increases control with whale watching" (Øker kontrollen med hvalsafari) – NMA official website

Collaboration or communication with other agencies

NMA has been mentioned by the Fishery Directorate with collaboration on regulating whale-watching operations through hearings and patrolling. It remains unclear if there is collaboration or communication with other agencies.

Challenges

In Skjervøy, during the whale-watching peak season, the traffic on the field can be chaotic when there are private recreational boats, whale-watching passenger boats that can take around 300 people, sailing and cargo ships from foreign operators, and small vessels with less than 12 passengers searching for whales in the same vicinity. One captain from whale-watching boats pointed out the difficulties with communications with other whale-watching vessels, especially the foreign boats that do not speak Scandinavian languages or English in VHF radio.

Another challenge that NMA might be facing is how to regulate international ships. The captain in the same interview mentioned that boats coming from other countries with only 12 passengers in much bigger vessels could be categorized as cargo ships instead of passenger boats which apply to different safety regulations and certifications. According to the local NGO, *Norwegian Orca Survey*, which participated in the whale-watching hearings last year, the attending NMA local inspector seemed to be unsure what rules should be applied.

3.3 Local Communities

3.3.1 Cultural values and Local Community attitudes

The cultural values relevant to whale-watching mentioned during the interviews are the "right to roam" and whaling. Since 1957, as part of the Outdoor Recreation Act, Norwegians have been ensured access to public and even certain privately-owned areas through the right of access or right to roam ("allemannsretten" in Norwegian). This act has profoundly shaped the local community and Norwegians' cultural values on how to use and access nature. Marika Alice Andersen, the business advisor at Tromsø Municipality, talked about the cultural conflict in the whale-watching discussion on the commercial use of nature:

> *"When it comes to nature-based tourism in Norway, people have a very strong cultural sense that nature should be unregulated as much as possible for free access.*

Nobody wants unnecessary regulations and laws, but when you are starting to use them for commercial purposes. Is that also supposed to be just complete free access?"

The sustainability and society advisor at Visit Tromsø, Inger-Lise Brones, also referred to the conflict as one of the reasons for the lack of proper regulations in whale-watching tourism:

"What stops us from making regulations is that we have this 'right to roam'. Sad to say this, but the law meant for everyone to be allowed to walk in nature almost 70 years ago when the land here was almost all privatized. However, now it is an opposite problem. Everyone goes into nature everywhere they want, unless they walk through a fence or something. It makes no difference if you are on your own or with a company. The lack of regulation stops us from doing the right thing."

Regarding another potential cultural value conflict, there is no whaling activity in these two regions. For many residents, whale meat was common during the old days and remained a traditional dish in northern Norway. One whale-watching tourist mentioned in the interview that the local bus driver from Tromsø to Skjervøy talked extensively about whale meat:

"We were bout 20 people in the bus from Tromsø to Skjervøy to watch the whales, and the driver was telling us through the whole ride about how to shoot dolphins and whales, how to fry whales, and how to eat them."

Silja Karlsen, the business advisor of the Skjervøy Municipality, expressed the positive attitudes of the local community toward blooming whale-watching tourism. For smaller municipalities like Skjervøy, the increasing whale-watching tourism trend seems to be welcomed in general by the local communities and local businesses:

"We are a community used to trading and fishing man coming from other places in the old times. People who live here think it is good that things are happening. I think it has been just positive with people coming and being here. We can meet them if we are going out for a walk. We are a little community, so it is natural for us to talk to people when we meet outside in the mountains or other places. I have not heard anyone who does not think tourists are ok.

According to the advisor, many residents from Skjervøy have been engaged in discussions and related research on cetaceans and whale-watching. In the Facebook group "Hvaler I Nord" with over 11,200 members, there is an open platform for researchers, operators, and residents to share their findings, sightings, and research of various cetacean species.

3.3.2 Municipalities

In the interview, the business advisor at Tromsø Municipality explained the local administrative jurisdiction's role in terms of whale watching. Firstly, the municipalities can aim to put pressure on the national level of government to make regulations based on the local community's point of view. The regulations should come from not just the fishery's perspective but also be able to address whale-watching as a tourism activity. Secondly, the municipalities can incorporate the travel industry's perspective into other sectors, such as regional coastal plans, which define areas along the coastline for various uses.

Skjervøy Municipality's business advisor pointed out that the possible interests of the local community towards whale-watching are mainly based on the tax generated, docking fees at the municipalities' harbors, and local employment. The advisor also mentioned that whale-watching could bring opportunities for the development of local land-based winter recreation activities in smaller municipalities like Skjervøy, where usually there is only summer tourism.

Before the COVID pandemic plummeted the global tourism market, whale-watching tourism brought substantial job opportunities to the two municipalities. One article from NRK claimed that the tourism industry in northern Norway had created 2000 more jobs with three billion turnovers from 2016 to 2018[7]. Generally, whale-watching boats that choose to dock at the Tromsø and Skjervøy public harbors will pay a fee dependent on the vessels' emissions. The municipalities own these harbors entirely. However, both advisors pointed out that boats travel from other regions or countries to Skjervøy without tourists being land the whole trip.

Both municipalities apply the national regulations from the Fishery Directorate and the guidelines, which were made by Visit Tromsø, to the management of whale-watching. However, on the particular guidelines regarding "in-water activities with whales," there is a difference between the two municipalities. Diving or snorkeling with whales in the Tromsø Region is discouraged, while Skjervøy municipality has a neutral attitude towards this activity since it is not against the national regulation.

7 Susanne is one of 2000 new employees in tourism in northern Norway - has made the whales a living. (Susanne er en av 2000 nyansatte i reiselivet i Nord-Norge – har gjort hvalene til levebrød) – NRK Troms og Finnmark

Collaboration and communication

The municipalities of Skjervøy and Tromsø communicate through informal dialogues and forums on the travel industry and collaborate to make regional business strategies for tourism. On a bigger scale, according to Tromsø Municipality, actors from various sectors of tourism, members from municipalities, and political representatives have a formal working group called "Destination Management." The actors will discuss relevant tourism industry matters in Troms and Finnmark country every other month. Before Christmas in 2021, whale-watching tourism was brought up due to international news coverage in the working group.

The local destination marketing organizations have critical roles in tourism management for both municipalities. Tromsø municipality works closely with Visit Tromsø, while Skjervøy mainly collaborates with the other DMO, Visit Lyngenfjord, organized by many other surrounding municipalities. The detailed role of DMOs will be explained in the next section.

The two municipalities have participated in the meetings mentioned in the previous text regarding whale-watching management, one in Tromsø and one in Skjervøy. The meeting in Tromsø was hosted by Visit Tromsø, while the municipality initiated the meeting in Skjervøy with Visit Lyngenfjord.

Challenges

According to the interviews, these challenges with regulating whale-watching tourism from the local authorities' perspective can be summarized as follows:

- Lack of reliable data sources to have an overview of the whale-watching industry;
- Unable to sanction irresponsible behaviors with the current regulation;
- Non-local actors might exploit the newly started tourism activity.

In Tromsø, the municipality is currently working on identifying "high-pressure areas" for ocean-based tourism, including fishing, sightseeing, and wildlife tourism. According to the advisor, establishing "high-pressure areas" has been very difficult and is still in the early stage since there is little data available. The advisor expressed the struggles that the local authority is faced with:

"In general, the whale-watching or even the whole tourism industry here is highly unregulated. I am not sure if you can even call it an industry because it is comprised of so many diverse types of actors."

Skjervøy Municipality is facing the same situation. Almost no license is needed to become an actor in tourism, making it free access for anyone with a boat license to operate whale-watching trips on various scales. According to The Confederation of Norwegian Enterprise (NHO), only about 1/4 of the tourism actors in Northern Norway are members, especially in the whale-watching sector operated on the ocean. In Skjervøy, seven local companies are registered at the municipality, while the number of operators from Tromsø is unknown from the interview with the municipality. In addition, an advisor from Tromsø municipality talked about the difficulty of comprehending the actual size and impact of whale-watching tourism with the other related actors like the involved transportation companies, hotels, and restaurants.

Accompanied by the last heated whale-watching season, some actors have had more irresponsible and unsafe behaviors. However, the affected municipalities cannot sanction wrong behaviors of whale-watching operators due to the lack of legal documents from the local jurisdiction level. Skjervøy's advisor mentioned that the welfare of speculated cetacean species was one of the main concerns regarding the irresponsible practices of whale-watching operators currently. Several incidents were reported to the municipality where whale-watching boats or tourists are at an extremely close distance or driving carelessly around the animals.

Both advisors pointed out the lack of information about domestic and international actors who enter the areas for whale-watching since these operators are not required to report to the municipalities. Despite the management difficulties, the tax situation is also complicated with these unidentified foreign actors. One of the benefits that whale-watching tourism can bring to the local community is the generated tax income. In a conversation with NRK on foreign actors that operate in Skjervøy[8], the Tax Administration of Norway referred to the issues with foreign actors as: "a foreign company and a foreign-registered boat may be enough to evade taxes, even if the product is physically sold and takes place in Norway." In the same

8 Selling spectacular tourism experiences in Norway - the money ends up abroad. (Selger spektakulære reiselivsopplevelser i Norge – pengene havner i utlandet) – NRK Troms og Finnmark

article, the mayor of Skjervøy also expressed concerns about foreign actors exploiting whale tourism's great potential for the local community. Noticeably, the national regulation is only provided in Norwegian without an official translation.

3.3.3 Destination Management Organizations (DMO)

Hristov and Zehrer (2015) pointed out that DMOs are the central actor of a destination in marketing and management by coordinating local businesses. In the Norwegian travel industry context, DMOs play a crucially important role. The organization of the travel business in Norway is voluntary. Visit Tromsø and Visit Lyngenfjord are among many visit companies with connections to Visit Norway, managed by Innovation Norway under the Ministry of Trade, Industry and Fisheries. According to the official websites, both municipalities share the ownership of their DMOs along with other private and public actors such as the local municipality's harbor, hotel, and travel companies. Tromsø municipality holds 16.7% of Visit Tromsø, while Skjervøy Municipality owns shares of Visit Lyngenfjord with the other four surrounding municipalities. In these two organizations, the companies that become members do not simply pay for marketing but for the management function, such as arranging meetings and seminars and writing papers to the government to represent the local tourism industry community.

Visit Tromsø has been involved in the whale-watching tourism discussion for more regulation since 2016. According to the advisor at Tromsø municipality, Visit Tromsø has played a crucial part in the sustainable transition of tourism in Tromsø, which led to Tromsø being certified as "a sustainable travel destination" by Innovation Norway. In 2020, Visit Tromsø launched the quality mark "Approved by Visit Tromsø," which can be spotted on their suppliers' websites, cars, shops, and restaurants, indicating that the suppliers with the stamp have met the standards of quality, professionalism, and safety. Six out of the nine suppliers of Visit Tromsø have the stamp. One of two unstamped suppliers just started the whale-watching activity last season. These whale-watching products could take from one to several days, costing 1300 NOK to 20000 NOK. All the suppliers are obligated to follow the whale-watching guidelines, which act as the ethical standards for Visit Tromsø to control and evaluate the practices of their whale-watching suppliers when there is no regulation to sanction irresponsible and unsustainable behaviors.

From the interviews, these two DMOs face the following challenges: Firstly, there is no data or reports of the turnover for the whale-watching industry. The only statistics measured

in tourism are measured through the overnight hotel statistics. Due to competition, the suppliers do not wish to share their revenues, schedules, or season strategies. Secondly, there is a lack of proper regulation to manage operators' access to whale-watching hot spots. Finally, in Skjervøy, the municipality wishes to benefit the local community with the unpredictable whale-watching seasons:

> *"We made an activity calendar with our local DMO just to show them that you could go to church in one afternoon and there will be a concert. And we have a public swimming pool here. We don't have a lot of activity companies, but we want to show the tourist what we have and share this more with the tourists."*

3.4 Whale-watching Operators

The number of active operators in the Skjervøy and Tromsø is difficult to conclude. Especially after the COVID-19 pandemic, many companies decided to merge or stop operating whale-watching activities. All the whale-watching activities in the winter season of 2021-2022 took place in the Skjervøy area. The season lasts from early November 2021 until the end of January 2022, when most operators stop selling trips. According to the interviewees, the booking rate was over 90 percent of the total capacity, even with the COVID restrictions.

Most whale-watching operators in the study area are members of Norway's most prominent employers' organization – the Confederation of Norwegian Enterprise (NHO). In the discussion of whale-watching tourism management, NHO has been referred to as a collective voice for the operators in this sector. Therefore, NHO is also included in this section.

3.4.1 Daily practices

Whale-watching trips could last from one day to over 4-5 days. The longer trips are usually sold as packages with other tourism activities, including northern light watching and natural landscape sightings. In the study area, commercial whale-watching operators generally use the following types of vessels: Rigid inflatable boats (RIB) with less than 12 passengers and big passenger boats, including catamarans, local small fishing boats, liveaboard boats, and cargo ships. Most operators in the study area offer only whale-watching activities, with a few companies having options for snorkeling.

The one-day trips that started in Tromsø would take 7 to 9 hours, depending on the speed of the whale-watching vessels and weather conditions. It would take over 3 to 4 hours from Tromsø city to the fjords in Skjervøy. These operators would use bigger vessels with cabins that can take more than 12 passengers. On the contrary, the operators based in Skjervøy prefer RIB boats, and the trips could last from 4 to 5 hours. One operator in Skjervøy explained that the RIB boat would require extra insulation and equipment to keep the tourists warm and safe. It is required to wear the safety vest the whole trip, while the operators with bigger vessels did not mention the use of safety vests regardless of whether the tourists are inside the cabin.

All the operators interviewed for the study have guides on board, but there is no specific requirement for guiding whale-watching trips. The guides generally have the responsibilities of welcoming the guests on board, giving safety instructions, and offering knowledge about orcas and humpbacks. It is required to get a driving boat license as the skippers and captains of the whale-watching vessels. Depending on the size of the vessels, some operators also prefer guides or captains who have taken the security courses, which costs around 20000 NOK. According to one guide in the interview, there is usually no training provided specifically related to whale-watching. One of the bigger companies in Tromsø hired a guide with a marine biology background to strengthen the knowledge of the whole crew. Another operator stated that the company also tried to organize seminars and workshops before the whale-watching season. Some companies that have accumulated experience through long-term operations in different areas have developed an internal training system for their guides and captains. For operators that provide swim or diving with orca activities, there are some different procedures, including briefing about the safety measures in water and trying on dry/wet suits. Two guides mentioned that not all snorkeling companies had safety guides in water.

According to the captains in the interviews, there have been some informal communications and collaboration between different operators. The captains would share location information in VHF or private message groups within a group of friendly competitors and leave the area when other vessels arrived.

3.4.2 Response to regulations and guidelines

Most of the interviewed operators know there are national regulations and guidelines from Visit Tromsø. Only one guide was not aware of the existing regulation and guidelines. However, same as the municipalities, there are also different attitudes towards the regulations and guidelines. In general, the interviewed operators acknowledge the need for regulations that

can limit the access in the whale-watching area for both private and commercial actors so that only boats or people with specific training on how to act around the animals, fishing vessels, and other whale-watching boats can operate. However, all interviewees claim that the existing regulation and guidelines are insufficient.

Some operators adopted the guidelines from Visit Tromsø; one company said in the interview: *"The guidelines we use are from visit Tromsø. We found them quite early and tried to apply these rules from the start. We have them very close everywhere, and now we know them really by heart."* However, many operators think the guidelines are not practical enough since they are not compulsory: *"I think as long as it is not set in stone and people have to do this, most of them will not take it seriously. So, I think that as soon as it is called really regulations but not recommendations then people will follow."*

The national regulation has also raised different opinions among the operators, especially regarding the in-water activities. The companies with only whale-watching think the regulations should forbid such options, while those with snorkeling on their schedules think the issue is how such activity should be managed.

NHO tourism specifically wrote a response in 2019 to the national guidelines and criticized the regulations could "risk destroying the economic base of a small but attractive industry in northern Norway." In the same letter, they proposed several clarifications and changes regarding the national regulations, which I concluded as follows:

1. *The clauses regarding animal welfare are too vague and comprehensive, indicating that all human activities could cause a disturbance.*
2. *The scope should clarify the whale-watching activities, including private and commercial actors.*
3. *The clause with safety distance is written from the perspective of the fishing industry, and these changes could cause future problems for several member companies.*[9]

9 Translated and concluded from NHO Reiselivs innspill til forskrift om utøvelse av hvalsafari (Høringssvar NHO Reiseliv - forslag til regulering av hvalsafari som næring)

3.4.3 Irresponsible behaviors

All the interviewees pointed out several irresponsible behaviors from both private and commercial whale-watching boats, including not respecting the safety distance between animals and other vessels; cutting the course of the whales and other whale-watching boats; crowding and chasing the animals, and dropping swimmers close to other moving boats and animals.

One interviewee pointed out that some operators would implement measures to pressure a pod of orca for better shots for tourists. They explained, *"If you put pressure on the orcas by driving the boat at the sides, entering with the wrong angle and the wrong speed inside their social zone. They will start to breathe altogether, and the last breath will be very high above the surface, then they will dive. And this is what gives you a very spectacular picture with all the group together. Behind these kinds of pictures is a disturbance because you are too close."* One local company was mentioned multiple times with particular problematic behaviors towards the animals: "*They cut the whales from all different sides or chased the whales from behind frequently. They also went incredibly close. This is how they get good reviews because they were the closest."*

3.4.4 Contribution to conservation and research

Three out of the six interviewed operators mentioned certain levels of collaborations with local NGOs or researchers, including photograph identification, observation, and behavior studies.

One guide has continuously contributed 50,000 photos per year to *the Norwegian killer whale (orca) photo-identification project*, led by the Norwegian Orca Survey. The project is used as the foundation for many ongoing studies about the population of Norwegian killer whales. One other company based in Andenes and operated in Skjervøy in winter, collaborates with regional Research Council Nordland and the local university, UiT, on the project with sperm whales. Another guide has also worked with behavior biologists on orca and diver interaction and co-authored a peer-reviewed article.

However, one tourist mentioned that the operators did not seem to be engaged in the conservation work of the cetacean species in Skjervøy: "*I asked the captain if there is any communication with the municipality or researchers about whales or other wildlife. He said*

he does not need to report anything to anyone because he owns the boat, which is quite shocking to hear and made me feel pretty bad."

3.5 Tourists' perspectives on whale-watching tourism

Most interviewed whale-watching tourists are from Europe, with only one from Asia. 6 out of 14 tourists went on the trips with more than one operator. Most of the interviewees chose the following commercial operators: Brim Explorer, Rødne Fjord Cruise, Green gold of Norway, Explore 70 degrees, Orca Norway, and Polar adventures, while there was one interviewee who booked the trip with a French company with a private boat and one interviewee also booked their second trip in a neighboring municipality to Skjervøy. All the interviewed tourists had a successful sighting of the whales. One guest went on the second trip since there was no sighting of whales during the first one. Two interviewees participated in swimming/ snorkeling activities during the trips.

3.5.1 Deciding factors for choosing operators

Respect for the animal, reviews, environmental impact, price, the size of the vessels, comfortability, and if the company is from the local community are the deciding factors for the interviewees in choosing their trips. Two interviewees who did snorkeling mentioned that they had gone on other trips with the same companies before.

Nine out of the fourteen tourists mentioned that they would like to choose companies with less environmental impact and disturbance to the whales. One tourist on a catamaran boat explained: "*Ideally, I would also want to care about like reputation, whether they are good to their workers and the environment, also if they pay well. I don't want to be those white people traveling all the time. I also don't want the companies to be bothering the whales 'cause those poor whales are probably just saying 'Oh no, it's these idiots again that have to watch us!'*" Another tourist who went on a RIB boat also said, "*I went through a lot of agencies. It was very, very important that I don't want to go diving with the whales because it's too interfering and I didn't want to go on a sort of luxurious cruise where I just want it to be really simple and environmentally sustainable."* Some tourists chose RIB boats to get closer to the animals. On the contrary, the tourists who chose the catamaran boats were in groups with other family members since the cabin could provide a more comfortable trip while also seeing the whales.

Besides the factors mentioned above, two guests pointed out that the in-water hydrophone and electronic engine feature that Brim explorer advertised was the reason for choosing the operator. However, neither of the guests was able to use the hydrophone.

3.5.2 Education and information on board

According to the interviewees, all the trips had a skipper/guide on board offering a certain amount of information. The information given varies significantly among different operators. Operators with bigger vessels like catamaran boats had more guiding than smaller operators due to the length of the trip and the number of passengers. Due to the operating environment, guides on the RIB boat did not give as much information and focused more on giving instructions to the tourists when they arrived at the sighting spot.

One interviewee who took the trip on a catamaran boat said the guide was very informative: *"There was a guide and she talked about both the places where we were going and the animals we would be seeing. She actually gave quite a lot of information about both different kinds of whales and other kind of wildlife. Not just the whales, she also talked about the Sami culture, local ecosystem, and northern lights."* Two other interviewees that took the trip with another operator with the same kind of vessel mentioned the guides were also very knowledgeable and used video clips to tell the guests how to spot the whales from a distance. Snorkeling companies mentioned in the interviews would offer more information on how to approach the animals and follow the rules. However, two interviewees who chose the local company pointed out that very little information was given:

Most tourists think the knowledge and information offered by the guides are essential parts of the trips. Only one of the interviewees expressed that he did not care since the whole reason for whale-watching is to get as close as possible to the animals.

3.5.3 Experience

The interviewed tourist talked about the whale-watching experience with the animals, the length of the trip, and the area's traffic. Some also compared their previous whale-watching trips, either in Norway or other countries. The long trip from Tromsø to Skjervøy was the main negative feedback from the interviewees compared to the 20 minutes to one-hour time with the whales. Two interviewees who have been whale-watching in Norway before said there was a big increase in the popularity compared to four to five years ago. Two visitors who have seen

whales in Canada pointed out that whale-watching in Norway seemed less regulated and not local community based.

Several interviewees mentioned there were rushing and crowding behaviors from the operators:

> *"We saw a group of sleeping orcas from a distance. Then a small boat races straight towards them, nearly crashing into them. We immediately saw the orcas dived, and we hadn't seen them the rest of the day. And this kind of stuff, of course, is very painful to see."*
>
> *"Sometimes we were in the path of the whales and the other boats were also trying to get closer to the whales, the smaller boats. That was actually pretty upsetting."*
>
> *"But what I didn't like is that quite a few times we went closer to the orcas and they disappeared. I felt that the orcas didn't feel comfortable, that was bad, and I didn't like it. Our boat just kept going closer to the to the whales, and every time they disappeared. To me that was a sign that they didn't feel comfortable."*

3.6 Researchers and NGO

The co-author of the whale-watching guideline from Visit Tromsø, researcher Giovanna Bertella from UiT, has been advocating the sustainable development of whale-watching in Norway since 2016. In recent years, she has initiated a joint effort from the whale conservation community to write to the government to ask for strict regulation and intervention. In the interview, she pointed out that both the science and tourism communities had realized the urgency for government intervention in whale-watching: "*In these years, I've been working quite close to Visit Tromsø and other scholars and non-profit organizations. We were not in line all the time for what we wanted with NHO. But now I think there is quite a broad agreement that the voluntary guidelines are not working well, so that we need the intervention from the government."* However, she also pointed out the different perspectives of the conservation community and tourism actors on snorkeling: "*What we don't agree so much about is snorkeling. In our group, we think no swimming activities would be allowed. We are against putting people in the water with the whales. This because of the safety for the tourists and the animals. Also, from an economic point of view, if snorkeling is allowed, few tourists and few*

companies would be happy since the safety requirement and weather condition would raise the price significantly. But whale-watching from boat will make more tourists and more companies happy."

The guidelines and open letters were also endorsed by Whale and Dolphin Conservation (WDC), a famous wildlife charity dedicated to the conservation of cetacean species worldwide. The policy manager Vanessa Williams-Grey pointed out that whale-watching tourism in Norway lacks proper and more explicit regulations compared to other countries with whale-watching tourism. She added that the deeper cultural aspect may have hinged on the ethical development of whale-watching since Norway is still hunting whales. In the report from WDC, the organization proposed the following measures to regulate the current whale-watching tourism in Norway: *"1) A ban on people entering the water with any species of whale or dolphin. 2) A scientific definition of what constitutes 'disturbance' of whales in the vicinity. 3) Development of a permit system to cap vessel numbers. 4) Detailed whale watch regulations which draw upon best practices internationally, but which are region-specific. These should contain provisions relating to speed and angle of approach; minimum approach distances; behavior around mothers with calves, etc. 5) The establishment of a system for official licensing, training and accreditation of all commercial operators, and monitoring and enforcement of all whale-watching activities."*

Another relevant non-governmental organization involved in the discussion is the Norwegian Orca Survey (NOS), co-founded by Dr. Eve Jourdain, a marine biologist, in 2014. NOS is a non-profit organization dedicated to studying and monitoring killer whales in Norwegian waters and promoting marine mammal welfare in Norway. The whale-watching season is also crucial for the fieldwork of the scientific research on the Norwegian Orca population. As mentioned in the previous section, NOS has promoted citizen science and engagement through the Norwegian Orca ID project for the whale-watching operators and tourists. Some whale-watching companies have started to use "research cooperation with NOS" in their commercial campaigns to attract tourists. However, in the interview, Dr. Eve Jourdain acknowledged that the contribution was not as significant as anticipated. Among the 200 contributors' photos, the majority of useable photos are from a handful of people due to the requirements of the photos. For a small NGO like NOS, the workload to go through such a significant number of photos is unmanageable. She mentioned that some companies promised to donate to NOS a certain percentage of the revenue as an alternative to contribute to the

conservation and research work of NOS. However, there has not been any update yet, even after the operator has advertised. The heavy traffic has also added to the difficulty of collecting data for NOS in Skjervøy during the last whale-watching season:

> *"It is often frustrating to collect data for research when these boats are around. Before we go out to the field, we published posts on social media, where most of the companies are involved, asking the operators to be aware of our scientific research boat and kindly give us some time and space to do the work. Still, there will be boats cutting in front of us. This bad seamanship leads to a tense environment, so we have to leave and try to find other groups of orca or even sometimes end up losing these sampling opportunities."*

Photo by Toby Bosschart Bissels, close encounters of snorkelers and humpback whales

4. Discussion

The results chapter provided a picture of Northern Norway whale-watching tourism with different actors' engagement, understanding, and expectations. Based on the Ecotourism framework by Ross and Wall (1999) and IWC's principles guidelines for whale-watching tourism, this chapter discusses the interrelationship between different groups of actors and the impacts of existing whale-watching tourism on the conservation and well-being of the watched whales. Hence, the progression of the vulnerability of whale-watching tourism in Skjervøy and Tromsø, and the risk for potential hazards can be explained and explored.

Table 3 Indicators for assessing the relationships and interactions between the local community, the watched cetacean species, and whale-watching tourism (adapted from Ross & Wall, 1999)

Relationships	***Form of interactions***	***Indicators for relationships***
Local community and the watched cetacean species	***Characteristics***	
	Livelihood strategies ⇔ Ecosystem health	– Local attitudes towards conservation
	Social structure/values ⇔ Population dynamics/statistics and composition of the species	– Nature of relationship between locals and protected area employees
	Local uses of protected area ⇔ Inherent ecosystem sensitivities (disturbance)	– Integrated use zones
Local community and Whale-watching Tourism	***Benefits***	
	Economic benefits:	
	Increased employment opportunities	– Number of Locals employed in tourism-related employment
	Entrepreneurship Distribution of tourist revenues	– Number of local entrepreneurs; Ratio of locals to outsiders
		– Nature of local—tourist interactions
	Social welfare benefits:	– Local's attitudes towards tourists and tourism
	Status of environmental conditions	
	Intercultural appreciation	
	Strengthening of cultural pride heritage	– Authentic or commodified opportunities to view or experience local culture
Whale-watching Tourism and the watched cetacean species	***Options:***	
	Revenue collection for Protection	– Entrance Fee, License/permit, On-site donations, collection from tour operators, collection from other sources related to the tourism sector
	Education/ Transformative values	– Active interpretation (such as guided tours, talk groups, theatre)

4.1 The relationships between local communities and the watched cetacean species

In a symbiotic relationship between local people and protected biodiversity, the local community can benefit from the sustainable and responsible use of resources by acting as stewards of such natural resources (Ross & Wall, 1999). The characteristics of the local communities and the two whales' ecological characteristics can determine the interrelationships (Table 3). As Ross and Wall (1999) mentioned, the characteristics of the livelihood strategies of a community can influence the local attitudes towards conservation. Tromsø and Skjervøy were traditionally both fishing and trading harbors in Northern Norway. Orcas and humpback whales hunt herrings in Skjervøy, which may lead to conflicts with the fishery industry. In addition, whale hunting has been a part of Norwegian coastal culture for centuries. Today, Norway is exempt from the International Whaling Commission (IWC)

commercial whaling moratorium to hunt, consume and export minke whales. Noticeably, there is no whaling activity in the study areas.

Contrary to the historical and cultural background, local communities in the two municipalities have shown positive attitudes toward the well-being and conservation of the two species' appearance in recent years. The residents, municipality offices, and organizations in this study have been engaged in the work with conservation groups or researchers through the Facebook group "Hvaler I Nord," formal collaboration, and other informal communication forums, with results like the guidelines from Visit Tromsø and citizen scientist contributions. Nevertheless, the lack of a shared communication platform between the municipalities and researchers still exists because there are no dedicated resources and institutions.

4.2 Whale-watching tourism's benefits to the local communities

Ross and Wall (1999) pointed out the two essential benefits between the interrelationship of local community and tourism relevant to this research: economic benefits and social welfare benefits (Table 3) and the indicators. In the ecotourism framework, the local communities could have economic benefits from tourism through increased employment opportunities and incomes and revenue sharing and compensation. By participating in the tourism activities, the communities could receive social welfare benefits through the increased status of environmental conditions, intercultural appreciation, and strengthening of cultural pride (Ross & Wall, 1999).

4.2.1 Economic benefits

Since whale-watching tourism's establishment in Tromsø in 2013 and in Skjervøy since 2018, the increasing number of tourists has brought a significant number of employment opportunities and incomes to the local tourism and related businesses, as both municipality leaders pointed out. In addition, the two municipality-owned DMOs could generate income from whale-watching tourism. However, these economic benefits from whale-watching tourists to the two municipalities are difficult to be evaluated. Firstly, whale-watching employment is highly dependent on the weather conditions, cetacean species' migration routes, and company policies that might be inadequate for long-term benefits for the communities. Secondly, despite local operator's tax contributions and tourists' hotel stays, the economic

gains are difficult to measure in both municipalities. Finally, in Norway, there is no minimum salary for tour guides, which are often seasonal employment.

What's more, the number of operators registered in the community or are members of the DMOs is only a small portion of the actual number of companies offering whale-watching trips. On top of this, whale-watching activities are based in the ocean, with very few restrictions on access for operators from other regions. According to both municipalities, there are very few contributions from the non-local operators to the local communities due to the lack of information and unclear situations with tax.

4.2.2 Social welfare benefits

For Skjervøy municipality, whale-watching tourism is embedded with the hope to attract tourists in the winter times, which can create cultural-exchange and other types of on-land tourism opportunities when traditionally there are few tourism activities. During the last seasons, whale-watching tourism has significantly increased the popularity of tourism in Skjervøy. Therefore, the local community and the municipality office in Skjervøy have generally positive and open attitudes toward the whale-watching tourists and whale-watching operators.

For whale-watching tourists from Tromsø, it is more difficult to have such an intercultural experience from the long whale-watching trips on boats unless the operators offer cultural guides on board. From the findings of this study, most operators have not offered such information. In addition, the interactions between non-local operators from foreign areas and the community in both Skjervøy and Tromsø remain very limited and difficult to evaluate.

4.3 Relationship between the two cetacean species and whale-watching tourism

4.3.1 Options for benefiting the conservation of orcas and humpback whales

Tourism could contribute to conserving protected areas or biodiversity through revenue collection for protection, education, or transformative values (Ross & Wall, 1999).

A whale-watching trip in Skjervøy or Tromsø usually costs around 1,400 NOK to 20,000 NOK or more, depending on the types of boats, activities, and operators, which could bring substantial revenues for the tourism operators. However, only one operator offers such revenue collection for the conservation through one company's promised donation of the ticket sales to the local NGO, Norwegian Orca Survey. Many companies chose to collaborate or fund the research programs in humpback whales, sperm whales and orcas.

Transformative values could bring tourists a chance to yield greater environmental awareness, appreciation, and respect for nature through a learning experience with nature (Norton, 2014). All whale-watching operators in this study offer some guides during the trips. However, the content and amount of information or knowledge provided varies greatly and often do not match the expectations of tourists that wish to get such information.

4.3.2 Ethical concerns regarding the practices of whale-watching tourism operators

IWC's General Principles for Whale-watching listed several requirements for the design, maintenance, and operation of whale-watching vessels to minimize the risk of adverse effects on cetaceans. However, this seems not to be the case in Northern Norway whale-watching tourism, where almost all whale-watching operators offer other types of tourism activities. In addition, there are no restrictions on access for entering the area or the type of vessels in the whale-watching hot spot. Therefore, nearly all the kinds of vessels can be used as whale-watching vessels, regardless of size, type, speed, origins, and emissions.

The General principles also call for the ethical consideration from operators to respect the whales' behaviors and wellbeing. However, it appears to be hardly applied by any of the operators in the studied area. To begin with, the experienced skippers in this study and the guidelines from Visit Tromsø emphasized the importance of adapting approaches with appropriate angles and distance when getting closer to the animals, which requires the operators to have a sound understanding of the behaviors of cetaceans. Nevertheless, many skippers and

captains in the studied area lack proper training and knowledge on how to act around and keep track of the cetaceans during an encounter, especially with snorkeling and diving when tourists can enter the water.

The operators should minimize the risk of causing injuries to cetaceans according to the national regulation, Visit Tromsø guidelines, and the IWC principle. Despite that, several episodes of irresponsible behaviors from both private and commercial whale-watching boats have been mentioned in this study and by the media, including cutting the course of the whales and other whale-watching boats; crowding and chasing the whales, dropping swimmers close to other moving boats and whales; and even intentionally putting pressure on the animals in the quest for good tourists reviews. As Bertella (2019a) pointed out, some episodes with irresponsible close encounters have created a tense atmosphere among the operators with concerns for the safety of the people and animals, which reflects all interviewed operators' experiences. The interviewed marine biologist, WDC, and IWC's principle guidelines have also referred to the need for special care when approaching pods or pairs with calves and individuals with particular features. Only one operator has specifically mentioned such consideration in this study.

4.3.3 Impacts on two cetacean species

The increased whale-watching traffic in Northern Norway has induced several potential behavioral changes in orcas and humpback whales when at close distances with whale-watching vessels, including frequent diving and sudden changing of swimming directions. These short-term effects of whale-watching activity could lead to extra energy consumption for the animals..

Long-term negative interactions with the whale-watching tourists might have also led to strong avoidance behaviors from individuals and pods of orcas, which are becoming more commonly observed in this area. In addition, the orca population in the studied area has been observed to change its feeding technique to avoid interaction with boats during feeding on the surface of the water by deliberately driving the prey fishes deeper. It is not clear whether the decrease in orca population in this area is related to the development of whale-watching activities (Jourdain et al., 2021), but as the marine biologist pointed out, whale-watching activities could negatively influence the hunting efficiency of the orcas, especially with closer in-water encounters.

4.4 The management of whale-watching tourism in Northern Norway

The management of whale-watching tourism in Northern Norway and the interactions between each group of actors is presented in Figure 7.

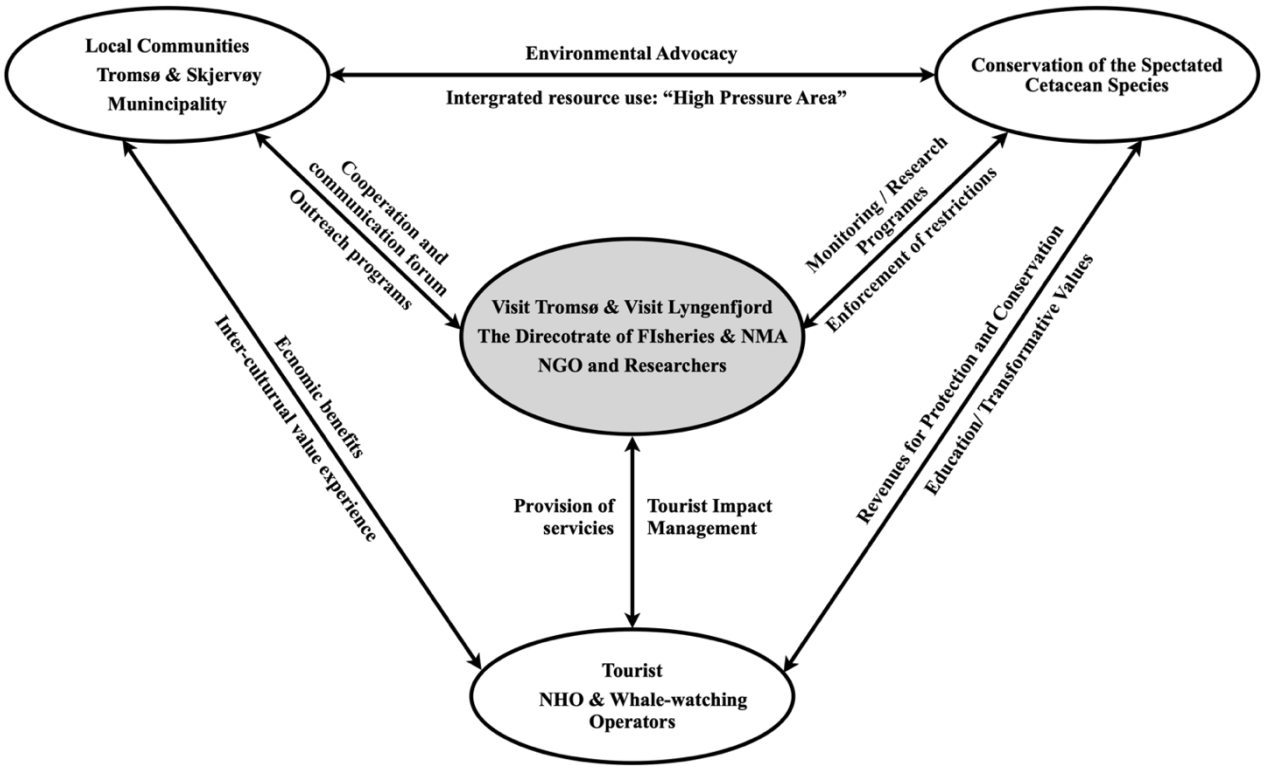

Figure** 7 Interaction map of whale-watching tourism in Northern Norway adapted from Ross and Wall **(1999)

The main problems with the current management of whale-watching are from these perspectives: policies, management strategies, whale-watching spot monitoring, and operators.

First, the national regulation can provide a compulsory standard to regulate whale-watching activities. However, the current regulation is considered by most actors to be vague and unable to control both private and commercial vessel's behavior from the perspective of the whale-watching tourism industry. It also fails to establish a management system for the sustainable development of whale-watching tourism and protecting the animals.

In addition, there have been many boats coming from overseas with no Scandinavian-speaking crews. It was difficult for the foreign actors to be informed of such regulations because the national regulation was only published in Norwegian without official translation.

Moving on to the management strategies, Visit Tromsø's guideline can act as the ethical standard for whale-watching tourism for actors in this area, but is only voluntarily adopted by a small portion of the operators. The local municipalities and the DMOs do not have the power to sanction irresponsible and unethical behaviors. On top of this, there is no long-term communication and collaboration platform, or institution currently dedicated to whale-watching tourism, with functions such as providing the statistics of whale-watching tourism, updates on the cetacean species, and legal documents (for foreign actors specifically). The municipalities cannot control the access or information in the whale-watching hotspot, which makes tourist management or coastal resource management (high-pressure area in Tromsø municipality) more challenging.

In the ecotourism management framework, both whale-watching operators and authorities, including the Directorate of Fisheries, NMA, and coastal guards, should have the duties of species/habitat monitoring, tour guiding, patrolling, law enforcement, research coordinating, and community interfacing (Ross & Wall, 1999). The level of such engagements varies greatly and lacks established standards. From the fast response with improved behaviors of the operators after national authorities' involvement, it is apparent that law enforcement and patrolling need to be established in the long run and adapted to the changes in whale-watching tourism.

4.5 The vulnerability of whale-watching tourism in Skjervøy and Troms

Disaster is " a serious disruption of the functioning of a community or society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope with using its own resources," according to the United Nations Office for Disaster Risk Reduction (2012, p. 9). In the context of the study, disaster can be interpreted as the economic and environmental disruptions of the whale-watching tourism industry, which can be caused by serious casualties with collisions between human and animals. The risk and scale of such a "disaster" could potentially be magnified due to the progression of the vulnerabilities in the social-ecological and social-economic systems of the two studied municipalities (Figure 8).

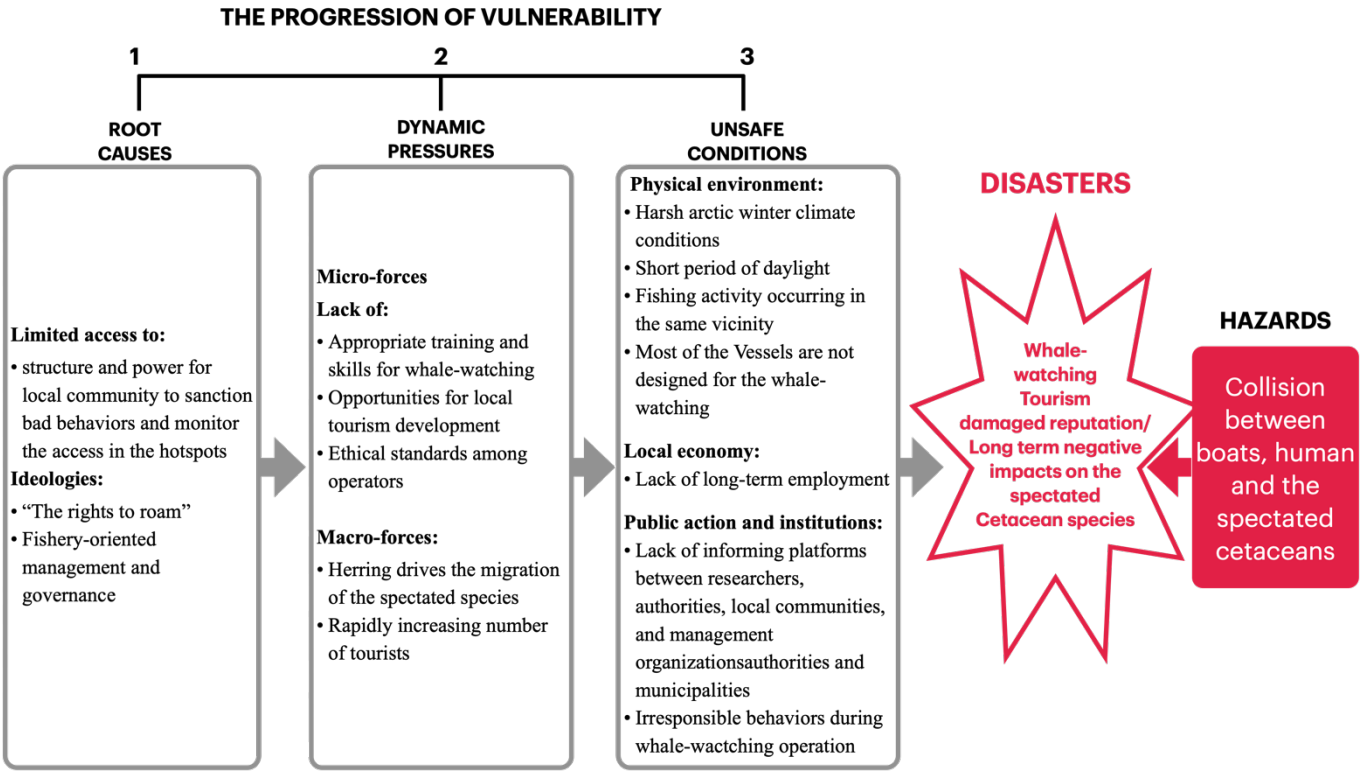

Figure 8 *The progression of vulnerability of whale-watching tourism, PAR model adapted from Wisner et al. (2004)*

The "root causes" of the vulnerability of whale-watching tourism can have resulted from the local communities' lack of access to structure and power to regulate and monitor such tourism activities. Cultural and traditional background with "the rights to roam" and fishery-oriented management and government might have also further induced such vulnerability.

The “dynamic pressures” include micro-forces and macro-forces in the whale-watching industry. Interviews, documents, and existing literature indicate that the whale-watching resource, humpback whales and orcas, are attracted by herrings, and could change their migratory routes in any whale-watching season, meaning that such a resource is precarious. The rapidly increasing number of tourists might encourage behaviors and management systems with short-term profits as goals, especially when there is no established and effective standard for practices and training for the operators. Unregulated non-local actors could amplify the negative influence on local tourism development.

Whale-watching tourism is also facing strains with the physical environment, such as harsh arctic winter climate conditions, short daylight, fishing activity occurring in the same vicinity, and most of the vessels not being designed for the whale-watching. As mentioned, such tourism activity is strongly dependent on the migratory cetacean species’ feeding locations, meaning that it might become difficult to provide long-term employment to the local economy. As mentioned by the interviewees, the sudden appearance of whales in new locations might have also led to the increasing numbers of operators without enough knowledge, especially when there is a lack of informing platforms between researchers, authorities, local communities, and management organizations.

Photo by Krisztina Balotay, orcas and humpback whales feeding with a whale-watching boat close

5. Conclusion

The main research question is: To what extent is whale-watching tourism sustainable and responsible in the Tromsø and Skjervøy regions, from ethical, socio-economic and socio-ecological points of view?

Based on a combination of qualitative analysis of previous studies, official documents, and in-depth interviews, this research presents key actors' practices and perceptions of the winter whale-watching tourism industry in the Tromsø and Skjervøy regions of Northern Norway. The results supported previous relevant studies done by Bertella (2017, 2019a, 2021), which showed that there is a lack of a dedicated whale-watching management system with effective regulations and institutions for the sustainable and responsible development of this tourism activity. Meanwhile, the study revealed possible ecological impacts of whale-watching activities on the two watched cetacean species though observations of the interviewees.

The current tension, which is reflected in the media in recent years and the study's interviews, appears to indicate a progression of the vulnerability of the whale-watching tourism industry towards potential disasters that would put humans, whales, and the fast-growing tourism activity into a dangerous position. From the social-economic perspective, whale-watching tourism does bring certain economic and social welfare benefits to the local communities. However, the long-term and sustainable benefits were limited due to local communities' challenges with lack of data and access to power and structure to monitor and regulate this tourism activity. From the ethical and socio-ecological perspective, this study found that the current whale-watching operations and practices do not adequately meet standards for animal welfare and only small portion of the operators are contributing to conservation of the watched whales.

Emanating from these conclusions, the following approaches could be the keys to establishing more responsible and sustainable whale-watching tourism activities in Northern Norway: 1. adjusting the current management system with detailed and suitable regulations that are based on the perspectives of the wellbeing of cetaceans and the whale-watching industry; 2. granting more powers and responsibilities to the local communities, with access control and monitoring of whale-watching hotspots; 3. Enhancing communication and collaboration between and among the various actors.

Further research results from multi-whale and whale-tracking projects could monitor and inform the long-term impacts of whale-watching tourism on the two species, orcas and humpback whales, which may thereby contribute towards more sustainable policies and practices.

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7. Appendices

1. General Principles for Whale watching (1996 version)

Agreed general principles to minimise the risks of adverse impacts of whalewatching on cetaceans.

(1) MANAGE THE DEVELOPMENT OF WHALEWATCHING TO MINIMISE THE RISK OF ADVERSE IMPACTS:

i. implement as appropriate measures to regulate platform[1]numbers and size, activity, frequency and length of exposure in encounters with individuals and groups of whales;
ii. management measures may include closed seasons or areas where required to provide additional protection;
iii. ideally, undertake an early assessment of the numbers, distribution and other characteristics of the target population/s in an area;
iv. monitor the effectiveness of management provisions and modify them as required to accommodate new information;
v. where new whale-watching operations are evolving, start cautiously, moderating activity until sufficient information is available on which to base any further development;
vi. implement scientific research and population monitoring and collection of information on operations, target cetaceans and possible impacts, including those on the acoustic environment, as an early and integral component of management;
vii. develop training programs for operators and crew on the biology and behaviour of target species, whalewatching operations, and the management provisions in effect;
viii. encourage the provision of accurate and informative material to whalewatchers, to:
ix. develop an informed and supportive public;
x. encourage development of realistic expectations of encounters and avoid disappointment and pressure for increasingly risky behaviour.

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(2) DESIGN, MAINTAIN AND OPERATE PLATFORMS TO MINIMISE THE RISK OF ADVERSE EFFECTS ON CETACEANS, INCLUDING DISTURBANCE FROM NOISE:

i. vessels, engines and other equipment should be designed, maintained, and operated during whalewatching, to reduce as far as practicable adverse impacts on the target species and their environment;
ii. cetacean species may respond differently to low and high frequency sounds, relative sound intensity or rapid changes in sound;
iii. vessel operators should be aware of the acoustic characteristics of the target species and of their vessel under operating conditions; particularly of the need to reduce as far as possible production of potentially disturbing sound;
iv. vessel design and operation should minimise the risk of injury to cetaceans should contact occur; for example, shrouding of propellers can reduce both noise and risk of injury;
v. operators should be able to keep track of whales during an encounter.

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(3) ALLOW THE CETACEANS TO CONTROL THE NATURE AND DURATION OF 'INTERACTIONS':

i. operators should have a sound understanding of the behaviour of the cetaceans and be aware of behavioural changes which may indicate disturbance;
ii. in approaching or accompanying cetaceans, maximum platform speed should be determined relative to that of the cetacean, and should not exceed it once on station;
iii. use appropriate angles and distances of approach; species may react differently, and most existing guidelines preclude head-on approaches;
iv. friendly whale behaviour should be welcomed, but not cultivated; do not instigate direct contact with a platform;
v. avoid sudden changes in speed, direction or noise;
vi. do no alter platform speed or direction to counteract avoidance behaviour by cetaceans;
vii. do not pursue[2], head off, or encircle cetaceans or cause groups to separate;
viii. approaches to mother/calf pairs and solitary calves and juveniles should be undertaken with special care;
ix. there may be an increased risk of disturbance to these animals, or risk of injury if vessels are approached by calves;
x. cetaceans should be able to detect a platform at all times;
xi. while quiet operations are desirable, attempts to eliminate all noise may result in cetaceans being startled by a platform which has approached undetected;
xii. rough seas may elevate background noise to levels at which vessels are less detectable.

[1] Any vessel (with or without engine), aircraft or person in the water.

[2] Chase (as opposed to follow), causing the whale to change its course or speed.

2. Tourist interview guide

Introduction:
I am a second-year master's student in NMBU (in Ås) whose thesis is focusing on the sustainable and responsible practices of whale-watching tourism in Skjervøy and Tromsø.

Background information:
What is your nationality?
When and where did you go on the whale-watching trip?
Which tourist agency or agencies did you go on the trip(s) with?
What was the approximate number of tourists on the boat with you?
If you went on two or more trips, please briefly answer for each trip.

Questions:
1. What were your main expectations for the trip(s) before you went?

2. How did you choose the operators or tourist agencies for your trip?
What are the elements that you specifically cared about? (i.e. price, reputation, whale-guarantee, ethics, hours, boat size)

3. **Briefly describe the trip. Can cover below questions.**
Did you see any whales or other wildlife?
Was there a guide on board informing you?
If so, what sort of information were you given?

4. **After the trip**
What were the parts that most met your expectations?
Which parts did not?
What was the most impressive or made you think about the most?

5. Is there anything else you would like to comment on?

3. Operator interview guide

Introduction:
I am a second-year master's student in NMBU (in Ås) whose thesis is focusing on the sustainable and responsible practices of whale-watching tourism in Skjervøy and Tromsø.

Background information:
Where and which company did you work for as a guide?
How many times in a week did you work and for how long?
What kind of boat do you usually work on?
What was the approximate number of tourists on the boat with you?

Questions:
1. How did you become a naturalists/ guide on a whale-safari boat?

2. What kind of requirements were there to be a guide in the company you work for?

3. Are there any trainings before you start the season? If so, what kind of training/ knowledge were you provided? Were there any guidelines/ regulations included?

4. **Briefly describe how a usual day of safari would be like. You can cover the following questions?**
What sorts of information do you present on board?
How do you address the situation when there is no sign of whales?
How do you and the captain/ skippers communicate about where the whales are?
How does the tourists act when receiving the information?

5. **Based on the recent events, what is your personal experience? And why do you think the reasons are?**

6. As a guide, what kind of measures do you think is necessary in addressing these issues?

7. Is there anything else you would like to comment on?

4. Interview with Authority/municipalities

1. Background information:
- When did the Whale tourism start to boom
- What is the size of current whale-watching industry in your community?
- What was the process of establish any regulations and recommendations?

2. Policies
- What are the specific rules and recommendations regarding to animal welfare?
- What legal documents exist to regulate tourism activities in the area?
- Who is in charge of these regulations and how are they implemented?

3. Local community Development & Participation
- How were the community in Skjervøy affected by the tourism activities?
- Were there any conflicts between whale-watching tourism activities and local community? And how were they addressed?
- What policy have been put into place for benefiting local community in whale-tourism?
- What activities or recommendations have been developed to support or collaborate local community? (entrance fees, employment, conservation, services etc.)
- How has the community participated in the distribution of revenue generated?
- In terms of conservation of local ecosystem, what conservation/ animal welfare policies does the Kommune concern?

4. Stakeholder Collaboration and Partnership Formation
- who are the major stakeholders involved in the management of whale-watching tourism in Skjervøy?
- What is the Kommune's role in tourism management and development in this area?
- Are there some actors/agencies more involved in working with the Kommune than others and what could be reason in your opinion?
- Has there been any collaboration done with other actors, such as NGO, third-parties, tourism agencies regarding to conservation and monitoring the ecotourism practices?

5. Challenges and future plans
- What challenges have been faced with regarding ecotourism development in whale tourism? What are the major constraints that inhibit ecotourism development in Skjervøy?

Norges miljø- og biovitenskapelige universitet
Noregs miljø- og biovitskapelege universitet
Norwegian University of Life Sciences

Postboks 5003
NO-1432 Ås
Norway