

# Marine Fishing Tourism in Norway: Structure and Economic Effects

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## *Abstract in Norwegian:*

Sjøfisketurisme er en voksende aktivitet i Norge. Norges lange kyst med en forholdsvis åpen tilgang til fritidsfiske, mangel på et fiskeavgiftssystem og et register for fisketurismebedrifter innebærer at det er krevende å identifisere fisketurister og fisketurismebedrifter for datainnsamlingsformål. Denne artikkelen presenterer en studie hvor denne utfordringen er søkt overkommet gjennom å kombinere data fra bedriftene på kapasitet og gjestedøgn med data fra turistene på daglig forbruk i løpet av fiskeferien.

Fokus i studien har vært på de mer profesjonelle fisketurismebedriftene som tilbyr en kombinasjon av overnatting, båt, fasiliteter for å håndtere fangst og et vertskap. Studien har identifisert 434 bedrifter som tilhørende denne industrialiserte delen av norsk sjøfisketurismenæring. Disse bedriftene tilbyr til sammen 14.968 senger og 2.369 båter. Det totale antall gjestedøgn i disse bedriftene er 1.257.577 hvorav 46,5 % er fiskegjestedøgn. 83 % av fisketuristene reiser i kategorien "gutta på tur" mens 17 % reiser med familie. Vi finner at daglig forbruk varierer med både reisefølge og reisemåte (transportform). Den totale omsetning på alle varer og tjenester i den studerte delen av norsk sjøfisketurismenæring beregnes til 842,3 millioner kroner i 2008. Vi har også beregnet de totale økonomiske effektene av dette turistkonsumet i 4 ulike regioner i Norge.

## *Abstract in English:*

In Norway marine fishing tourism is a rapidly developing activity. The long Norwegian coastline with a fairly open access to salt-water recreational fishing, the lack of a license system and a registry of fishing tourism enterprises makes it challenging to identify tourists and enterprises for survey purposes. This article presents the results from an economic impact study attempting to overcome these challenges through combining supply-side data on capacity and guest nights with demand-side data on daily expenditures collected from tourists via European tour operators.

The study focuses on the professional establishments, providing services to tourists who purchase a specialized fishing holiday package including accommodation, boat rental and facilities for rinsing and freezing fish catch. The study identified 434 enterprises as belonging to this Industrialized Fishing Tourism sector (IFT sector), providing 14,968 beds and 2,369 rental boats. The total number of guests nights in these enterprises is 1,257,577 and 46.5% of these are fishing tourist guest nights. 83% of the fishing tourists travel in groups of male friends and 17% travel with members of the family. We find that fishing tourist expenditure vary with both travel group and mode of transportation. The total expenditure in the IFT sector is 104 million Euros. We have also calculated the total economic impact from this expenditure in four different regions.

Keywords: Recreational fishing, marine fishing tourism, economic impact, visitor expenditure, Norway

## Introduction

Recreational fishing is defined by the FAO Code of Practice for Recreational Fisheries as: "Fishing of aquatic animals that do not constitute the individual's primary resource to meet nutritional needs and are not gen-

erally sold or otherwise traded on export, domestic or black markets." Recreational fishing is an important part of modern culture (Lowerson, 1989; Hickey & Tompkins 1998; Washabough & Washabough, 2000; Pitcher & Hollingworth, 2002; Pawson, Glenn *et al.*, 2008; Aas, 2008) and an im-

portant part of the global tourism industry (Ditton *et al.*, 2002; Borch *et al.*, 2008). In spite of leisure- and tourism research overall gaining strength in the scientific community there are still severe gaps in monitoring and reliable time series of recreational fishing. This is especially the case for salt-water recreational fishing. Kearney claims that a lack of focus on salt-water recreational fishing is the general picture in countries with a tradition for common access to fisheries resources: "In regimes dominated by the seldom questioned right of access of all individuals to the common aquatic resources, few governments saw the need to define recreational users" (Kearney, 2001:53). Ditton & Stoll (2003) explain the gaps in systematic and reliable research on recreational fishing due to anglers being widely dispersed and not easy to identify for survey purposes and argue that this is especially the case in countries where there is no license required for recreational fishing.

In Norway there is a fairly open as well as a free of charge access to salt-water recreational fishing. There is no license system for fishing tourists or for tourism operators. Since the 1990's a marine fishing tourism industry has developed in the country, to serve Norwegian recreational fishers and to facilitate a demand from anglers from several European countries. The fact that Norway has a long and intricate coastline (25,000 km not including islands and inlets) and a fairly open access to salt-water recreational fishing makes it challenging to access the activity for survey purposes. This article presents the results from an economic impact study attempting to overcome these challenges through combining supply-side data on capacity and guest nights with demand-side data on daily expenditure. Transportation costs were not included in the study as tourists most often pay for plane, boat and car costs outside the regions which serve as a frame for the study.

The supply side data has been collected through a survey of marine fishing tourism

enterprises and the data on daily expenditures has been collected from tourists via European fishing tour operators. The bottom up data collection undertaken in this project is unique in Norway as most earlier studies on regional economic impact from recreational tourism have relied on input data from the national Tourism Satellite Account (TSA) (Brændvang & Sørensen, 2002; Johansen *et al.*, 2002; Dybedal, 2003; Dybedal, 2005). The direct expenditure has been applied as input data in a regional input-output model calculating total economic impact in four different regions in Norway. The model applied (Panda) calculates the effects from the direct tourism expenditure in 30 different sectors of the Norwegian economy.<sup>1</sup>

The average daily expenditure by fishing tourists in the Norwegian IFT sector is 177.5 Euros.<sup>2</sup> 58% of this daily expenditure is on accommodation and boat rental, 103 Euros. Combining data on fishing tourism guest nights with daily visitor spending on all services we find that the total direct expenditure in the Norwegian IFT sector is 104 million Euros. We have calculated the total economic effects from this expenditure in four different regions.

The next section of the paper presents an overview of marine fishing tourism in Norway. The third section presents some aspects of economic impact studies in tourism. The method applied in this particular economic impact study is presented in the fourth section and the fifth section presents the study results. Finally there is a discussion of implications and recommendations for the future management of marine fishing tourism in Norway.

## Marine fishing tourism in Norway

Recreational fishers choose Norway as their marine fishing destination because of the country's coastal landscape qualities and because of the fairly unregulated access to salt-water recreational fishing. No fishing license is needed for salt-water rec-

reational fishing in Norway. Norwegian citizens may use an extensive range of gear for salt-water recreational fishing; hand held line/rod, one machine driven hand line, 200 meters gill net, a long-line of 300 hooks and 20 fish traps. A Norwegian citizen is also allowed to sell some of the catch. Foreign nationals may fish as much as they want in Norwegian territorial waters provided they use a rod and line or hand-held line and do not sell their catch (Act of June 17, 1966 No. 19). Foreigners can only bring 15 kilo of fish when going back home from their fishing holiday in Norway. There are no bag limits for salt-water recreational fishing however a minimum landing sizes for fish in recreational fishing was introduced in 2010.

While many marine fish-stocks in other European countries are declining, Norway can offer tourists good possibilities for catching both a variety of marine fishes as well as big fish. A few enterprises in the marine fishing tourism industry in Norway offer trophy fishing in open-sea, mainly in the north and mid-region of the country. These enterprises have boats with a guide available for deep-sea fishing on 100–700 m depth with an electric reel. There are also some operators offering fishing from head boats. The main marine fishing tourism activity in Norway is however fjord-fishing with tourists renting a motor boat to fish on their own without a guide. The legislation which Norwegian fisheries authorities put into force in 2009, allowing commercial fishers to have angling parties fish from their vessels on their commercial catch quota, has had limited success. In 2009 13 commercial fishing vessels provided this service, by February 2010 this was down to 4 vessels.

Marine fishing tourists visiting Norway sometimes arrange their fishing themselves, either fishing from ashore or bringing their own boat on a hanger and staying on a camp ground or in recreational vehicles. Some buy their services from the Free Independent Fishing Tourism sector (FIFT sector), renting a private home or a second

home and a boat for coastal fishing. Other tourists prefer to have their fishing experience organized by a professional tourism operator in the Industrialized Fishing Tourism sector (IFT sector). The investments in facilities to provide special services to non-residential recreational fishers started in the south of Norway (Nordstrand, 2000; Nordstrand & Johnsen, 2008; Nordstrand & Holm, 2009). The recent years increase in the IFT sector has however mainly taken place in the mid and northern parts of the country (Borch *et al.*, 2000; Borch, 2004; Borch, 2009a; Borch, 2009b). The tourism industry in Norway considers fishing tourism as a positive market niche as it contributes to a lengthening of the tourism season. While the period June through August is the main season for most rural tourism destinations, the fishing tourism season may last from April through September. The length of the fishing tourism season varies with the weather conditions in different regions. Looking at the country as a whole the average length of the fishing tourism season is 24.8 weeks.

## Theoretical background

### Economic impact studies in tourism

The scientific knowledge base for tourism is gradually strengthened as leisure and tourism research overall gains strength in the international science community. In dealing with the economic aspects of tourism it should be noted that although economic research has become one of the more prominent social sciences in the latter half of the twentieth century, the discipline's interest for tourism first started in the 1980's (Eadington & Redman, 1991). There may be several explanations for this. Eadington and Redman suggest that: "The recognition of tourism as an 'industry,' and as a topic worthy of study by economists, has been slowed by the fact that the tourism sector is primarily a collection of service based activities spread across a vari-

ety of industrial classifications and consumer expenditure categories that generally are not otherwise grouped together” (Eadington & Redman, 1991:42). However, as economic studies in tourism are coming along together with other perspectives in tourism research, researchers apply different economic models to be able to understand tourism markets, constructing forecasts, and aiding decision makers in allocating labor, capital or natural resources for tourism purposes.

Economic impact studies in tourism focus on the flows of expenditure associated with the tourism activity in an area. The principal methods include visitor spending surveys, analysis of secondary data from government economic statistics, economic base models, input-output models and multipliers (Frechtling, 1994). When visitor spending surveys are applied in studies of economic impacts from fishing tourism, the focus is on the money spent fishing by non-resident anglers on boat rental, gear, gasoline, accommodation, transportation and other attractions and services (Bell *et al.*, 1982; Ditton *et al.*, 2002; Ditton & Stoll, 2003; Borch, 2004; Loomis, 2005). These expenditures are typically classified as “direct” as they are directly linked to the tourism activity. Studying the direct expenditure in what is often labeled the Money Spent Fishing method (MSF metod) does not include any focus on multiplier effects from the visitor spending. However, the expenditure data may be applied as input in an input-output model calculating the total economic impact from tourism on different levels of the economy (Crompton *et al.*, 2001; Radford *et al.*, 2007). The multiplier effect includes the indirect effect which is the effect from the direct expenditures generated as a result of tourism enterprises purchasing goods and services from other enterprises. The induced effect is the economic effect generated as a result of the increased incomes and taxes from tourist expenditure. The sum of direct, indirect, and induced effects is the total economic impact of tourism (Chen *et al.*, 2003).

There is much international literature on the angler expenditure and economic impact from fishing tourism on national level. However, there is a scarcity of literature on economic impacts at the regional and local community level (Bohnsack *et al.*, 2002). In US studies of the regional economic impacts of recreational fisheries individual surveys have been applied to collect data on expenditure patterns (Bohnsack *et al.*, 2002; Chen *et al.*, 2003; Loomis, 2005; Loomis, 2006). These expenditure data have been applied as input data in an input-output model. Both Bohnsack *et al.* (2002) and Loomis (2006) applies the IMPLAN-model for calculating impacts at the community level. In Norwegian studies of regional economic impacts the PANDA-model is a widely used tool.

## Methodology

### Supply side survey

A supply side survey of marine fishing tourism raises the challenge of identifying the industry catering to fishing tourists. A broad definition of a marine fishing tourism industry is all enterprises providing services to non-residential saltwater recreational fishers. The fishing tourism industry can be further categorized by defining the level of ‘industrialization’ involved in catering to a fishing tourism activity, ranging from Free Independent Fishing Tourism (FIFT) to Industrialized Fishing Tourism (IFT). In this there will be a continuum on the degree of industrialization. At the IFT end of marine fishing tourism in Norway we find the fishing tourist who buys a total “package” including boat rental, accommodation, gutting and freezer facilities and host services. At the FIFT end is the free independent fishing tourist who arranges the fishing trip on his own, fishing from shore or from a boat which he brought on a trailer. Between these extremes is the traveler who hires private accommodation with a boat and no host services.

A previous study of economic impact of marine fishing tourism in Norway also applied providers of fishing tourism services as an access point for collecting data (Haltenstvedt & Wulff, 2001). The common denominator for these suppliers was that they provided accommodation and boats for coastal fishing. The suppliers in focus in this 2001 study ranged in size and quality from big fishing camps with more than 30 large accommodation units, high powered boats, quality gutting and freezer facilities and a host, to private homes or second-homes for rent with a small boat with no services from a host. These private accommodation facilities are not part of the IFT-sector so a large proportion of the suppliers that were included in the 2001 study belong to the Free Independent Fishing Tourism sector (FIFT). In the 2001 study it seems very likely that there has been a double counting of the suppliers in the FIFT sector. The explanation to this is that many of the private homes and second homes for rent in this sector is marketed through several distribution channels, amongst others Finn.no, Novasol, Dancenter and Norgesbooking.

The study presented in this article, however, focused exclusively on the professional providers or the Industrialized Fishing Tourism sector (IFT), defining a marine fishing tourism company as an enterprise providing a combination of accommodation, boat rental, gutting and freezer facilities and services from a host. This excludes the accommodation and boat facilities on offer from non-professionals; that is private persons renting out their coastal home or second-home. As Norway has a long coastline with an easy and free of charge access to salt-water recreational fishing, the task of mapping this FIFT-sector would require a very large research budget in order to provide valid results.

In Norwegian official statistics the providers of services to fishing tourists is placed in many different categories. As there is no governmental statistics in Norway which can give direct information on

the number of enterprises providing services to fishing tourists this study applied enterprise lists obtained from the tourism industry as the point of departure in identifying the IFT sector.<sup>3</sup> From a round of telephone calls to the enterprises on these lists, it became obvious that many of the enterprises listed did not provide fishing tourism services and they were removed from the sample. The sample was, however, also supplemented with more enterprises which project assistants identified through Internet search and telephone calls to regional destination marketing companies. After these rounds of inquiry, the population was 421 enterprises. 85% of these enterprises received a questionnaire through email and 15% via regular mail. The firms contacted by email were directed to an online survey website, while the firms contacted by regular mail had the option of either filling in a paper version of the questionnaire or responding via the survey website. In total, 186 fishing tourism enterprises responded to the survey. This gives a response rate of 44.2%. 80% of the responding enterprises answered the questionnaire via email,<sup>4</sup> the rest, 20%, responded via regular mail.<sup>5</sup>

Parallel with this economic impact study, the Institute of Marine Research (IMR) in Norway carried out a catch survey in the Norwegian marine fishing tourism industry (Vølstad *et al.*, 2010). In March 2009, a list of 791 enterprises was acquired from IMR. When going through this list, 108 potential "new" enterprises were identified for our study. A closer scrutiny of the list, however, revealed that 36 of these enterprises provided fresh water recreational fishing and further that quite a few of the enterprises were secondary-deliverer or sub-contractors of services to enterprises in the IFT-sector. Yet other of these enterprises offered only boat rental or accommodation, not the combination of these two services. Several of the enterprises in the list were tourist information offices or providers of destination marketing services (DMO's). The 13 enterprises on the list that we did

define as belonging to the IFT sector were included in the population but they were not included in the sample and did not receive a questionnaire. From this point we worked from a population of 434 enterprises and a sample of 421 enterprises.

The questionnaire which was sent to the fishing tourism enterprises included questions about number of accommodation units, beds, rental boats and guest nights. The questionnaire also included questions about the length of the fishing tourism season, prices for accommodation and boat rental, the nationality of fishing tourists, travel group/angling party (family or male group) and mode of transportation (plane, car, etc.). In addition to the data obtained via the survey we collected data on the non-respondent enterprises through other methods like Internet search and telephone contact. From these efforts we obtained information on the number of accommodation units and beds for 94% of the population.<sup>6</sup>

### **Demand side study**

We set up a survey to fishing tourists that we distributed via enterprises in the IFT sector. Through this we collected data on tourist expenditure in ten different groups of goods and services. The survey set up was inspired by Bohnsack *et al.* (2002), Loomis (2005) and Loomis (2006) who applied this procedure to enhance the survey response rate. Bohnsack *et al.* had a response rate of 65.1% (Bohnsack *et al.*, 2002), Loomis (2005) had 65% and Loomis (2006) a response rate of 63.6%. In April 2009 we distributed our questionnaires via 200 enterprises in the IFT sector. As an additional method of collecting data we contacted foreign tour operators that distribute fishing trips to Norway to ask for their assistance in distributing the questionnaire. Through these efforts we acquired data on expenditure from a total of 597 tourists who had visited Norway on fishing holidays in 2008.

## **Results**

### **The structure of the industry**

The project has, through extensive mapping, identified the IFT-sector in Norway to be made up of 434 enterprises, providing a total of 14,968 beds and 2,369 boats to tourists. The average length of the fishing tourism season in the Norwegian IFT sector is 24.8 weeks. In the case of year round operation, the total capacity in the IFT sector would be 5,448,352 guest nights. In 2008 the total number of guest nights in the sector was 1,257,577, that is a capacity utilization of 23%. 46.5% of the total number of guest nights in 2008 were fishing tourist guest nights, that is 585,033 fishing guest nights. Looking at the capacity for guest nights in the fishing tourism season only (2,598,444 guest nights) we find that 22.5% of the capacity use in this season is by fishing tourists. Outside the fishing tourism season some of the IFT sector enterprises in rural areas close down. The enterprises that do not close their operations during the winter months of October through March provide mainly accommodation services to skiing tourists, to travelers in the MICE segment (Meetings, Incentive, Conferences, Events) and private arrangements in the local community (weddings, birthdays and other social events).

Norway was divided in 4 regions for this study. The north region includes the counties Nordland, Troms and Finnmark, the mid region the counties Nord-Trøndelag and Sør-Trøndelag, the west region the counties Rogaland, Hordaland, Sogn og Fjordane and Møre og Romsdal and the south region the counties Aust-Agder and Vest-Agder. As the eastern region has only a couple providers of marine fishing tourism services this region was excluded from the study. Nearly half of the enterprises in the IFT sector are located in the northern region of Norway, 21% are located in the mid region, 29% in the western region and 3% of the enterprises are located in the southern region.

Table 1 *Regional share of enterprises*

Norway	434	100%
North Norway	205	47%
Mid Norway	90	21%
West Norway	128	30%
South Norway	11	2%

A total of 14,968 beds are on offer in the IFT sector in Norway. On average a marine fishing tourism enterprise offers 6.9 accommodation units and 34.5 beds. The regional share of both units and beds is according to the regional share of companies. One exception to this picture is found in the southern part of Norway where the shares of units and beds are higher than the regional share of companies. On average a fishing tourism enterprise in this region offers 30.3 accommodation units and 197.3 beds. The explanation to this is that this region has few but larger facilities to cater for tourists.

A total of 2,369 rental boats are available in the IFT sector in Norway. On average, a fishing tourism enterprise in this sector offers 5.5 rental boats. The larger fishing tourism companies in the south have more boats, with an average of 14.7 boats. The companies in the northern part of Norway have fewer boats and this is probably due to the rough weather conditions, resulting in these companies having few, but large boats. This is also reflected in the prices for boat rental, as these are higher in the northern region.

The annual number of guest nights in the IFT sector in 2008 was according to our data, 1,257,577. 46.5% of these guest nights were fishing tourist guest nights, that

is 585,033 guest nights. The providers of fishing tourism services in the mid region of Norway seem to be the most specialized in fishing tourism with 58% of their guest nights being fishing tourist guest nights.<sup>7</sup> The enterprises in the northern region of Norway are the second most specialized with 51% of the guest nights in this region being fishing tourist guest nights. It is interesting to note that the northern region has a smaller share of the total number of fishing tourism guest nights in the country (45%) than the share of companies (47%). The explanation for this is not obvious, but a shorter fishing tourism season due to rough weather conditions may be one factor explaining this.

### Distribution channels

From our study we found that 26.3% of the sale of fishing tourism services was distributed through foreign tour operators, 23.2% via Norwegian tour operators and 50.5% is direct sale from the tourism enterprise to the customer. The sales via a foreign tour operator are lowest in the mid part of Norway (17.6%) and highest in the southern region (59.3%). Sale through foreign tour operators is often positive as these operators have important knowledge about the markets in their respective countries; however, with sales via a foreign tour operator, a proportion of the visitor spending (the provision) will not be benefiting the Norwegian economy or Norwegian coastal communities. This is following something that has to be taken into account when calculating the economic impact from visitor spending.

Table 2 *Fishing tourism guest nights in Norway by region (2008)*

	<i>Fishing tourism guest nights</i>	<i>Share of all guest nights</i>
Norway	585,033	47%
North Norway	262,798	51%
Mid Norway	121,272	58%
West Norway	173,096	48%
South Norway	27,868	16%

Table 3 Distribution channel by region

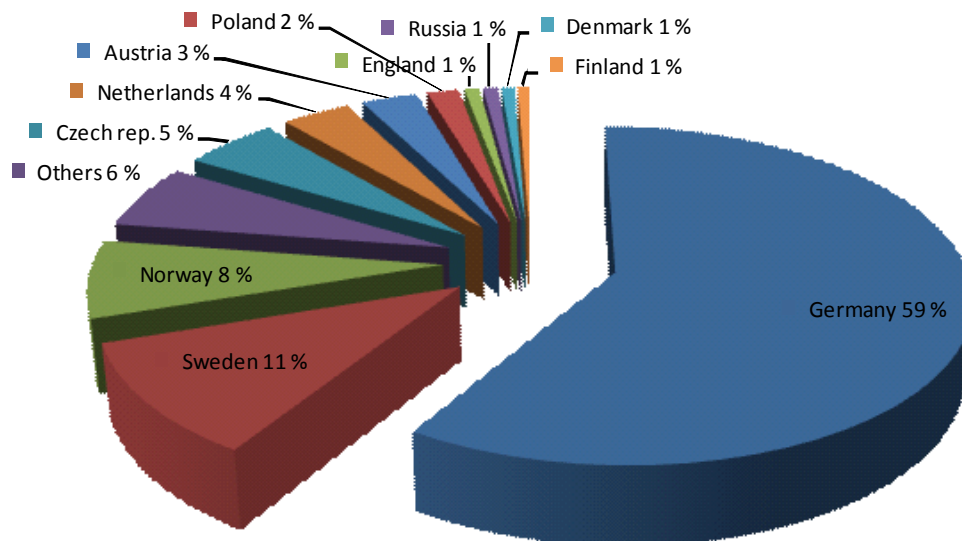
	Direct enterprise	Norwegian tour operator	Foreign tour operator
Norway	50%	23%	26%
North Norway	48%	24%	28%
Mid Norway	54%	28%	18%
West Norway	54%	21%	25%
South Norway	38%	2%	59%

### Expenditure pattern

To calculate the economic impact from marine fishing tourism we needed to collect data on tourist expenditure in different categories. Our hypothesis regarding the expenditure pattern was that this would vary with mode of transportation, travel group and nationality of the tourists. Our data are not solid enough to conclude regarding differences in expenditure on nationality but we did find some interesting patterns on travel group and mode of transportation. We can also see some patterns in expenditure according to the region that the fishing tourists have visited. What we find is that tourist visiting the north of Norway have the highest and that the tour-

ists visiting the western region have the lowest average daily expenditure, 226 Euros and 123 Euros respectively. One explanation to this is that more tourists travel by plane to the north and subsequently can not bring food and beverages. Another explanation is that the tourists visiting the north have a higher expenditure on boats as the rental boats in this region are larger and better equipped. The average daily expenditure on boats in the north is 50 Euros whilst the average boat expenditure in the west is 16 Euros per day. The expenditure on sports equipment is also highest in the north. Again the fact that more tourists travel by plane to this region and may bring a limited amount of luggage is a probable explanation to this pattern.

Figure 1 Nationality of fishing tourist visiting Norway in 2008





## Nationality of tourists

The market for fishing tourism in Norway seems to be changing in terms of the nationality of the tourists. Tour operators in the fishing tourism market state that whilst German tourists still dominated the IFT sector there is a decline in tourists from Germany parallel with an increase in the number of tourists visiting from the Czech Republic, Poland, Latvia, Lithuania, Estonia and Russia (Source: Interview with the Norwegian tour operator Din Tur. [www.dintur.no](http://www.dintur.no)). The nationality of fishing tourists identified in our supply side survey is presented in Figure 1.

The expenditure data from our demand side study are, as mentioned above, not solid enough to conclude regarding the expenditures of different nationalities. What we can see, that will have some consequences for the total expenditure pr tourist, is that the duration of the fishing holiday varies with nationality. The tourists visiting from the Netherlands, Germany and Czech Republic stay longest (9–15 nights and the tourists from Sweden, Finland and Russia stay shorter (4–6 nights).

## Travel group/angling party

The fishing tourists in the IFT sector travel in groups, either with family (29%) or with friends/groups of men (71%). The tendency to travel on fishing holidays in groups of men is highest in the south, 82%. One plausible explanation to this is that the southern region has divided their operation into two seasons. In the “off fishing season” (June-August) this region is targeting families whilst they preserve their facilities for the male angling parties in the fishing tourism season, that is spring and fall. The share of fishing tourists traveling with families is highest for the mid and west regions of the country, respectively 33% and 38%. A potential explanation to this may be that the destinations in these regions offer more services to meet the demands of families (e.g. shopping malls, family attractions

such as zoos, activities like horseback riding, hiking or bicycling). The share of families visiting Norway on fishing holidays seem overall to have increased over the years. As families tend to take part in more tourism activities than the male angling parties, the tourism industry considers this to be a positive development.

Table 4 Travel group by region

	Male groups	Families
Norway	71%	29%
North Norway	78%	22%
Mid Norway	67%	33%
West Norway	62%	38%
South Norway	82%	18%

Looking at the differences in expenditure by travel group we find that families on average spend more than male angling parties. The difference is small however with a daily spending of 178 Euros and 171 Euros respectively. However, when we look more closely at the expenditure patterns, the data reveal some interesting findings. The male angling parties have a higher expenditure on sports equipment when they travel without women and children. The expenditure on souvenirs is also highest in the male angling category. It may be that these groups buy gifts to bring back home to their wives and children. When women are part of the travel party, the expenditure on clothing, cafés and restaurants is higher than for the male angling parties. Expenditure on boat and gasoline is lower and the daily expenditure on sports equipment, attractions/museums and recreational activities is higher when children are part of the travel group. One possible explanation to this is that children do not have the patience to fish for long periods and would rather engage in several types of activities during the holiday. Groups with men and women travelling without children have the highest average total spending pr day, followed by groups travelling with children.

Table 5 Daily expenditure pattern and travel group – Euros

	Bed	Boat rental	Boat fuel	Food	Dining	Souvenir	Cloth- ing	Sport equip- ment	Attrac- tions	Activity	Total
Only men	69.0	30.0	15.8	19.5	7.1	9.8	3.6	13.1	2.5	1.4	171.9
With women	72.6	31.7	17.2	20.0	9.6	9.2	6.5	9.5	2.2	0.9	179.4
With children	71.5	26.1	13.0	19.6	7.5	7.4	5.8	21.0	3.3	2.1	177.3

Male angling parties have the lowest average daily spending of the categories studied.

### Mode of transportation

85% of the fishing tourists in the IFT sector travel with their own car, 7% travel with a combination of plane/boat and a rental car, and 8% travel with plane/boat combined with some form of transportation service from the fishing tourism enterprise. A lower share of the fishing tourists in the northern

part of Norway (73%) travel by car than what is the average for the whole country. The explanation for this is the distance to the north of Norway from important markets in mid and south Europe making it more practical to travel by plane. There are differences in the duration of the fishing holiday in the mode of travel groups. The tourists travelling by plane stay on average 7.7 nights whilst the bus and car travelers stay 9.5 nights on average.

Table 6 Mode of transportation by region

	Own car	Rental car	Plane
Norway	85%	7%	8%
North Norway	73%	10%	16%
Mid Norway	94%	4%	2%
West Norway	93%	6%	1%
South Norway	100%	0%	0%

It is a general assumption in Norwegian tourism economic impact studies that tourists traveling by plane spend more money than tourists traveling by car (Dybedal, Rideng *et al.*, 2006). One overall explanation to this is that tourists traveling by car, due to the high cost of living in Norway, will tend to bring more of the food and beverages than what is possible for air travelers (due to luggage limitation). Looking at the differences in daily expenditure according to travel group we find that this general

assumption is confirmed in our data from the fishing tourism sector. Tourists traveling by plane have the highest and the tourists travelling by bus the lowest total daily expenditure, 264 Euros and 144 Euros respectively. Tourists travelling by their own car and by bus have the lowest expenditure on food, kiosks, cafés and restaurants. Tourists travelling by plane spend 2.7 times more on food, kiosks, cafés and restaurants and 3.5 times more on sports equipment than car travellers.

Table 7 Daily expenditure pattern and mode of transportation – Euros

	Bed	Boat rental	Boat fuel	Food	Dining	Souvenirs	Clothing	Sport equipment	Attractions	Activity	Total
Plane	98.5	46.0	21.7	35.2	12.8	16.3	5.5	23.4	4.0	1.0	264.4
Own car	65.7	28.7	14.3	17.3	6.7	8.0	4.2	10.9	2.4	1.5	159.6
Bus	62.0	16.1	15.7	15.1	5.6	6.2	6.7	14.7	1.4	0.6	144.2

### Total expenditure

Total expenditure was calculated by multiplying the number of fishing tourism guest nights with data on average daily expenditure from the demand side study. After doing so we calculated the annual expenditure by fishing tourists in the IFT sector in

Norway to be 40.9 million Euros on accommodation, 28.7 million Euros on boat rental and boat fuel and 34.3 million Euros on other services and commodities. The total expenditure in the Norwegian IFT sector is 103.9 million Euros.

Table 8 Regional expenditure in different categories – Million Euros

	Accommodation	Boat rental and fuel	Other services and commodities	Total
North Norway	21.4	18.7	19.2	59.3
Mid Norway	7.8	4.4	6.0	18.2
West Norway	9.8	4.5	6.9	21.2
South Norway	1.8	1.1	2.3	5.2

### Regional economic impacts

How is the marine angling tourism contributing to the regional economies in the above mentioned Norwegian regions? The economic impact analysis method applied in this study traces the flows of spending associated with tourism activity in a region to identify changes in sales and jobs due to tourist expenditure. This helps us to better understand the size and structure of the marine angling tourism industry in a given region and its linkages to other sectors of the regional economy. Marine fishing tourism has a variety of economic impacts. Formally, regional economists distinguish between direct, indirect, and induced economic effects. In this analysis indirect and induced effects are collectively labelled secondary effects. The total regional economic impact of tourism is the sum of direct, indirect, and induced effects within a region.

The input-output model Panda was used to estimate the total regional economic impacts from marine fishing tourism in North Norway, Mid Norway, West Norway and South Norway. Panda is a regional input-output model of a Keynesian type. This means that it is demand driven and that regional economies, by assumption, have excess capacities.<sup>8</sup> We have run the model in two alternatives for each of the four regions in order to calculate the impacts of fishing tourism expenditure. The base, or zero, alternative includes all activities in the economy, including the fishing tourism activities. The “impact” alternative is similar to the base alternative, but we have excluded the fishing tourism activities. The difference between the two alternatives represents the impact of marine fishing tourism in the region, which can be split into direct and secondary impacts. We have applied this information to calculate regional production

multipliers. Regions differ in industrial structure and size, and the different regions thus have different production multipliers. This implies that the secondary effects from fishing tourism spending will vary between regions.

Some industries get only secondary impacts and no direct impacts from fishing tourism, while for other industries (with exogenously steered production) the impact is zero, that is the production in these industries is not affected by changes in the regional tourist demand. Production in governmental sectors is assumed to be independent of the regional fishing tourism demand development, as the production in these industries is politically governed. In the same way, we assume that the production in agriculture, forestry and fishing, extraction of crude petroleum and natural gas and manufacture of oil platforms is unaffected by tourism spending, as it is the regional supply of resources and other conditions on the supply side that steer the production. These above mentioned industries have as a result been excluded in our calculation of economic impacts.

Input-output models require all values to be in producer prices (manufacturer prices). We have calculated the output value by extracting value added tax from sales value. In addition, to properly apply tourist purchases of goods to an input-output model, margins in commodity trade have been deducted from the "purchaser price" of the goods to separate out the "producer price"; only the margins on goods purchased at retail stores are counted as local final demand. We have calculated the output value according to principles in the national tourism accounts: the output value in retail is equal to the gross margin. The commodity trade had an average gross margin at 30% in 2009 (SSB, 2009). Furthermore, a share of sales of Norwegian fishing tourism services are distributed via foreign tour operators. These get a provision for their distribution and sale. An average provision for foreign tour operators is 30% (information from the

tour operator Din Tur). This provision to foreign tour operators and is not benefiting the regional economies in Norway and we have thus subtracted this proportion from the sales value within the accommodation sector.

North Norway has clearly the highest regional economic impact of the regions in Norway, see Table 9. The total economic impact from marine fishing tourism for North Norway is calculated to be 62.6 million Euros. (The share of direct effects is just under 36.9 million Euros, while the secondary effects sum up 25.7 million Euros in this region). The total effects of marine fishing tourism for West Norway is 25.2 million Euros, whilst it in Mid Norway is just above 20 million Euros. The total regional economic impact of tourist anglers is by far smallest in South Norway, 4.8 million Euros (with direct effect summing up to 2.9 million Euros).<sup>9</sup>

The production multiplier is the ratio between total effects and direct effects. Multipliers capture the secondary economic effects (indirect and induced) of tourism activity. It illustrates the estimated recirculation of marine fishing tourist's spending within a region. The magnitude of secondary effects depends on the propensity of businesses and households in the region to purchase goods and services from local suppliers. Generally, multipliers are higher for larger regions with more diversified economies and lower for smaller regions with more limited economic development; the more a region is self-sufficient and purchases goods and services from within the region, the higher the multipliers for the region. In other words, the higher the multiplier, the more self-sufficient is the region when it comes to sub-supplies. We can see that the production multiplier is highest in West Norway, which is the region with the largest population in this study. The multiplier 1.87 means that every extra Euro in output value (exclusive value added tax) generated by marine fishing tourist spending generates further demand in the region by 87 cent.

**Table 9** Regional direct, secondary, and total effects together with production multipliers of marine fishing tourism in Norway by industry – In million Euros

	North Norway			Mid Norway			West Norway			South Norway		
	Direct	Secondary	Total	Direct	Secondary	Total	Direct	Secondary	Total	Direct	Secondary	Total
Fish processing and food industry	3.3	3.3		1.5	1.5		2.0	2.0		0.2	0.2	
Manufacturing	2.4	2.4		1.0	1.0		1.4	1.4		0.2	0.2	
Construction	2.3	2.3		0.7	0.7		1.0	1.0		0.2	0.2	
Retail	5.0	4.4	9.4	1.5	1.2	2.7	1.7	1.8	3.6	0.5	0.3	0.8
Hotel and restaurant	31.0	0.9	32.0	9.7	0.2	9.9	11.4	0.3	11.7	2.2	0.1	2.2
Transport	1.6	1.6		0.5	0.5		0.7	0.7		0.1	0.1	
Post and telecommunications	1.4	1.4		0.3	0.3		0.4	0.4		0.1	0.1	
Commercial services and financing	7.2	7.2		2.6	2.6		3.2	3.2		0.6	0.6	
Personal services	0.9	2.2	3.1	0.4	0.5	1.0	0.4	0.9	1.3	0.2	0.2	0.4
<b>Total</b>	<b>36.9</b>	<b>25.7</b>	<b>62.6</b>	<b>11.6</b>	<b>8.5</b>	<b>20.2</b>	<b>13.5</b>	<b>11.7</b>	<b>25.2</b>	<b>2.9</b>	<b>1.9</b>	<b>4.8</b>
Production multiplier			1.70			1.73			1.87			1.65
Direct effects/angler tourist expenditure			0.62			0.64			0.64			0.55

If we compare the size of total direct production impacts to fishing tourist expenditure, we get a quite different picture. For example, this ratio is 0.62 in North Norway. This means that every euro that the fishing tourist spends in the region creates only 62 cent direct production impact. There are three explanations to this. First, we have only included the local retail margins in direct effects within commodity trade (only 30% of the total expenditure within commodity trade). Second, we have excluded the value added tax from the total expenditure and third, we have subtracted the provision to foreign tour operators as this does not create any impacts in the Norwegian economy.

### The employment impact

With direct and secondary effects marine fishing tourism expenditure generates ap-

proximately 1.000 jobs in North Norway and nearly 900 jobs in the other three regions, see Table 10. About two thirds of these jobs are generated within the accommodation and restaurant sector. Compared to the size of employment base, the total employment impact is highest in North Norway, 0.4% of jobs within the region are generated by the marine fishing tourism expenditure. The share is lowest in West and South Norway. The largest regional importance of marine fishing tourism in North Norway can be clearly seen from the fact that marine fishing tourism counts for almost 9% of work places in North Norway within the accommodation and restaurant sector. This is by far the highest share among the regions, over 2.5 times higher share than in the number two region, Mid Norway.

Table 10 The total regional employment effects of marine fishing tourism in Norway by industry

	North Norway		Mid Norway		West Norway		South Norway	
	Direct and secondary employment effects	Share of total employment in the industry	Direct and secondary employment effects	Share of total employment in the industry	Direct and secondary employment effects	Share of total employment in the industry	Direct and secondary employment effects	Share of total employment in the industry
Fish processing and food industry	9	0.1%	5	0.1%	7	0.0%	1	0.1%
Manufacturing	14	0.1%	7	0.0%	8	0.0%	3	0.0%
Construction	30	0.2%	12	0.1%	16	0.0%	2	0.0%
Retail	159	0.5%	49	0.2%	62	0.1%	15	0.1%
Hotel and restaurant	656	8.7%	244	3.4%	257	1.3%	54	1.2%
Transport	16	0.1%	6	0.1%	6	0.0%	3	0.0%
Post and telecommunications	8	0.3%	3	0.1%	3	0.0%	1	0.1%
Commercial services and financing	53	0.3%	28	0.1%	25	0.0%	8	0.1%
Personal services	54	0.4%	18	0.1%	30	0.1%	7	0.1%
Total	999	0.4%	372	0.2%	414	0.1%	94	0.1%

## Discussion

The study presented provides new knowledge about the structure of marine fishing tourism in Norway and its impacts on regional economies. As marine fishing tourism is an activity in competition with other fisheries sectors this is important knowledge to guide future political decision making. As Dwyer and Forsyth have pointed out, the policy implications arising from growth in tourism create a need for more research to assist in policy formulation (Dwyer & Forsyth, 1997). An optimal tourism development is one which does not result in damage to natural resources or to other economic activities in an area. Policy makers must decide how much of the public resources that should be allocated to the tourism industry. When, as is the case with marine fishing tourism, the basis for the activity is marine resources, many different types of knowledge will be sought to guide policy formulation. Fisheries management has the preservation of fish stocks as an

overall goal; however, this policy field also has objectives related to the sharing of catch among recreational and commercial sectors, as well as goals of optimizing the economic impact from the utilization of fish stocks.

When researching the economic impacts from natural resource based activities like nature-tourism, we need to be cautious in how we frame the activity or industry from which impacts are calculated. When the first result from this economic impact study was presented in media, journalists were surprised that the estimated fishing tourism expenditure was lower than what had been presented in a 2001 economic impact study of marine fishing tourism (Hallenstvedt & Wulff, 2002). In such situations, researchers responsible for impact studies may find it challenging to explain the different assumptions and definitions "behind the numbers". For instance to explain that the calculations in the 2001 study was the direct impact from both the IFT and the Free Independent Fishing Tourism (FIFT) sec-

tors whilst the direct economic impact calculated in our study covered the IFT sector only. However, in all impact studies (ecological, social and economic) it is crucial that researchers are clear in how the activity under study is defined. We have to explain carefully what entities we calculate impacts from.

The comparison between these two studies illustrates the challenges in performing impact studies and this should be a reminder, not only to scientists but also to the media, policy makers and stakeholders to be cautious when applying share numbers from such studies to justify or criticize different nature-based activities. So, even though economics can bring organized thinking into policy areas of importance and controversy, there is a need for supplementary judgement. In the words of Eadington and Redman: "The economic perspective cannot replace many normative judgements of voters or policymakers in deciding the "best choice" with respect to distribution effects or non economic impacts, but it can better define the arena in which such conflicting alternatives should be examined" (Eadington & Redman, 1991: 54).

As the Norut economic study of marine fishing tourism concludes that families and plane travelers spend the most money during their holiday the overall recommendation from this study is that governmental

agencies and the tourism industry should focus their resources on developing strong coastal destinations. Through a prioritized development of some coastal destination, instead of a range of small fishing tourism enterprises scattered along the coast, the tourism industry will be able to offer a range of activity products and the quality in transportation, accommodation, shopping and dining that family travelers demand. Strong destinations with a diversity of activities on offer, is also crucial in motivating airliners to set up direct plane routes or charter.

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## Notes

- 1 [www.pandagruppen.no](http://www.pandagruppen.no). Website in Norwegian only.
- 2 The exchange rate applied from NOK to Euro is 8.1.
- 3 The Norwegian Hospitality Association, Innovation Norway and the Norwegian tour operator "Din Tur" ([www.dintur.no](http://www.dintur.no)).
- 4 63% of the enterprises responding via email had received the questionnaire through email and 17% of the email respondents had received the questionnaire by mail but answered through the survey website.
- 5 We tested (compared means) for differences between these two respondent groups with respect to the variables, number of accommodation units, number of beds, number of boats and length of season. There are no differences at a 5% level of significance between the groups.
- 6 Compare means, T-tests and Mann-Whitney tests showed no differences at a 5% level of significance when comparing number of accommodation units, number of beds, number of boats and length of season between the survey respondents and the enterprises that we collected capacity data about through these additional methods.
- 7 A similar study of the impact from marine fishing tourism in Finland concluded that tourism companies providing services to fishing tourists on average acquired only 15% of their revenues from fishing tourists. Categorizing the enterprises in the study according to the degree of specialization in fishing tourism, the study concluded that the revenues from fishing tourists varied from 8% in the least specialized companies to 31% in the most specialized in fishing tourism companies Toivonen (2008).
- 8 We have not addressed the question whether the resources allocated to fishing tourism activities could be used more efficiently for other purposes, or the possible crowding out effects of this tourism activity.
- 9 Readers interested in determining nation-wide values are cautioned that the summation of the region-level impact estimates would likely underestimate the total national economic effects attributable to angler expenditure.