Estimating Marine Recreational Fishing's Economic Contributions in New Zealand-

Technical Steps

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Executive Summary

Saltwater fishing is one of the most popular outdoor activities in New Zealand. But recreational fishing is more than just the excitement of the catch or a peaceful - and sometimes adventurous - escape. It is the foundation of an industry; one that is comprised of retailers, manufacturers, wholesalers, and support services each working to help ensure a fisher will enjoy their day on the water. And, when viewed collectively through comprehensive research, the contribution of the marine recreational fishing industry to New Zealand's economy is significant.

The roots of the economic activity originate from the fisher who, for example, buys ice for the chilly bin or bait for the end of the line before travelling to the coast to spend some time waiting for a tug on the line. This spending, by local fishers and keen travellers who take the opportunity to go marine fishing while visiting the country, stimulates economic activity which multiplies their dollars spent, generating significant economic impact for New Zealand.

Beginning with the \$946 million spent annually by more than 700,000 fishers, these dollars circulate through the national economy, supporting 8,100 full-time jobs, stimulating \$1.7 billion in total economic activity, contributing \$638 million in Gross Domestic Product and \$342 million in salaries, wages and small business profits while adding \$188 million in tax revenues to help keep New Zealand functioning. Clearly the positives of recreational fishing reach far beyond the water's edge, and into the lives of all New Zealanders.

Economic information is critical for explaining why recreational fishing and marine stewardship is important to all New Zealanders. Quantifying the magnitude of the recreational marine fishing industry raises awareness for marine fisheries in the larger public and political arena. And, results from this project can be used to inform discussions about how to institute

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better conservation policies, secure new partners and resources for conservation initiatives, and ultimately boost the long term health and productivity of marine fisheries.

Context and limitations of the survey and results

The New Zealand Marine Research Foundation is a charitable trust formed in 1996. One of their objectives was to improve the understanding of the social and economic issues relating to the use and conservation of marine resources and ocean recreation. In 2011 the Foundation sponsored a scoping study into all published international economic surveys on recreational fishing, with a view to using a value transfer method to estimate the non-market value (consumer surplus) of marine recreational fishing in New Zealand. Researchers from the Faculty of Commerce at Lincoln University found 27 unique studies worldwide that evaluated the worth of recreational fishing in the marine environment. These studies reported values per day, or per trip, or per year. They differed greatly in terms of spatial scale and valuation method. The report concluded that the prospects for transferring values from other locations to accurately assess the value of the New Zealand recreational marine fishery were extremely slim (Kerr & Latham 2011).

A new economic study of marine recreational fishing would require new data from a nationwide survey, which was beyond the resources of the Foundation. An opportunity arose with the completion of the first National Panel Survey (NPS) of recreational fishers conducted by NRB for the Ministry for Primary Industries (MPI). A probabilistic survey design was used to recruit over 7000 panellists to capture their fishing activity and harvest for a year. Recreational harvest estimates were produced, but there were also good estimates of the total number of fishers and number of fishing trips actually taken by New Zealand residents in 2011-12 (Wynn-Jones et al. 2014). Assuming that national recreational fishing effort was similar in 2014 the Foundation

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concluded that a cost effective survey could be undertaken to collect fisher economic data and scale it by the number of fishers and number of trips from the National Panel Survey.

In 2014 trustees of the Marine Research Foundation engaged Southwick Associates (Florida, USA) to develop a detailed proposal and work plan for the economic study. This included assessing available data sources, discussing survey design and cost with research providers in New Zealand, and meeting with members of the Marine Amateur Fisheries Working Group chaired by the Ministry for Primary Industries. Of the available options, the Foundation chose an online survey panel, managed by Horizon Research, to collect expenditure information from 1500 panel members who fished.

The stated intent of the study was to estimate the economic contribution of recreational fishers in New Zealand which included annual expenditure, total economic output, value added (GDP), employment, income and tax revenues. This is effectively a snap shot of the economic activity associated with marine recreational fishing in 2014-15. This type of study is used to help understand the general size, nature and importance across the national economy. It cannot estimate the shrinkage in the economy if recreational fishing did not exist. This study did not set out to estimate the consumer surplus, which is the value fishers derive over and above what they spend. Consumer surplus studies are needed if marginal value and utility models were to be used in allocation decisions. Surveys and models to estimate shrinkage and consumer surplus are much more expensive based on their intense data collection needs.

A study in New Zealand by the South Australian Centre for Economic Studies in 1998-99 included contingent valuation questions on five popular species (Lindsay et al. 1999). This was a large scale on-site survey of recreational fishers under contract to the Ministry of Fisheries. Sixteen years later the Foundation asked recreational fishers to fund this economic contribution study because the economic information on fishing was out of date and incomplete.

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All economic surveys of this nature have limitations and a number of assumptions. These are discussed in more detail in relevant sections of this report. The Horizon Research Panel is well established but it is unknown how representative respondents are of fishers as a whole in New Zealand. A post-stratification multivariate weighting adjustment was applied to balance our respondent sample with the MPI's National Panel Survey of New Zealand residents 15 years and older. Average fisher spending was estimated from the Horizon respondent panel. Confidence intervals are estimated for components of the survey and are likely to be higher for subsets of the data by region, species and platform, as the sample size is reduced.

The number of trips and number of fishers utilized for this study originate from the weighted National Panel Survey which reflects New Zealand's population as a whole. We made no modifications or adjustments to those data. The assumption is there has been little change in fisher demographics or fishing effort in the intervening three years.

Our estimates of international visitors who engaged in salt water fishing came from the International Visitor Survey (IVS), administered by the Ministry of Business, Innovation, and Employment (MBIE). No specific detail was available from the IVS, so a survey of charter boat operators was undertaken to ascertain the average charter fee per trip and the proportion of travelers that visited with fishing as their primary purpose. It is unknown how representative the respondent sample was of all charter trips, but this was the only data available.

The objective of this research effort is to generate the economic measures (expenditures, jobs, tax revenues, income and other economic contributions) associated with New Zealand's marine recreational fisheries base on statistically valid data and methods.

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Acknowledgements

This report was made possible by the support of LegaSea, who spearheaded the project fundraising effort.

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Introduction

Saltwater fishing is one of the most popular outdoor activities in New Zealand. However, in New Zealand, recreational fishing does not just represent a peaceful yet exhilarating experience. It is the basis of a multi-million dollar industry which supports thousands of jobs in the manufacturing, sale, and fishing-related service sectors of the economy. In fact, expenditures made for marine fishing support a significant number of industries such as tackle retailers, boat builders, hotels, restaurants, and more. Unlike traditional industries, the recreational fishing industry itself is comprised of widely scattered retailers, manufacturers, wholesalers, and support services. But, when observed collectively, the economic contribution of the marine recreational fishing industry is significant. The term "economic contribution" is used to describe how economic activity and actual expenditures cycle through the country or region's existing economy (Watson et. al 2007).

Until now, the economic contribution of recreational marine fishing has not been measured, placing recreational fishing interests at a disadvantage compared to the commercial sector that has such information in various forms. This project fills that vacuum by assessing the economic activity (such as expenditures, contributions to Gross Domestic Product (GDP), jobs, and tax revenues) associated with marine fishing recreation in New Zealand.

The roots of the economic activity originate from the local fisher who, for example, buys ice for the chilly bin or bait for the end of the line before travelling to the coast to spend some time waiting for a tug on the line. In other words, fisher spending occurs at the local level, from a particular platform, and in pursuit of target species. This project also explores

the economic activity occurring at a regional level and provides estimates by fishing platform, land or boat based, and species pursued.

Economic information is critical for explaining why recreational fishing and marine stewardship is important to all New Zealanders. Quantifying the magnitude of the recreational marine fishing industry raises awareness in the wider public and political arenas of the importance of having abundant marine fisheries. And, results from this project can be used to inform discussions about how to institute better conservation policies, secure new partners and resources for conservation initiatives, and ultimately boost the long term health and productivity of marine fisheries.

This report is organised into six sections. First, we provide a summarised methodology that briefly reviews the approaches taken to quantify participation, direct fisher spending, and economic contributions associated with that spending. Next, we look at the analytical findings from our research at a national perspective. We then separate the country into three regions and report our findings for each of these regions. We pull the analysis together through a discussion of key findings and highlight the contribution recreational marine fishing makes to the country's economy. Lastly, we provide a set of appendices that include detailed discussion of the methodologies employed during the research as well as a number of tables supporting the results presented in the body of the report. Also, given that this effort is the first of its kind to measure the benefits to the New Zealand economy from recreational marine fisher spending, we offer a review of comparative studies as a means to ground-truth the results.

Summarised methodology

Economic contributions, whether national or regional, associated with marine recreational fishing are estimated by first determining total annual spending by fishers. In general, this is achieved by multiplying the number of fishers by the average amount spent per fisher each year. The next step then combines those results with input-output models to determine the economic contributions generated by fishers' spending. In this section, we provide brief descriptions of the methodologies implemented and touch on four key areas: 1) defining the regions 2) quantifying the marine fisher population, 3) quantifying marine fisher spending, and 4) modelling to estimate the contributions to the national or regional economy. Detailed methodological discussions are included in Appendices A.

Defining Regions within the Country

Three distinct and exclusive regions of the country are defined within the context of this research effort. These regions are: 1) Upper North Island (Te Ika a Maui), 2) Lower North Island, and 3) South Island (Te Waipounamu) (Figure 1). The regional definitions are based around two types of boundaries: fisheries management areas and regional tourism organisations (Table 1).

Figure 1. Geographical distribution of research regions



Table 1.	Regional	delineations b	ov fishina	management	area and	tourism reaions	3
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Project Regions	Fishing Management Areas*	In-country Regions	
Upper North Island	Auckland East (1)	Northland	
	Auckland West (9)	Auckland	
		Waikato	
		Bay of Plenty	
Lower North Island	Central East (2)	Taranaki	
	Central West (8)	Manawatu-Wanganui	
		Hawkes Bay	
		Gisborne	
		Wellington	
South Island	South East (Coast) (3)	Nelson-Tasman	
	South East (Chatham Rise) (4)	Marlborough	
	Southland (5)	West Coast	
	Challenger (7)	Canterbury	
		Otago	
		Southland	

*The Sub-Antarctic and Kermadec fishing management areas are not included in this research effort as they are perceived to be too far from the mainland for the typical amateur marine fisher.

Quantifying New Zealand's marine fishing participation

Resident marine fishers

Data regarding the number of marine fishers was obtained from the 2011-12 National Research Bureau's National Panel Survey (NPS) of amateur marine fishers, produced with the support of the Ministry for Primary Industries (MPI). While the main survey objective centered on providing harvest estimates, the results quantified New Zealand's marine fisher population over the age of 14 years old in 2011-2012 (Wynne-Jones et. al 2014).

To do that, the sampling framework was structured to allow the results to be expanded to the national population. The target audience for the NPS survey was randomly sampled from households across New Zealand. In total, approximately 30,000 households were approached in person about participating in the survey. Over 7,000 individuals were enrolled based upon their fishing avidity as well as their willingness to participate in the twelve month survey. Data collection from regular phone interviews included fishing locations, days of fishing, methods used and species caught. Each of these pieces of data were analysed to help derive the total number of fishers and days nationally, by region, fishing platform (boat versus land) and species.

International marine fishers

The International Visitor Survey (IVS), administered by the Ministry of Business, Innovation, and Employment (MBIE), gathers data about places visited, activities engaged in, and amount spent by tourists who visit New Zealand. The survey sample is drawn from the population of visitors who departed New Zealand's international airports each year.

Enrolment of individuals is contingent upon their possession of an email address as well as their willingness and ability to complete an online survey administered after their visit.

As part of the survey, international visitors provide information about the types of activities they engaged in New Zealand, including saltwater fishing. Application of expansion weights by MBIE extrapolates the size of the international marine fisher population visiting New Zealand each year.

For the purposes of this research, it was necessary to determine the total spending by international marine fishers that can be attributed to fishing. Including all spending by all international marine fishers would overstate the economic contributions attributable to the activity, as a portion of those individuals would have travelled to New Zealand even if the opportunity to fish was not available. Therefore, the purpose of a visitor's trip affects the types of expenditures included during modelling. For visitors who came for the primary purpose of fishing, all of their spending in New Zealand was included. For visitors who fished but would have visited even if fishing were not possible, estimated total spending included in the modelling process was limited to only their direct fishing expenses such as charter boat fees.

The MBIE IVS data, however, only provides the number of visitors who fished, not whether the primary purpose was to go marine fishing. In the absence of the data necessary to determine the number of international tourists who travelled for the primary purpose of marine fishing, we used as a proxy, data provided by charter boat operators (see Appendix A and D for more detail). As part of a broader survey effort, we asked operators to approximate the proportion of their international customers who travelled for the primary purpose of marine fishing versus those who visited primarily for other reasons. Recognising that not all international marine fishers use a charter boat service, we assume that the same 'primary-

purpose' proportion applies to international marine fishers who did not use a charter boat operation but fished from other platform types such as from land, or a friend or relative's boat.

Quantifying New Zealand's Marine Fisher Spending

Resident marine fisher spending

Expenditure data for resident marine fishers was collected via a Horizon Research online panel survey. Horizon Research specialises in national market research collecting qualitative and quantitative data via online methods and draws on seven years' experience in online survey administration and management techniques.

For this research, we used Horizon Research's HorizonPoll panel, which represents New Zealand's population 18 years of age and over. Horizon's panelists are recruited to participate in general surveys, not angler-specific surveys, thus reducing potential bias introduced when angling-specific surveys attract disproportionate numbers of avid anglers. From their panels, the sample for this project was identified using a screening question asking about outdoor recreational activities engaged in during the last year without indicating the survey related to fishing. Only those who indicated they went marine fishing at least once were asked to complete the remainder of the survey which asked about their fishing activity between May 2014 and April 2015.

Our goal for this research effort was to develop economic profiles for all marine fishing activity during 2014-15 at the national level, and for regional, platform, and species subsets. To measure the economics associated with each subset, we developed spending profiles unique to each group. Each profile was divided into two parts: a) annual equipment spending including tackle, boats, and other gear used on more than one trip, and b) per-trip spending

on travel-related items such as fuel, bait, food, lodging, charter fees, and more. The detailed fisher survey is included in Appendix C.

Respondents were asked to report spending on trip-related items for themselves and others in their immediate fishing group. They were also asked what what percentage was for their own share of items purchased. The reported share was applied to the total spend to get an average spend per fisher.

Estimated annual equipment spending is calculated as average fisher spending across the collective group of survey respondents. Fishers were asked specifically to report only those items purchased for themselves or minors with the goal of calculating "typical" per fisher spending. It was not uncommon to see fishers report fishing activity while incurring no costs in some, or even all, of the equipment categories. This accounts for people who borrowed equipment as well as those who purchased it in a previous year. The goal is to capture annual expenditures across a sample of adult fishers in New Zealand recognizing that fishers may purchase in some years while not in others.

In the case of big equipment expenditures, a saltwater fishing "share" was applied to the reported annual big equipment spending to isolate the proportion of spending on that item attributable to saltwater fishing activity alone. The estimated annual average was then calculated as the average of the saltwater-proportioned fishing spending across the collective group of survey respondents.

All surveys, regardless of data collection techniques used, are subject to various biases. One bias common to panel surveys relates to people completing surveys with junk answers just to become eligible for a reward, typically referred to as "gaming" the system. Horizon Research and Southwick Associates have experience at detecting and minimising the impact of this behaviour and have employed tactics, such as asking questions two times but in different manners to see if replies are consistent and disqualifying respondents with inconsistent responses.

Online survey instrument bias which can skew response distribution in a number of ways can also be a concern. For example, only those fishers who had access to a computer and opted into the HorizonPoll panel could access the survey, potentially skewing the sample toward younger generations. On the other hand, in the case of expenditure surveys which tend to be longer than other surveys, fishers who are more avidly engaged in the activity might be more likely to complete the survey. Moreover, older anglers tend to have more time available and are more likely to respond to surveys. We evaluated the respondent sample in relation to the demographics of the fisher population developed through the Ministry for Primary Industries' National Panel Survey of marine fishers (MPI's NPS) and developed weights based on targeted demographic characteristics (for more information see Appendix A).

Response bias and recall bias are two additional effects which can impact the validity of survey responses. Response bias is a general term used to describe the adjustment of a respondent's behaviour as a result of various factors within the survey such as the question wording or the general topic explored. Recall bias describes the error introduced in to the data due to incomplete recollection by the respondent. Respondents were asked for trip related spending from their most recent trip to minimise the recall period. Recognising the potential for either or both of these biases to influence spending profile estimates, we evaluated the raw data in great depth. With details about fishers' demographics and activity, we were able to flag observations where reported activities and expenditures appeared inconsistent.

International marine fisher spending

The National Panel Survey data and HorizonPoll expenditure surveys only reached New Zealand residents. Quantifying the amount of spending by international marine fishers

required a two-fold approach. In addition to collecting information about travel activities from international visitors, the IVS also collects spending information and reports the average spending per international tourist. The IVS, however, does not provide detailed expenditures based upon activities. Under the assumption that international marine fisher spending is similar to that of all international tourists, we applied the average spending estimates as reported by MBIE to calculate spending by those travelling with the primary purpose of marine fishing.

As part of the charter boat survey, operators were asked to provide their estimated annual trips by visitors, rates paid per trip, typical party size, and the proportion of their customer base comprised of international visitors. Using this information, we were able to calculate a weighted average charter boat cost per marine fisher plus the number of international marine fishers who used a charter boat service. This spending and activity on charter boats was incorporated into the estimated average trip spending reported by IVS.

International visitors who travel to New Zealand with a different primary purpose but also take part in fishing activities, including a charter boat fishing opportunity, while in-country also spend money on goods and services directly attributable to the recreational marine fishing industry. A separate spending profile based on resident spending, on targeted spending categories, was developed as a proxy to capture the contribution of this international visitor's group to the recreational marine fishing economy in New Zealand.

Economic modelling to estimate the contributions of marine fishing

Simply put, a fisher's purchase stimulates numerous sequential rounds of purchasing. For example, once a fisher makes a purchase, the retailer buys more merchandise from wholesalers. Wholesalers then buy more from manufacturers, who, in turn, purchase new inputs and supplies. At the same time, the salaries and wages paid by these businesses

stimulate more benefits. Economic analysis tracks the flow of dollars from the consumer through all of the businesses that are affected, either directly or indirectly, through the use of input-output models (I-O).

The I-O models for this research were built using the national and regional accounts input-output tables available from Insight Economics, a New Zealand-based economics firm. Their tables break down New Zealand's economy into 55 economic sectors at the national level and 106 economic sectors at the regional level and explain how expenditures in one sector impact sales, imports and more in other sectors. Recreational fishing is not included as an economic sector, so other sectors that serve recreational fishers were used, such as various retail segments, fuel and transportation, as well as sports and recreation.

The chain of economic contributions associated with spending in New Zealand is

presented as three effects:

- **Direct effects**: These include the jobs, income and tax revenues that are tied directly to the spending by marine fishers without including down-stream effects.
- Indirect & Induced effects: Also known as the down-stream effect, it occurs when a direct purchase from a business leads to increased demand for goods and services from other businesses along their supply chain. The direct spending is 'multiplied' as it circulates through the whole economy, generating additional contributions to GDP and supporting additional jobs.
- **Total effects**: These effects include those that are tied directly to the spending by marine fishers plus those that result from the multiplier effects of marine fisher spending (direct effects + down-stream effects).

Detailed spending data collected through the residential marine fisher survey were used to build a spending profile for the average New Zealand fisher. This spending profile was multiplied by the number of marine fishers from the National Panel Survey to determine country-level estimates of direct spending. Direct spending at the regional level was estimated differently. Spending was assigned based on where the spending was likely to occur from a geographical perspective, under the assumption that some goods and services are purchased close to a fisher's residence while other goods and services are purchased near their fishing destination. A detailed discussion about allocation of spending at the regional level is included in Appendix A.

To estimate the effects of fisher spending, direct expenditures on marine fishing activities were matched to the appropriate industry sector multiplier provided within the models. Both national and regional multiplier models were developed. Four measures of economic contribution are included in this report:

Output: represents the value of annual industry production for all of the industries affected by the purchases made by the marine fishers.

Value Added: Another term used for value-added is Gross Domestic Product (GDP) and it represents the difference between the industry's and an establishment's total output and the cost of its intermediate inputs.
 Employment: reflects contributions of direct spending to full-time employment.

Income: represents the contribution to gross household income.

At the regional level, the results exclude effects for dollars once they are spent on businesses outside of the region, otherwise known as 'leakages.' As a result of leakages, the economic contributions are larger at the national level than the regional level as dollars have a greater chance of being spent and re-spent before leaving the nation.

Prior to applying the I-O model multipliers, direct spending was adjusted for the impact of spending on goods imported into New Zealand and the Goods and Service Tax (GST). The economic model multipliers are not structured to internally adjust spending and flows based on either impact. In the case of imports, a proportional adjustment was applied to direct spending based upon the ratio of total demand relative to imports within a particular industry.

In the case of GST, a portion of the amount spent on goods and services by fishers is applied to the value-added tax collected on most goods and services. In 2014-15, the GST

rate was 15%. Direct spending was adjusted to reflect only the portion of the amount spent by fishers which continued to cycle through the recreational marine fishing industry. The balance reflects the tax amount generated by marine recreational fishers.

Findings

In the next four sections of this report we present our findings, first at the national level and then for each of the three defined regions.

National

Participation

In 2008, Active New Zealand estimated 18.8% of the nation's population - 3.2 million people 16 years old or older - participated in fishing, either fresh or saltwater (Sports New Zealand 2009). Based on the 18.8% participation rate, fishing was one of New Zealand's top ten most common outdoor recreational activities, falling behind a variety of outdoor exercise activities such as running and cycling. Six years later in 2014, Active New Zealand 2015). This equates to a 10% growth in the number of resident fresh and saltwater fishers in New Zealand. And, recreational fishing ranked as the fifth most popular recreational activity.

The NPS survey collected information from panelist that claimed they were fishers and a subsample of people who said they were nonfishers. Fisher participation was based on the number of panelist that described details of one or more fishing trips over the 12-month survey. In the NPS report on harvest only the trips were where at least one marine species was harvested were reported (Wynn-Jones et al. 2014). For this report, we use the number of people that went fishing and the number of trip made whether fish were kept or not, because spending

NEW ZEALAND

Marine fishing activity

NZ resident marine fishing: 595,000

NZ marine fishing days: 2.65 million

International travellers visiting to fish: 28,000

Economic contributions

Output Direct \$682.8 mil. Indirect \$992.6 mil. Total \$1,675 mil.

Value Added Direct \$291.2 mil. Indirect \$343.2 mil. Total \$634.4 mil.

> Employment Direct 4,700 Indirect 3,300 Total 8,000

Income Direct \$198.0 mil. Indirect \$141.7 mil. Total \$339.8 mil.

occurs still occurs even if the trip was unsuccessful. An estimated

595,000 New Zealand residents 15 years old or older fish marine waters

annually and spend more than 2.65 million fishing trips (Table 2).

	Marine fishers (#)	Marine fishing days (#)	
All platform types	594,662	2,651,802	
Boat-based platform fishing	388,688	1,610,380	
Land-based platform fishing	205,974	1,041,422	

 Table 2. National participation in marine fishing among residents and by platform type

The NPS collected details of location, method and catch for each fishing trip by panel members over 12 months (from October 2011 through September 2012), which allow breakdowns of this effort. Fishers use a variety of platforms to go fishing. For this report, fishing was divided into two platforms: boat-based and land-based. The land-based grouping includes those fishers who only saltwater fish from land platforms including beaches, rocks, piers, and jetties. The boat-based grouping includes those who fish from boats but may also fish from land. This makes the two groups mutually exclusive and fishers were assigned to only one group. The majority of fishers (389,000 or 65%) fished from a boat and sometimes from land while the balance (206,000 or 35%) fished only from land (Table 2).

Fishing days, however, are more likely to be spent only on one type of platform. While there are exceptions, and data collected through the NPS survey tracks all types of platforms used within a day of fishing, the NPS survey does not indicate which platform was the primary method of fishing for the day of fishing reported by fishers. An assumption was made in those cases when a fisher uses both - a boat and land-based platform on one day – the majority of time is attributable to the boat-based platform. Boat-based fishing days totaled 1.61 million days and land-based fishing days totaled 1.04 million days.

In 2014, roughly 109,000 international visitors took part in marine fishing when travelling to New Zealand (

Table 3). An estimated 28,000 travelled for the primary purpose of saltwater fishing while 81,000 enjoyed a marine fishing trip while travelling for other reasons. Approximately 38,800 of all visiting international fishers hired a charter service. The balance of visiting international fishers (71,000) were assumed to engage in marine fishing using alternative approaches such as a land-based platform or a boat owned by friends or family. Within each group (charter and no charter), 26% were primarily in New Zealand to fish.

	All visiting fishers	Fishing as a primary purpose of visit	Fishing as a secondary purpose of visit
Total international marine fishers	108,811	28,091	80,720
International visitors hiring a charter boat	38,203	9,863	28,341
International visitors not hiring a charter boat	70,608	18,228	52,379

Table 3. Participation in marine fishing among international tourists

Participation across seven species of interest was also estimated (Table 4). These estimates reflect fishers and days based on the type of species pursued, which is not necessarily the species harvested. Data from the NPS was used to derive these participation estimates. In the NPS, fishers were asked to report the species harvested, not the species they targeted, during each trip throughout their survey interviews. Harvest records are a useful ex-post, or end-of-the-day, assessment of the type(s) of fish caught and kept. But, not all fishing trips result in harvested fish, either as a result of finding no fish in the area or through catch-and-release practices. And, fishers do not always harvest what they intend to pursue. Yet where they fish, how they fish, and what they buy are likely to be influenced by their target species.

To estimate effort per species pursued, determined prior to the fishing trip, we utilised the Ministry for Primary Industries' NPS harvest data but applied adjustment ratios that allowed us to bridge the gap between species harvested and species pursued. These ratios were calculated using the species pursued and harvest data collected through the expenditure survey implemented by Horizon Research, through their national panels described earlier. The first ratio was based on the assumption that fishers often catch species they might not initially target, particularly in the case of species which are more abundant. As a result, in some cases harvest records may overstate the number of people pursing a particular species. Conversely, there are species that can be elusive to catch, such as hapuku and bass, yet there are fishers who are dedicated to pursuing those species. In

those cases, harvest records would grossly understate that fisher population. Application of these adjustments enabled the generation of the estimated number of fishers and days spent pursing a particular species, an ex-ante perspective (Table 4).

Species pursued	Marine fishers	Marine fishing days
Snapper	252,723	1,374,911
Kahawai	146,083	690,920
Gamefish*	131,653	265,935
Blue Cod	69,825	231,362
Kingfish	46,845	81,887
Trevally	40,811	168,650
Hapuku/Bass	12,411	36,890

Table 4. Marine fisher and fisher days among residents by species

* Gamefish includes marlin and tuna

The most commonly pursued species among the seven species of interest, based on either the number of fishers or the number of days, was snapper. The species least commonly pursued was hapuku and bass. It is important to note that these groups are not mutually exclusive. In other words, a fisher who targeted snapper might also be counted within the group pursuing hapuku or kahawai.

Average spending by fishers

Trip-related spending

Fishers spend money on items such as food & lodging, transportation (including vehicle and boat fuel), fees, ice for chilly bins, and bait in order to spend a day on or near the water fishing. Collectively, these types of expenditures typically occur on the day(s) the fishing activity occurs and are categorised as "trip-related".

The method used to define those items that constitute fishing-related spending, including durable equipment items such as boats and vehicles, is modeled after the approach used by the U.S. Fish and Wildlife Service's National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The National Survey has a history spanning back to 1955 and is considered one of the primary resources capturing spending associated with wildliferelated outdoor recreation in the United States.

In total, resident marine fishers spent an average of \$99.45 per day on trip-related goods and services (

Table 5). Fishers who use boat-based fishing platforms spent an average of \$112.54 per day, with the additional spending allocated largely to boat fuel. And, fishers using only land-based platforms spent an average of \$74.35 per day. Detailed spending profiles are included in Appendix A.

 Table 5. Average trip-related spending by New Zealand resident marine fishers by platform

 type in 2014/15

Trip-related spending	Spending per fisher per day
All platform types	\$99.45
Boat-based platform	\$112.55
Land-based platform	\$74.35

Note: Detailed spending profiles are included in Appendix A.

International visiting marine fisher spending was estimated using two approaches based on the purpose of the visit to New Zealand. First, for those travelling primarily to go marine fishing, in-country trip-related spending reported by MBIE was used. And, it reflects average trip-related spending by international visitors on a per-fisher rather than per-day basis. Approximately \$3,000 was spent per individual with the largest proportion allocated to retail or other tourism services (Table 6).

International visitor trip-related spending	Used a charter service	No charter service used
Spending by visitors with fishing as a primary purpose	\$ per trip	
Total spending	\$2,931	\$2,790
Food and lodging	36%	38%
Transport	24%	25%
Retail & other tourism products or services*	40%	37%
Spending by visitors with fishing as a secondary purpose	\$ per fishing day	
Total spending	\$202	\$62
Transport, food & lodging	24%	79%
Fishing equipment items & services*	76%	21%

Table 6. Average trip-related spending by international visiting marine fishers in 2014

*Includes charter-hire services

Note: Detailed spending profiles are included in Appendix A.

For those who travelled primarily for other reasons but who engaged in marine fishing during their time in New Zealand, the entirety of their trip-related expenses cannot be attributed to marine fishing. And, in the absence of detailed spending profiles for this group, resident spending on trip-related items was used as a proxy. Between \$60 and \$200 was spent per individual, on average (Table 6).

Equipment spending

Throughout the course of the year, fishers spend money on fishing equipment such as rods, reels, lines & lures, tackle, repair & maintenance of fishing equipment, and clothing. They also spend on larger items such as boats, vehicles, and holiday homes. Collectively, these types of expenditures are categorised as "fishing equipment" and "big equipment".

In the case of fishing equipment, all spending is attributable to fishing related activity; therefore, the entire amount spent by the fisher was included in the economic modelling

process. For these items, fishers spent an average of \$461 during the year. Boat-based fishers spent significantly more than land-based fishers (\$622 vs. \$162) (Table 7).

	Fishing equipment	Big equipment items	Total Equipment spending	
		Annual spending per fish	er	
All platform types	\$460.78	\$537.26	\$998.04	
Boat-based platform	\$621.89	\$735.39	\$1,357.28	
Land-based platform	\$161.57	\$169.31	\$330.88	

Table 7.	Average e	equipment-re	elated spendi	ng by New	Zealand	resident m	narine fisl	hers by
platform	type in 20	14/15		•••				

Note: Detailed spending profiles are included in Appendix A.

The same approach should not be taken for spending on larger equipment items because those items are commonly used for other activities. For example, a boat may be used for non-fishing pleasure cruises. Therefore, only the portion of the expense that can be attributed to marine fishing can be included in the modelling process. As a result, fishers were asked to estimate the portion of time the item was used for marine fishing. Only these portions were included in the multiplier models.

Fishers spent an average of \$537 during the year on larger equipment items. Not surprisingly, boat-based fishers spent significantly more than land-based fishers (\$735 vs. \$169) (Table 7). Collectively, fishers spent an average of \$998 on both fishing and big equipment items. Boat-based fishers spent significantly more than land-based fishers (\$1,357 vs. \$331).

Trip and equipment spending by species

The cost associated with fishing can vary from species to species. Some species require the fisher to travel further or use specialist equipment, while other species can be

found close to home or are relatively simple to catch. To highlight such differences, this report also explores trip and equipment spending by type of species pursued.

It is important to note that the species groups used here are not mutually exclusive. The species-specific spending estimates in this report are based on fishers' HorizonPoll survey responses regarding the species targeted per trip. Fishers can, and do, pursue a variety of species on a fishing outing. As a result, the spending estimates reflect the average amount spent during a fishing trip when one of the species of interest to this report was targeted. In other words, trip and equipment related spending for any one angler can be included across multiple species.

Results show that fishers spent the most per trip when targeting "game fish" which is a combination of major offshore species such as billfish, tuna and other big game fish. Fishers targeting these species spent an average of \$112 on trip-related items per day (not including any of the cost associated with big ticket items such as boats) (Table 8). This contrasts with fishers targeting hapuku (groper or bass) at (\$91 per day), which is the lowest average spending per trip among the species analysed.

Table 8.	Average trip-related	spending by I	New Zealand	resident marine	fishers by	species type
in 2014/1	5					

Species	Spending per fisher per day
Game fish	\$112.51
Kingfish	\$110.34
Kahawai	\$107.59
Blue Cod	\$103.49
Snapper	\$97.21
Trevally	\$94.24
Hapuku/groper/bass	\$91.26

Differences in spending on fishing and big equipment items, such as rods, reels, boats and vehicles, also vary by species targeted. For example, fishers targeting kingfish spent an average of \$1,500 during the year while fishers targeting hapuku/bass spent \$741 during the

year, the lowest average spending among the species analysed (Table 9).

11 2017/10			
Annual spending per fisher	Fishing equipment	Big equipment	Total equipment spending
Species			
Kingfish	\$800.70	\$699.93	\$1,500.63
Game fish	\$775.07	\$709.38	\$1,484.45
Blue Cod	\$643.55	\$713.99	\$1,357.54
Trevally	\$634.50	\$713.93	\$1,348.43
Kahawai	\$605.73	\$577.84	\$1,228.57
Snapper	\$546.42	\$518.33	\$1,064.75
Hapuku/groper/bass	\$383.88	\$357.16	\$741.04

Table 9. Average equipment-related spending by New Zealand resident fishers by species type in 2014/15
Economic contribution of marine fishing in New Zealand

Direct spending

Direct spending reflects the total amount spent by all marine fishers for fishing-related goods and services. It is based on the total number of fishing trips multiplied by the average spending per trip for items like fuel, food, bait and other consumables, plus the annual spending by all anglers for large items such as boats, chilly bins, rods and reels, and other durable and big ticket items.

The analysis found that total trip-related spending, based on consumer-level prices, by resident marine fishers was \$264 million dollars over the year (Table 10). They spent an additional \$274 million on fishing equipment items and \$319 million on big equipment items they used while recreational fishing. The total direct spending by resident recreational marine fishers in New Zealand was \$857 million dollars, annually.

International visitors, those who visit for the primary purpose of marine fishing and those who travelled for other reasons but used a charter boat service, spent \$89 million dollars in New Zealand over the course of the year. Collectively, residents and non-residents' trip-spending in New Zealand attributable to marine fishing was \$352 million per year. Equipment spending by international visitors was not included in this analysis as it was assumed most international visitors use equipment provided by a charter boat or by another person rather than purchase it for essentially one-time use. While it is possible for this group to purchase some items which would be used during their fishing trip while in New Zealand, it is assumed that these amounts are minimal.

Combining the direct spending by residents and international visitors for trip and equipment items, recreational marine fishers in New Zealand spent a total of \$946 million dollars on goods and services directly attributable to fishing activity (Table 13).

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Table 10. Total annual direct spending by <u>resident</u> recreational marine fishers in 2014/15 (includes GST)

Spending category	Total direct
	spending
Trip-related spending	
Fuel and oil	
Personal vehicle	\$41,575,250
Personal boat	\$45,599,395
Commercial transport	\$20,226,822
Groceries	\$42,818,112
Restaurants	\$23,083,889
Accommodations	\$33,307,187
Equipment rental	\$5,168,487
Fees	\$6,237,045
Guide or charter	\$13,338,031
Bait	\$17,096,931
lce	\$5,827,810
Other day-to-day items	\$9,442,720
Sub-total trip-related	\$263,721,679
Fishing equipment spending	
Rods & reels	\$53,309,957
Line & leaders	\$15,282,515
Lures, jigs, flies, & art. bait	\$17,901,406
Other terminal tackle	\$10,287,652
Gear (rod holders, landing nets, down rigger, etc)	\$16,925,566
Electronics	\$23,124,322
Processing or taxidermy	\$1,138,778
Repair or maintenance of special equipment (vehicle, boat, motor,	\$82,757,914
ATV, (Idile)	¢10 017 171
Liouning Mone & charte	Φ10,917,171
Other equipment used for fishing	Φ <u></u> Φ <u></u> 41 500 765
Troiler registration & other government feed	\$11,522,765
Tailer registration & other government rees	¢274 007 4 45
	\$214,001,145
Big equipment spending	\$319,489,269
i otal direct spending	\$857,218,094

Economic contributions

The purchases made by marine fishers from industries directly supporting the fishing industry cycles through the country's economy generating additional economic activity. For example, local businesses such as boat builders purchase raw or intermediate goods and

services from other sectors of the economy, such as fiberglass suppliers. This is called the indirect effect. Fishers' direct spending also stimulates household spending by individuals employed by businesses either directly or indirectly linked to marine fishing. This is called the induced effect.

Another term used to describe these rounds of spending is the multiplier effect. Input-output matrices are tools that essentially track how much each sector of the economy spends annually on other sectors of the economy. In other words, these tools tell us, for every dollar received by a sector, how much of that dollar is then re-spent on other sectors. Using these data, it is possible to build economic models that calculate the total economic impact generated by an industry, including the direct, indirect, or induced effects.

Using the Input-Output data provided by New Zealand's Insight Economics, four specific types of multipliers were applied to fishers' direct spending. The four specific multipliers developed include: output, value added, employment, and income multipliers. Output multipliers report the total value of all dollars that change hands as a result of fishers' spending, and by nature includes double-counting as it measures the total sales in each level of the supply chain. In other words, it includes the total value of all manufacturers' sales, plus the total value of wholesale and retail sales. Value added multipliers – also known as Gross Domestic Product - adjust for this double counting and only includes the net value added at each level of the supply chain. Employment multipliers reflect the number of full-time equivalent jobs supported by the many cycles of spending. Income multipliers reflect the contributions to household incomes by those individuals employed in jobs either directly or indirectly supporting marine fishing activities; these include profit generated by business owners such as charter boat operators and fishing tackle shops.

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Prior to applying the multipliers, adjustments were made to fishers' direct spending estimates to account for leakages from the economy. These include removal of GST (goods & service tax) from direct fisher spending and adjustments for imports which reflect dollars leaking from the New Zealand economy.

Once these adjustments were applied to consumer-level spending, the adjusted direct contribution of resident marine fisher spending on trip-related goods and services was \$192 million (Table 11), while the value-added or contributions to the country's Gross Domestic Product (GDP) was \$71 million. Trip-related direct spending by residents supported more than 1,400 full-time equivalent jobs and \$46 million in household income. Spurred by residents' trip-related direct spending, supporting industries gained \$283 million in business. This is the indirect effect generated by fishers' spending and also includes \$101 million in value-added (GDP) to the economy, 980 additional jobs and \$42 million in household income. Collectively, the total contribution to output was \$475 million, value added was \$172 million, jobs were 2,440, and household income was \$88 million.

Trip-related spending*	Direct contributions	Indirect & induced contributions	Total contributions
New Zealand residents			
Direct spending	\$263,721,681		
Output	\$191,965,853	\$282,659,057	\$474,624,910
Value Added (GDP)	\$71,097,574	\$101,292,141	\$172,389,714
Employment	1,461	979	2,440
Income	\$45,779,210	\$41,806,877	\$87,586,087
International visitors			
Direct spending	\$88,721,880		
Output	\$71,229,012	\$106,173,212	\$177,402,225
Value Added (GDP)	\$30,544,859	\$37,411,112	\$67,955,971
Employment	715	361	1,076
Income	\$19,374,933	\$15,306,554	\$34,681,487
Trip-spending all fishers			
Direct spending	\$352,443,561		
Output	\$263,194,865	\$388,832,269	\$652,027,135
Value Added (GDP)	\$101,642,433	\$138,703,253	\$240,345,685
Employment	2,176	1,340	3,516
Income	\$65,154,143	\$57,113,431	\$122,267,574

Table 11. Total economic contributions of trip-related spending by residents and visitors engaged in marine fishing

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added (GDP), employment, and income values reflect the contributions based on the adjusted direct spending.

Accounting for trip-related spending by both resident and international fishers, the adjusted direct contributions by resident and visiting marine fishers for trip-related goods and services was \$352 million, the value-added to the country's economy was \$102 million, and 2,200 full-time equivalent jobs were supported, providing \$65 million in household income. Spurred by the direct spending for trip-related items and services only, the additional indirect and induced spending within supporting industries was \$389 million. The value added to the economy by spending among supporting industries was \$139 million. An additional 1,300 jobs and \$57 million in household income were supported by spending by the other industries in the supply chain. Collectively, the total contribution from trip-related spending was \$652 million, with \$240 million in value added (GDP) benefits, 3,500 jobs, and \$122 million in household income (Table 11).

Table 12 reports the adjusted direct and multiplied contributions of marine fishers' spending on equipment-related goods and services. Please recall that non-resident visitors are assumed to not purchase these items while visiting New Zealand. Total adjusted direct output was \$423 million once leakages are applied to consumer-level spending on both small and large equipment items. The value added (GDP) to the country's economy was \$191 million. Direct spending for equipment supported more than 2,600 full-time equivalent jobs and \$134 million in household income. Spurred by the direct spending on equipment, additional spending occurring within supporting industries was \$610 million. The value added to the economy by fishing equipment purchases among supporting industries was \$207 million. An additional 2,000 jobs and \$86 million in household income were supported through spending by other industries in the supply chain. Collectively, the total contribution to output was \$1.034 billion, value added (GDP) was \$398 million, jobs were 4,600, and household income was \$220 million.

Equipment spending*	Direct contributions	Indirect & induced contributions	Total contributions
Fishing equipment spending			
Direct spending	\$274,007,144		
Output	\$221,212,136	\$333,827,503	\$555,039,639
Value Added (GDP)	\$97,879,298	\$114,415,365	\$212,294,664
Employment	1,790	1,098	2,888
Income	\$77,626,015	\$45,641,353	\$123,267,367
Big equipment spending			
Direct spending	\$319,489,269		
Output	\$202,518,397	\$276,258,275	\$478,776,672
Value Added (GDP)	\$93,380,934	\$92,366,802	\$185,747,736
Employment	832	887	1,719
Income	\$56,395,348	\$39,891,359	\$96,286,707
Total equipment spending			
Direct spending	\$593,496,413		
Output	\$423,730,533	\$610,085,778	\$1,033,816,311
Value Added (GDP)	\$191,260,232	\$206,782,167	\$398,042,400
Employment	2,622	1,985	4,607
Income	\$134,021,363	\$85,532,712	\$219,554,074

Table 12. New Zealand's economic contributions of equipment spending by resident marine fishers

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Combining residents and international marine fishers' spending for trip-related and equipment items, direct output (excluding direct and indirect effects) was \$687 million once leakage adjustments were accounted for (Table 13). The value added (GDP) to the country's economy was \$293 million. Direct spending supported more than 4,800 full-time equivalent jobs and \$199 million in household income. Spurred by the direct spending, the additional indirect and induced spending occurring within supporting industries was \$999 million. The value added (Gross Domestic Product) to the economy by spending among supporting industries was \$345 million. An additional 3,300 jobs and \$143 million in household income were supported through spending by the other industries in the supply chain. Collectively, the total output from all direct, indirect and induced effects was \$1,685 million, value added

(or Gross Domestic Product) was \$638 million, supporting 8,000 jobs, and household income was \$342 million.

Trip and equipment spending*	Direct contributions	Indirect & induced contributions	Total contributions
Total contributions by residents			
Direct spending	\$857,218,093		
Output	\$615,696,387	\$892,744,834	\$1,508,441,221
Value Added	\$262,357,806	\$308,074,308	\$570,432,114
Employment	4,083	2,964	7,048
Income	\$179,800,572	\$127,339,588	\$307,140,161
Total contributions by international	visitors		
Direct spending	\$88,721,880		
Output	\$71,229,012	\$106,173,212	\$177,402,225
Value Added	\$30,544,859	\$37,411,112	\$67,955,971
Employment	715	361	1,076
Income	\$19,374,933	\$15,306,554	\$34,681,487
Total contributions by all fishers			
Direct spending	\$945,939,973		
Output	\$686,925,399	\$998,918,046	\$1,685,843,446
Value Added	\$292,902,665	\$345,485,420	\$638,388,085
Employment	4,798	3,325	8,124
Income	\$199,175,505	\$142,646,142	\$341,821,648

Table 13. Total economic contributions of marine fishing by residents and visitors.

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Lastly, we estimated marine recreational fishing's contribution to tax revenue, at least in part. Tax revenues are calculated outside of the input-output model based on their limited data. In calculating fishers' total spending, current tax rates of 15% for the Goods and Service Tax (GST) were applied, which amounted to \$136 million dollars (Table 14). Upon considering fishers' total contribution to employment and income, we estimated the impact on personal income tax to be \$52million (

Table 14). The total minimum contribution to tax revenues was \$188 million.

Table 14. Taxes generated by marine fisher spending and contributions to household income Tax category

Goods and services tax collected	\$135,841,589
New Zealand resident marine fishers share	90%
International visiting marine fishers share	10%
Personal income tax associated with the contribution of fisher spending to income	\$51,857,268
Total minimum tax revenues	\$187,689,857

The estimation of tax effects is conservative considering the additional contributions generated by the indirect and induced spending were not included. To incorporate those effects, detailed information about how and where government spends its receipts would be needed, but were not available. Considering that, the size of indirect and induced spending can be 40% greater than fishers' original direct spending and the total tax revenues generated by fishers' expenditures could be upwards of \$400 million to \$450 million.

Economic Contributions from Boat- and Land-Based Fishing

In the following two tables (Table 15 and *Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude leakages from the New Zealand economy due to spending on imported goods as well as the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Table 16), economic contributions are reported for resident boat-based and land-based

marine fishing activity. Again, fisher numbers are determined using the NPS data. And,

spending for these divisions are based on fishers' platform type used reported through the

HorizonPoll survey. Similar information is not currently available through the IVS. A separate

targeted effort to gather information specifically about international visitors who fish and their

platform utilisation would be needed in order to allocate their economic contributions by

platform.

Table 15. New Zealand's economic contributions of BOAT-BASED platform marine fishing by residents

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$184,782,267		
Output	\$133,699,893	\$196,144,768	\$329,844,661
Value Added (GDP)	\$48,537,748	\$70,093,416	\$118,631,164
Employment	973	681	1,655
Income	\$31,387,816	\$29,175,887	\$60,563,703
Fishing equipment spending			
Direct spending	\$240,848,109		
Output	\$195,163,669	\$293,493,324	\$488,656,993
Value Added (GDP)	\$86,059,406	\$100,609,994	\$186,669,400
Employment	1582	968	2,550
Income	\$69,768,536	\$40,027,045	\$109,795,581
Big equipment spending			
Direct spending	\$284,748,614		
Output	\$180,719,168	\$246,540,708	\$427,259,876
Value Added (GDP)	\$83,324,865	\$82,431,895	\$165,756,760
Employment	742	791	1,534
Income	\$50,321,374	\$35,596,820	\$85,918,194
Total spending			
Direct spending	\$710,378,990		
Output	\$509,582,730	\$736,178,800	\$1,245,761,530
Value Added (GDP)	\$217,922,019	\$253,135,305	\$471,057,324
Employment	3297	2440	5,739

Income

\$151,477,726 \$

\$104,799,752 \$256,277,478

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude leakages from the New Zealand economy due to spending on imported goods as well as the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Table 16. Total economic contributions of LAND-BASED resident marine fishers

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$78,939,414		
Output	\$58,799,705	\$87,775,001	\$146,574,706
Value Added (GDP)	\$23,410,993	\$31,781,037	\$55,192,030
Employment	521	302	822
Income	\$14,850,806	\$12,707,801	\$27,558,607
Fishing equipment spending			
Direct spending	\$33,159,035		
Output	\$26,059,911	\$40,335,194	\$66,395,105
Value Added (GDP)	\$11,820,288	\$13,806,016	\$25,626,305
Employment	208	130	338
Income	\$7,881,847	\$5,612,864	\$13,494,711
Big equipment spending			
Direct spending	\$34,740,655		
Output	\$21,802,754	\$29,722,678	\$51,525,431
Value Added (GDP)	\$10,057,624	\$9,936,634	\$19,994,257
Employment	90	96	185
Income	\$6,074,900	\$4,295,223	\$10,370,123
Total spending			
Direct spending	\$146,839,104		
Output	\$106,662,370	\$157,832,873	\$264,495,242
Value Added (GDP)	\$45,288,905	\$55,523,687	\$100,812,592
Employment	819	528	1,345
Income	\$28,807,553	\$22,615,888	\$51,423,441

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude leakages from the New Zealand economy due to spending on imported goods as well as the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

The Economic Contributions from Recreational Fishing Activity Targeting Selected Species

In the following tables (Table 17 through Table 23), direct spending and economic

contributions are reported by species. As with the two previous tables providing detail by fishing

platform, these species-level tables do not include spending and contributions by international

visitors who go marine fishing. We were able to derive these species-level estimates using data available via the MPI's NPS in conjunction with the HorizonPoll survey. Similar information is not available via the IVS. While charter boat operators were able to provide some insight as to which species their international visitors pursued, the information reflected only a portion of the visiting marine fisher population's activity

Snapper generated the greatest amount of direct spending annually (\$403 million), while kahawai and the collective gamefish category were the second and third largest, respectively.

Spending on other popular species such as tarakihi and gurnard probably fall in the range between kingfish and hapuku (groper) and bass, but there was insufficient survey data on fisher spending to enable reliable species estimates to be calculated. Spending on hapuku-bass appears to be low, but these totals are based solely on survey responses.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$133,655,064		
Output	\$96,908,915	\$142,334,879	\$239,243,793
Value Added (GDP)	\$35,748,070	\$51,117,227	\$86,865,297
Employment	741	493	1,234
Income	\$23,350,292	\$21,062,672	\$44,412,964
Fishing equipment spending			
Direct spending	\$138,092,839		
Output	\$111,325,643	\$168,260,715	\$279,586,358
Value Added (GDP)	\$49,222,330	\$57,658,026	\$106,880,356
Employment	900	553	1,453
Income	\$38,762,578	\$23,069,381	\$61,831,959
Big equipment spending			
Direct spending	\$130,993,853		
Output	\$79,353,909	\$108,020,274	\$187,374,183
Value Added (GDP)	\$36,662,536	\$36,144,436	\$72,806,972
Employment	325	347	672
Income	\$22,028,056	\$15,605,144	\$37,633,200
Total spending			
Direct spending	\$402,741,756		
Output	\$287,588,467	\$418,615,868	\$706,204,334

Table 17. Total economic contributions of SNAPPER marine fishing by residents

Value Added (GDP)	\$121,632,936	\$144,919,689	\$266,552,625
Employment	1,966	1,393	3,359
Income	\$84,140,926	\$59,737,197	\$143,878,123

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude leakages from the New Zealand economy due to spending on imported goods as well as the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Table 18. Total economic contributions of KAHAWAI marine fishing by residents

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$74,336,099		
Output	\$53,904,580	\$79,425,119	\$133,329,700
Value Added (GDP)	\$19,960,247	\$28,543,028	\$48,503,275
Employment	437	275	712
Income	\$13,530,507	\$11,734,551	\$25,265,058
Fishing equipment spending			
Direct spending	\$95,060,626		
Output	\$76,746,280	\$115,820,217	\$192,566,497
Value Added (GDP)	\$34,186,329	\$39,703,821	\$73,890,150
Employment	622	381	1,003
Income	\$26,859,147	\$15,802,825	\$42,661,972
Big equipment spending			
Direct spending	\$84,412,633		
Output	\$50,905,638	\$68,936,144	\$119,841,782
Value Added (GDP)	\$23,652,561	\$22,929,122	\$46,581,683
Employment	214	224	439
Income	\$14,484,752	\$10,070,219	\$24,554,971
Total spending			
Direct spending	\$253,809,358		
Output	\$181,556,498	\$264,181,480	\$445,737,979
Value Added (GDP)	\$77,799, <mark>137</mark>	\$91,175,971	\$168,975,108
Employment	1,273	880	2,154
Income	\$54,874,406	\$37,607,595	\$92,482,001

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$29,920,384		
Output	\$21,659,610	\$31,663,103	\$53,322,712
Value Added (GDP)	\$8,065,591	\$11,377,026	\$19,442,617
Employment	170	110	280
Income	\$5,224,915	\$4,686,381	\$9,911,296
Fishing equipment spending			
Direct spending	\$102,040,156		
Output	\$81,876,121	\$124,211,203	\$206,087,325
Value Added (GDP)	\$35,677,638	\$42,509,941	\$78,187,579
Employment	657	407	1,064
Income	\$28,011,715	\$17,238,001	\$45,249,716
Big equipment spending			
Direct spending	\$93,391,881		
Output	\$51,687,440	\$70,035,974	\$121,723,414
Value Added (GDP)	\$23,976,816	\$23,468,085	\$47,444,901
Employment	211	225	436
Income	\$14,266,813	\$10,134,457	\$24,401,270
Total spending			
Direct spending	\$225,352,421		
Output	\$155,223,171	\$225,910,280	\$381,133,451
Value Added (GDP)	\$67,720,045	\$77,355,052	\$145,075,097
Employment	1,038	742	1,780
Income	\$47,503,443	\$32,058,839	\$79,562,282

Table 19. Total economic contributions of GAMEFISH marine fishing by residents

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending		oontributiono	
Direct spending	\$23,943,669		
Output	\$17,569,285	\$25 595 436	\$43 164 721
Value Added (GDP)	\$6,496,389	\$9,160,427	\$15,656,815
Employment	133	89	222
	\$4,076,821	\$3,812,072	\$7,888,893
Fishing equipment spending	\$ 1,01 0,021	\$0,012,012	\$1,000,000
Direct spending	\$44,936,033		
Output	\$36,516,452	\$54,866,997	\$91,383,449
Value Added (GDP)	\$16,589,613	\$18,844,261	\$35,433,874
Employment	299	181	480
Income	\$12,989,367	\$7,403,439	\$20,392,806
Big equipment spending			
Direct spending	\$49,854,523		
Output	\$30,822,249	\$41,863,457	\$72,685,706
Value Added (GDP)	\$14,278,577	\$13,949,318	\$28,227,895
Employment	129	136	264
Income	\$8,705,870	\$6,088,776	\$14,794,646
Total spending			
Direct spending	\$118,734,225		
Output	\$84,907,986	\$122,325,890	\$207,233,876
Value Added (GDP)	\$37,364,579	\$41,954,006	\$79,318,584
Employment	561	406	966
Income	\$25,772,058	\$17,304,287	\$43,076,345

Table 20. Total economic contributions of BLUE COD marine fishing by residents

Expanditure estagerice*	Direct contributions	Indirect & induced	Total contributions
Trip related apanding		contributions	
Thp-related spending	* ••• • ••••		
Direct spending	\$9,035,383		
Output	\$6,559,027	\$9,596,364	\$16,155,391
Value Added (GDP)	\$2,445,157	\$3,445,829	\$5,890,986
Employment	51	33	84
Income	\$1,580,061	\$1,419,774	\$2,999,835
Fishing equipment spending			
Direct spending	\$37,508,933		
Output	\$30,098,581	\$45,667,652	\$75,766,233
Value Added (GDP)	\$13,125,320	\$15,627,682	\$28,753,002
Employment	242	150	391
Income	\$10,311,536	\$6,328,323	\$16,639,859
Big equipment spending			
Direct spending	\$32,788,344		
Output	\$17,952,612	\$24,328,648	\$42,281,260
Value Added (GDP)	\$8,325,648	\$8,160,561	\$16,486,210
Employment	73	78	151
Income	\$4,933,987	\$3,515,675	\$8,449,661
Total spending			
Direct spending	\$79,332,660		
Output	\$54,610,220	\$79,592,664	\$134,202,884
Value Added (GDP)	\$23,896,125	\$27,234,072	\$51,130,198
Employment	366	261	626
Income	\$16,825,584	\$11,263,772	\$28,089,355

Table 21. Total economic contributions of KINGFISH marine fishing by residents

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$15,893,542		
Output	\$11,531,452	\$16,995,248	\$28,526,700
Value Added (GDP)	\$4,301,202	\$6,125,760	\$10,426,962
Employment	95	59	154
Income	\$2,909,819	\$2,504,806	\$5,414,625
Fishing equipment spending			
Direct spending	\$25,894,755		
Output	\$20,742,063	\$31,482,568	\$52,224,630
Value Added (GDP)	\$8,934,269	\$10,776,395	\$19,710,664
Employment	165	103	268
Income	\$7,058,300	\$4,396,095	\$11,454,396
Big equipment spending			
Direct spending	\$29,136,395		
Output	\$17,076,523	\$23,098,551	\$40,175,074
Value Added (GDP)	\$7,940,972	\$7,688,599	\$15,629,571
Employment	72	75	147
Income	\$4,844,868	\$3,374,390	\$8,219,258
Total spending			
Direct spending	\$70,924,692		
Output	\$49,350,038	\$71,576,367	\$120,926,404
Value Added (GDP)	\$21,176,444	\$24,590,754	\$45,767,197
Employment	332	237	569
Income	\$14,812,987	\$10,275,291	\$25,088,279

Table 22. Total economic contributions of TREVALLY marine fishing by residents

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending		Contributione	
Direct spending	\$3,366,576		
Output	\$2,490,051	\$3,636,790	\$6,126,840
Value Added (GDP)	\$908.548	\$1,297,415	\$2,205,963
Employment	16	13	29
Income	\$521.541	\$542.372	\$1.063.913
Fishing equipment spending	+ , -	+ ,	<i> </i>
Direct spending	\$4,764,237		
Output	\$3,842,205	\$5,820,533	\$9,662,738
Value Added (GDP)	\$1,734,399	\$1,998,882	\$3,733,281
Employment	31	19	50
Income	\$1,318,875	\$791,750	\$2,110,625
Big equipment spending			
Direct spending	\$4,432,622		
Output	\$2,892,099	\$4,028,459	\$6,920,557
Value Added (GDP)	\$1,302,009	\$1,377,740	\$2,679,749
Employment	11	12	23
Income	\$726,230	\$556,755	\$1,282,985
Total spending			
Direct spending	\$12,563,435		
Output	\$9,224,355	\$13,485,782	\$22,710,135
Value Added (GDP)	\$3,944,956	\$4,674,037	\$8,618,993
Employment	58	44	102
Income	\$2,566,646	\$1,890,877	\$4,457,523

Table 23. Total economic contributions of HAPUKU/GROPER/BASS marine fishing by residents

Regional-Level Economic Contributions

The next three sections of this report provide analyses at a regional level. The three regions defined for the purpose of this project were: Upper North Island (Te Ika a Maui), Lower North Island, and South Island (Te Waipounamu). The delineation in the North Island was structured to coincide with boundaries between fisheries management areas and tourism regions. And, when possible, economic estimates are provided for selected species found in each region.

Please note these results reflect fishing activity within the region by both New Zealand residents and international visiting fishers. And, in the case of residents, each region includes spending by anglers who reside outside the region but travelled to fish in another region. In these cases, when a New Zealand resident does not reside in the region where they fished, their spending is still reported and accounted as a resident versus international visitors who are obviously treated as non-resident or "new" economic impacts.

The number of resident marine fishers and trips reported are from the National Panel Survey. Spending data are collected through the HorizonPoll survey and the MBIE IVS for resident and international fishers, respectively. Resident spending profiles, specific to each region, were developed to capture the variation in fishing opportunities that exist between the regions. Spending by international visiting fishers was held at the national average among travellers visiting to see friends and family or purely for holiday.

All travel-related expenditures were assumed to occur in the region where the angler fished, with two exceptions: fuel and groceries purchased by resident anglers visiting other regions to fish. In such cases, these two spending categories were treated in a hybrid

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fashion. A portion of the spending associated with fuel and groceries was allocated to the destination region and the other portion was allocated to the region where the fisher resides.

To prevent burdening survey respondents with a complex and lengthy survey, residents were not asked to report where they purchased each item of fishing and big equipment item. Instead, it was assumed that all equipment was purchased close to home. Therefore, all equipment purchases were assigned to the respondent's region of residency. To the extent that fishers purchase equipment away from their region of residency, the regional results of this report are potentially biased.

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Upper North Island

Participation

More than 375,000 New Zealand residents fished marine waters

in the Upper North Island region, spending more than 1.71 million days

fishing. The majority of fishers (286,000, or 76% of all New Zealand

fishers) fished from a boat and the balance (88,000 or 24%) fished only

from land (Table 24). Boat-based fishing days totalled 1.18 million days

and land-based fishing days totalled 560,000 days annually.

Table 24. Participation in marine fishing and diving among residents in the Upper North Island

	Marine fishers (#)	Marine fishing days (#)
All platform types	375,241	1,714,754
Boat-based platform fishing	286,450	1,178,696
Land-based platform fishing	88,792	558,395

Roughly 43% of the international visiting fishers (47,000) fished in the Upper North Island (Table 25). Approximately 16,000 travelled for the primary purpose of saltwater fishing and 6,400 of those fishers hired

a charter boat service.

Table 25. Participation in marine fishing among international tourists visiting the Upper North Island

	All visiting fishers	Fishing as a primary purpose of visit	Fishing as a secondary purpose of visit
Total international marine fishers	60,842	15,707	45,135
International visitors using a charter boat service	24,832	6,411	18,421
International visitors not using a charter boat service	36,010	9,296	26,714

UPPER

NORTH ISLAND

Marine fishing activity

NZ resident marine fishing: 375,000

NZ marine fishing days: 1.71 million

International travellers who fished: 61,000

Economic contributions

Output Direct \$470.2 mil. Indirect \$478.5 mil. Total \$948.7 mil.

Value Added Direct \$214.2 mil. Indirect \$228.5 mil. Total \$442.7 mil.

> Employment Direct 3,200 Indirect 2,200 Total 5,400

Income Direct \$124.0 mil. Indirect \$95.4 mil. Total \$219.4 mil. At the regional level, the analysis by species subcategory focuses on a few species of interest. In the case of the Upper North Island, snapper and trevally were considered (Table 26). Approximately 211,000 resident marine fishers pursued snapper, making it the most popular species, accounting for 1.27 million days on the water.

Table 26. Marine fisher and fisher days in Upper North Island among residents by targeted species

Targeted species in Upper North Island	Marine fishers	Marine fishing days
Snapper	211,208	1,270,219
Trevally	35,471	163,398

Average spending by fishers

Trip-related spending

Resident marine fishers in the Upper North Island spent an average of \$102 per day, slightly higher than the national average (Table 27). Fishers who only fish from land spent an average of \$80 per day while those who use boats spent an average of \$110 per day, with the additional spending allocated largely to boat fuel. Detailed spending profiles are included in Appendix A.

Table 27. Average trip-related spending by New Zealand marine fishers in the Upper NorthIsland by platform type in 2014/15

Trip-related spending	Spending per fisher per day	
All platform types – national average	\$102.15	
Boat-based platform fishing	\$110.23	
Land-based platform fishing	\$80.00	

Equipment spending

Residents of the Upper North Island spent an average of \$546 per annum on fishing equipment items, excepting big items. Boat-based fishers spent significantly more than land-

based fishers (\$689 vs. \$138) (Table 28). The majority of additional spending is allocated to

repair and maintenance of equipment used for fishing such as boat, motor, or trailer.

	Fishing equipment	Big equipment items	Total Equipment spending
		Annual spending per fisł	ner
All platform types	\$545.91	\$666.86	\$1,212.77
Boat-based platform	\$689.21	\$861.51	\$1,550.72
Land-based platform	\$138.05	\$112.85	\$250.90

Table 28. Average equipment-related per annum spending by New Zealand resident fishers in the Upper North Island by platform type in 2014/15

Note: Detailed spending profiles are included in the Appendix A.

Fishers spent an average of \$667 per annum on larger equipment items. Boat-based fishers spent significantly more than land-based fishers (\$861 vs. \$113), not surprisingly (Table 28). Collectively, Upper North Island fishers spent an average of \$1,200 per annum on both small and large equipment items. Boat-based fishers spent significantly more overall than land-based fishers (\$1,600 vs. \$251).

The economic contributions of marine fishing in the Upper North Island

Direct spending

The total trip-related spending associated with fishing in the Upper North Island by resident marine fishers was \$175 million dollars (

Table 29). International travellers who visited the Upper North Island for the primary purpose of marine fishing spent \$50 million dollars per year. Collectively, trip-spending in New Zealand attributable to marine fishing in the Upper North Island was \$225 million per annum.

Resident marine fishers who reside in the Upper North Island also spent \$198 million on small fishing equipment items and \$241 million on big ticket items for fishing. Equipment spending by international visitors is not included in this analysis as they are assumed to utilise their own equipment, or gear provided on the charter boat or by others rather than make a purchase for a "one-time" event.

Economic contributions in the Upper North Island

Table 29 presents the annual trip-related contributions generated by direct spending separately for resident and international fishers, then for the indirect plus induced spending, followed by the total contributions in the last column. The direct contribution of resident marine fisher spending on trip-related goods and services in the Upper North Island was \$124 million (

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Table 29). The value added to the region's economy was \$48 million. Direct spending supported more than 900 full-time equivalent jobs and \$28 million in household income. Spurred by resident's annual direct spending, the additional spending (known as indirect and induced spending) occurring within supporting industries was \$135 million. The contribution to the national economy as measured in Gross Domestic Product (otherwise referred to in this report as value added) was \$63 million. An additional 600 jobs and \$26 million in household income were supported by spending among other industries in the supply chain. Collectively, the total contribution to output, per annum, by residents fishing in the Upper North Island's marine waters was \$259 million, value added was \$110 million, jobs was 1,500, and household income was \$54 million. The same impacts related to international visitors' spending are presented in

Table 29.

Trip-related spending*	Direct contributions	Indirect & induced contributions	Total contributions
New Zealand residents			
Direct spending	\$175,054,155		
Output	\$123,610,598	\$135,493,756	\$259,104,354
Value Added (GDP)	\$47,554,166	\$63,048,976	\$110,603,142
Employment	909	600	1,509
Income	\$28,015,870	\$26,039,395	\$54,055,265
New Zealand visitors			
Direct spending	\$50,098,338		
Output	\$39,744,883	\$43,887,708	\$83,632,591
Value Added (GDP)	\$17,408,382	\$20,311,765	\$37,720,147
Employment	385	196	581
Income	\$10,624,316	\$8,327,441	\$18,951,756
Trip-related spending by all fishers			
Direct spending	\$225,152,493		
Output	\$163,355,481	\$179,381,464	\$342,736,945
Value Added (GDP)	\$64,962,548	\$83,360,741	\$148,323,289
Employment	1,294	796	2,090
Income	\$38,640,186	\$34,366,836	\$73,007,021

Table 29. Total economic contributions of trip-related, per annum spending on marine fishing in the Upper North Island by residents and international visitors

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

The total economic contributions stimulated by resident and international fishers triprelated spending are noteworthy. Collectively, the total annual contribution to the New Zealand economy by marine recreational fishing activities in the Upper North Island includes \$343 million in output, \$148 million in value added (GDP) benefits plus 2,000 jobs and household income of \$73 million.

Table 30 reports the adjusted direct and multiplied contributions of Upper North Island resident marine fishers' annual spending on equipment-related goods and services. Total adjusted direct output was \$307 million once leakages associated with spending on imported goods were applied to consumer-level spending on both small and large equipment items. The value added to the region's economy was \$149 million. Direct spending on equipment and services supported 1,900 full-time equivalent jobs and more than \$85 million in household income. Spurred by the direct spending, additional spending occurring within supporting industries was \$299 million. The value added to the economy (GDP) by spending among supporting industries was \$145 million. An additional 1,400 jobs and \$61 million in household income were supported by spending by the other industries in the supply chain. Collectively, the total contribution to output was \$606 million, value added (GDP) was \$294 million, jobs were 3,300, and household income was \$146 million (Table 30).

Fishing equipment spending*	Direct contributions	Indirect & induced contributions	Total contributions
Fishing equipment spending			
Direct spending	\$197,661,531		
Output	\$157,102,044	\$156,532,988	\$313,635,032
Value Added (GDP)	\$79,735,245	\$75,512,218	\$155,247,463
Employment	1,160	721	1,881
Income	\$44,865,282	\$33,152,004	\$78,017,286
Big equipment spending			
Direct spending	\$240,466,126		
Output	\$149,730,039	\$142,622,017	\$292,352,056
Value Added (GDP)	\$69,502,698	\$69,599,976	\$139,102,674
Employment	737	661	1,398
Income	\$40,546,594	\$27,850,203	\$68,396,797
Total equipment spending			
Direct spending	\$438,127,657		
Output	\$306,832,083	\$299,155,005	\$605,987,088
Value Added (GDP)	\$149,237,943	\$145,112,194	\$294,350,137
Employment	1,897	1,382	3,279
Income	\$85,411,876	\$61,002,207	\$146,414,083

Table 30. New Zealand's economic contributions of equipment related spending on marine fishing in the Upper North Island by residents

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

The combined effects from resident and visitors' direct spending on marine recreational fishing in the Upper North Island per annum are presented in Table 31, along with the effects from the indirect plus induced spending. The combined effects from all trip- and equipment-related spending by residents and international visitors are significant. Collectively, the total

contribution to output was \$949 million, value added (GDP) was \$443 million, jobs were

5,400, and household income was \$219 million (Table 31).

Trip and equipment related spending*	Direct contributions	Indirect & induced contributions	Total contributions
Total spending by residents			
Direct spending	\$613,181,812		
Output	\$430,442,681	\$434,648,761	\$865,091,442
Value Added (GDP)	\$196,792,109	\$208,161,170	\$404,953,279
Employment	2,806	1,982	4,788
Income	\$113,427,746	\$87,041,602	\$200,469,348
Total spending by visitors			
Direct spending	\$50,098,338		
Output	\$39,744,883	\$43,887,708	\$83,632,591
Value Added (GDP)	\$17,408,382	\$20,311,765	\$37,720,147
Employment	385	196	581
Income	\$10,624,316	\$8,327,441	\$18,951,756
Total spending by all fishers			
Direct spending	\$663,280,150		
Output	\$470,187,564	\$478,536,469	\$948,724,033
Value Added (GDP)	\$214,200,491	\$228,472,935	\$442,673,426
Employment	3,191	2,178	5,369
Income	\$124,052,062	\$95,369,043	\$219,421,104

Table 31. Total economic contributions of all spending on marine fishing in the Upper North Island

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Economic Contributions from Boat- and Land-Based Fishing

The following two tables (Table 32 and Table 33) present impacts by platform: boat-

based and land-based fishing. It is important to note that this analysis includes only New

Zealand resident marine fishers as information pertaining to platform usage by international

fisher is not readily available at either the national or regional levels.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$130,030,864		
Output	\$91,310,862	\$99,661,385	\$190,972,247
Value Added (GDP)	\$34,811,790	\$46,307,067	\$81,118,856
Employment	644	442	1,087
Income	\$20,500,094	\$19,271,596	\$39,771,690
Fishing equipment spending			
Direct spending	\$183,086,365		
Output	\$145,922,725	\$145,446,668	\$291,369,392
Value Added (GDP)	\$74,218,799	\$70,123,810	\$144,342,609
Employment	1,071	670	1,741
Income	\$41,755,843	\$30,962,062	\$72,717,906
Big equipment spending			
Direct spending	\$228,691,826		
Output	\$141,929,266	\$135,162,842	\$277,092,109
Value Added (GDP)	\$65,778,888	\$65,805,915	\$131,584,803
Employment	699	626	1,325
Income	\$38,518,458	\$26,451,321	\$64,969,779
Total spending			
Direct spending	\$541,809,055		
Output	\$379,162,853	\$380,270,895	\$759,433,748
Value Added (GDP)	\$174,809,477	\$182,236,792	\$357,046,268
Employment	2,414	1,738	4,153
Income	\$100 774 395	\$76 684 979	\$177 459 375

Table 32. Total annual economic contributions of BOAT-BASED marine fishing in the Upper North Island by residents

Income \$100,774,395 \$76,684,979 \$177,459,375 *Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$45,023,291		
Output	\$32,697,244	\$36,604,873	\$69,302,117
Value Added (GDP)	\$13,142,034	\$17,154,455	\$30,296,489
Employment	288	160	448
Income	\$7,759,048	\$6,823,740	\$14,582,788
Fishing equipment spending			
Direct spending	\$12,596,977		
Output	\$9,616,101	\$9,529,939	\$19,146,040
Value Added (GDP)	\$4,726,573	\$4,636,701	\$9,363,274
Employment	78	44	122
Income	\$2,664,872	\$1,863,848	\$4,528,721
Big equipment spending			
Direct spending	\$9,776,149		
Output	\$6,523,189	\$6,240,196	\$12,763,385
Value Added (GDP)	\$3,123,456	\$3,188,238	\$6,311,694
Employment	31	29	61
Income	\$1,688,169	\$1,164,955	\$2,853,123
Total spending			
Direct spending	\$67,396,417		
Output	\$48,836,534	\$52,375,008	\$101,211,542
Value Added (GDP)	\$20,992,063	\$24,979,394	\$45,971,457
Employment	397	233	631
Income	\$12,112,089	\$9,852,543	\$21,964,632

Table 33. Total economic contributions of LAND-BASED marine fishing in the Upper North Island by residents

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Economic Contributions from Recreational Fishing Activity Targeting Selected Species

The following two tables (Table 34 and Table 35) present the economic contributions

generated for fishing activity directed at specific species where enough data existed to

venture estimates: trevally and snapper. Interpretation of the species-level findings should

bear in mind the fact that they are by nature not mutually exclusive, given the tendency for

fishers to pursue a variety of species during any one outing. Therefore, some expenditures

may be counted twice across the species reported. Interpretation should also bear in mind

that some fishers may fish multiple regions to pursue the same species.

Table 34.	Total economic contrib	outions of TREVALL	Y marine fishing	in the Upper N	North Island
by resider	its		-		

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$15,895,229		
Output	\$10,209,409	\$12,332,073	\$23,525,690
Value Added (GDP)	\$4,422,400	\$5,765,152	\$10,187,553
Employment	87	54	142
Income	\$2,644,904	\$2,368,458	\$5,013,362
Fishing equipment spending			
Direct spending	\$23,509,068		
Output	\$18,626,993	\$18,535,599	\$37,162,591
Value Added (GDP)	\$9,391,494	\$8,927,453	\$18,318,949
Employment	142	86	227
Income	\$5,386,166	\$3,878,752	\$9,264,917
Big equipment spending			
Direct spending	\$25,324,525		
Output	\$14,476,003	\$13,615,174	\$28,091,177
Value Added (GDP)	\$6,634,889	\$6,456,762	\$13,091,652
Employment	72	63	134
Income	\$3,994,763	\$2,730,996	\$6,725,759
Total spending			
Direct spending	\$64,728,822		
Output	\$43,312,405	\$44,482,846	\$88,779,458
Value Added (GDP)	\$20,448,783	\$21,149,367	\$41,598,154
Employment	301	203	503
Income	\$12,025,833	\$8,978,206	\$21,004,038

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$117,874,971		
Output	\$83,052,961	\$90,728,199	\$173,781,160
Value Added (GDP)	\$32,141,048	\$42,267,590	\$74,408,638
Employment	607	403	1,010
Income	\$18,821,201	\$17,467,583	\$36,288,784
Fishing equipment spending			
Direct spending	\$108,345,480		
Output	\$86,070,384	\$84,702,383	\$170,772,767
Value Added (GDP)	\$43,760,779	\$40,906,109	\$84,666,888
Employment	640	391	1,031
Income	\$24,431,809	\$17,892,413	\$42,324,221
Big equipment spending			
Direct spending	\$109,475,443		
Output	\$64,197,091	\$60,644,598	\$124,841,689
Value Added (GDP)	\$29,840,916	\$29,464,805	\$59,305,721
Employment	315	281	596
Income	\$17,339,383	\$11,891,492	\$29,230,877
Total spending			
Direct spending	\$335,695,894		
Output	\$233,320,436	\$236,075,180	\$469,395,616
Value Added (GDP)	\$105,742,743	\$112,638,504	\$218,381,247
Employment	1,562	1,075	2,637
Income	\$60.592.393	\$47.251.488	\$107.843.882

Table 35. Total economic contributions of SNAPPER marine fishing in the Upper North Island by residents

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.
Lower North Island

Participation

More than 127,000 New Zealand residents fished in the Lower North Island region, spending more than 476,000 days on the water in 2011-12. This estimate includes all fishers who went fishing or diving, regardless of whether they caught fish or not. The majority of fishers (69,000 or 54%) fished from land and the balance (58,000 or 45%) fished only from a boat (Table 36). Land-based fishing days totalled 274,000 days and boat-based fishing days totalled 180,000 days per annum.

Table 36. Participation in marine fishing and diving among residents who fish in the Lower North Island

	Marine fishers	Marine fishing days
All platform types	127,242	476,716
Boat-based platform fishing	57,847	180,229
Land-based platform fishing	69,395	273,742

Roughly 15% of international visitors (16,000) took part in marine

fishing in the Lower North Island when travelling to New Zealand (Table

37). Approximately 4,000 travelled for the primary purpose of saltwater

fishing and 600 of those fishers hired a charter boat service.

 Table 37. Participation in marine fishing among international tourists

 visiting the Lower North Island

	All visiting fishers	Fishing as a primary purpose of visit	Fishing as a secondary purpose of visit
Total international marine fishers	15,707	4,055	11,653
International visitors using a charter boat service	2,292	592	1,700
International visitors not using a charter boat service	13,415	3,463	9,953

LOWER NORTH ISLAND

Marine fishing activity

NZ resident marine fishing: 127,241

NZ marine fishing days: 476,716

International travellers visiting to fish: 4,000

Economic contributions

Output Direct \$74.5 mil. Indirect \$69.0 mil. Total \$143.4 mil.

Value Added Direct \$33.3 mil. Indirect \$32.4 mil. Total \$65.7 mil.

> Employment Direct 580 Indirect 320 Total 900

Income Direct \$19.5 mil. Indirect \$13.3 mil. Total \$32.8 mil. At the regional level, the analysis by species subcategory focused only on a few of the species of interest, where enough survey responses permitted estimates. In the case of the Lower North Island, those were snapper, and blue cod (Table 38). Approximately 26,000 resident marine fishers pursued snapper which is the most popular target species, accounting for 103,000 days on the water.

Table 38. Marine fisher and fisher days in Lower North Island among residents by target species

Targeted species in the Lower North Island	Marine fishers	Marine fishing days
Snapper fishing	26,322	102,760
Blue Cod fishing	17,535	56,210

Average spending by fishers

Trip-related spending

In total, New Zealand resident marine fishers in the Lower North Island spent an average of \$87 per day (Table 39). Fishers who use boats spent an average of \$100 per day, with the additional spending allocated to boat fuel. And, people fishing from land spent an average of \$77 per day. Detailed spending profiles are included in Appendix A.

Table 39. Average trip-related spending by New Zealand marine fishers who fish in the Lower North Island by platform type in 2014/15

	Spending per fisher
Trip-related spending	per day
All platform types	\$87.35
Boat-based fishing	\$100.00
Land-based fishing	\$76.54

Equipment spending

Residents of the Lower North Island who marine fish spend an average of \$247 on fishing equipment per annum, exempting large items. Boat-based fishers spend significantly more than land-based fishers (\$327 vs. \$176) (Table 40).

Table 40. Average equipment-related spending by New Zealand fishers in the Lower North Island by platform type in 2014/15

	Fishing equipment	Big equipment items	Total Equipment spending
	I	Annual spending per fi	sher
All platform types	\$247.12	\$227.16	\$474.28
Boat-based platform	\$326.90	\$278.82	\$605.72
Land-based platform	\$176.38	\$181.34	\$357.72

Note: Detailed spending profiles are included in Appendix A.

Fishers spend an average of \$227 on larger equipment items. Boat-based fishers, not surprisingly, spend significantly more than land-based fishers (\$279 vs. \$181) (Table 40). Collectively, Lower North Island fishers spent an average of \$474 on both small and large equipment items over the year.

The economic impact of marine fishing in the Lower North Island

Direct spending

The total trip-related spending associated with fishing in the Lower North Island by New Zealand residents was \$41 million dollars per year (

Table 41). International visitors who visit the Lower North Island and participate in marine fishing spend \$12 million dollars over the year. Collective trip-spending in New Zealand attributable to marine fishing in the Lower North Island is \$53 million per year.

Resident marine fishers who reside in the Lower North Island also spend \$30 million on fishing equipment items and \$29 million on big ticket items for fishing (Table 42). Equipment spending by international visitors was not included in this analysis as they are assumed to utilise their own equipment, or gear provided on the charter boat or by others rather than make a purchase for a "one-time" event.

Economic contributions

The following tables report the economic contributions generated by direct spending separately for resident and international fishers, next indirect plus induced spending, followed by the total contributions in the last column.

The direct contribution of resident marine fisher spending on trip-related goods and services in the Lower North Island was \$27 million (

Table 41). The value added to the region's economy was \$11 million. Direct spending supported more than 220 full-time equivalent jobs and \$6 million in household income. Spurred by resident's direct spending, the additional spending (known as indirect and induced spending) occurring within supporting industries was \$26 million. The contribution to the national economy as measured in Gross Domestic Product (otherwise referred to in this report as value added) was \$12 million. An additional 120 jobs and \$5 million in household income were supported by spending among the other industries in the supply chain. Collectively, the total contribution to output by residents fishing in the Lower North Island's marine waters was \$53 million, employment was 340, and household income was \$11 million. The same impacts are also presented in Table 41 for international visitors. Collectively, the total trip-related contribution to output was \$72 million, value added was \$31 million, jobs were 490, and household income was \$15 million.

Trip-related spending*	Direct contributions	Indirect & induced contributions	Total contributions
New Zealand residents			
Direct spending	\$40,870,475		
Output	\$27,340,567	\$26,118,908	\$53,459,474
Value Added (GDP)	\$10,678,661	\$12,085,575	\$22,764,236
Employment	222	120	342
Income	\$6,244,084	\$4,820,577	\$11,064,661
New Zealand visitors			
Direct spending	\$12,353,419		
Output	\$9,497,784	\$9,272,785	\$18,770,569
Value Added (GDP)	\$4,189,134	\$4,323,807	\$8,512,942
Employment	104	43	147
Income	\$2,731,886	\$1,708,625	\$4,440,510
Trip-related spending by all fishers			
Direct spending	\$53,223,894		
Output	\$36,838,351	\$35,391,693	\$72,230,043
Value Added (GDP)	\$14,867,795	\$16,409,382	\$31,277,178
Employment	326	163	489
Income	\$8,975,970	\$6,529,202	\$15,505,171

Table 41. Total economic contributions of trip-related spending on marine fishing in the Lower North Island by residents and visitors.

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Table 42 reports the adjusted direct and multiplied contributions of Lower North Island resident marine fisher spending on equipment-related goods and services. Total adjusted direct output was \$38 million once leakages were applied to consumer-level spending on both small and large equipment items. The value added (GDP) to the region's economy was \$18 million. Direct spending on equipment and services supported 260 full-time equivalent jobs and \$10 million in household income. Spurred by the direct spending, additional spending occurring within supporting industries was \$33 million. The value added to the economy by spending among supporting industries was \$16 million. An additional 150 jobs and \$7 million in household income were supported by spending by the other industries in the supply chain. Collectively, the total contribution to output of equipment related spending was

\$71 million, value added was \$34 million, jobs were 400, and household income was \$17

million (Table 42).

	Direct contributions	Indirect & induced	Total contributions
Fishing equipment spending*		contributions	
Fishing equipment spending			
Direct spending	\$29,740,433		
Output	\$22,575,945	\$19,605,915	\$42,181,860
Value Added (GDP)	\$11,626,992	\$9,433,718	\$21,060,710
Employment	183	91	275
Income	\$6,385,600	\$3,938,196	\$10,323,796
Big equipment spending			
Direct spending	\$27,225,321		
Output	\$15,074,347	\$13,954,835	\$29,029,181
Value Added (GDP)	\$6,828,782	\$6,502,107	\$13,330,890
Employment	77	65	142
Income	\$4,156,116	\$2,797,997	\$6,954,113
Total equipment spending			
Direct spending	\$56,965,754		
Output	\$37,650,292	\$33,560,750	\$71,211,041
Value Added (GDP)	\$18,455,774	\$15,935,825	\$34,391,600
Employment	260	156	417
Income	\$10,541,716	\$6,736,193	\$17,277,909

Table 42. Total economic contributions of equipment related spending on marine fishing in the Lower North Island by residents

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

The combined effects from resident and international fishers' direct spending for marine recreational fishing in the Lower North Island are presented in

Table 43, along with the effects from the indirect plus induced spending. The combined effects from all trip- and equipment-related spending by residents and international visitors are significant. Collectively, the total contribution to output was \$143 million, value added (GDP) was \$66 million, jobs were 900, and household income was \$33 million.

Trip and equipment related spending*	Direct contributions	Indirect & induced contributions	Total contributions
Total spending by residents			
Direct spending	\$97,836,229		
Output	\$64,990,858	\$59,679,657	\$124,670,515
Value Added (GDP)	\$29,134,435	\$28,021,400	\$57,155,835
Employment	483	276	759
Income	\$16,785,800	\$11,556,771	\$28,342,570
Total spending by visitors			
Direct spending	\$12,353,419		
Output	\$9,497,784	\$9,272,785	\$18,770,569
Value Added (GDP)	\$4,189,134	\$4,323,807	\$8,512,942
Employment	104	43	147
Income	\$2,731,886	\$1,708,625	\$4,440,510
Total spending by all fishers			
Direct spending	\$110,189,648		
Output	\$74,488,642	\$68,952,442	\$143,441,084
Value Added (GDP)	\$33,323,569	\$32,345,207	\$65,668,777
Employment	587	319	906
Income	\$19,517,686	\$13,265,396	\$32,783,080

Table 43. Total economic contributions of marine fishing in the Lower North Island by residents and visitors

Economic Contributions from Boat- and Land-based Fishing

The following two tables (Table 44 and Table 45) present impacts by platform: boatbased and land-based fishing in the Lower North Island. It is important to note that this analysis includes only New Zealand resident marine fishers as information pertaining to platform usage by international fisher is not readily available at either the national or regional levels.

Island by New Zealand residents.	Table 44. Total economic contributions of BOAT-BASED marine fishing in the Lower Nor	th
	Island by New Zealand residents.	

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$19,969,366		
Output	\$13,218,812	\$12,315,719	\$25,534,531
Value Added (GDP)	\$4,919,680	\$5,663,225	\$10,582,905
Employment	95	57	152
Income	\$2,801,189	\$2,312,406	\$5,113,595
Fishing equipment spending			
Direct spending	\$19,496,166		
Output	\$15,134,399	\$12,875,033	\$28,009,432
Value Added (GDP)	\$7,862,435	\$6,205,934	\$14,068,369
Employment	118	60	178
Income	\$4,326,867	\$2,643,791	\$6,970,658
Big equipment spending			
Direct spending	\$16,616,674		
Output	\$10,054,043	\$9,371,771	\$19,425,815
Value Added (GDP)	\$4,503,584	\$4,364,247	\$8,867,831
Employment	52	43	95
Income	\$2,788,124	\$1,876,564	\$4,664,688
Total spending			
Direct spending	\$56,082,206		
Output	\$38,407,254	\$34,562,523	\$72,969,778
Value Added (GDP)	\$17,285,699	\$16,233,406	\$33,519,105
Employment	265	160	425
Income	\$9 916 180	\$6 832 761	\$16 748 941

Expenditure categories*	Direct contributions	Indirect & induced	Total contributions
Trin-related spending		contributions	
Direct spending	\$20,901,108		
	\$1/ 163 707	\$13 037 100	\$28 100 906
	\$5 8/8 321	\$6 /0/ 075	\$12 3/3 206
Employment	ψJ,0 4 0,321 121	φ0,494,973 64	105
	¢2 517 00/	04 ¢2 521 004	190 190
Fishing aquipment aponding	\$3,517,90 4	φ2,521,094	φ0,030,990
Direct aponding	¢11 404 612		
	\$11,404,013	\$7 400 000	\$45,004,000
Output	\$8,335,278	\$7,496,689	\$15,831,968
Value Added (GDP)	\$4,227,465	\$3,596,685	\$7,824,150
Employment	73	35	107
Income	\$2,313,303	\$1,450,453	\$3,763,756
Big equipment spending			
Direct spending	\$11,626,894		
Output	\$5,623,316	\$5,144,252	\$10,767,567
Value Added (GDP)	\$2,596,025	\$2,399,229	\$4,995,254
Employment	29	24	53
Income	\$1,534,989	\$1,033,838	\$2,568,827
Total spending			
Direct spending	\$43,932,615		
Output	\$28,122,301	\$26,578,140	\$54,700,441
Value Added (GDP)	\$12,671,811	\$12,490,889	\$25,162,700
Employment	233	123	355
Income	\$7,366,196	\$5,005,385	\$12,371,581

Table 45. Total economic contributions of LAND-BASED marine fishing in the Lower North Island by New Zealand residents.

Economic Contributions from Recreational Fishing Activity Targeting Selected Species

The following two tables (

Table 47 and

Table 46) show the economic contributions generated for fishing activity in the Lower North Island directed at specific species where enough data existed to venture estimates: snapper and blue cod.

Taking into account trip and equipment spending associated with fishing activity in the Lower North Island to pursue snapper, the direct output was estimated to be \$25 million (Table 46). The value-added by that spending was \$12 million. Direct contributions from snapper fishing supported over 170 jobs and generated \$6.7 million in income. Estimated total contributions, including both the direct and down-stream contributions, were \$47 million in total output, \$22 million in value-added (GDP), 280 jobs, and \$11 million in income. A similar interpretation can be applied to fishing for blue cod in the Lower North Island using

Table 47.

Interpretation of the species level findings should bear in mind the fact that they are by nature not mutually exclusive, given the tendency for fishers to pursue a variety of species during any one outing. Readers should also bear in mind the presence of fishers who frequent multiple regions to pursue the same species.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$9,632,344		
Output	\$6,389,215	\$6,073,955	\$12,463,170
Value Added (GDP)	\$2,593,063	\$2,822,706	\$5,415,769
Employment	56	28	83
Income	\$1,543,582	\$1,120,958	\$2,664,539
Fishing equipment spending			
Direct spending	\$13,502,660		
Output	\$10,496,347	\$9,085,396	\$19,581,743
Value Added (GDP)	\$5,415,668	\$4,377,919	\$9,793,587
Employment	82	42	124
Income	\$3,005,162	\$1,875,431	\$4,880,593
Big equipment spending			
Direct spending	\$13,643,482		
Output	\$8,006,830	\$7,438,003	\$15,444,831
Value Added (GDP)	\$3,589,148	\$3,472,073	\$7,061,221
Employment	39	34	73
Income	\$2,186,527	\$1,482,282	\$3,668,809
Total spending			
Direct spending	\$36,778,486		
Output	\$24,892,392	\$22,597,354	\$47,489,744
Value Added (GDP)	\$11,597,879	\$10,672,698	\$22,270,577
Employment	177	104	280
Income	\$6,735,271	\$4,478,671	\$11,213,941

Table 46. Total economic contributions of SNAPPER marine fishing in the Lower North Island

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$6,091,628		
Output	\$4,122,370	\$3,883,622	\$8,005,992
Value Added (GDP)	\$1,657,853	\$1,794,696	\$3,452,550
Employment	35	18	53
Income	\$965,612	\$720,062	\$1,685,675
Fishing equipment spending			
Direct spending	\$11,426,858		
Output	\$8,989,400	\$7,688,560	\$16,677,959
Value Added (GDP)	\$4,658,720	\$3,703,565	\$8,362,285
Employment	68	36	104
Income	\$2,547,619	\$1,600,459	\$4,148,077
Big equipment spending			
Direct spending	\$12,519,815		
Output	\$7,485,413	\$6,953,668	\$14,439,081
Value Added (GDP)	\$3,355,514	\$3,241,579	\$6,597,094
Employment	39	32	70
Income	\$2,072,118	\$1,392,794	\$3,464,912
Total spending			
Direct spending	\$30,038,301		
Output	\$20,597,183	\$18,525,850	\$39,123,032
Value Added (GDP)	\$9,672,087	\$8,739,840	\$18,411,929
Employment	142	86	227
Income	\$5,585,349	\$3,713,315	\$9,298,664

Table 47. Total economic contributions of BLUE COD marine fishing in the Lower North Island

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Note: It is noteworthy to mention that the sample size used to develop the spending profile for fishers who pursue blue cod in the Lower North Island region is small (N=57).

SOUTH ISLAND

South Island

Marine fishing activity

NZ resident marine fishers: 121,000

NZ marine fishing days: 460,000

International travellers visiting to fish: 8,300

Economic contributions

Output Direct \$120.0 mil. Indirect \$92.3 mil. Total \$212.3 mil.

Value Added Direct \$54.2 mil. Indirect \$43.0 mil. Total \$97.2 mil.

> Employment Direct 990 Indirect 480 Total 1,470

Income Direct \$33.4 mil. Indirect \$19.5 mil. Total \$53.0 mil.

Participation

More than 120,000 New Zealand residents fished the South Island region, spending more than 460,000 days on the water in 2011-12. This estimate includes all fishers who went fishing and diving, regardless if they caught fish or not. The majority of fishers (74,000 or 61%) fished from a boat and the balance (48,000 or 39%) fished only from land (Table 48). Boat-based fishing days totaled 251,000 days and land-based fishing days totaled 209,000 days per annum.

Table 48. Annual participation in marine fishing in the South Island by residents.

	Marine fishers (#)	Marine fishing days (#)
All platform types	121,336	460,332
Boat-based platform fishing	73,519	251,455
Land-based platform fishing	47,571	209,285

Roughly 29% of international visitors (32,000) took part in marine

fishing in the South Island when travelling to New Zealand (Table 49).

Approximately 8,000 travelled with the primary purpose of saltwater

fishing and 2,800 of those fishers hired a charter boat.

Table 49. Participation in marine fishing among international tourists who fish in the South Island each year

	All visiting fishers	Fishing as a primary purpose of visit	Fishing as a secondary purpose of visit
Total international marine fishers	32,261	8,329	23,933
International visitors using a charter boat service	11,079	2,860	8,219
International visitors not using a charter boat service	21,182	5,469	15,714

At the regional level, enough data were available to permit a species-specific analysis for blue cod (Table 50). Approximately 41,000 resident marine fishers pursued blue cod annually, accounting for 181,000 days on the water.

Table 50. Marine fisher and fisher days in the South Island among New Zealand residents by targeted species per annum

Targeted species by Region	Marine fishers	Marine fishing days
Blue cod fishing	41,114	181,029

Average spending by fishers

Trip-related spending

In total, New Zealand resident marine fishers in the South Island spend an average of

\$106 per day (Table 51). Fishers who used boats spend an average of \$130 per day. And,

those who fish from land spend an average of \$57 per day. Detailed spending profiles are in

Appendix A.

Table 51. Average trip-related spending by New Zealand resident marine fishers in the South Island by platform type in 2014/15

Trip-related spending	Spending per fisher per day
All platform types	\$105.77
Boat-based fishing	\$129.63
Land-based fishing	\$57.31

Equipment spending

South Island residents who marine fish spent an average of \$426 on fishing

equipment, exempting large or big-ticket items in 2014/15. Boat-based fishers spent

significantly more than land-based fishers (\$327 vs. \$176) (Table 52).

Table 52. Average equipment-related spending by New Zealand resident fishers in the South Island by platform type in 2014/15

	Fishing equipment	Big equipment items	Total Equipment spending
	ŀ	Annual spending per fis	her
All platform types	\$425.58	\$474.95	\$990.53
Boat-based platform	\$591.92	\$610.53	\$1,202.45
Land-based platform	\$195.88	\$287.71	\$483.59

Fishers spent an average of \$475 on larger equipment items. Boat-based fishers spent significantly more than land-based fishers (\$610 vs. \$288) (Table 52). Collectively, South Island fishers spent an average of \$990 on both fishing and large equipment items in 2014/15. Boat-based fishers spent significantly more than land-based fishers (\$1,202 vs. \$484).

Economic contributions of marine fishing in the South Island

Direct spending

The total trip-related spending associated with fishing in the South Island was \$48 million dollars (

Table 53). International visitors who visit the South Island and participate in marine fishing spent \$26 million dollars over the year. Collective trip-spending in New Zealand attributable to marine fishing in the South Island was \$74 million.

Resident marine fishers who reside in the South Island also spent \$47 million on fishing equipment and \$52 million on larger, big-ticket items used while fishing (Table 54). Equipment spending by international visitors is not included in this analysis as they are assumed to utilise their own equipment or that provided on the charter boat or by others rather than make a purchase for a "one-time" event.

Economic contributions

The next three tables presents the economic contributions generated by direct spending separately for resident and international fishers, then for the indirect plus induced spending, followed by the total contributions in the last column.

The adjusted direct contribution of resident marine fisher spending on trip-related goods and services in the South Island was \$34 million (

Table 53). The value added or Gross Domestic Product generated was \$13 million. Direct spending supported more than 290 full-time equivalent jobs and \$8 million in household income. Spurred by residents' direct spending, the additional spending (indirect and induced) occurring within supporting industries was \$26 million. The contribution to the national economy as measured in Gross Domestic Product (otherwise referred to in this report as value added) was \$12 million. An additional 130 jobs and \$5 million in household income were supported by spending by the other industries in the supply chain. Collectively, the total contribution to output by residents fishing in the South Island's marine waters was \$60 million, value added was \$25 million, jobs was 430, and household income was \$13 million. The same impacts are also presented in Table 53 for international visitors. Collectively, the total contribution to the New Zealand economy by marine recreational fishing activities in the South Island includes \$96 million in output, \$42 million in value added or Gross Domestic Product, 730 jobs, and household income of \$22 million (Table 53).

	Direct contributions	Indirect & induced	Total contributions
Trip-related spending*		contributions	
New Zealand residents			
Direct spending	\$47,797,051		
Output	\$33,736,983	\$26,128,560	\$59,865,543
Value Added (GDP)	\$13,126,640	\$12,045,253	\$25,171,893
Employment	294	134	429
Income	\$8,162,230	\$5,240,829	\$13,403,059
New Zealand visitors			
Direct spending	\$26,270,123		
Output	\$20,603,532	\$15,764,907	\$36,368,439
Value Added (GDP)	\$9,096,278	\$7,271,435	\$16,367,712
Employment	220	82	302
Income	\$5,814,428	\$3,083,009	\$8,897,437
Trip related spending by all fishers			
Direct spending	\$74,067,174		
Output	\$54,340,515	\$41,893,467	\$96,233,982
Value Added (GDP)	\$22,222,918	\$19,316,688	\$41,539,605
Employment	514	216	731
Income	\$13,976,658	\$8,323,838	\$22,300,496

Table 53. Total economic contributions of trip related spending on marine fishing in the South Island by residents and New Zealand visitors.

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

Table 54 reports the adjusted direct and multiplied contributions of South Island resident marine fisher spending on equipment-related goods and services. Total adjusted direct output was \$66 million once leakages are applied to consumer-level spending on both small and large equipment items. The value added to the region's economy was \$32 million. Direct spending on equipment and services supported more than 470 full-time equivalent jobs and \$19 million in household income. Spurred by the direct spending, additional spending occurring within supporting industries was \$50 million. The value added to the economy by spending among supporting industries was \$24 million. An additional 260 jobs and \$11 million in household income were supported by spending by other industries in the

supply chain. Collectively, the total contribution to output was \$116 million, value added was

\$56 million, jobs were 740, and household income was \$31 million.

F icking continue of coordinat	Direct contributions	Indirect & induced	Total contributions
Fishing equipment spending		contributions	
Fishing equipment spending			
Direct spending	\$46,605,181		
Output	\$36,593,191	\$28,701,910	\$65,295,101
Value Added (GDP)	\$18,928,757	\$13,635,772	\$32,564,529
Employment	312	152	464
Income	\$10,953,200	\$6,379,113	\$17,332,314
Big equipment spending			
Direct spending	\$51,797,821		
Output	\$29,081,134	\$21,662,459	\$50,743,593
Value Added (GDP)	\$13,015,167	\$10,043,915	\$23,059,081
Employment	166	113	279
Income	\$8,527,952	\$4,819,237	\$13,347,189
Total equipment spending			
Direct spending	\$98,403,002		
Output	\$65,674,325	\$50,364,369	\$116,038,694
Value Added (GDP)	\$31,943,924	\$23,679,687	\$55,623,610
Employment	478	265	743
Income	\$19.481.152	\$11,198,350	\$30.679.503

Table 54. Total economic contributions of equipment related spending by residents who marine fish in the South Island

*Direct spending values reflect consumer-based prices. Prior to applying the economic multipliers, these values were adjusted to exclude import leakages and the goods & service tax. All output, value-added, employment, and income values reflect the contributions based on the adjusted direct spending.

The combined effects from resident and visitors' direct spending for marine recreational fishing in the South Island is presented in

Table 55, along with the effects from the indirect plus induced spending. The combined effects from all trip and equipment-related spending by residents and international visitors were significant. Collectively, the total contribution to output was \$212 million, value added was \$97 million, jobs were 1,500, and household income was \$53 million.

Table 55.	Total economic contributions of spending associate	ed with marine fishing in the South
Island		

Trip and equipment related spending*	Direct contributions	Indirect & induced contributions	Total contributions
Total spending by residents			
Direct spending*	\$146,200,053		
Output	\$99,411,308	\$76,492,929	\$175,904,237
Value Added (GDP)	\$45,070,563	\$35,724,940	\$80,795,503
Employment	772	399	1,172
Income	\$27,643,382	\$16,439,180	\$44,082,562
Total spending by visitors			
Direct spending*	\$26,270,123		
Output	\$20,603,532	\$15,764,907	\$36,368,439
Value Added (GDP)	\$9,096,278	\$7,271,435	\$16,367,712
Employment	220	82	302
Income	\$5,814,428	\$3,083,009	\$8,897,437
Total spending by all fishers			
Direct spending*	\$172,470,176		
Output	\$120,014,840	\$92,257,836	\$212,272,676
Value Added (GDP)	\$54,166,841	\$42,996,375	\$97,163,215
Employment	992	481	1,474
Income	\$33,457,810	\$19,522,189	\$52,979,999

Economic Contributions from Boat and Land-based Fishing

The following two tables (It is important to note that this analysis includes only New Zealand resident marine fishers as information pertaining to platform usage by international fisher is not readily available at either the national or regional level.

Table 56 and Table 57) present impacts by platform (boat and land-based fishing) in the South Island. It is important to note that this analysis includes only New Zealand resident marine fishers as information pertaining to platform usage by international fisher is not readily available at either the national or regional level.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$34,584,033		
Output	\$24,400,261	\$18,796,493	\$43,196,755
Value Added (GDP)	\$9,421,404	\$8,648,758	\$18,070,162
Employment	211	97	308
Income	\$5,815,227	\$3,762,720	\$9,577,947
Fishing equipment spending			
Direct spending	\$38,265,578		
Output	\$30,448,739	\$23,695,570	\$54,144,309
Value Added (GDP)	\$15,814,968	\$11,267,678	\$27,082,646
Employment	254	126	380
Income	\$9,173,351	\$5,361,798	\$14,535,149
Big equipment spending			
Direct spending	\$39,440,114		
Output	\$21,395,369	\$15,877,467	\$37,272,836
Value Added (GDP)	\$9,579,589	\$7,338,171	\$16,917,761
Employment	119	82	201
Income	\$6,195,472	\$3,546,302	\$9,741,774
Total spending			
Direct spending	\$112,289,725		
Output	\$76,244,369	\$58,369,530	\$134,613,900
Value Added (GDP)	\$34,815,961	\$27,254,607	\$62,070,569
Employment	584	305	889
Income	\$21,184,050	\$12,670,820	\$33,854,870

Table 56.	Total economic contributions of BOAT-BASED marine fishing in the South Islan	nd by
New Zeala	land residents.	-

Expenditure categories*	Direct contributions	Indirect & induced	Total contributions
Trip-related spending		contributions	
Direct spending	\$13 213 018		
	\$9,351,687	\$7 488 425	\$16 840 112
Value Added (GDP)	\$3 815 215	\$3 492 196	\$7 307 412
Employment	85	.39	124
	\$2 477 059	\$1 520 280	\$3,997,339
Fishing equipment spending	φ2, 117,000	ψ1,020,200	<i>\\</i> 0,001,000
Direct spending	\$9,157,445		
Output	\$6 787 142	\$5 510 184	\$12 297 326
Value Added (GDP)	\$3,446,323	\$2,607,475	\$6,053,798
Employment	64	29	93
Income	\$1,972,301	\$1,129,425	\$3,101,726
Big equipment spending	\$1,012,001	¢1,120,120	<i>QQIQIQQQQQQQQQQQQQ</i>
Direct spending	\$13.337.612		
Output	\$8,229,183	\$6,189,244	\$14,418,427
Value Added (GDP)	\$3.678.820	\$2,892,965	\$6.571.785
Employment	49	33	83
Income	\$2,491,127	\$1,362,995	\$3,854,122
Total spending	. , , ,	, , ,	
Direct spending	\$35,708,075		
Output	\$24,368,012	\$19,187,853	\$43,555,865
Value Added (GDP)	\$10,940,358	\$8,992,636	\$19,932,995
Employment	198	101	300
Income	\$6,940,487	\$4,012,700	\$10,953,187

Table 57. Total economic contributions of LAND-BASED marine fishing in the South Island by New Zealand residents.

Economic Contributions from Recreational Fishing Activity Targeting Selected Species

The following table (Table 58) presents the economic contributions generated for fishing activity directed at blue cod, which is the only species with enough survey responses to venture estimates in the South Island.

Expenditure categories*	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Direct spending	\$16,952,076		
Output	\$11,469,133	\$10,806,903	\$22,276,036
Value Added (GDP)	\$4,613,566	\$4,994,020	\$9,607,586
Employment	99	49	148
Income	\$2,686,839	\$2,003,267	\$4,690,106
Fishing equipment spending			
Direct spending	\$26,791,698		
Output	\$21,178,573	\$16,843,336	\$38,021,910
Value Added (GDP)	\$10,964,224	\$8,020,198	\$18,984,422
Employment	177	88	266
Income	\$6,361,464	\$3,751,852	\$10,113,316
Big equipment spending			
Direct spending	\$29,354,271		
Output	\$16,289,327	\$12,471,065	\$28,760,393
Value Added (GDP)	\$7,352,243	\$5,822,384	\$13,174,626
Employment	94	65	160
Income	\$4,808,715	\$2,714,891	\$7,523,606
Total spending			
Direct spending	\$73,098,044		
Output	\$48,937,033	\$40,121,304	\$89,058,339
Value Added (GDP)	\$22,930,033	\$18,836,602	\$41,766,634
Employment	370	202	574
Income	\$13,857,018	\$8,470,010	\$22,327,028

Discussion

The New Zealand Marine Research Foundation's goal for this research was to improve fisheries management and stewardship efforts through greater public awareness of marine recreational fishing's economic contributions to the national economy. The results of this project can be used to inform discussion concerning the development of balanced fisheries management policies and the institution of conservation policies that consider local communities and the short and long-term returns from healthy fisheries. The results can also be a key tool in securing new allies and resources for conservation initiatives to boost overall long term health and productivity of marine fisheries. In short, economic information is critical for explaining why marine conservation and recreational fishing is important to all New Zealanders.

Marine recreational is an industry. Like any industry, its lifeblood is the revenues received from its customers who, in this case, are fishers. Like any industry, the many firms who support fishers and their suppliers, such as marinas, retailers, boat builders, tackle manufacturers and more, employ thousands of people who work hard to help ensure a fisher will enjoy his or her day outdoors. Through all this economic activity, the dollars multiply, generating significant economic impact for New Zealand. Beginning with the \$946 million spent by more than 600,000 fishers, these dollars circulated through the national economy, supporting 8,000 jobs, stimulating \$1.7 billion in total economic activity, contributing \$638 million in Gross Domestic Product and \$342 million in salaries, wages and small business profits plus adding nearly \$187 million in tax revenues to help keep New Zealand functioning.

All these impacts were created as a result of many people simply seeking an escape from the daily grind, wanting to relax and enjoy the outdoors, with friends and family, in pursuit of a tug on the line.

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Not all species targeted by commercial fisheries are targeted by recreational fishers. Both sectors are important to the national economy, and both are due consideration given their important contributions to New Zealand's economic and nutritional future. By producing the economic insights provided in this report, New Zealand will have the information required to make pragmatic and effective management decisions regarding the future utilisation of the nation's valuable marine resources.

In the absence of historical estimates of spending by New Zealand residents on goods and services associated with marine fishing activity, we turn to a number of studies from outside of the country to ground-truth this analysis. Minimising the differences between studies strengthens the overall comparability of the results presented here to these others. Three recent studies of Australian fishers in New South Wales (recreational saltwater fishers only), Victoria (all recreational fishing), and Tasmania (all recreational fishing) are likely to be based on similar opportunities and conditions, with similar attitudes and spending patterns. A fourth study focuses on saltwater anglers in the United States and provides comparison based on similar methodologies employed.

Taken collectively, these studies provide a diverse and robust benchmark from which to evaluate the estimated fisher spending in New Zealand (see Appendix B). The diversity in the level of spending between countries is evident, yet there is not a strong trend indicating fishers from one country consistently spend more or less than fishers from the comparative countries. What also becomes evident is that the comparative studies support the spending estimates by New Zealand's fishers given that they fall within the range created by the other studies. This gives the New Zealand Marine Research Foundation the confidence to publicise these results amongst a wide audience to generate the necessary public and political support to facilitate management decisions that will deliver more abundant fisheries and generate greater returns from the use of New Zealand's marine resources.

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Appendices

- Appendix A. Detailed Methodologies
 - Quantifying marine fishing participation: resident and international
 - Quantifying marine fisher spending
 - Modelling the economic contribution of fisher spending
- ► Appendix B. Comparable economic studies
- ► Appendix C. New Zealand Resident Marine Fisher Survey
- ► Appendix D. New Zealand Charter Boat Survey
 - Charter boat operator survey summary
 - Charter boat operator survey instrument

Quantifying marine fishing participation

New Zealand residents

Marine fishing is one of the top five most popular outdoor recreational activities among New Zealand residents. According to Active New Zealand, 19.7% of the population participated in either marine or freshwater fishing (Sports New Zealand 2015). One of the critical components for this research effort was to determine the size of New Zealand's resident marine fishing population. We rely on the Ministry for Primary Industries (MPI) nationwide panel survey implemented among marine fishers by the National Research Bureau between October 2011 and September 2012.

Fishers were recruited to the survey through a two-step process. First, in-person surveys were conducted with approximately 30,000 households. These households were selected based on a random mesh block sampling frame. Household members were then screened based on fishing history and level of current activity. The final recruited sample was defined based on a random sampling of those household members fitting defined criteria and willingness to participate. More than 7,000 marine fishers participated in the effort.

Survey participants were contacted at structured intervals over the course of the twelvemonth period and asked to report their level of fishing activity, location visited, platform used and harvest, if any. Continued engagement with participants was necessary to reduce the level of attrition from the survey, which required a degree of commitment on the part of the fisher. It also reduced the potential for recall bias relative to other approaches when participants are asked to reflect on activities occurring up to one year prior.

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Based on the activity of this respondent group, it was then possible to estimate the level of fishing activity and harvest among New Zealand's resident marine fisher population as a whole. To do this, the researchers calculated expansion weights based on selection probability and multiple demographic characteristics. These weights were then assigned to each respondent within the sample. Greatly simplifying the explanation of the process behind the weighting structure, these weights are applied in order to align the diversity of the respondent sample with the diversity of the country's national population. Interested readers are encouraged to refer to the detailed report published by MPI for additional explanation about the techniques used to develop the expansion weights (Wynne-Jones et al 2014).

Our estimates of the size of the national marine fisher population and the number of days fished are included in

Table A 1 and Table A 2. These are derived from the NPS raw data for fishers and trips that harvested fish or not. An estimated 595,000 residents took part in marine fishing and spent 2.65 million days on the water during the year (

Table A 1). This equates to an average of 4.5 days saltwater fishing. The majority (approximately 2/3rds) of fisher visits and fisher days were spent in the Upper North Island region. The remaining fisher activity and days was split evenly between the two other regions. It is important to note that these estimates include fishers who went fishing at least once, whether they caught a fish or not.

	Marine fishers (#)	Marine fishing days (#)
National	594,662	2,651,802
Regional*		

1,714,754

476,716

460.332

Table A 1	National	narticination	in marine	fishing amo	na residents	by region
	National	participation	III IIIaIIIIC	noning arrior	ig residents	by region

Upper North Island

Lower North Island

South Island

* The analysis includes the proportion of the fisher population who fish in multiple regions. As a result, the regional total is 623,819, greater than the estimated 595,000 marine fishers.

375,241

127.241

121,336
Two groups were defined based on platform used (land-based and boat-based) and designed to be mutually exclusive. This impacts the fisher and the day estimates in distinct ways. In the case of the number of fishers, the land-based group includes those fishers who only fished from a land-based platform (beach, rocks, or jetty). The boat-based group includes fishers who only fished from a boat platform as well as those who fish from both platform types. In other words, if an individual fished from a boat on one occasion and from land on another occasion, they are counted within the boat-based platform group. One might argue for the creation of a third grouping, those fishers who did both boat and land-based fishing. We find that the majority of fishers tend to favour one platform over another while the minority uses multiple platform types throughout the course of the year.

In the case of the number of marine fishing days, the platform assignment is slightly more straightforward. If a fisher reports their fishing day was spent fishing from land, that day was counted as a land-based platform day. If that same fisher reports they fished from a boat on a different day, that day was counted as a boat-based platform day. Fishers can, but seldom do, report using both platform types during one day. As with the fisher measure, if a fisher reported using both platform types during the course of one day, that day was counted as a boat-based day. We were unable to determine the "primary" platform for the day as the percentage of fishing time spent on each platform was not recorded. Also, we assumed that the expenses incurred that day were largely driven by the boat-based activities rather than the land-based activity.

More than 60% of fishers used a boat-based platform and the majority of marine fishing days are spent on a boat-based platform (Table A 2). It is important to clarify how the regional estimates were calculated. Fishers are most likely to fish within the region they reside but they

can and often do fish in other regions of the country. As a result, the regional-level estimates were based on where an individual fished not where they reside.

There are interesting findings within those two platform groups at the regional level. In the case of boat-based fishing, more than 70% of activity was spent in the Upper North Island. On the other hand, while the majority of land-based fishing activity occurred in the Upper North Island, the distribution of activity across the three regions was not as heavily skewed as with boat-based activities. A variety of factors likely drive this behaviour. For example, it could be argued that the Upper North Island is more conducive to boat-based fishing, relative to the other regions. That region also provides access to specific species that are not typically pursued from land.

Table A 2.	National participation	in marine	fishing a	mong	residents	fishing	platform	type a	and
region									

Platform	Marine fishers (#)*	Marine fishing days (#)
Boat-based fishing		
National	388,688	1,610,380
Regional		
Upper North Island	286,450	1,178,696
Lower North Island	57,847	180,229
South Island	73,519	251,455
Land-based fishing		
National	205,974	1,041,422
Regional		
Upper North Island	88,792	558,395
Lower North Island	69,395	273,742
South Island	47,571	209,285

* The analysis includes the proportion of the fisher population who fish in multiple regions. As a result, the regional sum is slightly greater than the estimated marine fishers in each platform group.

International visitors

The estimate of international visitors was based on the country's ongoing International

Visitor Survey (IVS) managed by the Ministry of Business, Innovation, and Employment (MBIE).

The framework of the survey is to randomly sample approximately 9,000 visitors age 15 years

or older to New Zealand each year. The population of sampled travellers was contacted after their trip and asked to share information about activities, locations visited, and spending. For an in-depth discussion about the IVS and the methodologies employed please refer to the MBIE's IVS website. In short, New Zealand hosts more than 2.52 million visitors each year. Approximately 109,000 (4%) of all visitors take part in marine fishing activities (Table A 3).

Not all of these travellers visited for the sole purpose of going fishing. Based on analysis of the Charter boat operator survey conducted by Southwick Associates, we find that an estimated 26% of travellers visited with fishing as their primary purpose (Table D 4). Therefore, approximately 28,000 visitors travelled to New Zealand because of the marine fishing opportunities (Table A 3). It is this group that we assumed would not have travelled in the absence of these opportunities. The remaining 74% was assumed to have travelled to New Zealand even in the absence of the marine fishing opportunity.

	All visiting fishers	Fishing as a primary purpose	Fishing as a secondary
		of visit*	purpose of visit
Total international marine fishers	108,811	28,091	80,720
Regional			
Upper North Island	60,842	15,707	45,135
Lower North Island	15,708	4,055	11,653
South Island	32,261	8,329	23,933
International visitors using a charter			
boat service	38,203	9,863	28,341
Regional			
Upper North Island	24,832	6,411	18,421
Lower North Island	2,292	592	1,700
South Island	11,079	2,860	8,219
International visitors not using a			
charter boat service	70,608	18,228	52,379
Regional			
Upper North Island	36,010	9,296	26,714
Lower North Island	13,415	3,463	9,952
South Island	21,182	5,469	15,714

Table A 3. Annual number of international visitors to New Zealand

Results from the Charter boat operator survey suggest a total of 38,000 international visitors hired a charter boat during their trip. Regional visitation among this sub-group was estimated by using the proportional distribution of New Zealand's charter boat fleet days provided by MPI. Approximately 65%, 6%, and 29% of days occurred in the Upper North Island, Lower North Island, and South Island, respectively. Regional visitation among international visiting fishers who do not hire a charter service was estimated using the proportional distribution of regions visited by all international visitors who indicate they travel to visit friends and family. Approximately 51%, 19%, and 30% of these visitors travelled to the Upper North Island, Island, Lower North Island, and South Island respectively.

The purpose of the international traveller's visit and the activities engaged in during their time in New Zealand determines the level of their spending attributable to the recreational marine fishing economy. And, each of the groups identified in Table A 3 was linked to a spending profile which is explored in more detail in the next section.

Quantifying marine fisher spending

New Zealand resident

Expenditure data for resident marine fishers was collected via a Horizon Research online panel survey. Horizon Research specialises in national market research collecting qualitative and quantitative research via online methods. For this research, we focus recruitment efforts through their HorizonPoll panels, which represent the New Zealand population 18 years of age and over. However, concerns were raised about the potential for a small respondent sample, given historical responses within the regions defined for this project, and the ability to develop robust spending estimates. A second panel was recruited to bolster the respondent sample. Additional recruitment efforts were focused in the Lower

North Island and South Island regions to boost the number of respondents from those locations.

Horizon Research panelists are recruited to participate in general surveys, not anglerspecific surveys, thus reducing potential bias introduced when angling-specific surveys attract disproportionate numbers of avid anglers. As a result, our target survey sample was identified using a screening question that asked about outdoor recreational activities engaged in during the last year. Only those who selected marine fishing were asked to complete the remainder of the survey.

A total of 1,460 New Zealand resident fishers responded to our survey (Table A 4**Error! Reference source not found.**). The survey was structured to gather information about the fisher's annual and seasonal activity levels as well as locations fished. Forty six percent of respondents indicate they fished in the Upper North Island region while roughly 30% of respondents fished in the Lower North Island and the South Island regions.

There is the potential for fishing activity and expenditure behaviours to exhibit a seasonal trend. In order to evaluate the presence of seasonal differences, we grouped the twelve months of the year into two seasons (winter and summer) and asked fishers to tell us about their most recent trip taken during the prior year in either or both of these seasons. Based on the number of fishers, our analysis does not find that fishers prefer fishing during the summer rather than winter, and thus no strong seasonal trend.

Table A 4.	New Zealand	resident mar	ine fisher	survey	respondent	sample siz	e by regio	n and
season								

April 2015)
1,042
4

Upper North Island	668	490	562
Lower North Island	470	377	349
South Island	390	296	282

Evaluating our sample in relation to the population of resident fishers based on the Ministry for Primary Industries NPS survey, we find that our sample consists of a smaller proportion of: 1) fishers classifying themselves within the most avid group, 2) male fishers, and 3) younger fishers (44 years of age or younger).

			New Zealand resident		Ministry for Primary	
مينوا	i4.,		fisher survey		industry sur	vey
Avia						00/
A	Non-fisher		35	2%	0	0%
В	Fish occasionally (3 or less X)		537	38%	173,667	36%
C	Fish several times a year (4-9X)		593	41%	176,011	37%
D	Fish regularly (10 or more X)		264	18%	128,467	27%
		Total	1,429	100%	478,145	100%
Gene	der					
	Male		778	60%	330,911	69%
	Female		525	40%	147,180	31%
		Total	1,303	100%	478,091	100%
Age	category					
	Less than 25		73	6%	64,565	14%
	25-34 years		154	12%	83,806	18%
	35-44 years		204	16%	103,244	22%
	45-54 years		277	21%	105,998	22%
	55-64 years		270	21%	75,943	16%
	65-74 years		246	19%	34,831	7%
	75 years or over		78	6%	9,378	2%
		Total	1,302	100%	477,765	100%
Regi	ons					
	Upper North Island		574	46%	291,051	61%
	Lower North Island		375	30%	96,622	20%
	South Island		292	24%	88,208	19%
		Total	1,241	100%	475,881	100%

Table A 5. Sample distribution across targeted demographic characteristics

An imbalance in any of these characteristics has the potential to impact the average fisher spending estimates. For, example, more avid fishers might be likely to spend more on

their fishing-related activities relative to those who fish more infrequently. Or, younger fishers might be more likely to have more discretionary income for fishing-related purchases.

A post-stratification multivariate weighting adjustment was applied to balance our respondent sample with MPI's national fisher survey. The target variables included avidity, gender, age, and region of home residence. The goal was to align the distributions within the two samples in order to more accurately estimate average spending by the nation's fisher population.

The iterative rake weighting procedure available through SPSS was implemented. The general approach involves dividing the proportion of each stratum in the population by the proportion within the corresponding strata of the respondent sample. Equation 1 reflects the method where w_i is equal to the strata proportion among the population (*N*) in relation to the strata proportion among the sample (*n*). And, k denotes each stratum (age, avidity, gender, and location of residency).

Eq 1.
$$w_i = \frac{N_k}{n_k}$$

The calculated weights reflect the degree to which each observation represents others, inflating under-represented strata and deflates over-represented samples.

The intent of this research effort was to develop economic profiles for all marine fishing activity in total, and in addition for regional, platform, and species subsets. To properly measure the economics associated with each subset, we must develop spending profiles unique to each group. Each profile was divided into two parts: a) per-trip spending on travelrelated items and b) annual equipment spending. Trip-related spending included items such as fuel, bait, food, lodging, and charter fees. It is reported as a per day measure and is

associated with both a season and location component (either region where fishing took place or region of home residence). Equipment spending was further separated into fishing equipment (rods, reels, tackle, electronics, clothing, maps) and big equipment (vehicles, boats, trailers, campers, holiday homes) and reflects those items that can be used on more than one trip. It is reported as an annual measure and is associated with a location component.

Before developing spending profiles, we explored the trip-related spending data looking for seasonal differences in spending patterns in each of the three regions. Our analysis finds no statistically significant difference in the average amount spent on trip-related goods and services in winter or summer. Spending by fishers reported at the seasonal-level was then pooled prior to calculating the estimated average spent during the trip at the regional and national level.

A degree of uncertainty is associated with a project of this nature. It can be challenging to reach the target population and, even when a sample of the population can be reached, there might be some hesitancy to fully disclose information or to participate at all. For this reason, we include the estimated averages as well as the statistically calculated confidence intervals for both trip and equipment related spending at the national level.

The distribution of this sample, alone, has a positive skew, reflecting a population of fishers where some spend a great deal more than others. However, the Central Limit Theorem indicates that repeated samplings of the fisher population will yield a set of estimated mean spending values normally distributed around the true average spending of the population.

Based on this, it is possible to estimate upper and lower bounds for the population mean with some degree of certainty. As a result, for these lower and upper bounds, the

interpretation is that the true value of direct spending falls within these bounds at a statistically-based confidence level of 95%.

Collective as well as platform and species-specific trip-related spending profiles are shown in Table A 6. Detailed average spending PER TRIP on trip-related items for marine fishing among New Zealand residents in 2014/15 by region

Spending per fisher per TRIP				
			Lower	Upper
	National	Std. Error	bound	bound
Fuel and oil				
Personal vehicle	\$54.86	\$2.27	\$50.32	\$59.40
Personal boat	\$60.17	\$5.47	\$49.23	\$71.11
Commercial transport	\$26.69	\$4.39	\$17.91	\$35.47
Groceries	\$56.50	\$3.10	\$50.30	\$62.70
Restaurants	\$30.46	\$2.87	\$24.72	\$36.20
Accommodations	\$43.95	\$4.78	\$34.39	\$53.51
Equipment rental	\$6.82	\$1.54	\$3.74	\$9.90
Fees	\$8.23	\$1.12	\$5.99	\$10.47
Guide or charter	\$17.60	\$2.51	\$12.58	\$22.62
Bait	\$22.56	\$1.66	\$19.24	\$25.88
Ice	\$7.69	\$0.50	\$6.69	\$8.69
Other day-to-day items	\$12.46	\$1.04	\$10.38	\$14.54
Total trip-related	\$347.99	\$18.26	\$311.47	\$384.51

Table A 7 through Table A 10. Equipment spending profiles are included in Table A

11. Detailed average spending on equipment-related items for marine fishing among New

Zealand residents in 2014/15

Annual spending per fisher				
	Matternal		Lower	Upper
Fishing equipment		Sta. Error		bound #400.00
Roas & reels	\$89.65	\$6.99	\$75.67	\$103.63
	\$25.70	\$2.39	\$20.92	\$30.48
Lures, jigs, flies, & art. bait	\$30.10	\$2.11	\$25.88	\$34.32
Other terminal tackle	\$17.30	\$1.23	\$14.84	\$19.76
Gear (rod holders, landing nets, down	\$00.40	* 0.05	#00 70	COLA
rigger, etc)	\$28.46	\$2.85	\$22.76	\$34.16
Electronics	\$38.89	\$8.51	\$21.87	\$55.91
Processing or taxidermy	\$1.92	\$0.65	\$0.62	\$3.22
Repair or maint. of special equipment				
(venicie, boat, motor, ATV, trailer)	¢120.17	¢16.05	¢105.07	¢172.07
Clothing	\$139.17 \$22.40	ው 10.90 ድጋ 17	\$105.27 \$10.06	Φ173.07 Φ27.74
Mana & abarta	ΨZ3.40	φ2.17 ¢0.74	Φ19.00 ¢2.52	
Maps & charts	φ4.00 ¢10.29	<u>۵</u> .74	\$2.5Z	ສູ <u>ວ</u> .40
	\$19.38	\$4.96	\$9.46	\$29.30
Trailer reg. & other gov't fees	\$42.82	\$4.88	\$33.06	\$52.58
Sub-total fishing equipment	\$460.78	\$32.65	\$395.26	\$526.08
				
Big equipment items				
Spending closer to destination	\$88.11	\$16.14	\$55.83	\$120.39
Holiday home: rented	\$61.61	\$12.31	\$36.99	\$86.23
Holiday home: owned (includes utilities)	\$26.50	\$8.77	\$44.07	\$79.15
Spending closer to residence	\$449.15	\$58.06	\$333.03	\$565.27
Boats	\$177.57	\$32.53	\$113.16	\$243.28
Vehicles (i.e. ATV, campers, pickups)	\$127.84	\$35.05	\$58.22	\$198.42
Accessories (i.e. optics, camping				
equipment)	\$96.01	\$25.22	\$45.93	\$146.81
Other	\$47.41	\$10.58	\$26.11	\$68.43
Sub-total big equipment	\$537.26	\$61.42	\$414.42	\$660.10
Total Equipment item spending	\$998.04	\$82.72	\$832.60	\$1,163.48

Table A 12 through Table A 15. Detailed discussion of the spending profiles is

included within the body of the report.

Table A 6.	Detailed average spending	g PER TRIP	on trip-related	items for	marine fishing	among
New Zeala	nd residents in 2014/15 by	region				

Spending per fisher per TRIP				
	Notional	Std Error	Lower	Upper
	National	SIU. EITUI	bound	Dound
Fuel and oil				
Personal vehicle	\$54.86	\$2.27	\$50.32	\$59.40
Personal boat	\$60.17	\$5.47	\$49.23	\$71.11
Commercial transport	\$26.69	\$4.39	\$17.91	\$35.47
Groceries	\$56.50	\$3.10	\$50.30	\$62.70
Restaurants	\$30.46	\$2.87	\$24.72	\$36.20
Accommodations	\$43.95	\$4.78	\$34.39	\$53.51
Equipment rental	\$6.82	\$1.54	\$3.74	\$9.90
Fees	\$8.23	\$1.12	\$5.99	\$10.47
Guide or charter	\$17.60	\$2.51	\$12.58	\$22.62
Bait	\$22.56	\$1.66	\$19.24	\$25.88
lce	\$7.69	\$0.50	\$6.69	\$8.69
Other day-to-day items	\$12.46	\$1.04	\$10.38	\$14.54
Total trip-related	\$347.99	\$18.26	\$311.47	\$384.51

Table A 7. Detailed average spending PER DAY on trip-related items for marine fishing among New Zealand residents in 2014/15 by region

Spending per fisher per DAY	Ŭ			
	National	Upper North	Lower North	South
Fuel and oil	National	1310110	1314114	1514114
Personal vehicle	\$15.68	\$14.00	\$17.72	\$19.65
Personal boat	\$17.20	\$20.54	\$9.85	\$14.03
Commercial transport	\$7.63	\$7.40	\$5.16	\$11.14
Groceries	\$16.15	\$15.92	\$15.36	\$18.20
Restaurants	\$8.70	\$9.04	\$6.14	\$10.46
Accommodations	\$12.56	\$12.96	\$10.53	\$13.66
Equipment rental	\$1.95	\$1.73	\$2.00	\$2.70
Fees	\$2.35	\$2.66	\$1.23	\$2.55
Guide or charter	\$5.03	\$4.39	\$7.56	\$4.73
Bait	\$6.45	\$7.76	\$5.72	\$3.02
lce	\$2.20	\$2.59	\$1.93	\$1.22
Other day-to-day items	\$3.56	\$3.16	\$4.14	\$4.42
Total trip-related	\$99.45	\$102.15	\$87.35	\$105.77

Table A 8.	Detailed average spending for boat-based marine fishing on trip-related items
among Nev	v Zealand residents in 2014/15 by region

Spending per fisher per day				
		Upper North	Lower North	South
Boat-based platform	National	Island	Island	Island
Fuel and oil				
Personal vehicle	\$15.16	\$13.04	\$15.41	\$22.75
Personal boat	\$23.94	\$26.10	\$19.31	\$19.20
Commercial transport	\$9.34	\$8.67	\$5.52	\$14.42
Groceries	\$16.76	\$15.79	\$14.20	\$22.08
Restaurants	\$9.66	\$9.31	\$6.17	\$13.34
Accommodations	\$12.36	\$12.33	\$7.76	\$15.67
Equipment rental	\$2.59	\$2.17	\$3.02	\$3.82
Fees	\$3.07	\$3.34	\$2.47	\$2.53
Guide or charter	\$7.15	\$5.66	\$15.61	\$6.68
Bait	\$6.65	\$7.87	\$5.06	\$3.25
lce	\$2.53	\$2.98	\$1.70	\$1.47
Other day-to-day items	\$3.34	\$2.96	\$3.77	\$4.43
Total trip-related	\$112.55	\$110.23	\$100.00	\$129.63
N=	638	412	135	154

Table A 9. Detailed average spending for land-based marine fishing on trip-related items among New Zealand residents in 2014/15 by region

Spending per fisher per day				
		Upper North	Lower North	South
Land-based platform	National	Island	Island	Island
Fuel and oil				
Personal vehicle	\$18.36	\$18.71	\$20.16	\$14.41
Personal boat	\$1.35	\$1.41	\$0.99	\$1.96
Commercial transport	\$3.90	\$3.22	\$4.88	\$3.89
Groceries	\$15.97	\$17.65	\$16.69	\$10.51
Restaurants	\$7.01	\$8.73	\$6.19	\$4.21
Accommodations	\$14.16	\$16.35	\$13.32	\$10.41
Equipment rental	\$0.46	\$0.19	\$1.07	\$0.00
Fees	\$0.70	\$0.32	\$0.07	\$3.06
Guide or charter	\$0.00	\$0.00	\$0.00	\$0.07
Bait	\$6.50	\$7.94	\$6.44	\$2.91
lce	\$1.52	\$1.34	\$2.18	\$0.72
Other day-to-day items	\$4.43	\$4.14	\$4.55	\$5.16
Total trip-related	\$74.35	\$80.00	\$76.54	\$57.31
N=	393	151	179	98

Table A 10.	Detailed average spending on trip-related items among New Zealand residents in
2014/15 by s	species

Spending per fisher per dav	Blue Cod	Game fish	Snapper	Kahawai	Kingfish	Hapuku/ Bass	Trevally
Fuel and oil	000					Dabo	
Personal vehicle	\$17.03	\$12.84	\$12.35	\$14.22	\$11.34	\$10.52	\$14.10
Personal boat	\$15.72	\$26.32	\$20.64	\$22.29	\$26.36	\$16.54	\$17.40
Commercial transport	\$7.29	\$7.88	\$5.19	\$6.18	\$8.56	\$5.95	\$2.75
Groceries	\$15.72	\$16.85	\$15.74	\$17.76	\$16.22	\$13.62	\$16.70
Restaurants	\$11.13	\$11.35	\$8.42	\$9.80	\$9.51	\$6.95	\$8.83
Accommodations	\$12.28	\$15.23	\$12.51	\$16.30	\$15.84	\$8.49	\$14.64
Equipment rental	\$4.25	\$2.21	\$2.29	\$0.65	\$2.41	\$6.42	\$1.01
Fees	\$2.61	\$2.86	\$3.10	\$4.11	\$2.80	\$0.74	\$3.82
Guide or charter	\$8.63	\$4.75	\$4.50	\$2.88	\$4.60	\$12.80	\$2.15
Bait	\$3.15	\$7.44	\$7.06	\$7.65	\$7.74	\$3.35	\$7.06
lce	\$1.69	\$2.40	\$2.23	\$2.18	\$2.47	\$2.00	\$2.31
Other day-to-day items	\$3.98	\$2.37	\$3.19	\$3.57	\$2.47	\$3.88	\$3.47
Total trip-related	\$103.49	\$112.51	\$97.21	\$107.59	\$110.34	\$91.26	\$94.24
N=	190	212	466	337	181	64	103

Table A 11. Detailed average spending on equipment-related items for marine fishing among New Zealand residents in 2014/15

Annual spending per fisher				
	No.Co.co.		Lower	Upper
Fishing equipment	National	Sta. Error		bound #400.00
Rods & reels	\$89.65	\$6.99	\$75.67	\$103.63
Line & leaders	\$25.70	\$2.39	\$20.92	\$30.48
Lures, jigs, flies, & art. bait	\$30.10	\$2.11	\$25.88	\$34.32
Other terminal tackle	\$17.30	\$1.23	\$14.84	\$19.76
Gear (rod holders, landing nets, down	\$ \$\$\$ 15	\$ 0.05		••• • • •
rigger, etc)	\$28.46	\$2.85	\$22.76	\$34.16
Electronics	\$38.89	\$8.51	\$21.87	\$55.91
Processing or taxidermy	\$1.92	\$0.65	\$0.62	\$3.22
Repair or maint. of special equipment				
(vehicle, boat, motor, ATV, trailer)	• • • • • • •	* • • • • -		
	\$139.17	\$16.95	\$105.27	\$173.07
Clothing	\$23.40	\$2.17	\$19.06	\$27.74
Maps & charts	\$4.00	\$0.74	\$2.52	\$5.48
Other equipment used for fishing	\$19.38	\$4.96	\$9.46	\$29.30
Trailer reg. & other gov't fees	\$42.82	\$4.88	\$33.06	\$52.58
Sub-total fishing equipment	\$460.78	\$32.65	\$395.26	\$526.08
Big equipment items				
Spending closer to destination	\$88.11	\$16.14	\$55.83	\$120.39
Holiday home: rented	\$61.61	\$12.31	\$36.99	\$86.23
Holiday home: owned (includes utilities)	\$26.50	\$8.77	\$44.07	\$79.15
Spending closer to residence	\$449.15	\$58.06	\$333.03	\$565.27
Boats	\$177.57	\$32.53	\$113.16	\$243.28
Vehicles (i.e. ATV, campers, pickups)	\$127.84	\$35.05	\$58.22	\$198.42
Accessories (i.e. optics, camping				
equipment)	\$96.01	\$25.22	\$45.93	\$146.81
Other	\$47.41	\$10.58	\$26.11	\$68.43
Sub-total big equipment	\$537.26	\$61.42	\$414.42	\$660.10
Total Equipment item spending	\$998.04	\$82.72	\$832.60	\$1,163.48

		Linner North	Lower	South
Annual spending per fisher	National	Island	Island	Island
Fishing equipment				
Rods & reels	\$89.65	\$106.89	\$61.16	\$65.62
Line & leaders	\$25.70	\$27.69	\$26.87	\$18.16
Lures, jigs, flies, & art. bait	\$30.10	\$33.35	\$21.47	\$29.93
Other terminal tackle	\$17.30	\$20.19	\$12.72	\$12.53
Gear (rod holders, landing nets,				
down rigger, etc)	\$28.46	\$33.01	\$17.22	\$26.48
Electronics	\$38.89	\$55.59	\$4.65	\$22.22
Processing or taxidermy	\$1.92	\$2.66	\$1.13	\$0.46
Repair or maint. of special				
equipment (vehicle, boat, motor,				
ATV, trailer)	\$139.17	\$162.38	\$51.97	\$160.88
Clothing	\$23.40	\$24.41	\$23.06	\$22.02
Maps & charts	\$4.00	\$5.39	\$1.33	\$2.48
Other equipment used for fishing	\$19.38	\$18.10	\$10.37	\$34.63
Trailer reg. & other gov't fees	\$42.82	\$56.24	\$15.18	\$30.17
Sub-total fishing equipment	\$460.78	\$545.91	\$247.12	\$425.58
Big equipment items*	\$537.26	\$666.86	\$227.16	\$474.95
Total Equipment item spending	\$998.04	\$1,212.77	\$474.28	\$990.53

Table A 12. Detailed average spending on equipment-related items for marine fishing among New Zealand residents in 2014/15 by region

* Includes durable items such as vehicles, boats, trailers, campers, and holiday homes.

Table A 13. Detailed average spending for boat-based marine fishing on equipment-related items among New Zealand residents in 2014/15 by region

Annual spending per fisher: Boat-		Upper North	Lower North	South
based fishing	National	Island	Island	Island
Fishing equipment				
Rods & reels	\$106.29	\$124.14	\$64.72	\$68.13
Line & leaders	\$27.25	\$31.54	\$17.57	\$17.85
Lures, jigs, flies, & art. bait	\$37.73	\$41.20	\$24.44	\$34.63
Other terminal tackle	\$17.86	\$20.48	\$11.82	\$12.18
Gear (rod holders, landing nets,				
down rigger, etc)	\$38.49	\$42.43	\$19.24	\$38.37
Electronics	\$58.49	\$73.49	\$9.15	\$38.31
Processing or taxidermy	\$2.86	\$3.54	\$2.05	\$0.80
Repair or maint. of special				
equipment				
(vehicle, boat, motor, ATV, trailer)	\$210.12	\$217.69	\$98.99	\$270.95
Clothing	\$27.95	\$29.63	\$32.34	\$17.52
Maps & charts	\$5.91	\$7.22	\$2.09	\$3.71
Other equipment used for fishing	\$24.48	\$23.29	\$13.45	\$38.44
Trailer reg. & other gov't fees	\$64.46	\$74.56	\$31.04	\$51.03
Sub-total fishing equipment	\$621.89	\$689.21	\$326.90	\$591.92
Big equipment items*	\$735.39	\$861.51	\$278.82	\$610.53
Total Equipment item spending	\$1,357.28	\$1,550.72	\$605.72	\$1,202.45
N=	638	412	135	154

* Includes durable items such as vehicles, boats, trailers, campers, and holiday homes.

Table A 14. Detailed average spending for land-based marine fishing on equipment-related items among New Zealand residents in 2014/15 by region

Annual spending per fisher: Land- based fishing	National	Upper North Island	Lower North Island	South Island
Fishing equipment				
Rods & reels	\$58.74	\$57.81	\$58.01	\$62.15
Line & leaders	\$22.82	\$16.75	\$35.12	\$18.59
Lures, jigs, flies, & art. bait	\$15.94	\$11.01	\$18.83	\$23.44
Other terminal tackle	\$16.26	\$19.35	\$13.51	\$13.01
Gear (rod holders, landing nets, down rigger, etc)	\$9.84	\$6.20	\$15.43	\$10.06
Electronics	\$2.48	\$4.66	\$0.65	\$0.00
Processing or taxidermy	\$0.16	\$0.14	\$0.31	\$0.00
Repair or maint. of special equipment (vehicle, boat, motor, ATV, trailer)	\$7.40	\$4.96	\$10.28	\$8.89
Clothing	\$14.96	\$9.57	\$14.83	\$28.23
Maps & charts	\$0.45	\$0.19	\$0.65	\$0.78
Other equipment used for fishing	\$9.90	\$3.31	\$7.64	\$29.37
Trailer reg. & other gov't fees	\$2.62	\$4.10	\$1.12	\$1.36
Sub-total fishing equipment	\$161.57	\$138.05	\$176.38	\$195.88
Big equipment items*	\$169.31	\$112.85	\$181.34	\$287.71
Total equipment item spending	\$330.88	\$250.90	\$357.72	\$483.59
N=	393	151	179	98

* Includes durable items such as vehicles, boats, trailers, campers, and holiday homes.

Table A 15.	Detailed average spending by New Zealand residents on equipment-related items
in 2014/15 b	/ species

	Blue Cod	Game fish	Snapper	Kahawai	Kingfish	Hapuku/ Bass	Trevally
Fishing-equipment			Per	fisher per y	rear		
Rods & reels	\$89.23	\$171.48	\$106.07	\$129.97	\$175.88	\$69.03	\$128.21
Line & leaders	\$31.11	\$52.15	\$32.10	\$37.11	\$51.53	\$15.92	\$50.10
Lures, jigs, flies, & art. bait	\$41.11	\$66.77	\$36.01	\$42.55	\$67.83	\$30.35	\$44.32
Other terminal tackle	\$23.68	\$36.25	\$24.38	\$29.29	\$37.20	\$25.49	\$38.10
Gear (rod holders, landing nets, down rigger, etc)	\$39.51	\$47.74	\$31.44	\$38.18	\$50.65	\$22.45	\$35.59
Electronics	\$31.00	\$60.17	\$41.62	\$48.96	\$60.81	\$18.73	\$69.69
Processing or taxidermy	\$9.14	\$7.86	\$3.45	\$3.39	\$5.60	\$3.62	\$8.14
Repair or maint. of special equipment (vehicle, boat, motor, ATV, trailer)	\$241.10	\$172.31	\$154.99	\$198.86	\$180.86	\$112.79	\$126.03
Clothing	\$29.09	\$33.18	\$27.11	\$31.35	\$35.09	\$31.92	\$36.09
Maps & charts	\$8.86	\$11.09	\$6.23	\$7.00	\$8.97	\$4.52	\$4.02
Other equipment used for fishing	\$49.71	\$41.89	\$33.57	\$27.72	\$50.00	\$23.53	\$29.02
Trailer reg. & other gov't fees	\$50.01	\$74.18	\$49.45	\$56.35	\$76.28	\$25.53	\$65.19
Sub-total fishing equipment	\$643.55	\$775.07	\$546.42	\$650.73	\$800.70	\$383.88	\$634.50
Big equipment purchases*	\$713.99	\$709.38	\$518.33	\$577.84	\$699.93	\$357.16	\$713.93
Total equipment item spending	\$1,358	\$1,484	\$1,065	\$1,228	\$1,501	\$741	\$1,348
N=	190	212	466	337	181	64	103

* Includes durable items such as vehicles, boats, trailers, campers, and holiday homes.

International marine fisher

Quantifying the amount of spending by international marine fishers takes a two-fold approach. The International Visitor Survey collects spending information and reports the average spending per international tourist. However, it does not provide detailed expenditures based upon activities. Applying the assumption that international marine fishers allocate their expenditures to spending categories that are similar relative to those of all international tourists, we used the average spending estimates to calculate spending by those travelling with the primary purpose of marine fishing (Table A 16**Error! Reference source not found.**).

Table A 16. Detailed average spending on trip-related goods and services in 2014 by international visitors whose primary travel purpose is marine fishing

International Visitor spending	Used a charter service during visit	No charter service used during visit
	Spending per	fisher per trip
Retail sales-fuel and other automotive	\$223.18	\$223.18
Other passenger transport	\$474.27	\$474.27
Food and beverage serving services	\$641.66	\$641.66
Accommodation	\$418.47	\$418.47
Charter-boat services	\$140.95	\$0
Other retail and tourism products	\$1,023.24	\$1,023.24
Total trip-related	\$2,931	\$2,790

Charter boat operators provided their annual trip counts, rate per trip, typical party size, and portion of customer base that resided outside of the country. Using this information, we were able to calculate a weighted average charter boat hire rate per marine fisher of \$141. It is unknown how many days an international visitor used charter boat services. In the absence of that information, a conservative estimate of one day was added to the average spending on other goods and services based on results from IVS.

For those international visitors who travelled to New Zealand with a different primary purpose but also took part in a charter boat fishing opportunity while in-country, we utilised estimated spending by residents as a proxy to capture the contribution of this group to the recreational marine fishing economy. Specifically, we identified six categories along with the charter boat services spending that are attributable to a day spent recreational marine fishing

(Table A 17). Again, a conservative assumption of one fishing day is assumed.

International Visitor spending	Used a charter service during visit	No charter service used during visit
	Spending per	fisher per trip
Transportation	\$7.63	\$7.63
Accommodations	\$12.56	\$12.56
Food and beverage serving services	\$24.85	\$24.85
Equipment rental & fees	\$4.30	\$4.30
Charter-boat services	\$140.95	\$0
Bait & ice	\$8.64	\$8.64
Other day-to-day items	\$3.56	\$3.56
Total trip-related	\$202	\$62

Table A 17. Detailed average spending on trip-related goods and services in 2014 by international visitors whose secondary travel purpose is marine fishing

The economic impact of marine fishing in New Zealand

There are a number of different approaches used for economic evaluation of a good, service, or activity. Each approach makes use of specific techniques and produces values, typically monetary, with somewhat different interpretations. In light of the purpose of this research, to evaluate the current magnitude of the recreational marine fishing economy, the approach we take here quantifies the economic contribution of recreational marine fishing to the New Zealand economy. It is a broader view of economic impact analysis, which typically quantifies only the contraction within an economy if a good, service, or activity no longer existed. Or in contrast, the expansion within an economy when spending which would not have otherwise occurred takes place.

The distinction is that we included within the models spending by all New Zealand resident fishers, including spending which would have simply shifted from one sector of the economy to another, along with spending by international and resident fishers who would not otherwise spend in the absence of the opportunity to marine fish.

The economic input-output models for this research effort were built using the national and regional accounts tables available from Insight Economics. These tables break down New Zealand's economy into 55 economic sectors at the national level and 106 economic sectors at the regional level. This breakdown illustrates how expenditures in one sector impacts sales, imports and more in other sectors. Recreational fishing, however, is not included as a single sector or industry. Other sectors that serve recreational fishers are used, such as various retail segments, fuel and transportation, sports and recreation, and more (

Table A 18 and Table A 19Error! Reference source not found.).

In the case of service sectors such as accommodations or restaurants, the entirety of fisher spending was allocated to that particular sector. In the case of goods purchased, the fisher spending was allocated across the retail, wholesale, and manufacturing sectors applicable to that item. The allocations are based on the reported margin on sales reported in the Annual Enterprise Survey 2013 available through Statistics New Zealand.

_	National
National accounts working industries	Input-output tables industry
AA311, AA312	Fishing and aquaculture
CC111	Meat and meat product manufacturing
CC121	Seafood processing
CC131	Dairy product manufacturing
CC141	Fruit, oil, cereal and other food product manufacturing
CC151	Beverage and tobacco product manufacturing
CC211, CC212	Textile, leather, clothing and footwear manufacturing
CC511	Petroleum and coal product manufacturing
CC821, CC822	Machinery and other equipment manufacturing
CC911, CC912	Furniture and other manufacturing
DD111, DD112, DD113	Electricity & gas supply
FF111, FF112, FF113, FF114, FF115, FF116	Wholesale trade
FF113	Motor vehicle and motor vehicle parts wholesaling
FF114	Grocery, liquor and tobacco product wholesaling
GH111, GH112	Motor vehicle and motor vehicle parts and fuel retailing
GH111, GH112	Motor vehicle and motor vehicle parts and fuel retailing
GH121, GH122	Supermarket, grocery stores and specialised food retailing
GH131, GH132, GH133, GH134, GH135	Other store-based retailing and non-store retailing
GH211, GH212	Accommodation and food services
ll111	Road transport
KK111, KK112	Finance
LL111, LL112	Rental and hiring services (except real estate)
LL121, LL122, LL123	Property operators & real estate services
00211, 00212, 00213	Central government administration, defense and public safety
RS111, RS112, RS113	Arts and recreation services

Table A 18	Targeted industries for	r national ir	nout-output	modelling

Regional			
National accounts working industries	Input-output tables industry		
AA311, AA312	Fishing and aquaculture		
CC111	Meat and meat product manufacturing		
CC121	Seafood processing		
CC131	Dairy product manufacturing		
CC141	Fruit, oil, cereal and other food product manufacturing		
CC151	Beverage and tobacco product manufacturing		
CC212	Clothing, knitted products and footwear manufacturing		
CC511	Petroleum and coal product manufacturing		
CC811	Transport equipment manufacturing		
CC821	Electronic and electrical equipment manufacturing		
CC912	Other manufacturing		
DD111	Electricity generation and on-selling		
DD112	Electricity transmission and distribution		
DD113	Gas supply		
DD121	Water supply		
DD122	Sewerage and drainage services		
DD123	Waste collection, treatment and disposal services		
FF111	Basic material wholesaling		
FF112	Machinery and equipment wholesaling		
FF113	Motor vehicle and motor vehicle parts wholesaling		
FF114	Grocery, liquor and tobacco product wholesaling		
FF115, FF116	Other goods and commission based wholesaling		
GH111	Motor vehicle and parts retailing		
GH112	Fuel retailing		
GH121	Supermarket and grocery stores		
GH132	Recreational, clothing, footwear and personal accessory retailing		
GH133	Department stores		
GH211	Accommodation		
GH212	Food and beverage services		
111	Road transport		
KK111, KK112	Banking and financing; financial asset investing		
LL111, LL112	Rental and hiring services (except real estate); non-fin. asset leasing		
LL121	Residential property operation		
LL123	Real estate services		
00211	Central government administration and justice		
RS111	Heritage and artistic activities		
RS211	Repair and maintenance		

Table A 19.	Targeted industries	for regional in	put-output modelling

The extent of the economic contributions associated with spending in New Zealand can be presented as three measures:

Direct effects: These include the jobs, income and tax revenues that are tied directly to the spending by marine fishers without including multiplier effects.

Indirect & Induced effects: Also known as the multiplier effect, it occurs when a direct purchase from a business leads to increased demand for goods and services from other businesses along their supply chain. Also included is economic activity associated with household spending of incomes earned in the affected businesses.

Total effects: These include the jobs, income and tax revenues that are tied directly to the spending by marine fishers plus the jobs, income and tax revenues that result from the multiplier effects of marine fisher spending.

Direct spending or direct effects was estimated at both a national and regional level. Detailed spending data collected through the residential marine fisher survey were used to build a spending profile for the average participant. This spending profile was multiplied by the number of marine fishers to determine country-level estimates of spending, collectively and within each subcategory.

Direct spending at the regional level was estimated differently, assigning spending based on where the spending is likely to occur from a geographical perspective (Table A 20). Spending that typically takes place where the fishing occurs (i.e., destination spending such as lodging, guide fees, etc.) was allocated to the regions on the basis of the days of fishing in each region. Some spending typically takes place closer to the fisher's place of residence (i.e., residential spending such as rods, reels, lures, and other equipment) and was assigned to regions based on the number of fishers who live in each region. Some categories of spending are split between the fisher's place of residence and where the activity occurs (i.e., groceries and fuel). For this hybrid spending, half of the spending was allocated using the destination spending methodology and half was allocated using the residential spending methodology to capture the fact that spending occurred in multiple places.

Allocated to destination region	Hybrid allocation (split between destination region and region of residence)	Allocated to region of residence
Restaurants	Fuel and oil	Rods & reels
Accommodations	Commercial transport	Line & leaders
Equipment rental	Groceries	Lures, jigs, flies, & art. bait
Fees		Other terminal tackle
Guide or charter		Gear (rod holders, landing nets, down rigger, etc)
Bait		Electronics
Ice		Processing or taxidermy
		Repair or maint. of special equipment (vehicle, boat, motor, ATV, trailer)
		Clothing
		Maps & charts
		Other equipment used for fishing
		Trailer reg. & other gov't fees
		Other day-to-day items
		Boat, canoe, motor, trailer, accessories
		Vehicle, ATV, trailer, accessories
		Caravan, tent trailer, camper, motorhome, camping equipment
		Holiday home purchase or rental, utilities or maintenance of holiday home

Table A 20. Geographical allocation of marine fisher spending by expense category

The economic model multipliers are not structured to internally adjust spending flows based on either the Goods and Services Tax (GST) or spending associated on imported items. In the case of GST, a portion of the amount spent on goods and services by fishers is applied to the value-added tax collected on most goods and services. In 2014, the GST rate was 15%. Direct spending was adjusted to reflect only that proportion of the amount spent by fishers which continued to cycle through the recreational marine fishing industry. The balance reflects the tax amount generated by marine fishers. In the case of imports, a proportional adjustment was applied to direct spending based upon the ratio of total demand relative to imports within a particular industry.

To apply the economic models and determine indirect and induced effects,

expenditures for marine fishing activities were matched to the appropriate industry sector affected by the initial purchase. Each effect was then estimated with multipliers based on models of the whole New Zealand economy as well as the three regional economies. Results at the national level represent total economic effects, jobs, income and tax revenues that occur within the country. Likewise, models based on our regional definitions represent the economic effects within the selected region. The results do not include any economic activity or indirect contributions that leak out of the region. As a result of this leakage, economic contributions at the national level are larger than the sum of corresponding contributions at the regional level. This occurs because a portion of spending in a particular region leaks to other regions within the country, and this within-region leakage is captured in the country model.

Five economic contribution measures are reported in the following tables:

- **Direct spending:** Total annual spending by marine fishers measured at consumer prices.
- **Output**: represents the value of annual industry production for all of the industries affected by the purchases made by the fishers.
- Value Added: Another term used for Value-Added is Gross Domestic Product (GDP) and it represents the difference between the industry's and an establishment's total output and the cost of its intermediate inputs.

Employment: reflects contributions of direct spending to full-time employment **Income**: represents the contribution to gross household income.

Table A 21 through Table A 27. Detailed economic household income contributions of

marine fishing in New Zealand by regionTable A 27Error! Reference source not found. show

the estimated economic contributions for each of these measures at the national and regional

levels. They also include breakdowns by platform.

Table A 21. New Zealand's total direct spending by marine fishing by region (includes both NZ residents and international visitors)

	Trip-related spending	Fishing equipment spending	Big equipment spending	Total direct spending
National	\$352,443,561	\$274,007,144	\$319,489,269	\$945,939,974
Upper North Island	\$225,152,493	\$197,661,531	\$240,466,126	\$663,280,150
Lower North Island	\$53,223,894	\$29,740,433	\$27,225,321	\$110,189,648
South Island	\$74,067,174	\$46,605,181	\$51,797,821	\$172,470,176

Table A 22. Ave	rage fisher spe	ending per year
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	Fishers	Annual total spending	Annual spending /fisher
Resident	594,662	\$857,218,093	\$1,441.52
Boat	388,688	\$710,378,990	\$1,827.63
Land	205,974	\$146,839,104	\$712.90
International visitors	108,811	\$88,721,880	\$815.38

Table A 23.	New Zealand's total direct spending by resident marine fishing by region and
platform	

Platform	Trip-related spending	Fishing equipment spending	Big equipment spending	Total direct spending
Boat-based fishing				
National	\$184,782,267	\$240,848,109	\$284,748,614	\$710,378,990
Regional				
Upper North Island	\$130,030,864	\$183,086,365	\$228,691,826	\$541,809,055
Lower North Island	\$19,969,366	\$19,496,166	\$16,616,674	\$56,082,206
South Island	\$34,584,033	\$38,265,578	\$39,440,114	\$112,289,725
Land-based fishing				
National	\$78,939,414	\$33,159,035	\$34,740,655	\$146,839,104
Regional				
Upper North Island	\$45,023,291	\$12,596,977	\$9,776,149	\$67,396,417
Lower North Island	\$20,901,108	\$11,404,613	\$11,626,894	\$43,932,615
South Island	\$13,213,018	\$9,157,445	\$13,337,612	\$35,708,075

	Adjusted direct spending	Indirect & induced output	Total output
National			
Trip-related spending	\$263,194,865	\$388,832,269	\$652,027,135
Fishing equipment spending	\$221,212,136	\$333,827,503	\$555,039,639
Big equipment spending	\$202,518,397	\$276,258,275	\$478,776,672
Total	\$686,925,398	\$998,918,047	\$1,685,843,446
Regional*			
Trip-related spending			
Upper North Island	\$163,355,481	\$179,381,464	\$342,736,945
Lower North Island	\$36,838,351	\$35,391,693	\$72,230,043
South Island	\$54,340,515	\$41,893,467	\$96,233,982
Fishing equipment spending			
Upper North Island	\$157,102,044	\$156,532,988	\$313,635,032
Lower North Island	\$22,575,945	\$19,605,915	\$42,181,860
South Island	\$36,593,191	\$28,701,910	\$65,295,101
Big equipment spending			
Upper North Island	\$149,730,039	\$142,622,017	\$292,352,056
Lower North Island	\$15,074,347	\$13,954,835	\$29,029,181
South Island	\$29,081,134	\$21,662,459	\$50,743,593

Table A 24. Detailed economic output contributions of marine fishing in New Zealand by region (net of adjustments for GST and imports)

iogion			
	Value added through	Indirect &	
	adjusted direct	induced value	Total value
	spending	added	added
National			
Trip-related spending	\$101,642,433	\$138,703,253	\$240,345,685
Fishing equipment spending	\$97,879,298	\$114,415,365	\$212,294,664
Big equipment spending	\$93,380,934	\$92,366,802	\$185,747,736
Total	\$292,902,665	\$345,485,420	\$638,388,085
Regional			
Trip-related spending			
Upper North Island	\$64,962,548	\$83,360,741	\$148,323,289
Lower North Island	\$14,867,795	\$16,409,382	\$31,277,178
South Island	\$22,222,918	\$19,316,688	\$41,539,605
Fishing equipment spending			
Upper North Island	\$79,735,245	\$75,512,218	\$155,247,463
Lower North Island	\$11,626,992	\$9,433,718	\$21,060,710
South Island	\$18,928,757	\$13,635,772	\$32,564,529
Big equipment spending			
Upper North Island	\$69,502,698	\$69,599,976	\$139,102,674
Lower North Island	\$6,828,782	\$6,502,107	\$13,330,890
South Island	\$13,015,167	\$10,043,915	\$23,059,081

Table A 25. Detailed economic value added contributions of marine fishing in New Zealand by region

Ŭ	Employment supported by adjusted direct	Indirect & induced	Total
	spending	employment	employment
National			
Trip-related spending	2,176	1,340	3,516
Fishing equipment spending	1,790	1,098	2,888
Big equipment spending	832	887	1,719
Total	4,798	3,325	8,124
Regional			
Trip-related spending			
Upper North Island	1,294	796	2,090
Lower North Island	326	163	489
South Island	514	216	731
Fishing equipment spending			
Upper North Island	1,160	721	1,881
Lower North Island	183	91	275
South Island	312	152	464
Big equipment spending			
Upper North Island	737	661	1,398
Lower North Island	77	65	142
South Island	166	113	279

Table A 26. Detailed economic employment contributions of marine fishing in New Zealand by region

	Household		
	income	Indirect &	
	supported by	induced	Total
	adjusted direct	household	household
	spending	income	income
Netional	spending	Income	mcome
Trip-related spending	\$65,154,143	\$57,113,431	\$122,267,574
Fishing equipment			
spending	\$77,626,015	\$45,641,353	\$123,267,367
Big equipment spending	\$56,395,348	\$39,891,359	\$96,286,707
Total	\$199,175,505	\$142,646,142	\$341,821,648
Regional			
Trip-related spending			
Upper North Island	\$38,640,186	\$34,366,836	\$73,007,021
Lower North Island	\$8,975,970	\$6,529,202	\$15,505,171
South Island	\$13,976,658	\$8,323,838	\$22,300,496
Fishing equipment spending			
Upper North Island	\$44,865,282	\$33,152,004	\$78,017,286
Lower North Island	\$6,385,600	\$3,938,196	\$10,323,796
South Island	\$10,953,200	\$6,379,113	\$17,332,314
Big equipment spending			
Upper North Island	\$40,546,594	\$27,850,203	\$68,396,797
Lower North Island	\$4,156,116	\$2,797,997	\$6,954,113
South Island	\$8,527,952	\$4,819,237	\$13,347,189

Table A 27.	Detailed economic household income contributions of marine fishing in New	ļ
Zealand by r	region	

We explored three target species at the regional level: Trevally, Blue Cod, and Snapper. The economic contribution associated with spending by fishers who reside in each region and pursue the species is included in Table A 28 to Table A 42.

Before discussing these findings, it is important to review the approach used to estimate effort per species pursued. Targeted species are typically determined prior to the fishing trip and fishers make preparations with that species in mind. Data collected within the Ministry for Primary Industries' NPS are related to actual harvest which is not always exactly correlated with the types of species fishers intend to catch. For some more abundant species, harvest records may overstate the number of people pursing a particular species. Conversely, there are species that can be elusive to catch, such as hapuku and bass, yet there are fishers who are dedicated to pursuing those species. In those cases, harvest records would grossly understate the "pursing" fisher population. Adjustment ratios are applied to these harvest data allowing us to bridge the gap between species harvested and species pursued. Application of these adjustments enabled the generation of the estimated number of fishers and days spent pursing a particular species, an ex-ante perspective.

These ratios were calculated using the species targeted and harvest data collected through the expenditure survey implemented by Horizon Research and applied to the NPS fisher participation estimates. The first ratio (Eq 2a) was based on the assumption that fishers often catch species they might not initially target, particularly in the case of species which are more abundant. The pursuit ratio is the number of fishers reported catching a species (*x*_i) in relation to the number of fishers reported pursuing that species (*X*_i).

Eq 2a.
$$PR_i = \frac{x_i}{x_i}$$

It was applied using the approach in Equation 2b. Where the estimated count of fishers targeting (*EFT*) a particular species (*i*) is a calculation of the estimated count of fishers harvesting (*EFH*) and the pursuit ratio (*PR*).

Eq 2b:
$$EFTi = \frac{EFH_i}{PRi}$$

The second ratio (Eq. 3a) was based on the assumption that the number of days when successful catch occurred are fewer than the number of days spent targeting a species. The catch ratio is the number of days spent pursuing a species regardless of whether there was a successful catch (Y_i) relative to the number of days spent pursuing a species when the fisher reported a successful catch of that species (y_i).

Eq 3a.
$$CR_i = \frac{y_i}{Y_i}$$

It was applied using the approach in Equation 3b. Where the estimated count of fishers targeting (*EFDT*) a particular species (*i*) is a calculation of the estimated count of fishers harvesting (*EFDH*) and the pursuit ratio (*CR*).

Eq 3b:
$$EFDTi = \frac{EFDH_i}{CRi}$$

In the case of fishing activity by species at the regional level, the spending and economic contribution modelling also took into account the impact of both trip and equipment spending in both the destination as well as the residential areas. In other words, the population of marine fishers who pursue Trevally in the Upper North Island does not solely include fishers who reside in the Upper North Island. It also included fishers who reside outside of that region. And, as a result, total economic contribution associated with pursuing this species includes spending occurring in other regions. For example, when an individual who resides in the Upper North Island fished for Trevally in the same region, all of their spending on both trip and equipment was allocated to the Upper North Island. In the case of an individual who resides in the Lower North Island fishes for Trevally in the Upper North Island, the majority of their trip-related spending was allocated to the Upper North Island. The only exception being the portion of fuel and groceries associated with that outing which was allocated to the Lower North Island. It was also assumed that this individual might have equipment related spending associated marine fishing. And, as a result, equipment spending made by Trevally fishers who reside outside the region of interest was incorporated into the economic contribution estimates.

Regardless of the species under investigation, the vast majority of fishers reside within the region they fish and as a result, the majority of the equipment spending allocated within the species level regional models occurs within that particular region. However, if it is the case that economic contributions attributable to fishers who pursue Trevally in the Lower North Island are analysed, those equipment expenditures would be captured in both models.

Given that we do not gather total fishing time per species, we are unable to apportion the amount of spending, either trip or equipment, attributable to each individual species. And, as a result, it is possible for spending by a marine fisher pursuing multiple species in a day or over the course of the year to be included in the economic contributions of multiple species. Therefore, interpretation of the species level findings should be done with caution. Readers are encouraged to bear in mind the fact that they are by nature not mutually exclusive, given the tendency for fishers to pursue a variety of species during any one outing. Readers are urged to also bear in mind the presence of fishers who frequent multiple regions to pursue the same species.

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$10,121,821	\$12,255,520	\$23,361,549
Value Added	\$4,391,987	\$5,729,833	\$10,121,821
Employment	87	54	141
Income	\$2,626,310	\$2,353,493	\$4,979,804
Fishing equipment spending			
Output	\$17,588,779	\$17,653,336	\$35,242,115
Value Added	\$8,858,472	\$8,503,573	\$17,362,046
Employment	133	82	214
Income	\$5,076,914	\$3,694,163	\$8,771,076
Big equipment spending			
Output	\$13,667,443	\$12,907,480	\$26,574,923
Value Added	\$6,268,733	\$6,126,758	\$12,395,492
Employment	68	59	127
Income	\$3,766,473	\$2,585,907	\$6,352,380
Total spending			
Output	\$41,378,043	\$42,816,336	\$85,178,587
Value Added	\$19,519,192	\$20,360,164	\$39,879,359
Employment	288	195	482
Income	\$11,469,697	\$8,633,563	\$20,103,260

Table A 28. New Zealand's economic contributions of TREVALLY marine fishing in the Upper North Island by Upper North Island residents
Table A 29. New Zealand's economic contributions of TREVALLY marine fishing in the Upper North Island by Lower North Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$41,043	\$37,786	\$78,829
Value Added	\$15,226	\$17,374	\$32,600
Employment	0	0	0
Income	\$8,973	\$6,954	\$15,926
Fishing equipment spending			
Output	\$725,487	\$625,427	\$1,350,913
Value Added	\$372,597	\$301,331	\$673,928
Employment	6	3	9
Income	\$211,134	\$127,803	\$338,937
Big equipment spending			
Output	\$580,101	\$538,196	\$1,118,297
Value Added	\$262,058	\$250,762	\$512,820
Employment	3	3	5
Income	\$160,377	\$107,902	\$268,279
Total spending			
Output	\$1,346,631	\$1,201,409	\$2,548,039
Value Added	\$649,881	\$569,467	\$1,219,348
Employment	9	6	14
Income	\$380,484	\$242,659	\$623,142

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$46,545	\$38,767	\$85,312
Value Added	\$15,187	\$17,945	\$33,132
Employment	0	0	1
Income	\$9,621	\$8,011	\$17,632
Fishing equipment spending			
Output	\$312,727	\$256,836	\$569,563
Value Added	\$160,425	\$122,549	\$282,975
Employment	3	1	4
Income	\$98,118	\$56,786	\$154,904
Big equipment spending			
Output	\$228,459	\$169,498	\$397,957
Value Added	\$104,098	\$79,242	\$183,340
Employment	1	1	2
Income	\$67,913	\$37,187	\$105,100
Total spending			
Output	\$587,731	\$465,101	\$1,052,832
Value Added	\$279,710	\$219,736	\$499,447
Employment	4	2	7
Income	\$175,652	\$101,984	\$277,636

Table A 30. New Zealand's economic contributions of TREVALLY marine fishing in the Upper North Island by South Island residents

	1001001110		
	Direct contributions	Indirect & induced	Total contributions
		contributions	
Trip-related spending			
Output	\$82,438,252	\$90,181,048	\$172,619,300
Value Added	\$31,920,769	\$42,015,726	\$73,936,495
Employment	603	400	1,003
Income	\$18,689,108	\$17,363,474	\$36,052,582
Fishing equipment spending			
Output	\$81,348,218	\$80,738,313	\$162,086,531
Value Added	\$41,321,799	\$39,002,326	\$80,324,125
Employment	603	371	974
Income	\$23,051,987	\$17,058,488	\$40,110,475
Big equipment spending			
Output	\$60,671,777	\$57,544,384	\$118,216,161
Value Added	\$28,262,828	\$28,023,531	\$56,286,359
Employment	297	266	563
Income	\$16,356,854	\$11,257,665	\$27,614,520
Total spending			
Output	\$224,458,247	\$228,463,745	\$452,921,992
Value Added	\$101,505,396	\$109,041,583	\$210,546,979
Employment	1,503	1,037	2,540
Income	\$58.097.949	\$45.679.628	\$103.777.577

Table A 31. New Zealand's economic contributions of SNAPPER marine fishing in the Upper North Island by Upper North Island residents

	Direct	Indirect &	Total
	contributions	induced	contributions
		contributions	
Trip-related spending			
Output	\$445,215	\$406,770	\$851,985
Value Added	\$165,274	\$186,914	\$352,188
Employment	3	2	5
Income	\$97,295	\$74,926	\$172,221
Fishing equipment spending			
Output	\$3,389,917	\$2,896,046	\$6,285,963
Value Added	\$1,751,548	\$1,395,226	\$3,146,774
Employment	26	14	40
Income	\$971,006	\$596,010	\$1,567,016
Big equipment spending			
Output	\$2,592,611	\$2,406,799	\$4,999,410
Value Added	\$1,158,042	\$1,119,065	\$2,277,107
Employment	13	11	24
Income	\$708,483	\$480,185	\$1,188,668
Total spending			
Output	\$6,427,743	\$5,709,615	\$12,137,358
Value Added	\$3,074,864	\$2,701,205	\$5,776,069
Employment	42	27	69
Income	\$1,776,784	\$1,151,121	\$2,927,905

Table A 32. New Zealand's economic contributions of SNAPPER marine fishing in the Upper North Island by Lower North Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$169,494	\$140,381	\$309,875
Value Added	\$55,005	\$64,950	\$119,955
Employment	1	1	2
Income	\$34,798	\$29,183	\$63,981
Fishing equipment spending			
Output	\$1,332,249	\$1,068,024	\$2,400,273
Value Added	\$687,432	\$508,557	\$1,195,989
Employment	11	6	17
Income	\$408,816	\$237,915	\$646,730
Big equipment spending			
Output	\$932,703	\$693,415	\$1,626,118
Value Added	\$420,046	\$322,209	\$742,255
Employment	5	4	9
Income	\$274,046	\$153,642	\$427,689
Total spending			
Output	\$2,434,446	\$1,901,820	\$4,336,266
Value Added	\$1,162,483	\$895,716	\$2,058,199
Employment	17	11	28
Income	\$717,660	\$420,740	\$1,138,400

Table A 33. New Zealand's economic contributions of SNAPPER marine fishing in the Upper North Island by South Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$16,552	\$17,129	\$33,681
Value Added	\$5,366	\$7,997	\$13,363
Employment	0	0	0
Income	\$3,127	\$3,382	\$6,509
Fishing equipment spending			
Output	\$373,707	\$368,435	\$742,142
Value Added	\$190,950	\$176,692	\$367,641
Employment	3	2	4
Income	\$104,328	\$78,602	\$182,931
Big equipment spending			
Output	\$305,255	\$289,870	\$595,125
Value Added	\$140,338	\$139,078	\$279,416
Employment	2	1	3
Income	\$83,795	\$57,499	\$141,294
Total spending			
Output	\$695,514	\$675,434	\$1,370,948
Value Added	\$336,653	\$323,767	\$660,420
Employment	5	3	7
Income	\$191,250	\$139,483	\$330,734

Table A 34. New Zealand's economic contributions of BLUE COD marine fishing in the Lower North Island by Upper North Island residents

	Direct	In direct 9	Total
	Direct		Iotal
	contributions	induced	contributions
		contributions	
Trip-related spending			
Output	\$4,097,710	\$3,859,775	\$7,957,485
Value Added	\$1,649,855	\$1,783,591	\$3,433,446
Employment	35	18	53
Income	\$960,820	\$715,284	\$1,676,105
Fishing equipment spending			
Output	\$8,448,281	\$7,188,698	\$15,636,979
Value Added	\$4,381,077	\$3,464,374	\$7,845,451
Employment	64	33	98
Income	\$2,392,671	\$1,492,365	\$3,885,035
Big equipment spending			
Output	\$7,052,499	\$6,568,649	\$13,621,148
Value Added	\$3,157,553	\$3,058,117	\$6,215,671
Employment	36	30	66
Income	\$1,950,346	\$1,314,325	\$3,264,671
Total spending			
Output	\$19,598,490	\$17,617,122	\$37,215,612
Value Added	\$9,188,486	\$8,306,082	\$17,494,568
Employment	136	82	217
Income	\$5,303,837	\$3,521,974	\$8,825,811

Table A 35. New Zealand's economic contributions of BLUE COD marine fishing in the Lower North Island by Lower North Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$8,108	\$6,718	\$14,826
Value Added	\$2,632	\$3,108	\$5,741
Employment	0	0	0
Income	\$1,665	\$1,396	\$3,061
Fishing equipment spending			
Output	\$167,412	\$131,427	\$298,838
Value Added	\$86,693	\$62,499	\$149,193
Employment	1	1	2
Income	\$50,620	\$29,492	\$80,111
Big equipment spending			
Output	\$127,659	\$95,149	\$222,808
Value Added	\$57,623	\$44,384	\$102,007
Employment	1	1	1
Income	\$37,977	\$20,970	\$58,947
Total spending			
Output	\$303,179	\$233,294	\$536,472
Value Added	\$146,949	\$109,991	\$256,941
Employment	2	1	3
Income	\$90,262	\$51,858	\$142,119

Table A 36. New Zealand's economic contributions of BLUE COD marine fishing in the Lower North Island by South Island residents

	Direct contributions	Indirect & induced	Total contributions
Trip valated an anding		contributions	
I rip-related spending		· ·	
Output	\$125,952	\$130,281	\$256,233
Value Added	\$40,814	\$60,820	\$101,634
Employment	1	1	1
Income	\$23,789	\$25,728	\$49,517
Fishing equipment spending			
Output	\$879,749	\$873,153	\$1,752,902
Value Added	\$446,879	\$421,795	\$868,674
Employment	7	4	11
Income	\$249,298	\$184,481	\$433,779
Big equipment spending			
Output	\$656,141	\$622,320	\$1,278,461
Value Added	\$305,651	\$303,063	\$608,715
Employment	3	3	6
Income	\$176,893	\$121,747	\$298,640
Total spending			
Output	\$1,661,843	\$1,625,754	\$3,287,597
Value Added	\$793,345	\$785,678	\$1,579,023
Employment	11	8	18
Income	\$449,980	\$331,956	\$781,936

Table A 37. New Zealand's economic contributions of SNAPPER marine fishing in the Lower North Island by Upper North Island residents

	Direct	Indirect &	Total
	contributions	induced	contributions
		contributions	
Trip-related spending			
Output	\$6,249,551	\$5,932,317	\$12,181,868
Value Added	\$2,547,799	\$2,756,632	\$5,304,431
Employment	55	27	82
Income	\$1,516,978	\$1,092,869	\$2,609,846
Fishing equipment spending			
Output	\$9,553,367	\$8,161,553	\$17,714,920
Value Added	\$4,936,162	\$3,931,987	\$8,868,149
Employment	74	38	112
Income	\$2,736,461	\$1,679,658	\$4,416,119
Big equipment spending			
Output	\$7,306,421	\$6,782,772	\$14,089,192
Value Added	\$3,263,561	\$3,153,717	\$6,417,277
Employment	36	31	67
Income	\$1,996,627	\$1,353,243	\$3,349,870
Total spending			
Output	\$23,109,339	\$20,876,642	\$43,985,980
Value Added	\$10,747,522	\$9,842,336	\$20,589,857
Employment	165	96	261
Income	\$6,250,066	\$4,125,770	\$10,375,835

Table A 38. New Zealand's economic contributions of SNAPPER marine fishing in the Lower North Island by Lower North Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$13,712	\$11,357	\$25,069
Value Added	\$4,450	\$5,254	\$9,704
Employment	0	0	0
Income	\$2,815	\$2,361	\$5,176
Fishing equipment spending			
Output	\$63,231	\$50,690	\$113,921
Value Added	\$32,627	\$24,137	\$56,764
Employment	1	0	1
Income	\$19,403	\$11,292	\$30,695
Big equipment spending			
Output	\$44,268	\$32,911	\$77,178
Value Added	\$19,936	\$15,293	\$35,229
Employment	0	0	0
Income	\$13,007	\$7,292	\$20,299
Total spending			
Output	\$121,211	\$94,958	\$216,168
Value Added	\$57,013	\$44,684	\$101,697
Employment	1	0	1
Income	\$35,225	\$20,945	\$56,170

Table A 39. New Zealand's economic contributions of SNAPPER marine fishing in the Lower North Island by South Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$46,062	\$47,668	\$93,730
Value Added	\$14,932	\$22,255	\$37,186
Employment	0	0	0
Income	\$8,702	\$9,412	\$18,114
Fishing equipment spending			
Output	\$593,011	\$584,645	\$1,177,656
Value Added	\$303,005	\$280,381	\$583,386
Employment	4	3	7
Income	\$165,552	\$124,729	\$290,281
Big equipment spending			
Output	\$484,389	\$459,976	\$944,365
Value Added	\$222,693	\$220,694	\$443,387
Employment	2	2	5
Income	\$132,968	\$91,242	\$224,210
Total spending			
Output	\$1,123,462	\$1,092,289	\$2,215,751
Value Added	\$540,630	\$523,330	\$1,063,959
Employment	7	5	12
Income	\$307,223	\$225,382	\$532,605

Table A 40. New Zealand's economic contributions of BLUE COD marine fishing in the South Island by Upper North Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$98,829	\$90,343	\$189,172
Value Added	\$36,686	\$41,515	\$78,201
Employment	1	0	1
Income	\$21,598	\$16,640	\$38,238
Fishing equipment spending			
Output	\$1,487,770	\$1,265,953	\$2,753,724
Value Added	\$771,522	\$610,088	\$1,381,610
Employment	11	6	17
Income	\$421,357	\$262,810	\$684,167
Big equipment spending			
Output	\$1,241,968	\$1,156,761	\$2,398,729
Value Added	\$556,056	\$538,545	\$1,094,600
Employment	6	5	12
Income	\$343,462	\$231,457	\$574,919
Total spending			
Output	\$2,828,567	\$2,513,057	\$5,341,625
Value Added	\$1,364,264	\$1,190,147	\$2,554,411
Employment	18	11	30
Income	\$786,417	\$510,907	\$1,297,325

Table A 41. New Zealand's economic contributions of BLUE COD marine fishing in the South Island by Lower North Island residents

	Direct contributions	Indirect & induced contributions	Total contributions
Trip-related spending			
Output	\$11,324,242	\$10,668,892	\$21,993,134
Value Added	\$4,561,948	\$4,930,250	\$9,492,199
Employment	98	49	147
Income	\$2,656,539	\$1,977,215	\$4,633,754
Fishing equipment spending			
Output	\$19,097,792	\$14,992,738	\$34,090,530
Value Added	\$9,889,697	\$7,129,729	\$17,019,426
Employment	162	79	242
Income	\$5,774,555	\$3,364,313	\$9,138,868
Big equipment spending			
Output	\$14,562,970	\$10,854,328	\$25,417,299
Value Added	\$6,573,494	\$5,063,145	\$11,636,639
Employment	86	58	143
Income	\$4,332,285	\$2,392,192	\$6,724,477
Total spending			
Output	\$44,985,004	\$36,515,958	\$81,500,963
Value Added	\$21,025,139	\$17,123,124	\$38,148,264
Employment	346	186	532
Income	\$12,763,379	\$7,733,720	\$20,497,099

Table A 42. New Zealand's economic contributions of BLUE COD marine fishing in the South Island by South Island residents

In the absence of historical estimates of spending by New Zealand residents on goods and services associated with marine fishing activity, we turn to a number of studies from outside of the country to ground-truth this analysis. A thorough review of the available literature was done and two factors drove the selection of the four studies discussed below: geographical proximity to New Zealand and similarity in methodology. Three of the studies focus on Australian fishers in New South Wales (recreational saltwater fishers only), Victoria (all recreational fishing), and Tasmania (all recreational fishing). The assumption being that where fishing opportunities and conditions are similar, fishers and their spending patterns would also be fairly similar, relative to studies of fishers in other areas. The fourth study focuses on saltwater anglers in the United States and provides comparison based on similar methodologies employed. Minimising the differences between studies strengthens the overall comparability of the results.

While we cannot provide direct comparisons across the studies for each detailed spending category, we are able to identify a handful of categories that are consistent. Table B 1**Error! Reference source not found.** reports the estimated spending per fisher in those common categories across two groupings: trip and equipment related expenditures. Trip spending reflects the amount spent per day per fisher while the equipment reflects the amount spend per year per fisher. The second column shows estimated spending by New Zealand fishers. The remaining columns show the estimated spending reported in each of the comparative studies.

Spending categories ^a New Australia							
opending categories	Zealand ^b	New South Wales	Victoria	Tasmania	States		
Total trip (\$/fisher/day)	\$99.45	\$110.35	\$155.51	n/a	\$97.06		
Lodging & food	\$37.41	\$52.90	\$60.47	\$5.43	\$31.45		
Fuel & oil	\$40.50	\$59.12	\$39.20	\$42.69	\$20.50 ^d		
Charter	\$5.03	\$3.47	\$9.41	n/a	\$7.66		
Fishing equipment (\$/fisher/year)							
Rods & reels	\$89.65	\$181.69	\$104.42	\$131.28	\$89.63		
Minor fishing equip.	\$73.10	\$98.71	n/a	-	\$72.49		
Clothing	\$23.40	\$23.37	\$33.90	\$18.21	\$11.86		
Maintenance (\$/fisher/year)	\$139.17	\$208.29 ^c	\$65.18	\$116.02	\$271.52 ^d		
Special equipment purchase (\$/fisher/year)	\$449.15	\$470.50	\$288.23	\$244.49	\$192.44		

Table B 1. New Zealand resident fisher spending relative to estimates provided in comparative studies

^aAll values were adjusted to account for inflation and exchange rates equating them to 2014 New Zealand dollars. ^bSpending values focus only on saltwater angler in New Zealand and the United States. Trip spending values in New South Wales reflect saltwater angler spending while spending on maintenance and special equipment reflect both fresh and saltwater anglers. Spending values reported for Victoria and Tasmania reflect both fresh and saltwater anglers.

^cSpending on maintenance and other special equipment items reflects boat expenditures only.

^dFuel for personal vehicles is reflected in the fuel & oil trip spending. Boat fuel spending is bundled together with boat maintenance and other boat related spending in the maintenance category.

McIlgorm and Pepperell studied the economic contribution of the recreational fishing sector in New South Wales. New South Wales is a coastal state located in southeastern Australia and home to the capital city of Sydney. An estimated 773,000 residents over the age of 18 years old participate in recreational fishing. We are able to narrow the focus on spending associated with fishing activities for trip-related expenditures to salt-water fishing trips only. And, based on the results of their expenditure survey, fishers are estimated to spend an average of \$110 on trip related goods and services, including \$53 on lodging and food as well as \$59 on fuel for their personal vehicle and boat. Annually, these fishers spend \$182 on rods & reels, \$99 on minor fishing equipment such as lines, lures, and other terminal tackle as well as \$23 on specialised clothing. Spending associated with larger specialised

items includes spending by both fresh and saltwater fishers. They spend \$208 on boat maintenance and another \$470 on the purchase of larger equipment items which are "new to them" such as boats or motors.

Ernst and Young investigated the activity and spending associated with recreational fishing Victoria in 2008/09. Victoria, also an Australian coastal state, is located just to the south of New South Wales. Approximately 721,000 Victorian residents engaged in both marine and freshwater recreational fishing. Fishers spend a total of \$156 on trip related goods and services, with lodging & food and fuel & oil accounting for the majority of that spending (\$60 and \$39, respectively). They spend \$104 on rods & reels and \$34 on specialised clothing. On an annual basis, fishers in Victoria spend \$65 on boat related maintenance and \$288 on boat purchases.

It is important to note that the trip related values reported in the original report are a per trip measure. The measures reported in Table B 1 are per day measures. Because there are typically more than one day per trip, the original values need to be adjusted to a per day measure. However, there is little evidence in the original report as to the number of days per trip. As a result, the adjustment factor used in the case of New South Wales was applied to Victoria as well.

Lyle, Stark, and Tracey also estimated the level of recreational fishing expenditures as part of the larger National Recreational Fishing Survey effort to profile the fisher population, evaluate activity levels and harvest, and ascertain the awareness and attitudes of the fisher population to fisheries issues. Their geographical target was Tasmania, an island state off the southeast shore of Australia. Approximately 99,000 Tasmanian residents fish somewhere in Australia each year. The majority of fishers and fisher days are spent in saltwater.

They spend notably less on lodging & food, relative to the comparative studies. The geographical size of the state places fishing access points in close proximity to its residents, lowering the demand for overnight accommodations during fishing trips. Fishers spend \$43 on fuel & oil per trip as well as \$131 on fishing equipment and \$18 on clothing each year. Annual spending on the maintenance or purchase of larger items amounts to \$360.

The last comparative study draws from the current National Survey of sportsmen from the United States, which has a history spanning back to 1955. This study is selected for its similarity of methodology, particularly in the case of the spending categories captured, and focuses on saltwater fishers only. Based on the results of their expenditure survey, fishers are estimated to spend an average of \$97 on trip related goods and services, including \$31 on lodging and food as well as \$20 on fuel for their personal vehicle. Annually, these fishers spend \$90 on rods & reels, \$72 on minor fishing equipment such as lines, lures, and other terminal tackle as well as \$12 on specialised clothing. They spend \$272 on boat maintenance. It is important to note that this category includes spending on maintenance as well as spending on other boat related costs including boat fuel, mooring fees, and insurance. Another \$192 on the purchase of larger equipment items which are "new to them" such as boats or motors.

Taken collectively, these studies provide a diverse and robust benchmark from which to evaluate the estimated fisher spending in New Zealand. The diversity in the level of spending is evident, with no one group is found to be consistently higher or lower than the rest of the group. What also becomes evident is that the comparative studies support the spending estimates by New Zealand's fishers given that they fall within the range created by the other studies.

Appendix C. New Zealand Resident Marine Fisher Survey

Project: The Economic Contributions of Marine Recreational Fisheries to New Zealand's economy

Panel: National panel New Zealand's population 18 years of age and older. **Filter**: Marine fishers who went saltwater fishing between May 2014 and April 2015. **Platform**: Administered through an online platform (Managed by: Horizon Research).

Opening messaging: Please take a few moments to tell us about your recreational marine (or saltwater) fishing activities and associated spending. *We are interested in any kind of recreational or customary fishing including rod fishing, diving, gathering, or trapping any marine species regardless of whether or not anything was caught.* Your information will be combined with those of others and summarised to assist with our efforts to determine the economic contributions of recreational marine fishing to the national economy.



	Typical fishing trip In this section, tell us about a typical fishing trip (stratified for: region and season)					
	Respondents might be asked to tell us about more than one typical trip given the type of selections made above regarding region and season					
5	Thinking about your most recent trip during (seasonal selection) to (region selection) where you saltwater fished, how many total days did the trip last? If the trip lasted less than one day, please count that as a 1 day trip.)				
6	 Who went with you on that trip? (Check all that apply): And, how many travelled with you? I travelled alone Spouse/partner Children or grandchildren (under 18 years) If checked, how many children? Other family member (s) If checked, how many family member(s)? 	?				
7	 Friends or colleagues If checked, how many friend(s) or colleague(s)? people Which species did you <u>target</u> on this trip? Please check all that were primarily targeted: No fish were caught Kingfish Snapper Blue Cod Moki Tarakihi Crayfish/Lobster spiny/Red Mullet Trevally Flounder/Flat fish Paua Other: Hapuku/Groper/Bass Scallops Other: 					
8	Which species were caught? Please check all that apply. No fish were caught Kingfish Snapper Blue Cod Moki Tarakihi Crayfish/Lobster spiny/Red Mullet Trevally Flounder/Flat fish Paua Other: Gamefish/marlin/tuna/swordfish Red Gurnard Other: Hapuku/Groper/Bass Scallops Other: Kahawai Sea Perch/Scarpie					
9	 vvnat type of platform did you use to fish on that trip? Trailer motor boat Larger motor boat or launch Trailer yacht 					

- Larger yacht or keeler
 Kayak, canoe, rowboat, or jet ski
 Off land, including beach, rocks, or jetty
 Other

10 On your most recent trip during (seasonal selection) to (region selection) where you fished, how much did **you** spend in total on <u>trip-related</u> items for yourself or for others in your immediate group fishing with you? If you cannot recall exact costs, please give us your best estimates. *Please do not include any spending by others for your benefit.*

Upcoming questions will ask about your equipment purchases. Please do not include spending on those items here.	۲ ،	otal spent during trip
Commercial transportation (air travel, bus, car rental, etc.)	\$	
Fuel and oil for personal vehicle, truck, van, ATV, etc	\$	
Fuel and oil for boat		
Fees (highway tolls, marina fees, boat launch fees)	\$	
Groceries	\$	
Restaurants or other eating & drinking establishments	\$	
Accommodation (cabin, hotel, lodge, rental, campground, etc.)	\$	
Equipment rental (canoe, motor boat, etc.)	\$	
Fishing guide/Charter boat	\$	
Bait	\$	
Ice	\$	
Other day-to-day items (heating/cooking fuel, personal items, etc.)	\$	
Total (running total for respondent)	\$	

11 Of the total expenditures made for trip-related items, what percentage was for your share of items (versus others who accompanied you on the trip)?

> Saltwater Fishing Spending: Equipment-related In this section, tell us about your **annual** fishing equipment spending

12 How much did you spend in <u>total</u> on the following <u>equipment-related</u> items for use during <u>saltwater</u> fishing trips between May 2014 and April 2015 in New Zealand? <u>Include</u> equipment purchased for yourself and any minors in your household. If you cannot recall the exact amount spent, please give us your best estimates.

Upcoming questions will ask about your big equipment purchases (boat, ATV, vehicle, etc.). Please do not include spending on those items here

Rods & reels
Line & leaders
Lures, jigs flies and artificial bait
Other terminal tackle (leaders, sinkers, jigs, etc.)
Fishing gear (rod holders, landing nets, down rigger, chilly bins, etc.)
Electronics (depth finders, fish finders, etc.)
Fish processing or taxidermy
Repair or maintenance of special equipment used for fishing (vehicle, boat, motor, ATV, trailer, etc.)
Clothing purchased primarily for fishing (fishing vest, waders, etc.)
Maps & charts
Other equipment used for fishing
Trailer registration & other government fees, Coast Guard, etc.



13 Please tell us about any spending on **big** equipment purchased in New Zealand between May 2014 and April 2015 on the following. How much did you spend on each item and what percent of its use was for saltwater fishing versus other outdoor activities?

	Spent between	
	May 2014-April	% used for
	2015	saltwater fishing
Boat, canoe, motor, trailer, accessories	\$	%
ATV, trailer, accessories	\$	%
Caravan, tent trailer, camper, motorhome	\$	%
Vehicle purchased to use for fishing or towing	\$	%
Holiday home purchased primarily for fishing purposes. (Only report if such a home was actually purchased in this time period, and not any mortgage payments on homes	\$	
purchased previously) Utilities and maintenance on holiday homes purchased for the primary purpose of fishing)	\$	%
Rental of holiday home & all associated fees	\$	%
Camping equipment	\$	%
Binoculars, camera	\$	%
Other:	\$	%
Soltwater Fishing Activities: Interactions with	international fichare	

Saltwater Fishing Activities: Interactions with international fishers In this section, tell us about any trips you took with international visitors to go salt water fishing

14	Do you own your own boat? (If yes, go to Q15. If no, go to Q17.)		Į		Yes	s 🗆 No
15	How many international visitors did yo saltwater fishing between May 2014 a only those who fished) (If greater than 0, go to Q16. If zero,	ou ta and . go t	ake out recreational April 2015? (Please re o Q17.)	ерс	ort -	# of visitors who fished [<i>Set default</i> <i>value =0</i>]
16	Which species were targeted by visito	ors?	Please check all that	ар	ply.	
	No fish were caught		Kingfish			Snapper
	□ Blue Cod		Moki			Tarakihi
	Crayfish/Lobster spiny/Red		Mullet			Trevally
	Flounder/Flat fish		Paua			Other:
	Gamefish/marlin/tuna/swordfish		Red Gurnard			Other:
	Hapuku/Groper/Bass		Scallops			Other:
	□ Kahawai		Sea Perch/Scarpie			

	In this section, tell us about you.
17	 Which description best describes your fishing activity level? (Please select only one.) Regularly: Almost every week or fortnight over spring and summer, 10 times a year or more Frequently: Several times a year, mostly over spring and summer, mostly in the holidays or on long weekends. About 4-9 times a year. Infrequent: Occasionally but no more than 3 times a year Lapsed: Used to saltwater fish, gave it up or retired for now.
18	Please enter your postcode
19	What category best describes your age? 15-19 35-44 65-74 20-24 45-54 75+ 25-34 55-64
20	What is your gender?
21	What is your ethnicity? European Other Maori Pacific
22	Which category best describes your total household income? Less than \$20,000 \$100,000 - \$150,000 \$20,000 - \$50,000 \$150,000 - \$250,000 \$50,000 - \$75,000 \$150,000 - \$250,000

More than \$250,000

□ \$50,000 - \$75,000
 □ \$75,000 - \$100,000

Closing message: Thank you for taking the time to complete this survey! Your feedback is important to us.

New Zealand charter boat operator survey summary analysis

Operation size		Count	Percent
Only boats less than 10m		20	32%
Mix of boats < > 10m		3	6%
Only boats more than 10m		32	62%
	Total	55	100%

Table D 2. Distribution of respondent sample based on region of operation

- —	Survey operator sample		MPI	data
Operation zones	Count	Percent	Count	Percent
Northern North Island	43	78%	152	63%
Southern North Island	5	10%	21	9%
South Island	7	13%	67	28%
Total	55	100%	240	100%

(Note: All operators indicate they operate within only one zone)

Table D 3. Average charter-hire rate across the New Zealand fleet

	Fishing	Diving
Average charter-hire rate		
Full-day	\$1,297	\$1,020
Half-day	\$686	\$539

Table D 4. Average total annual trips and customer base

	Fishing/Diving	
	Full-day	Half-day
Proportion of charter operators offering each trip type	89%	70%
Total annual charter boat trips	69	68
Average number of customers per trip	7	7
Percent of customers who are:		
New Zealand residents	80%	79%
International visitors	20%	21%
Proportion of international visitors travelling for the primary purpose of going marine fishing	26%	

New Zealand charter boat operator survey instrument

Thank you for participating in this confidential survey and helping us learn more about your industry.

The following few questions will help us estimate total spending on charter fees by New Zealanders and international visitors in 2014. If you don't have exact numbers available for each question, please provide your best estimate.

 How many charter boats do you operate in your business: Number of boats less than 10m: <u>Click here to enter text.</u> Number of boats more than 10 m: <u>Click here to enter text.</u>

Next we will ask you to estimate the number of full-day charter trips and half-day trips separately. The next three questions concern full-day charter trips.

- 2) How many <u>full-day paid fishing/diving charter trips</u> did you do in 2014: Click here to enter text. full-day trips
- 3) How many customers on average did you take per full-day paid fishing/diving charter in 2014: Average number of customers per full-day trip: Click here to enter text.
- 4) Of these full day trips, what percent of your customers in 2014 were: New Zealand <u>Click here to enter text.</u> % International <u>Click here to enter text.</u> % visitors:

The next three questions concern half-day charter trips.

- 5) How many <u>half-day paid fishing/diving charter trips</u> did you do in 2014: Click here to enter text. half-day trips
- 6) How many customers on average did you take per half-day paid fishing/diving charter in 2014: Average number of customers per half-day Click here to enter text.
- 7) Of these half-day trips, what percent of your customers in 2014 were: New Zealand Click here to enter text. % International residents: visitors:
- 8) In your opinion, what percent of your international customers in 2014 travelled to New Zealand for the primary purpose of saltwater fishing or diving (versus travelling to New Zealand for other primary purposes such as business or family)? Click here to enter text. %
- 9) For all trips in 2014, what percent were primarily fishing or diving charters:

Fishing: Click here to enter text. %

Diving: Click here to enter text. %

10) What is the rate that you charge, <u>on average</u>, for each type of trip in 2014: Fishing: Diving:

\$<u>Click here to enter text.</u> half-day trips

Click here to enter text. full-day trips

\$Click here to enter text. half-day trips

\$Click here to enter text. full-day trips

11) Reflecting on your international customers (reported above), what percent of your charter boat trips with international fishers or divers in 2014 departed from the following zones?

Note: Use map below for reference Zone 1 - Auckland (East)	Click here to enter text.	%
Zone 2 - Central (East)	Click here to enter text.	%
Zone 3 - South East (Coast)	Click here to enter text.	%
Zone 4 - South East (Chatham Rise)	Click here to enter text.	%
Zone 5 - Southland	Click here to enter text.	%
Zone 6 - Sub-Antarctic	Click here to enter text.	%
Zone 7 - Challenger	Click here to enter text.	%
Zone 8 - Central (West)	Click here to enter text.	%
Zone 9 - Auckland (West)	Click here to enter text.	%
Zone 10 - Kermadec Islands	Click here to enter text.	%

12) Please check the main species targeted by international clients (you can select several species):

- No species in particularBlue Cod
- Crayfish/Lobster spiny/Red
- Gamefish/marlin/tuna/swordfish
- Hapuku/Bass
- 🗆 Kahawai

Gurnard

□ Kingfish

🗆 Moki

Paua

- Scallops
- Snapper
- Tarakihi
 Trevally
 Other: Click here to enter text.
 Other: Click here to enter text.
- Other: Click here to enter text.

Additional Comments:

Click here to enter text.

