

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

## Introduction

A Report by Southwick Associates<sup>1</sup> produced with the support of Legasea concludes that New Zealand marine recreational fishing drives substantial expenditure: *\$946 million spent annually by more than 600,000 fishers, these dollars circulate 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 wages and small business profits while adding nearly \$197 million in tax revenues...* 

This memo briefly examines the analysis underlying this characterisation of recreational fishing as a large 'industry' by the Southwick Report.

## Southwick Methodology

Information on marine recreational fishing in New Zealand is poor and Southwick have been required to make creative use of five different main sources of information to generate the conclusions above:

- 1. MPI National Panel Survey (**NPS**). The purpose of this survey is to try and estimate the quantity, composition and location of marine recreational fishing harvest for fisheries management purposes especially to inform TAC setting.
- 2. MBIE International Visitor Survey (**IVS**). The purpose of this survey is to calculate total expenditure of international visitors while they are in New Zealand, along with the main components of that expenditure.
- 3. Charter Boat Operator Survey (**COS**). Operators provided confidential information on client numbers, charter cost/client and an estimate of how many overseas clients had marine recreational fishing as the primary purpose of their visit. The results of this 2014 survey are not available for review.
- 4. Horizon Research Online Panel Survey (**OPS**). Survey participants were New Zealand resident recreational fishers over 18 who provided information on the size and composition of their annual expenditure on recreational fishing related items.

<sup>&</sup>lt;sup>1</sup> Estimating Marine Recreational Fishing's Economic Contributions in New Zealand, Technical Steps. Prepared for: New Zealand Marine Research Foundation, March 2016 by Southwick Associates, PO Box 6435, Fernandina Beach, FL32035, USA. 148 pages.

5. Insight Economics Economic Input/Output Models (**IOM**). These are general models that attempt to estimate the indirect economic effects (multiplier effects) of direct expenditure of various kinds. The IOM contains no multiplier, employment, income or tax estimates for recreational fishing.

Selected use of the 5 surveys/ models above is made to derive estimates of base information and assumptions:

## NPS

- A. Estimated number of NZ marine recreational fishers (594,662)
- B. Estimated number of boat fishing days (1,610,380) B1 (388,688 fishers)
- C. Estimated number of land fishing days (1,041,422) C1 (205,974 fishers)

## IVS

- D. Estimated number of international recreational fishers (109,000)
- E. Estimated average visitor expenditure per trip (\$2,931)

## COS

- F. Estimated number of of international charter clients (38,000)
- G. Average charter cost/day/client (\$?/Day)
- H. Estimated % of primary purpose international clients (26%)

## OPS

Estimates for:

- I. NZ Boat Fisher Trip (\$112.54/Day)
- J. NZ Boat Fisher Equipment (\$621.89/Year)
- K. NZ Boat Fisher Large Items (\$735.39/Year)
- L. Overseas Boat Fisher Trip (\$202.00/Day)
- M. NZ Land Fisher Trip (\$74.35/Day)
- N. NZ Land Fisher Equipment (\$161.89/Year)
- O. NZ Land Fisher Large Items (\$169.31/Year)
- P. Overseas Land Fisher Trip (\$62/Day)

## IOM

- Q. Estimated Multiplier Effects on Direct Expenditure (approximately 1.8x)
- R. Estimated Employment (7,800)
- S. Estimated Tax revenues (187,689,857)

These estimates are used to generate aggregate expenditure estimates simplified as follows:

#### **International Visitor Expenditure**

(DxH)xE + (FxL) + (D-F)xP =\$88,721,880

## Local Expenditure

((Bxl) + (B1xJ) + (B1xK)) + ((CxM) + (C1xN) + (C1xO)) = \$857,218,093

Combined Expenditure =\$945,939,973

## Methodological Issues

The expenditure estimate above is a seemingly precise number but it has been derived largely from surveys (NPS, IVS, COS and OPS) as the letter S suggests.

#### Survey Sample Sizes and Accuracy

Three of these surveys have very small sample sizes. The NPS is a carefully designed survey but it does not have the estimation of expenditure as its purpose. 7,013 marine fishers were included in this survey. These were drawn from initial approaches to 30,000 randomly selected households (less than 2% of all New Zealand households). Household members were then screened to determine the presence of a recreational fisher over 14 which appeared to be the case in around a quarter of all households. Approximately 90% of households with such a fisher were then used to compile the survey group of 7,013 fishers. The NPS estimated there to be 595,000 New Zealand residents who took part in marine recreational fishing between 1 October 2011 and 30 September 2012. In other words, 1.18% of fishers were surveyed in the NPS.

The number of marine recreational fishers in the NPS is broadly consistent with other estimates by Sports New Zealand in 2009 and 2015. Southwick interpret these various survey results as indicating increasing recreational fishing participation in New Zealand. Given the accuracy of such small sample surveys, the results are also consistent with a fairly constant number of participants. None of the surveys used have confidence intervals supplied for the particular estimates derived from them. These levels of confidence fall sharply when estimates are compounded.

The second survey used (IVS) has a very small sample size. 9,000 out of 2.52 million international visitors (0.35 of 1%) were surveyed by MBIE. One of the survey questions asked if they had engaged in recreational fishing while in New Zealand and, on the basis of the response, MBIE estimate that 109,000 visitors did so (4.32% of visitors). As far as I can tell, this question covers fresh and salt water fishing and Southwick do not appear to have adjusted this number downward implying that all freshwater fishers also fished in the sea. This seems unlikely as approximately 10,000 trout licences are sold to foreigners each year by Fish and Game alone (i.e excluding Lake Taupo licences). The survey estimated average expenditure by all visitors to be \$2,931/visit).

The OPS has the smallest sample size of all. 1,460 fishers responded to this survey (0.245 of 1% of fishers). 942 participated in the period May to October 2014 and 1,042 in the period November 2014 to 2015. Southwick notes that this suggests that there is no strong seasonal trend to recreational fishing participation. This is surprising and strongly contradicted by the NPS result. An issue with this survey is that minimum participation age was 18 whereas the number of fishers against which daily expenditure estimates were later applied is drawn from the NPS where the minimum age is 14. Expenditure of 14-18 year olds is likely to be below average.

Little comment can be made about the coverage of the COS. Presumably coverage was much higher than the other three surveys. However, the crucial question asked in this survey is to estimate the

proportion of international visitor charter boat clients and the proportion of those clients travelling to New Zealand for the primary purpose of going marine fishing. Neither of these pieces of information are required as part of the Amateur Fishing Charter Vessel Activity Catch Regime and the second is likely to have little more status than a guess.

Methodological creativity cannot ultimately substitute for facts.

## Attribution of Expenditure

The Southwick report takes a liberal approach of the attribution of expenditure to recreational fishing. Based upon a guess by charter boat operators that 26% of visiting fishers would not have come to New Zealand other than to engage in marine fishing, all of their expenditure while in New Zealand is categorised as recreational fishing expenditure. The estimation of expenditure by the remaining 74% of fishers could best be described as an educated guess in the absence of data.

The trip expenditure for New Zealand fishers includes expenditure on food and beverages. This is not appropriate. It is most likely that people would continue to nourish themselves whether they are recreational fishing or not. However, it is in the area of 'large items' that attribution becomes most problematic. The purchases of cameras, binoculars, vessels, vehicles and holiday homes are made in the full knowledge that these large items lend themselves to a range of uses. Large items make up more than a third of recreational fishing direct expenditure so the attribution conventions applied have a significant effect on this total which is the basis for all other estimates of economic impact.

## Economic Multiplier Effects

Southwick use the estimate of direct expenditure derived in the manner above to estimate the wider effect of that expenditure on the New Zealand economy. Other than stating that the Insight Economics Input/Output Model is used, the precise way in which this is done is not clear. Such a task is problematic because the Insight Economics model contains no recreational fishing sector. Rather, Southwick apparently create a recreational sector proxy from the breakdown of direct expenditure into existing Insight Economics categories. It is at this point that the Southwick methodology drifts across the line from creativity into alchemy.

To be clear, there is no direct information on the employment, income or tax contribution from the recreational fishing 'industry'. All of these numbers have been derived by analogy from the untransparent interpretation of the Insight IOM.

## Validation of Southwick Results

In Appendix B of the report, the results of the New Zealand study are compared with four similar studies carried out in Australia and the USA. It is claimed that such comparison "ground truths" the New Zealand results. The fact that the application of a uniform methodology generates some uniformity in results does not ground truth anything. Uniformity is not the same as accuracy. This memo indicates that there are many ways in which the accuracy of the estimate of expenditure on marine recreational fishing in the Southwick report could be improved. Many of these data improvements or methodological adjustments are likely to reduce the size of the current estimate.

# Expenditure and Value

It is not controversial that recreational fishing is a very popular pastime in New Zealand and perhaps 600,000 people are prepared to commit some of their discretionary income to enjoy that pastime. Even if the level of direct expenditure is less than the Southwick estimate (let us say \$500m per annum) that is still an important indicator of the value placed on recreational fishing by individual New Zealanders. While income may not always be earned honestly it is generally spent honestly. People spend money in the expectation that the value they will enjoy from the good or service acquired is more than the value they attach to the money they have parted with. Quite often our expectations are disappointed. Prices and expenditure are objective, value is always subjective.

At the level of the individual, therefore it is fair to say that there is a connection between expenditure and (hoped for) value or enjoyment. This is not true at the level of a business or an industry. There, value is the difference between revenue and expenditure. Expenditure is a cost, not a benefit, to a business or an industry. If this were not true, no businesses could fail and we could increase the value of the recreational fishing sector by driving up its costs, for instance by the imposition of licensing. Here lies a fundamental problem with the Southwick methodology that is far more important than the data accuracy issues already mentioned. The existence of customer expenditure is not evidence of business, sector or industry value.

#### Economic Impact Assessment

Southwick are open about their unorthodox approach to economic analysis, but the implications of their disclaimer will not be obvious to a lay reader. They claim to take "a broader view of economic 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 simply have 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".

This is like saying that it is a "broader view" of a business to look only at the income side of the ledger while ignoring the costs. It is a fundamental principle of economic analysis that all costs are opportunity costs and it is only when we have some understanding of the alternatives to our current activities and resource allocations that we are in a position to make any comments about value at all. Southwick avoid saying that if there was no recreational fishing, New Zealand would lose 8,000 jobs, \$1.7 billion in 'economic activity' contributing \$638 million in GDP, \$342 million in wages and \$187 million in tax revenues because this would be untrue. However, that is the impression that the press releases based upon the Southwick report deliberately create.

A methodology that has discretionary consumer spending as its starting point must acknowledge that all of the funding for that \$946 million of expenditure has been created elsewhere. If that expenditure was not directed towards recreational fishing it would either be spent on something else, saved or invested. It is not clear that the New Zealand economy would be worse off by this reconfiguration. Certainly, the Southwick report deliberately leaves us none the wiser about this question. In any event, this conventional economic analysis is moot in the sense that there seems to be no prospect in the foreseeable future of a ban on recreational fishing. In fact, it is an activity that is scarcely managed at present.

# Purpose and Usefulness of the Southwick Report

What, if anything, are the policy implications of the idiosyncratic Southwick analysis economic observation? The Southwick report states "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".

There is indeed a connection between the existing large 'recreational marine fishing industry' and the health and productivity of marine fisheries. This is easily understood and all the evidence suggests that connection is in good shape. New Zealand has a very effective statutory framework for the management of fisheries which requires that management decisions ensure the sustainability of fisheries. Furthermore a sophisticated set of environmental principles flesh out the statutory definition of sustainability. That is why recreational fishing is so popular and why MAF/MFish/MPI surveys over the years indicate that the improving state of fisheries since 1986 has underpinned significant growth in total recreational catch in New Zealand.

Given that there are very good laws and processes in New Zealand to ensure fisheries sustainability that also provide for utilisation by recreational fishers on internationally generous terms, it is hard to understand any connection between the quantification of recreational marine fishing as an 'industry' and conservation. The quoted statement above is baffling or disingenuous.

## Competition between Industries

All fish harvesters in a fishery compete for a limited resource. A fish caught by a recreational fisher cannot also be caught by a commercial or customary fisher or enjoyed by an underwater photographer. If a fisheries resource is to be managed sustainably, annual removals have to be limited and the harvest of competing users limited. In other words, the sustainable available harvest has to be allocated between competing users. There is no obvious value in describing competing users as industries: a recreational fishing industry, a commercial fishing industry and a customary fishing industry for instance. Neither is there any merit in allocating fish between competing 'industries' on the asserted size of expenditure within those industries.

It is most unlikely that the current allocation of sustainable fish catch is perfect for all time. The demand for fish from all sectors exceeds sustainable supply and that demand cannot be met from tweaking fish productivity of wild fisheries from already high levels. In many important New Zealand fisheries, the situation has already been reached where one sector can only expand at the expense of another. This raises the issue of the process by which any such re-allocation might occur. In Australia and the USA, where the core Southwick methodology has been developed and refined, that process of allocation is political and the kind of analysis in the Report has been influential in securing better access to fisheries resources by recreational fishers.

The fact that there is a track record of resource allocation or re-allocation based upon lobbying that utilises unconventional or faulty economic analyses elsewhere in the world does not mean that we should emulate that pattern here. In any event, the available process for the re-allocation of access rights between fisheries sectors in New Zealand is utterly different to that in Australian or US State jurisdictions. New Zealand has a Quota Management System (QMS) that allocates perpetual property rights in the form of Individual Transferable Quotas (ITQs) to private owners. Furthermore, ITQ forms the major part of a solemn Settlement between the New Zealand Government and Maori of Treaty claims over fisheries. In that Settlement, Maori agreed that quota rights could be attenuated or regulated for sustainability reasons, but for no other reason, for instance in order to effect a forced transfer of fishing rights from Maori to the recreational sector (whether uncompensated or compensated). The property right attributes of ITQ are universal and therefore all ITQ owners are entitled to expect the same protection from expropriation required by Maori when entering into the Settlement.

The existence of the QMS and the associated Fisheries Settlement, means that the conventional political application of the Southwick type of analysis is unavailable or irrelevant in a New Zealand context. It would not matter if the analysis claimed that the "recreational fishing industry" was a \$2 billion industry, that information could not be used by the Government to justify the re-allocation of catching rights from Maori and other ITQ owners to the recreational allowance under the Total Allowable Catch (TAC) without undermining the integrity of the Settlement with Maori and the QMS.

The only process of fisheries right re-allocation in New Zealand consistent with the preservation of the integrity of the Fisheries Settlement and the QMS is one of voluntary trade. It would be prudent for recreational organisations contemplating trade of this type to equip themselves with some valuation analysis. However, this analysis would be completely different to that undertaken by Southwick. It would also be tactically naïve to publish those valuations or supply them to potential sellers prior to the commencement of negotiations.