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**An economic survey of the Recreational fishing
Charter boat industry in NSW**

A report to the NSW DPI

By Dominion Consulting Pty Ltd

July 2014

Dominion Consulting was formed in 1997 and specialises in fishery economics and management studies as well as training for the marine resources sector.

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Suggested citation:

McIlgorm, A. and J. Pepperell (2014). An economic survey of the Recreational fishing charter boat industry in NSW. A report to the NSW Department of Primary Industries by Dominion Consulting Pty Ltd.

Acknowledgements: Thanks are given to the NSW Recreational Fishing Trusts for funding, the charter vessel operators who responded to the survey and NSW DPI staff for assistance with information.

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Executive Summary

This study represents the first evaluation of the economic performance and estimate of the economic contribution and regional economic impact of the NSW marine and estuarine recreational charter fishing boat sector. The charter sector became a restricted access fishery in the year 2000, with 276 businesses being issued with a NSW charter fishing boat licence. In early 2012 there were 211 potentially active (i.e. licence issued) charter vessels, of which 131 (63%) completed and returned logbooks to the NSW Department of Primary Industries (DPI).

Activity

Logbooks recorded 44,547 persons taking charter trips in 2012, of which 46% were on the north coast, 22% from Sydney and 32% were from ports on the south coast. Persons preferring nearshore fishing (89%) constituted the highest person numbers, followed by 6% estuary fishing and 5% gamefishing. Charter activity takes place year round with the November to April period having more trips and passengers than the cooler months. Activity levels between vessel operators vary with 71% of operators who are part-time, taking less than 400 persons fishing per year. In 2012 half of all charter trip fishers were taken fishing by 25 (19%) of the 131 charter vessels that returned logbooks.

Financial and economic performance

An operational and economic survey was circulated to all charter operators which resulted in 13 completed responses after a second mail-out and personal contacts. These responses were analysed and revealed a financial return to full equity of 3.5% for smaller vessels under 12m (average 7.3m in length) and 1.7% for larger vessels (over 12m in length). This translated to economic rates of return of -6.9% and -10.3% respectively, indicating that in the long run the level of returns experienced in 2012 suggest that owners forgo some return on capital by putting more unpaid labour into the business than if revenues were higher. Charter vessel activity levels in 2012, were below previous years. The average vessel performance results reflect the sample of owners who responded, the majority of whom were among the more active operators. The average charter business surveyed is viable, but owners are cognisant of the need to increase revenues through additional customers and control of costs. The draft results were presented to the Marine and Estuarine Recreational Charter Management Advisory Committee (MERCMAC) on 29 January 2014 for discussion and useful feedback was obtained.

Economic impacts on NSW

Logbook returns enable industry-wide revenue estimates to be made for the sector in 2012. Charter vessel operators statewide received an estimated \$10.12 million in fees from customers in 2012. Using data from the recent study on expenditure by NSW anglers (McIlgorm and Pepperell 2013) it was also possible to estimate the expenditure by charter vessel customers on their trips and accommodation on either side of the one day fishing experience. This showed that fishers spent an additional \$10.9m on non charter fee items such as food and accommodation, mostly in the charter ports region.

The regional economic impacts of these expenditures were estimated through an economic model of the NSW economy which indicated:

- The charter operator expenditure had an impact in the NSW economy of \$22.3m in output, with \$10.86m value added, \$5.8m in household income and 79 FTE jobs;

- The fishers' expenditure on travel and accommodation then had an additional impact of \$27.87m in output, with \$12.62m value added, \$6.54m in household income and 109 FTE jobs; and
- The combined economic impacts were \$50.17m in output, \$23.48m in added value, \$12.36m in household incomes and a total of 188 FTE jobs.

The study also provides regional economic impact estimates for the NSW north coast, Sydney and the south coast. Sydney charter clients had the greatest expenditure, but economic impact was relatively more important to the smaller south coast economy than in the north coast and Sydney. Government policy should be aware of the different significance of charter boat fishing in regional economies (more significant in the south coast, less significant in Sydney). The different size of multipliers in the respective economies means that the effects of government action or injections into the regional economies, may not be uniform across the regions.

The management of the charter sector should continue to ensure sustainable fish catches and also facilitate the management of vessel capacity levels and the development of licence values in conjunction with industry.

The charter industry can add value to what they offer the public through DPI and the industry encouraging improved business and stewardship practices and ethics among operators. More professional business practices can help business development and licence value formation. The fish guiding component of the charter boat industry also has the potential to meet more specialised niche needs among anglers and government can facilitate and provide incentives to further the development of fish guiding services with the potential economic benefits to regional communities in NSW.

As in any form of tourism, the charter sector is easily impacted by impressions among the public of government policies negatively impacting on this experience. Policy makers will now be more aware of potential risks to charter fishing activity in future policy initiatives.

In conclusion, the current study has provided the charter sector with evidence of an annual estimated \$50.2m of output in the NSW economy from charter fishing operators and their clients.

1. Introduction to the NSW Charter Boat Fishery

The Charter Fishery

The marine and estuarine recreational charter boat fishing sector operates along the coast of NSW. The fishery has been under management by the NSW Department of Primary Industries (DPI) since the year 2000 when operators were required to hold a licence, with 276 licences being issued. Since that time there have been no studies that have examined the economics of the recreational charter boat sector and the contribution of the industry sector to the NSW economy.

Charter fishing boat categories

The marine and estuarine recreational charter fishing boat sector is segmented into four categories of charter fishing as described in Box 1.

Box 1: The different categories of charter operation (see DPI website, DPI 2013)

Estuarine Fishing means any recreational charter fishing activity that involves taking fish, catching and releasing fish, or attempting to take fish, other than protected species, in estuarine waters (as defined by the Regulation) as listed in Schedules 3 and 4 and according to bag and size limits. Recreational fishers under this category can take an incidental catch of *one* individual fish per boat trip from Schedule 1 or 2.

Nearshore Bottom Fishing and Sportfishing means any recreational charter fishing activity that involves taking or attempting to take fish in ocean waters (as defined by the Regulation), other than protected species, as listed in Schedules 3 and 4 and according to bag and size limits. Recreational fishers under this category can take an incidental catch of *one* individual fish per boat trip from Schedule 1 or 2.

Gamefishing includes any recreational charter fishing activity that involves taking fish, catching and releasing fish, or attempting to take fish, other than protected species, in ocean waters (as defined in the regulation) as listed in Schedules 2 and 3 and according to bag and size limits. Recreational fishers under this category can take an incidental catch of *one* individual fish per boat trip from Schedules 1 and 4.

Deep Sea Bottom Fishing includes any recreational fishing activity that involves taking fish or attempting to take fish, other than protected species, in ocean waters (as defined in the Regulation) as listed in Schedule 1 and according to bag and size limits." (NSWDPI website 2013).

There is also a sub-category in the offshore charter fishery data which records bait fishing as part of the main type of charter fishing.

Introduction to the project

Past strategic planning by DPI has identified the need for up-to-date information on expenditure by the recreational fishing sector in NSW as a key research area.

"Specific charter boat management objectives to assist with the conservation of fish stocks include:

- *Determination of the size and location of the marine and estuarine charter fishing boat fleet.*
- *Determination of the impact on fish stocks.*
- *The maintenance of quality recreational fishing opportunities.*
- *Determination of an aggregate estimate of annual expenditure on marine and estuarine recreational charter fishing activities in NSW." (NSWDPI website 2013).*

The project proposed to:

1. *Profile recreational charter fishing businesses in NSW, examining levels of chartering activity, the income dependence on chartering and alternative vessel activities that generate income;*
2. *Survey charter boat operators all along the NSW coast, to determine the commercial and economic character of the industry, including investment, and its economic value; and*
3. *Estimate the regional economic flow-on effects and links between charter boat ports and businesses in the coastal regional economies (north coast, Sydney and south coast). (Dominion project application 2012).*

Past studies

Prior to coming under management, a study of activity in the sector was conducted in the late 1990's by Steffe et al. (1999). There have also been some studies of expenditure at specific game fishing tournaments which have included charter boats (e.g. Pepperell 2002).

The state's charter fishing boat operations have not been subject to previous large scale expenditure surveys, but have been part of several studies on specific issues. For example in 2004, ABARE published a survey of the charter game fishing vessels on the east coast of Australia that targeted game fish such as tuna and striped marlin in particular (Galeano et al. 2004).

Ernst and Young (2004) surveyed the operations of some charter vessels involved in the striped marlin fishery in the 2000-2003 period. ABAREs also published a study on socio-economics of game fishing on the East coast of Australia in 2012, confined to three towns, and also including private vessels (Ward et al. 2012). However there have been no expenditure studies that have covered non game fishing charter activities in NSW.

In other states of Australia there have been surveys of the economics of the recreational fishing charter sector, a study in South Australia being a recent example (Econsearch 2011).

This lack of information on the activity and economic contribution of the NSW charter vessel sector has likely inhibited the profile of the industry within government. The public perception of the importance of the charter sector as a central part of the recreational fishing industry, has also been limited by this lack of economic information.

This lack of an industry profile and quantification of the economic activity associated with charter operations inevitably impacts the recreational fishing charter vessel sector in ongoing spatial access allocation debates, where the sector's economic contribution to NSW is unrecorded and is unlikely to be sufficiently recognised as a result.

Consultation with some operators in the NSW charter fishing boat sector confirmed the need to profile charter fishing expenditure and its economic contribution to the NSW economy, on the north coast, the Sydney region and the south coast. However, because there has not been a history of business surveys of the industry, a reluctance among some operators to providing information about their fishing and business activities was detected. This reticence probably reflects the nature of the charter vessel sector because, while it is based on fishing, it is essentially a service industry in the competitive small tourism sector with operators often being based in small ports with their competitors' vessels berthed beside them.

Since being licensed in 2000, there has been a 'churn' of businesses exiting and entering the industry, resulting in 211 commercial charter fishing businesses holding a current licence in early 2012.

For some charter operators a more professional business ethic has developed as they operate to build a business that will retain its commercial value. On the other hand, the regulated nature of the fishery activity and the annual fees for licences are questioned by some part-time operators.

The limited information available on the business investment and financial commitment required in this industry means that future management decisions may insufficiently consider the potential business impacts of resource management and access decisions. For example, the establishment of Marine Parks has encroached on the areas accessed by fishing charter operations, potentially reducing the appeal of the charter fishing product to clients with financial impacts borne by commercial businesses.

In February 2012 the *"Independent Scientific Audit of Marine Parks in New South Wales"* called for a new view of the offshore area with more collaboration to manage the NSW *"marine estate"*. There will also be more emphasis on socio-economics. This study is an opportunity for NSW charter operators to present their economic contribution to the NSW economy separate from other environmental marine tourism operators, sightseeing and whale watching activities and so on. It is clear that information on the current economic contribution of recreational fishing charter vessels needs to be determined and is an important benchmark study for the sector.

2. The NSW Recreational Fishing Charter Boat Sector

Charter Operators

Existing information on the NSW charter boat sector comes from a variety of sources. Licensing and logbook data are the main information sources.

Licences

Licences require operators to provide information on their vessels and operations. Operators may hold different categories of licence among the four categories: estuary fishing, nearshore bottom fishing, game fishing and deep sea bottom fishing (see Box 1). There are then a permitted number of angling seats allocated to each licence.

In May 2012 the total number of estuary seats for active operators was 2,887, for 203 licences, 162 with an estuary endorsement. Other inactive vessels would make this a total of 3,733 for 211 licences. However 2,887 is the maximum number of seats that can go charter fishing in NSW estuaries on a given day if every charter fishing boat (CFB) went estuary fishing. In practice, over 50% of operators are ocean based and do not choose to fish in estuaries.

The total number of ocean seats, for nearshore bottom and sport, deep sea and game fishing, was 2,817 for 203 active operators. 184 of these vessels have 1, 2, or 3 endorsements. The total seats for all vessels is 3,797. This means that of those, 2,817 would be the maximum number of seats fishing in NSW ocean waters on a given day, should all authorised CFBs choose to conduct ocean charters.

Operators may also be restricted by vessel survey conditions arising from the NSW Maritime regulations, as opposed to NSW DPI. A CFB licence issued by NSW DPI may permit up to the number of passengers/charter fishers for ocean fishing activities, as determined by the NSW Maritime vessel survey process. In May 2012, there were a total of 247 CFBs with two or more endorsements, out of a total of 276 CFBs with one or more licences.

Logbook information

Logbook information is available for the operators who have returned their completed logbooks. In 2012, for the 211 active licences in the fishery, the DPI database contained logbook returns for 131 vessels. This means that 79 vessels (37%) did not return logbook records in the period.

From the database returns from the 131 vessels that submitted logbooks, a total of 44,547 persons took charter trips in the year 2012 (Table 1a). The north coast¹ accounted for 46% of all persons, Sydney 22% and the South coast 32%. Nearshore angling was by far the most active component, accounting for 89% of all charter trips².

Table 1a: The total number of angling trips, their type of fishing and coastal location in 2012 (Source: NSW DPI logbooks).

¹ The north coast is Regions 1, 2 and 3 from the Queensland border to Hawkesbury; Sydney is Region 4 Hawkesbury to Port Hacking; and the south coast is Regions 5, 6 and 7, south of Port Hacking.

² There were few operators who undertook "Deep sea" trips and these were necessarily included in with the nearshore category to protect confidentiality.

Coastal location	Estuary	Game	Nearshore	Total	%
North	761	1,167	18,464	20,392	46%
Sydney	627	413	8,862	9,902	22%
South	1,285	808	12,160	14,253	32%
Total	2,673	2,388	39,486	44,547	100%
%	6%	5%	89%	100%	

Table 1b reports that a total of 131 boats were giving charter trips across the three coastal locations, 39% in the north coast, 26% in Sydney and 35% on the South coast (some vessels crossed areas making 143 observed vessels). The catch returns are an indicator of vessels' activity and 45% of these were on the North coast, 20% off Sydney and 36% on the South coast. Nearshore activity accounted for 79% of catch returns while estuary activity accounted for 14%.

Table 1b: The total number of active licensed operators, their type of fishing and coastal location in 2012 as measured by catch returns (Source: NSW DPI logbooks).

Coastal location	Boats	%	Estuary	Game	Nearshore	Total	%
North	56	39%	322	236	2,203	2,761	45%
Sydney	37	26%	225	72	911	1,208	20%
South	50	35%	295	159	1,745	2,199	36%
All	131*		842	467	4,859	6,168	100%
%	(*143)		14%	8%	79%	100%	

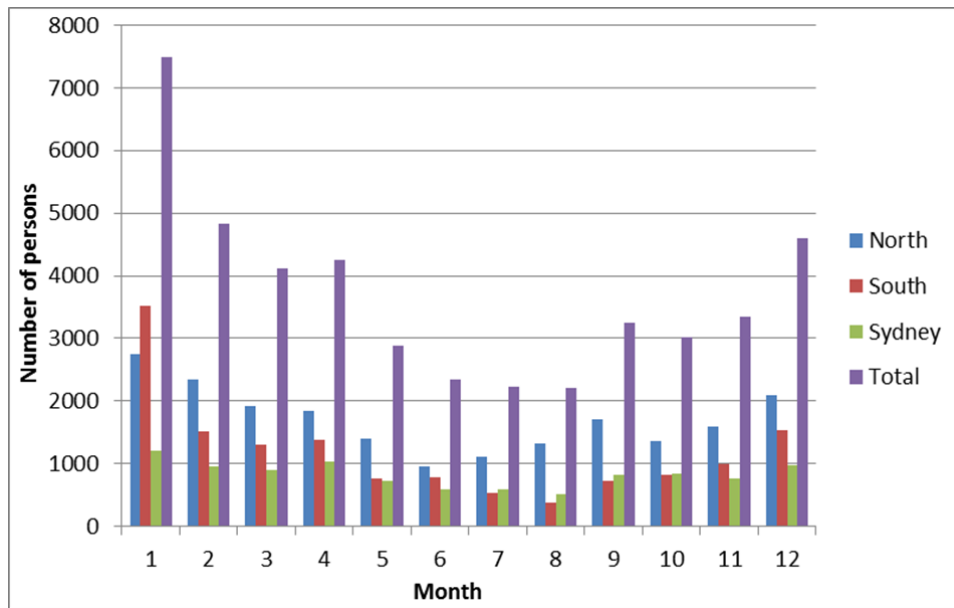
Table 1c reports the number of persons per catch return for the three coastal locations and the different types of fishing operation. Persons per catch return are highest for nearshore fishing trips from Sydney and lowest for estuarine trips in northern NSW. Estuary and game fishing passenger numbers per catch return are lower than those for nearshore activities.

Table 1c: The average number of persons per catch return by type of fishing and coastal location in 2012 (Source: NSW DPI logbooks).

Coastal location	Estuary	Game	Nearshore	Total
North	2.4	4.9	8.4	7.4
Sydney	2.8	5.7	9.7	8.2
South	4.4	5.1	7.0	6.5
Total	3.2	5.1	8.1	7.2

Monthly activity by persons taking charter trips is shown in Figure 1. This clearly indicates the highest activity in December and January and the lowest during June through August.

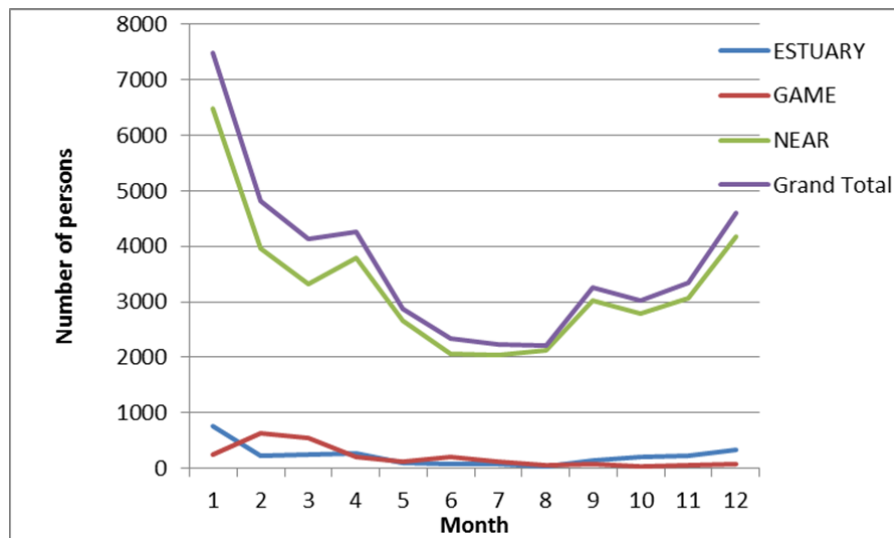
Figure 1: Frequency of fishing by month in the three areas of the NSW coastline (Source: NSW DPI, logbook data).



In terms of average persons per month as a measure of activity, this is highest for the north coast (1,699), followed by the South coast (1,187) and Sydney (825).

The predominance of persons engaging in nearshore fishing charters in all seasons is seen in Figure 2 and indicates that nearshore fishing is also highest in the Jan- April period, and is also the most frequent type of charter fishing all year round.

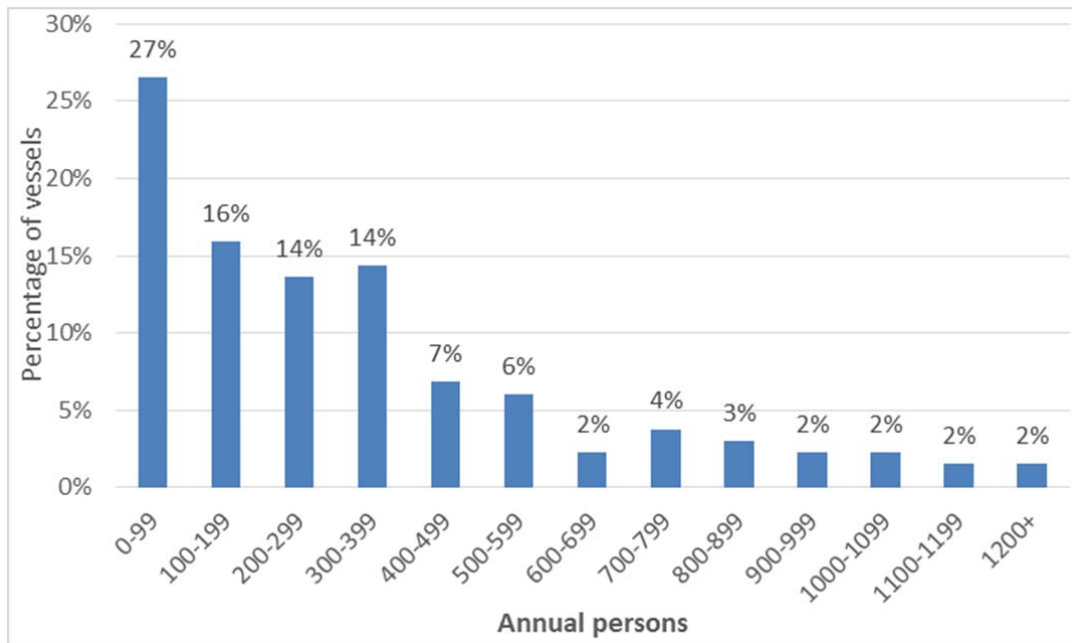
Figure 2: Persons engaging in each type of fishing by month in 2012 (Source: NSW DPI, logbook data).



In Figure 2 the predominance of nearshore fishing in the first and last months of the year is particularly evident. The average number of persons taking estuary trips was 223 per month, gamefishing 199 per month and nearshore 3,290 per month.

The logbook data also indicates the activity profile of vessels as reported (Figure 3). Here, it can be seen that 71% of the active charter vessels (93) take less than 400 persons fishing per year, while 29% of operators (38 vessels) take over 400 persons fishing per year.

Figure 3: The percentage of total days fished for different charter vessel operators in 2012 (Source: DPI, logbook data).



The average numbers of persons fishing per boat per year is 337 anglers. The median number is 234 anglers which indicates the skewedness of the activity distribution. These data also indicate the extent of part-time charter vessel operations with 71% of operators (93), taking less than 400 persons fishing per year. Further examination revealed that 50% of the total 44,457 persons in 2012, were taken charter fishing by 25 (19%) of the 131 charter vessels.

Logbook returns

The completion of logbooks is compulsory, however the returns are less than 100%. The extent of activity by charter vessels that do not return logbooks is unknown. From discussions with the DPI it is estimated that 80 of the 211 licensed vessels do not return logbooks, a return rate of 62%.

The incomplete submission of logbook data opens up a possible non-response bias. Mohadjer et al. (1994) explain *“There is always a potential for item nonresponse bias whenever sample persons who did not participate in the survey have somewhat different characteristics than those who did.”* For the purposes of this study we assume that those not recording logbooks have similar characteristics and activities to those sending in returns. By definition, it is virtually impossible to test if this assumption is true or false.

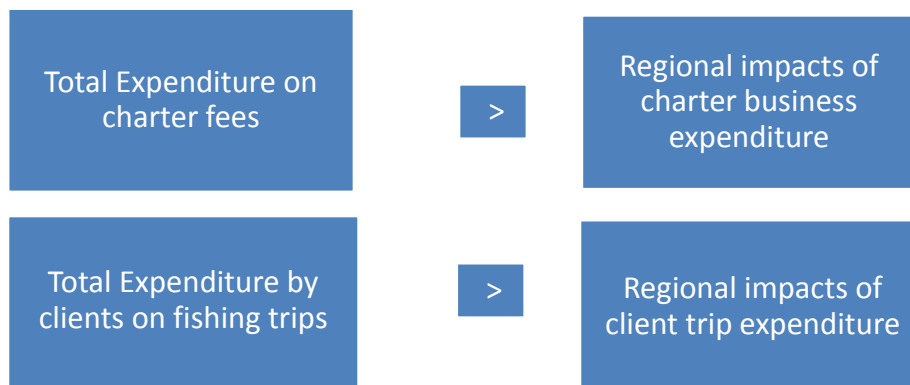
3. The Operational and Economic Survey

In this section we outline the approach taken to assess the economic performance of the charter operators via a charter vessel licence holder survey. We also estimate the total expenditures for the sector statewide and the associated regional economic flows.

A cost and income survey of charter boat operators was used to determine the economic performance of the industry as measured by accounting and economic information available for financial year 2011-12.

The information on the expenditures by the charter vessel operators is used in the statewide estimates of charter vessel revenue and costs and their regional impacts, as shown in the upper two boxes of Figure 1.

Figure 1: A diagrammatic representation of the study survey estimation and economic impact assessment process.



When recreational fishers decide to take a charter trip they pay a charter fee which becomes income for the charter vessel operator. However the fisher has also had to travel from home to port and spend on food and accommodation on either side of their charter vessel trip (and sometimes for the trip itself). For the two lower boxes in Figure 1 we can use the recently derived expenditure information for recreational fishing in NSW (McIlgorm et al. 2013) to estimate the non charter fee expenditure of fishers. Total expenditures are then combined to estimate the regional economic impact of this charter fishing.

The Charter vessel operator survey

Each of the licensed charter vessel operators was mailed a survey and a supporting letter from MERCMAC about the survey. The survey asked fishers about (a) their fishing operation and (b) their business records for the financial year 2011-12. In the questions about the charter operation, owners identified their vessel class, operations (charter and other activities to reveal links with eco-tourism) and crew employed etc. In the business section, owners were asked to provide detailed records of their income, costs and investment for the financial year 2011-12.

The survey and mail out

The survey was distributed by the NSW DPI's mailing agency to meet with confidentiality conditions (the consultant did not have names or contact details for operators). The survey mail out included a return stamped addressed envelope to encourage survey returns. In cases of non return of the survey, this was followed up with emails or telephone calls using publicly available charter operator details as per the NSW DPI website. To encourage participation, operators had an option to send copies of accounting data or to complete the survey over the phone. The survey results were analysed for both the financial and economic contribution of those surveyed.

The survey mail out required the use of an independent mail contractor working in association with DPI to mail out the survey to operators and licence holders on the DPI data base. This was required to protect the privacy of licence holders and meant the consultant did not have names or contact details for operators.

The regional economic flow-on and impacts

The questionnaire asked about business costs and inputs in order to assist in the estimation of the flow-on effects in local economies arising from charter fishing income. These results were translated into regional estimates and estimates of direct and indirect employment by the Western Research Institute, Bathurst, NSW which specialises in regional economics.

Discussion

Dominion had previously surveyed several other fisheries which are relatively new to management and were therefore aware that many operators might be suspicious of management and feel vulnerable about the competitive nature of the charter business and about disclosing operational and financial information in a survey. It was envisaged that telephone calls to operators from publicly listed telephone numbers could assist the response rate. Respondents were assured of confidentiality with written surveys being shredded and data sets being de-identified in the analysis to protect personal and business privacy.

Respondents were also assured that the survey responses would be analysed to provide descriptive economic statistics for the whole industry, major sub-regions and different classes of vessel. The "rule of 5" was also applied with no disclosure of data for less than 5 vessels, which is standard consulting and government fishery data practice to protect operator confidentiality. The use of the three areas (North coast, Sydney and South coast) enabled regional differences by area to be identified. Further disaggregation to port level was not possible due to the higher response rates required and further potential confidentiality issues arising when sampling smaller communities.

4. The Results

The survey response

The survey was mailed out to all 211 active operators in April 2013 and a second mail out was undertaken in July 2013. The initial number of returned surveys was lower than expected with six usable surveys for the first mail out; five for the second mail out, and two more from follow up calls. Several additional but incomplete surveys were received from each mail out, but due to the de-identification of the surveys for privacy reasons, these could not be followed up directly.

Operating results

The results were divided into two vessel lengths, below and above 12 metres (m). The 12m length limit is significant in the Charter industry as a coxswain's ticket, or additional professional seafaring certifications are required for these larger vessels which have more offshore capacity. The following survey responses were obtained in each category:

- 5 responses for small vessels under 12m in length (mean boat length of 7.3m) with mainly estuary and some nearshore endorsements; and
- 8 responses from larger vessels 12m in length and above (mean boat length of 12.6m) with mainly nearshore and deep sea endorsements.

No survey responses were received from vessels earning most revenue from gamefishing, though several of the larger vessels had some minor game fishing activity.

The following terms are used in the tables of results and are explained in Box 2.

Box 2: Explanation of accounting terms

Annual income: the gross revenue received from fees across all business activities including charter fees.

Variable costs: the costs related to vessel activity.

Fixed costs: the costs that do not vary with activity often being annual and fixed in nature.

Total cash costs: are variable costs plus fixed costs.

Boat cash income: is total boat gross income less total cash costs and indicates the cash generated by the business after variable and fixed cash flow expenses.

Boat margin: annual income less variable costs. This is an operating profitability measure, indicating the gross margin on fishing operations.

Depreciation: is a non cash flow expense but is deducted from boat cash income to give Business profit.

Interest: is added back to provide profit at full equity (as if the asset was fully owned).

Boat capital: is the written down value of the vessel, plus the written down value of any business vehicles plus the value of the licence. Licence values were conservatively estimated from available information.

The financial rate of return: is the profit at full equity/Boat capital (full equity assumes the asset is all owned, no debt).

Results for the NSW Charter Industry

Table 1 reports the financial results for both small and larger vessels.

Table 1: Survey estimates of the Financial returns of smaller vessels (<12m) and larger (>12m) vessels.

Annual \$ Financial year 2011-2012	Smaller vessels < 12m	% of Annual gross	Larger vessels > 12m	% of Annual gross
Income				
Rec. fishing charter income (annual gross)	43,298	91%	124,661	98%
Non Rec. fishing charter income – (annual gross)	4,472	9%	6,602	5%
Total Boat Gross Income	47,770	100%	127,137	100%
Variable Costs		% of Total Cash Costs		% of Total Cash Costs
Boat fuel, oil and fluids	7,213	17.9%	18,958	17.2%
Bait and ice	752	1.9%	2,940	2.7%
Provisions (catering for clients)	1,624	4.0%	733	0.7%
Labour, including owner - paid	8,000	19.8%	31,429	28.6%
Advertising, promotions, postage	1,920	4.8%	5,590	5.1%
Fishing consumables for clients(hooks, leaders etc)	551	1.4%	4,342	3.9%
Maintenance consumables (paint, screws, wd40 etc)	480	1.2%	3,398	3.1%
Vehicle fuel expense (not boat fuel)	1,424	3.5%	3,604	3.3%
Other variable costs	203	0.5%	3,789	3.4%
Total Variable Costs	22,166	54.9%	74,332	67.6%
Fixed Costs				
Licence Fees	1,129	2.8%	1,471	1.3%
Insurance	2,672	6.6%	4,040	3.7%
Interest	4,313	10.7%	1,865	1.7%
Legal/Accounting/bank charges	1,524	3.8%	3,444	3.1%
Telephone (Fixed line, mobile and internet).	1,600	4.0%	2,349	2.1%
Office & Admin. (computer, printers, consumables)	400	1.0%	549	0.5%
Travel and training	300	0.7%	1,093	1.0%
Annual replacement of fishing equipment	460	1.1%	2,086	1.9%
Slipping& mooring	1,466	3.6%	7,463	6.8%
Safety equipment, servicing and other fixed costs	862	2.1%	2,593	2.4%
Vehicle (Rego, CTP, insurance)	640	1.6%	3,051	2.8%
Maintenance	2,854	7.1%	5,704	5.2%
Total Fixed Costs	18,219	45.1%	35,708	32.4%
Total Cash costs	40,385	100.0%	110,040	100.0%
Boat Cash Income	7,385		17,097	
less depreciation	7,640		15,649	
Boat business profit	-255		1,448	
plus interest	4,313		1,865	
Profit at full equity	4,058		3,312	
Boat capital (incl. licence)	116,800		194,642	
Financial rate of return (%) on Total Boat capital & licence	3.5%		1.7%	

The financial results for the charter vessels surveyed in year 2011-12 indicate that a low level of financial profit was made in this period, representing a return of 3.5% and 1.7% to capital for small and larger boats respectively. The economic returns are presented in Table 2.

Table 2: The economic returns of the NSW charter sector, smaller and larger vessels.

Economic Profit	Smaller vessels < 12m	Larger vessels > 12m
Boat cash income	7385	17,097
<i>Less</i> Total unpaid labour	7450	15,488
Opportunity cost of capital	4672	7,786
Depreciation	7640	15,649
<i>Plus</i> Interest	4313.4	1,865
Net economic returns	-8063.78	-19,961
Economic rate of return (%)	-6.9%	-10.3%

The economic returns indicate that there is a -6.9% and -10.3% return to capital for small and larger boats respectively.

Discussion of profitability

These results indicate that for the sample of vessel owners who responded and for the financial year in question, the financial returns are low, but not critical. The businesses are earning significantly more revenue than their variable costs, and are viable businesses, but with operators desiring more customers and being careful to control costs. For both vessel sizes over 90% of annual vessel income is from direct RF charter activity, the balance coming from non RF income (diving, hire of vessel etc.).

These financial results indicate that small vessels achieve an annual profit at full equity of \$4,058, a financial rate of return to capital of 3.5%; and larger vessels, \$3,312 and 1.7% respectively. These returns are low considering the opportunity costs of having capital tied up in a charter fishing vessel and the time spent by owner operators in unpaid labour.

Economic profitability considers all inputs, and values them at their opportunity cost. For example, this means the dollar value of unpaid labour is estimated from the survey information on unpaid tasks and included in the economic returns, but not in the financial analysis (Econsearch 2011).

The opportunity cost of capital is assumed to be 4%, the net rate of return to capital in alternative earnings, such as a longer term bank deposits. By investing and operating a vessel, owners forgo this cash flow. Interest is added back to give a full equity measure. This rate of return is a conservative measure of opportunity costs as it does not include any premium in respect of an alternative investment to chartering.

Net economic returns take into account deducted unpaid labour, opportunity costs of capital and depreciation, and adds back interest. The economic rate of return is the net economic returns to boat capital. In a competitive industry the economic rate of return should be zero indicating the industry is gaining normal returns in a competitive environment. If the economic returns are negative, there are economic incentives to move out of the industry in the long run to alternative opportunities.

The economic returns include opportunity costs. Results show that small vessels have a net economic return of -\$8,064, which is an economic rate of return of -6.9%. Larger vessels have a net economic return

of -\$19,961, which is an economic rate of return of -10.3%. One of the main contributors to poor economic returns is the amount of unpaid time contributed by crew and owners in operating the business. The financial returns do not enable this to be paid in cash and the unpaid time is either accepted as part of the lifestyle or obligations in running a small charter tourism business. Financial returns are not sufficient to provide a normal return to capital for operators. Many operators have older boats and would find it difficult to invest capital in a new vessel.

Operators are careful to fill each trip with passengers to minimise inefficient trips. The level of profit while low, is not low enough to lead to a short term or long term shut down of operations.

The economic results indicate that it is likely some operators may consider leaving the industry in the long run, if a suitable alternative opportunity were available. However such moves are limited by the difficulty in realising funds from the charter boat, the main capital asset. In many cases boats are old and new entrants prefer to seek a licence for their own boat and business model.

In considering both the accounting and economic returns it is important to remember that the results are averages of a group of vessels and so some vessels will be below and some will be above the averages presented here. For example good (poor) business practices may contribute to the higher (lower) performance of individual businesses.

The response rate to the survey was also lower than desired, though the 13 vessels responding were mostly among the more active vessels (i.e. among the most active 38 of 131 vessels). However the possibility of non respondent bias cannot be excluded (i.e. that vessels not responding were more, or less, profitable than those for which responses were received).

Another important consideration is whether the year surveyed was typical of the industry over the longer period? For example NSW DPI logbooks indicate that there were 19% more charter customers in 2010 than in 2012, and 5.3% more charter customers in 2011 than in 2012. The equivalent survey in 2010 may therefore have shown significantly higher results than our 2012 study, but this is unknown. Discussions with MERCMAC members indicate that some of the best years for the Charter industry were before the global financial crisis, 2008. Since that time reductions in disposable income in the population has not assisted charter activity.

Economic returns below a normal return also indicate that there is unlikely to be a rush of savvy new entrants to the industry. NSW DPI was asked to review the entries and exits of vessels in past five years and there was no evidence of rapid entry of new entrants in search of profits. There was a normal level of businesses repositioning their operations which would support the survey's observation of operators being careful to manage operating costs.

These economic results are consistent with a tourism type of industry in which operators have a desire to take customers fishing, have a lifestyle in a rural setting and some business autonomy, but this comes at a cost of spending considerable unpaid time in running such a small charter fishing business. There is always the incentive that more customers in some years may enable more income to be allocated in respect of unpaid time.

Discussion of the survey

The survey response rate was lower than expected. The 13 replies from 211 active charter vessels is an apparent 6.4% response rate of all active vessels. However the 13 replies were from the 38 vessels with more than 400 passenger days per annum (see Figure 3), representing a response rate of 34% from among the more active vessels. In fishery economic surveys, limited numbers of responses from specific vessel classes often occur (George and New 2013). The main form of bias may be that the sample does not represent the survey non-respondents, which is important in interpreting the financial and economic survey results.

It is useful to consider various reasons that might have been behind the relatively low response rate. Discussions with some operators and industry representatives indicated that the low response rate was due to a range of issues.

- Timing in a climate of a raft of proposed reductions to bag limits;
- Survey being more complex and time consuming than expected by some respondents;
- Some respondents not seeing the need or purpose of the survey;
- Suspicion among many operators as to the purpose of the survey;
- Operators not wishing to disclose financial information;
- Different levels of business skills and commitment to the industry, with many small businesses having limited business record-keeping capacity and low levels of part time activity not meriting the time to complete the survey;
- Disillusionment with the charter fishery's business viability; and
- A dislike of Government, regulation and fees.

The study also went beyond the economic performance of charter vessels. The next section provides an analysis of estimates of statewide revenues and expenditures by the industry, followed by a regional economic impact analysis in Chapter 6.

5. Statewide Total Expenditures

The previous section examined the gross business revenues, expenditures, and the financial and economic viability of charter operator businesses.

The approach taken by this study is to use available logbook records for vessels undertaking charter trips in 2012. By expanding the logbook data to account for logbook non-returns, total numbers of charter trips can be estimated for each type of charter fishing activity.

The survey results from revenue estimates can be combined with data on fees charged (available on charter boat websites) to estimate the total annual charter fees taken by NSW operators. Estimated prices for a day's fishing fee can be used to estimate the statewide total fees. The daily fees for game fishing were estimated from several discussions with operators on boat costs and alternative variants in the charter arrangements for game fishing. The estimated total fees by area and licence category are shown in Table 3.

Table 3: Numbers of person trips in each type of charter vessel category in the North, Sydney and South coasts, the charter price per person day and the estimated total annual revenue from fees across each sector of the charter fishery.

Total expenditure	Log book person days	Corrected person days	Average fee \$/day	Nth Coast	Sth Coast	Sydney	Estimated total \$
Estuary	2,673	4,611	110	144,400	243,829	118,973	507,202
Game	2,388	4,119	350	704,576	487,830	249,349	1,441,755
Near	39,486	68,113	120	3,822,048	2,517,120	1,834,434	8,173,602
Total	44,547	76,844	132	4,671,024	3,248,779	2,202,756	10,122,559

This shows a grand total of \$10.12m estimated to have been spent on Charter fees in 2012.

Expenditure estimates of those taking charter trips

As well as direct charter fees, anglers taking charter trips have a range of associated travel, accommodation and food expenses incurred on the trip. These are additional to the fee paid to the charter fishing boat operator, which provides fishing tackle, the trip and sometimes food and refreshments on a larger vessel.

McIlgorm et al. (2013) surveyed recreational fishers in NSW about their expenditures on trips, tackle and boat use and capital expenditures. Regarding charter trips, the results indicated that of the 1,250 responses to that survey only 28 fishers (2.2%) had been on a charter trip in the survey period. This translated to 53 days (0.296%)³ out of a total of 17,862 fishing days in the sample of fishing surveyed. This sample was considered insufficient for estimation of the statewide expenditure associated with charter activity and the small sample was not used in this study. Contact with MERCMAC supports the observation that many charter fishing clients are there for partys or work trips, are not regular fishers, and do not hold recreational fishing licences, possibly explaining the low percentage of charter clients observed in McIlgorm et al. (2013).

³ Approximately 3 days in every thousand days fished statewide. The statewide expenditure survey sampling seems to under represent charter vessel fishing activity as the total estimate of days from logbook relative to days fished in NSW is twice this level.

The McIlgorm et al. 2013 survey expenditure results for fishing trips expenditure were applied to the logbook data to estimate the non charter fee trip expenses of persons taking charter trips. The non charter fee expenditure for each day fished was multiplied by the number of days fished. This analysis resulted in a total estimated expenditure of \$10.9m on other expenses, as shown in Table 4a which combines adjusted logbook data with the daily expenditure estimates from the 2013 survey results.

Table 4a: The estimated non charter fee daily expenditure of angler origin for those taking RF Charter vessel trips in 2012 (Source: DPI logbooks and McIlgorm et al. 2013).

Region	All days	Trip spend/ day\$	\$
Nth	29,900	\$ 86.47	\$ 2,585,433
Sth	20,898	\$ 109.47	\$ 2,287,755
Sydney	14,519	\$ 157.87	\$ 2,292,084
Inland	7,230	\$ 338.80	\$ 2,449,563
Interstate	3,099	\$ 418.07	\$ 1,295,440
Total	75,646	\$ 144.23	\$ 10,910,275

Table 4b: The adjusted trip expenditure for those taking RF Charter vessel trips in 2012, taking inland charter anglers into account.

Region	\$	\$	\$
	all areas	interstate absorbed	inland absorbed
Nth Coast	2,585,433	2,909,293	3,556,425
Sth Coast	2,287,755	2,611,615	3,258,747
Sydney	2,292,084	2,615,944	3,263,076
Inland	2,449,563	2,773,423	832,027
Interstate**	1,295,440		
Total	10,910,275	\$ 10,910,275	\$ 10,910,275
** divided at 25% each region			

The McIlgorm et al. (2013) study included expenditure in NSW by fishers living interstate and inland. When taking a charter trip in a coastal area we must adjust the interstate and inland expenditure to reflect its place of expenditure. The interstate expenditures were added to the North coast, Sydney and South coast and inland estimates. Much of the trip expenditure takes place at the port where the charter operation is based, but there is a need to apportion some of the costs for inland anglers. It was assumed that 30% of all the trip costs of inland fishers were spent inland, for example, on petrol and provisions for the trip to the coast. The resulting estimates which will be used in the regional analysis are shown in Table 4b. This is also significant in the estimation of regional impacts as estimated in section 6 below.

6. Statewide Economic Impact⁴

Introduction

The Western Research Institute (WRI) was commissioned by Dominion Consulting Pty Ltd to estimate the economic impacts of recreational charter vessel fishing in the coastal regions of NSW and for NSW as a whole, and thereby establish the economic contribution of the industry to the state and local economies.

The economic impacts are calculated in terms of output, value added, household income and full-time equivalent (FTE) employment in the respective regions.

Two types of economic impacts were considered:

- The economic impact of expenditure by charter vessel operators, including their fixed and variable costs; and
- The economic impact of additional expenditure by charter vessel fishers, excluding their expenditure on fishing items and charter fees.

Combining these results provides estimates of the total economic impact associated with the NSW charter vessels and their fishers.

In this way, WRI estimated the economic impacts of charter vessel operations and associated expenditure for NSW North coast, NSW South coast, Sydney and NSW.

Methodology

Expenditure data was collected via a survey conducted by Dominion Consulting Pty Ltd (McIlgorm and Pepperell 2013) and results were provided to WRI in order to undertake the economic impact analysis.

Input-output analysis

WRI used input-output analysis to provide an estimate of the economic contribution of recreational charter vessel fishing to the state and regional economies. Input-output modelling provides a detailed picture of the structure of the economy at a particular point in time.

The respective study areas were delineated based on the previous recreational fishing economic impact study conducted by WRI (McIlgorm and Pepperell 2013) and represent an aggregation of statistical areas at levels 4, 3 or 2 or combination thereof (as specified in ABS Statistical Geography Standard). Input-output tables for NSW and the regions were constructed for the 2011-12 financial year as in the 2013 study and so provide an indication of the inter-industry flows in the regions for that year.

The economic impacts were modelled as final demand impacts using the Simulating Impacts on Regional Economies (SIRE) method. SIRE is superior to standard input-output methods, as it provides for non-linear relationships between variables, is empirically driven, and is comparable to CGE models in terms of robustness, whilst minimising data requirements.

⁴ This chapter was prepared by the Western Research Institute, Bathurst, NSW.

Assumptions

In the case of economic impacts by charter vessel operators, the expenditure modelled:

- includes fixed and variable costs by charter vessel operators, whilst profits and depreciation payments by operators are not considered; and
- expenditure by operators on labour was converted into household final demand using the household expenditure survey for NSW.

In the case of economic impacts by charter vessel fishers, the expenditure modelled:

- includes all non-fishing expenditure items, e.g. travel, accommodation and food and beverage costs; and
- excludes such fishing-related items as fishing tackle (provided by operator), charter fees etc.

For charter vessel fishers, the expenditure data was collected for fishers living in coastal and inland areas, and also included expenditure by interstate visitors. Inland and interstate data was reallocated to the respective coastal areas, based on the specification by Dominion Consulting.

To estimate the economic impacts of expenditure by fishers and operators, the relevant expenditure items were allocated to industries in the input-output tables, based on the sectoral allocation table used in the 2013 study. It was assumed that the expenditure patterns of charter vessel fishers and independent recreational fishers are similar.

Since expenditure items may not be produced locally, a location quotients matrix was used to split total expenditure in the respective areas into local and imported components.

The economic impacts of charter vessel operation and fishing were provided in terms of output, value added, household income and full-time equivalent (FTE) employment, defined as follows:

- Output is the value of goods and services produced by businesses in a given region (including production for internal use).
- Value added is equal to output minus the cost of intermediate inputs and is equivalent to gross regional product (the local equivalent of gross domestic product).
- Household income measures the benefit received by regional households from economic activity. It typically refers to compensation of employees but can also include income in return for productive activity and other forms of income.
- Employment refers to full-time equivalent (FTE) employment and is a measure of the total level of labour resources used. The FTE of a full-time staff member is equal to 1.0. The FTE of a part-time worker will be a fraction of this depending on the relative number of hours worked.

Results

The results of the economic impact analysis are presented in Tables 5, 6 and 7 below.

Table 5. Economic impact of expenditure by charter vessel operators

Variable/area	North Coast	South Coast	Sydney	NSW
Expenditure \$ million (mln)	3.56	3.46	2.18	9.21*
Output (\$ mln)	5.53	4.16	5.53	22.30
Value added (\$ mln)	2.73	2.05	2.75	10.86
Household income (\$ mln)	1.29	0.97	1.60	5.82
Employment FTE (no.)	21	16	19	79

Note. Expenditure is derived from the survey conducted by Dominion Consulting Pty Ltd.

Table 6. Economic impact of additional expenditures by charter vessel fishers

Variable/area	North Coast	South Coast	Sydney	NSW
Original expenditure (\$ mln)	2.59	2.29	2.29	10.91*
Reclassified expenditure (\$ mln)	3.56	3.26	3.26	10.91*
Output (\$ mln)	6.15	4.29	7.18	27.87
Value added (\$ mln)	2.87	2.02	3.32	12.62
Household income (\$ mln)	1.27	0.89	1.89	6.54
Employment FTE (no.)	26	20	26	109

Table 7. Combined economic impact of charter vessel operators and by charter vessel fishers

Variable/area	North Coast	South Coast	Sydney	NSW
Output (\$ mln)	11.68	8.45	12.71	50.17
Value added (\$ mln)	5.6	4.07	6.07	23.48
Household income (\$ mln)	2.56	1.86	3.49	12.36
Employment FTE (no.)	47	36	45	188

Note. Original expenditure is derived from the survey conducted by Dominion Consulting Pty Ltd and includes expenditure made in NSW coastal areas and NSW as a whole, but excludes expenditure by fishers living in Inland NSW as well as expenditure by fishers travelling interstate. Reclassified expenditure includes expenditure made in the respective coastal areas plus a specified portion of interstate and inland expenditure.

*Totals for NSW include expenditure made interstate and inland. Therefore, the expenditure for north coast, south coast and Sydney will not sum to the total expenditure for NSW.

As shown in Table 5, expenditure by charter vessel operators in the respective coastal areas was the highest in north coast (\$3.56 million), followed by south coast (\$3.46 million) and Sydney (\$2.18 million). The comparison across coastal areas of expenditures by charter vessel operators

and generated economic impacts demonstrates that the former were not commensurate with the latter, due to the different size of regional economies and the level of multipliers, local expenditure and flow-on effects.⁵

When flow-on effects are taken into account, expenditure by charter vessel operators is estimated to have generated the following in the regional and state economies:

- Output. Approximately \$22.30 million in NSW as a whole, \$5.53 million in north coast and Sydney, and \$4.16 million in south coast;
- Value added. Approximately \$10.86 million in NSW as a whole, \$2.75 million in Sydney, \$2.73 million in north coast, and \$2.05 million in south coast;
- Household income. Approximately \$5.82 million in NSW as a whole, \$1.60 million in Sydney, \$1.29 million in north coast, and \$0.97 million in south coast;
- FTE employment. Approximately 79 jobs in NSW as a whole, 21 jobs in north coast, 19 jobs in Sydney, and 16 jobs in south coast.

As shown in Table 6, original expenditure by charter vessel fishers in the respective coastal areas was the highest in north coast (\$2.59 million), followed by Sydney (\$2.29 million) and south coast (\$2.29 million). After reallocation of expenditure made in inland areas and expenditure by interstate visitors, the expenditures by charter vessel fishers stood at \$3.56 million in north coast, \$3.26 million in Sydney and in the south coast.

When flow-on effects are taken into account, the expenditure by charter vessel fishers is estimated to have generated the following in the regional and state economies:

- Output. Approximately \$27.87 million in NSW as a whole, \$7.18 million in Sydney, \$6.15 million in north coast, and \$4.29 million in south coast;
- Value added. Approximately \$12.62 million in NSW as a whole, \$3.32 million in Sydney, \$2.87 million in north coast, and \$2.02 million in south coast;
- Household income. Approximately \$6.54 million in NSW as a whole, \$1.89 million in Sydney, \$1.27million in north coast, and \$0.89 million in south coast;
- FTE employment. Approximately 109 jobs in NSW as a whole, 26 jobs in Sydney, 26 jobs in north coast, and 20 jobs in south coast.

The **combined** economic impact of charter vessel operators and charter vessel fishers is shown in Table 7. When flow-on effects are taken into account, the combined expenditures are estimated to have generated the following in the regional and state economies:

⁵ Larger regional economies tend to have higher multipliers, larger local expenditure and larger flow-on effects relative to original expenditure. Compared to North Coast, Sydney is a much larger economy, while South Coast is a smaller economy.

- Output. Approximately \$50.17 million in NSW as a whole, \$12.71 million in Sydney, \$11.68 million in north coast, and \$8.45 million in south coast;
- Value added. Approximately \$23.48 million in NSW as a whole, \$6.07 million in Sydney, \$5.60 million in north coast, and \$4.07 million in south coast;
- Household income. Approximately \$12.36 million in NSW as a whole, \$3.49 million in Sydney, \$2.56 million in north coast, and \$1.86 million in south coast;
- FTE employment. Approximately 188 jobs in NSW as a whole, 47 jobs in north coast, 45 jobs in Sydney, and 36 jobs in south coast.

Discussion of the regional impact estimates

In the regional estimates we see that the direct expenditure of \$10.12m by the charter vessel operators has a sizeable indirect impact with a total economic output of \$22.3m across NSW. For the charter vessels, operator expenditure translated into 79 FTE jobs and \$5.82m of household income.

The 79 FTE jobs reflect those employed on the charter vessels and also in the services used by charter operators. The regional economic approach to estimation of jobs is based on FTEs however operator and crew activity is predominantly part time as presented in Figure 3. This confirms that a charter vessel has to have very high activity to generate a full time job for the crew. For example only 15% of vessels have over 700 passengers a year which would equate to in excess of \$99,000 gross turnover p.a., which would be the minimum amount of turnover required to start to generate full time wages⁶.

For the charter vessel customers, travel and accommodation expenditure of \$10.9m, had an output of \$27.87m and 109 TFE jobs. The 109 FTE jobs were located in the retail trade sector, hospitality sector, personal and other services sector, and in the transport and storage sector. Household income of \$6.54m was located in the retail trade sector, hospitality sector, personal and other services sector, public administration sector, and in the transport and storage sector (McIlgorm and Pepperell 2013).

The combined regional estimates in Table 7 are the sum of Tables 5 and 6. The regional differences in the NSW economy show that even though there was smaller expenditure in Sydney, the fishery has greater economic output there than for the North coast and for the South coast in particular, which is the smallest of the three regional economies. Put another way, the combined expenditure is relatively more important in the south coast economy, compared to Sydney, where charter fishing activity is a proportionately less part of a large city economy (McIlgorm and Pepperell 2013).

⁶ Estimate from multiplying 750 customers (Figure 3) by \$132/customer (from Table3) = \$99,000 pa.

7. Overall Discussion and Conclusion

The NSW RF charter boat industry was regulated in the year 2000 at which time compulsory licences were established. In the past 14 years charter operators who were primarily interested in taking others fishing, have been developing this regulated coastal recreational tourism service industry.

The industry not only works within the limitations imposed by weather on small vessel operations and regulations on small vessels imposed by government for safety, but is also influenced by annual fluctuations in passenger numbers, perceptions of fishing and changes in regional and national economies. For example the public can often have a “summer only” perception of Charter fishing services. Operators suggest that while weather is cooler in the winter, it is more predictable due to larger weather systems which either permit fishing, or stop it, and fish are as available as in the summer months (pers. comm. MERCMAC). The midyear period may represent a marketing opportunity for the charter sector through educating the public.

Charter operators also have to position their businesses to meet the changes in demand for recreational fishing trips requiring a charter vessel. Discussions with operators indicate that the level of disposable income is an important determinant of demand for charter services, as are parties, and business trips for groups of workers, who often use charter trip services. Many of the drivers for customers hiring charter boats have changed noticeably, operators commenting that groups of workers from some large factories in Newcastle, Sydney and Wollongong that have had considerable economic downturns, are no longer coming fishing on regular trips in the numbers of a decade ago. Some operators indicated that as the national economy had tightened it has reduced discretionary income and led to less charter boat customers (pers. comm. MERCMAC). Given that each charter business can have different client groups, there is no absolute agreement between operators on which year was best for income across the industry, but there is general agreement that since the Global Financial Crisis (GFC) in 2008, customer numbers have generally been declining (pers. comm. MERCMAC). Changes in taxation arrangements for poker machines has severely reduced subsidies from Licensed Clubs to their Fishing clubs and means many club groups no longer charter fish on a regular basis (pers. comm. MERCMAC).

The nature of the demand for charter Vessel services has not been formally analysed. The demand for charter services may be altering as the baby boomer generation ages. The growth in small boat ownership among general recreational fishers may also have impacted the demand for RF charter boat services. Charter operators are increasingly aware of the need to meet customer perceptions and to deliver a fishing trip experience that merits the expenditure on charter services. This is not an easy task and many elements of a successful trip are not under the control of the operator, particularly catching “big fish” every trip (pers. comm. MERCMAC).

Changes between years are also an issue for operators, the concept of a “normal year” being impacted by a range of economic, operational, fishery and weather-related influences. It is not surprising that given the regulatory environment, commercial issues and uncertainty, the industry has significantly different levels of annual trips and investment between operators, with more than 80% of licence holders appearing to be part-time.

Issues for management

In presenting the draft report results to members of MERCMAC questions were raised regarding the implications of the survey for industry capacity and the need to build licence value. The study can make some limited observations on this. Although charter vessels are managed by NSW DPI, they are in effect, platforms for tourism activity based on the state's fishery resources. The prosperity of the charter industry depends on perceptions of fishing, the actual availability of fish, and meeting customer expectations that merit them paying to access a larger vessel and guiding services for a charter trip. The number of licences issued (276), exceeds the 211 that were active in 2012, implying 65 are inactive or latent. The tourism nature of the industry means the desired number of licences should be determined by both customer numbers and sustainable fish availability. There are several considerations in terms of adjusting operator numbers to possibly increased licence values.

Management of fisheries in NSW is the responsibility of NSW DPI which ensures the fish stocks are maintained at levels which can sustain charter (and other sector) catches. Charter licence numbers may be reduced if the capacity was adversely impacting the fish stocks. In a commercial fishery, a decline in catch rates may require a reduction in fishing effort, by restricting licence numbers and preventing the activation of latent effort. Based on the information available from the charter sector, adjustment of fish effort to protect the fish stocks is not required. Reduction of licence numbers could be driven by a desire to build value in licences by having fewer licences in the Charter sector.

The second consideration is that the charter licence enables a charter operator to access customers. In the 2012 survey period, some charter operators chose to hold licences but remain latent, presumably gaining income in non-charter activities, or from being employed elsewhere in the economy. Another 211 operated but approximately 80-90% of these gained other part-time income and employment. This means that there were approximately 10-20% of fishers as full-time operators in 2012. If there is operator capacity that is in excess of the available customer numbers, this could be a reason to reduce licence holder numbers. This is not a resource issue, but is a common economic issue for service providers – for example the taxi industry, which in a city like Sydney may have more vehicles than needed for customer capacity.

All licensees pay an annual licence fee in respect of holding a licence irrespective of the size of the vessel or its degree of use. However some licences are in abeyance and do not require payment in the current period, but repayment of past annual fees if re-activated. There is also a fee payable on each endorsement. The impact of the abeyance provision is not a system favoured in commercial fisheries management regimes where after a specified time the licence is forfeit. This policy should be re-appraised to promote economic adjustment in the Charter sector.

Management has sought to use the number of "seats" that a vessel has as a way to limit customer capacity. The value of the licence may become more related to the number of seats held through time and being able to trade seats between operators would likely enhance industry economic efficiency. However the total number of seats represent a cap and may require adjustment to make a functioning trading system. This policy pathway requires more analysis and is beyond the scope of the current study.

This study has not examined the optimum capacity for the charter fishery, which would require further research and consideration by industry and management.

Industry development

The charter sector can add value to what they offer the public through DPI and the industry encouraging improved business and stewardship ethics among operators. Many of the operators have limited small business or tourist operator training and this can inhibit operators being able to build “taking people fishing” into a commercially viable charter business, that has an accounting value as a going concern, with goodwill for someone to potentially purchase. More professional business practices can help business development and licence value formation.

The fish guiding component of a charter boat operation is currently understated and has the potential to be enhanced adding value to the sector and to the NSW economy. Government can reduce unnecessary bureaucracy between Departments (DPI and Maritime) and provide incentives to the further development of fish guiding services of all kinds due to the potential economic and employment benefits to regional communities. Discussion with MERMAC suggest government facilitating industry to develop their own fishing guide certification for charter fishing boats captains. This could give the public more assurance in operators who have been accredited and build professionalism in the industry. This is beyond the scope of the current study and should be investigated further. There are also more specialised niches among anglers where new guided fishing experiences could be developed. For example, saltwater fly fishing and lure fishing for bream and flathead.

Communicating the importance of this activity in the coastal economy

Increasing the level of industry participation in commercial viability exercises, such as this survey, for example, has the potential to build industry identity and improve industry profile with the public and the government.

The current study has provided the charter sector with some valuable evidence of their economic contribution to the NSW economy. There is an annual estimated total of \$50m of output in the NSW economy connected with the charter fishing industry and their clients. This economic activity is levered off the skills of the charter boat operators as both tourism operators and fishing guides. It is thus easily impacted by impressions among the public of government policies negatively impacting on this experience. The regional analysis is only a snap shot of the broader economic contributions and significance of the sector’s impact.

The regional impact analysis indicates government policy should take into account the differences in the significance of charter boat fishing in regional economies (more significant in South coast, less significant in Sydney) and the unique nature of regional economies. The different size of multipliers in the respective economies means that the effects of government action, or injections into the regional economies, may not be uniform across the three regions.

The regional economic contribution of the charter operators and their clients will increasingly be recognised by government in future consideration of the economics of coastal industries within the NSW marine estate. The study indicates the potential for poorly conceived spatial access policies for the NSW coast to economically impact charter vessel operations and the economic wellbeing of NSW coastal communities. Those in policy making should be aware that the damage can start when the perception is given to charter vessel clients that spatial re-allocations of coastal access may reduce their chance of catching a fish. This reduction in charter vessel clientele can have a cascading negative impact on this tourism activity, as it can interfere with a significant value adding process in the coastal economy.

The charter fishing industry needs to project this economic profile among its members, keep developing professionalism and improve small business tourism operator skills in this significant niche industry within the NSW coastal economy.

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