The economic value of recreational fishing and boating in Victoria

Better Boating Victoria

Victorian Fisheries Authority

Final report

31 January 2020

Building a better working world

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Ernst & Young was engaged on the instructions of the Victorian Fisheries Authority ("the VFA" or the "Client"), with an equal funding contribution by Better Boating Victoria, to provide estimates regarding the economic value generated from recreational fishing and boating across Victoria in accordance with the engagement agreement dated 5 May 2019.

The results of Ernst & Young's work, including the assumptions and qualifications made in preparing the report, are set out in Ernst & Young's report dated 31 January 2020 ("Report"). The Report should be read in its entirety including the transmittal letter, the applicable scope of the work and any limitations. A reference to the Report includes any part of the Report. No further work has been undertaken by Ernst & Young since the date of the Report to update it.

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Building a better working world

31 January 2020

Victorian Fisheries Authority
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The economic value generated from recreational fishing and boating across Victoria

Dear Dallas D'Silva,

In accordance with our Engagement Agreement dated 5 May 2019 ("Agreement"), Ernst & Young ("we" or "EY") has been engaged by the Victorian Fisheries Authority ("the VFA" or the "Client"), with an equal funding contribution by Better Boating Victoria, to provide estimates regarding the economic value generated from recreational fishing and boating across Victoria (the "Services").

The enclosed report (the "Report") sets out the outcomes of our work. You should read the Report in its entirety. A reference to the report includes any part of the Report.

Purpose of our Report and restrictions on its use

Please refer to a copy of the Agreement for the restrictions relating to the use of our Report. We understand that the deliverable by EY will be used for the purpose of supporting policy implementation, management planning, decision making and advocacy in the recreational fishing and boating sectors by the VFA and Better Boating Victoria (the "Purpose").

This Report was prepared on the specific instructions of the VFA and Better Boating Victoria solely for the Purpose and should not be used or relied upon for any other purpose.

This Report and its contents may not be quoted, referred to or shown to any other parties except as provided in the Agreement. We accept no responsibility or liability to any person other than to the VFA and Better Boating Victoria or to such party to whom we have agreed in writing to accept a duty of care in respect of this Report, and accordingly if such other persons choose to rely upon any of the contents of this Report they do so at their own risk.

Nature and scope of our work

The scope of our work, including the basis and limitations, are detailed in our Agreement and in this Report.

Our work commenced on 1 May 2019 and was completed on 31 January 2020. Therefore, our Report does not take account of events or circumstances arising after the 31 January 2020 and we have no responsibility to update the Report for such events or circumstances.

In preparing this Report we have considered and relied upon information from a range of sources believed after due enquiry to be reliable and accurate. We have no reason to believe that any information supplied to us, or obtained from public sources, was false or that any material information has been withheld from us.

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We do not imply and it should not be construed that we have verified any of the information provided to us, or that our enquiries could have identified any matter that a more extensive examination might

disclose. However, we have evaluated the information provided to us by the Client as well as other parties through enquiry, analysis and review and nothing has come to our attention to indicate the information provided was materially mis-stated or would not afford reasonable grounds upon which to base our Report.

The work performed as part of our scope considers information provided to us and only a combination of input assumptions relating to future conditions, which may not necessarily represent actual or most likely future conditions. Additionally, modelling work performed as part of our scope inherently requires assumptions about future behaviours and market interactions, which may result in forecasts that deviate from future conditions. There will usually be differences between estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. We take no responsibility that the projected outcomes will be achieved, if any.

We highlight that our analysis and Report do not constitute investment advice or a recommendation to you on a future course of action. We provide no assurance that the scenarios we have modelled will be accepted by any relevant authority or third party.

Our conclusions are based, in part, on the assumptions stated and on information provided by the VFA and Better Boating Victoria, the survey panel in July and August 2019 and other information sources used during the course of the engagement. The modelled outcomes are contingent on the collection of assumptions as agreed with the VFA and Better Boating Victoria and no consideration of other market events, announcements or other changing circumstances are reflected in this Report. Neither Ernst & Young nor any member or employee thereof undertakes responsibility in any way whatsoever to any person in respect of errors in this Report arising from incorrect information provided by the VFA, Better Boating Victoria, the survey panel or other information sources used.

This letter should be read in conjunction with our Report, which is attached.

Thank you for the opportunity to work on this project for you. Should you wish to discuss any aspect of this Report, please do not hesitate to contact Ruth Ahchow on +61 3 9655 2711.

Yours sincerely

Ruth Ahchow

Partner
EY, Infrastructure Advisory

1. Executive summary

In May 2019 EY was commissioned by the Victorian Fisheries Authority"), with an equal funding contribution by Better Boating Victoria, to estimate the economic value generated by recreational fishing and boating across Victoria. This report details the findings of this study.

Specifically, the report outlines:

- The recreational fishing and boating industry generated a combined estimated $14.00 billion direct and indirect output, $5.82 billion in direct and indirect value added and 55,780 direct and indirect jobs (FTE) to Victoria in 2018/19
- The recreational fishing industry generated an estimated $8.14 billion direct and indirect output, $3.80 billion in direct and indirect value added and 36,037 direct and indirect jobs (FTE) to Victoria in 2018/19
- The recreational boating industry generated an estimated $8.07 billion direct and indirect output, $3.05 billion in direct and indirect value added and 26,662 direct and indirect jobs (FTE) to Victoria in 2018/19.

1.1 Introduction

Recreational fishing[1] is one of the most popular recreational pursuits in Victoria, with approximately 1.1 million Victorian adult residents participating in recreational fishing each year (compared to 838,119 adult fishers in 2015).[2] This study found that, in 2018/19, these fishers made 7.6 million fishing trips across Victoria, with over half of these trips occurring in regional areas.

With 197,000 registered vessels in Victoria and 417,000 licence holders [3], according to the VFA recreational boating is growing in popularity as more Victorians get out on the water to discover the state's coastline, rivers, lakes and estuaries. Recreational vessel registrations have grown at 2.5 per cent per annum over the past eight years.[4] This study found that in 2018/19, there were approximately 696,000 people who participated in recreational boating across Victoria, with 48% of these also recreationally fishing.

A 2015 Economic Study of Recreational Fishing in Victoria[5] ('2015 Economic Study') estimated that the economic contribution of recreational fishing to Victoria was $7.1 billion (combined direct and indirect output). Since 2015, the Victorian Government has invested in both the recreational fishing and boating industries in the Victoria. In order to continue to support policy implementation, conduct management planning, support advocacy, and enable decision making in the industry, in 2019 the VFA and Better Boating Victoria commissioned EY in May 2019, with an equal funding contribution by Better Boating Victoria, to undertake a revised study on the economic contribution of recreational fishing, together with an additional study to estimate the economic contribution of boating, to Victoria.

[1] Recreational fishing is defined as fishing for pleasure or competition (excluding commercial fishing (i.e. fishing for profit)) – Victorian Fisheries Authority, 2015
[2] Victorian Fisheries Authority, Program Evaluation of Target One Million, 2018
[3] Department of Transport (Victoria), Fishing and boating, available at: https://transport.vic.gov.au/fishing-and-boating, accessed 21.02.2020
[4] Department of Transport (Victoria), Fishing and boating, available at: https://transport.vic.gov.au/fishing-and-boating, accessed 21.02.2020
[5] Victorian Fisheries Authority, Program Evaluation of Target One Million, 2018

This study estimates the economic contribution[6] of recreational fishing and boating in Victoria[7]. It also estimates other key measures, such as the number of participants, number of fishing and boating trips and unmet demand for recreation fishing.

Whilst the 2015 survey included some questions on recreational boating, it was re-developed by EY in order to differentiate between fishing and boating related questions.

1.2 Approach

The approach used to estimate the economic contribution of recreational fishing and boating was developed in light of the findings from the previous 2015 Economic Study. The approach included the following key elements:

- **Survey design -** A survey was administered by EY to a random sample of the Victorian population in order to obtain data on the number of people who recreationally fish and boat, behaviour patterns related to recreational fishing and boating (e.g. where people fish and boat) and their expenditure patterns (e.g. per trip expenditure and annual expenditure).

- **Survey implementation -** The survey panel was selected by EY to best represent the Victorian population (individuals who both recreationally fish / boat and who do not recreationally fish / boat). A total of 2,991 individuals started the survey with 1,000 individuals completing the survey. The survey panel included soft quotas for gender and age, as determined by EY.

- **Participation -** EY estimated the total annual recreational fishing and boating participation by applying the portion of survey respondents that recreationally fished and participated in recreational boating to the Victorian population

- **Direct economic contribution -** Utilising the survey data and the estimation of total annual recreational fishing and boating participation in Victoria, EY developed a model to estimate the direct expenditure related to recreational fishing and boating.

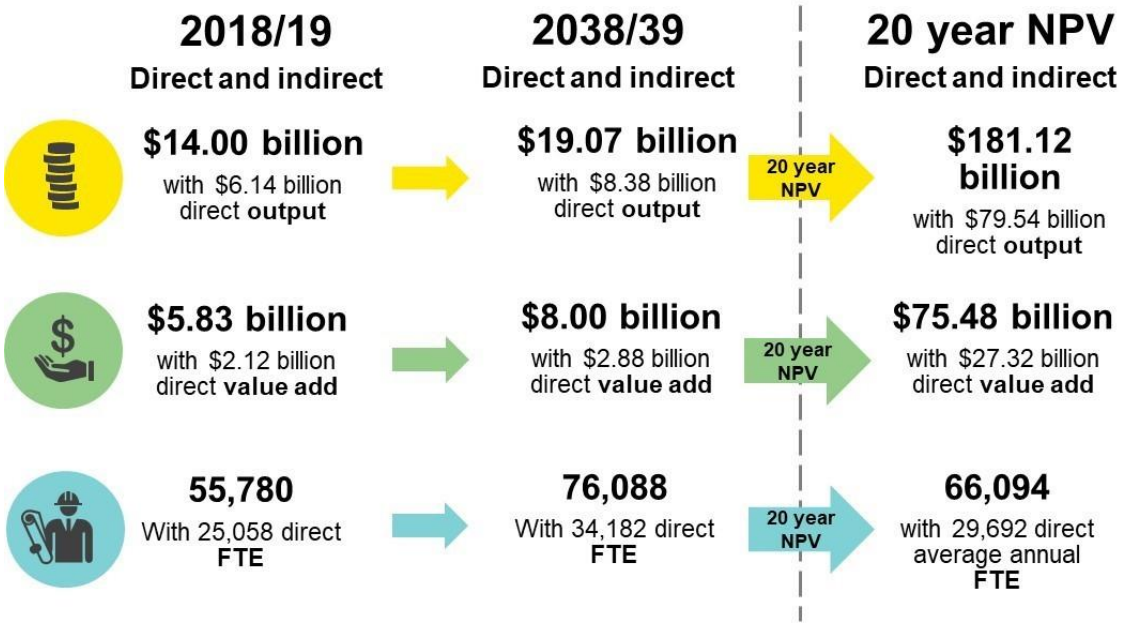
- **Indirect economic contribution -** This direct expenditure was placed in an input – output model to determine the indirect, or flow-on, impact that the expenditure on recreational boating and fishing activities has on the broader Victorian economy. This process then allowed for the calculation of the total economic contribution of recreational fishing and boating on the Victorian economy.

It is to be noted that the combined economic contribution of the recreational fishing and boating industry (i.e. $14.00 billion in output) does not does not represent the total combined impact of the two industries on an individual basis (i.e. $8.14 billion for recreational fishing plus $8.07 billion for recreational boating). As the economic contribution of recreational fishing includes boat purchase expenditure, proportioned for the amount of time recreational fishers use their purchased boat for fishing related activity, this expenditure has been removed in the total calculation to avoid double counting with the total economic contribution for recreational boating.

[6] This is an economic accounting exercise that captures all of the market-related expenditure for a specified industry or activity. The numbers generated by economic contribution studies would typically include all expenditures generated by an industry/project ("in-scope expenditures"), and can be expressed as both output (turnover) and value add. (The 2009 study identified industry value added only)
[7] The following activities are not included in the study: Recreation fishing by interstate and overseas fishers in Victoria, recreation fishing by Victorians that occurs outside Victoria and commercial fishing

1.3 Economic contribution to Victoria

Figure 1: Summary of estimated outputs



The study estimated that recreational fishing and boating in Victoria in 2018/19 generated an estimated:

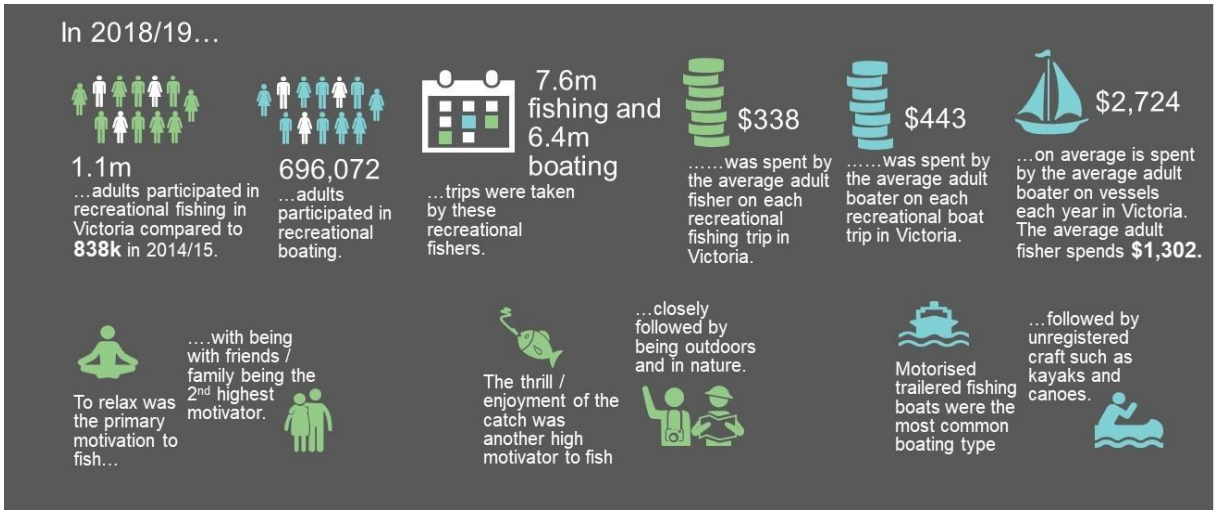
- $14.00 billion combined direct and indirect output, including $6.14 billion direct output
- $5.83 billion combined direct and indirect value added, including $2.12 billion direct value added
- 55,780 combined direct and indirect full-time equivalent (FTE) jobs, including 25,058 direct jobs.

The impact of recreational fishing and boating between 2018/19 and 2038/39 was also estimated using Victorian Government population projections.[8] Between 2018/19 and 2038/39, recreational fishing and boating in Victoria was estimated to generate the following:[9]

- **Output contribution (direct and indirect)** from $14.00 billion (in 2018/19) to $19.07 billion (in 2038/39), with an NPV over the 20-year model period of $181.12 billion
- **Value added contribution (direct and indirect)** from $5.83 billion (in 2018/19) to $8.00 billion (in 2038/39) with an NPV over the 20-year model period of $75.48 billion
- **Employment contribution (direct and indirect)** from 55,780 (in 2018/19) to 76,088 (in 2038/39) with an average annual employment of 66,094 FTE jobs.

[8] DELWP, available at: https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future, accessed: 18.11.2019
[9] https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future

1.4 Participation, expenditure and other measures



1.4.1 Recreational fishing

Based on an analysis of the information from the surveys, some of the key participation estimates are as follows:

- In 2018/19, 1,117,083 adult Victorian residents participated in recreational fishing across Victoria (compared to 838,119 adult fishers in 2015).[10] These fishers made 7.6 million recreational fishing trips across Victoria, with over half of these trips occurring in regional areas

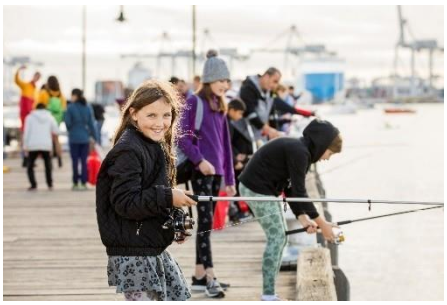
- Recreational fishers spend on average an estimated $244 per fishing trip on trip related expenses (e.g. food and accommodation, tackle, equipment and bait) with 91% of this incurring in Victoria ($220 per fishing trip in Victoria). This excludes boating related expenses

- Recreational fishers also spend on average an estimated $643 per year on annual ad-hoc expenses (e.g. clothing, fishing club fees, camping gear) with 91% of this incurring in Victoria ($585 annually in Victoria). This equates to $95 on a per trip basis ($85 of which is spent in Victoria)

- Recreational fishers spent an estimated $1,302 in Victoria on boats (related to recreational fishing activity). This equates to 48% of total boat spend ($2,724)

- In summary, on a per trip basis, an estimated $338 was spent per fisher on each trip ($306 in Victoria). This includes per trip and annual expenditure. In addition, on an average basis, $1,302 was spent on boats per fisher (related to recreational fishing activity)

- The primary location for fishing trips in Victoria is Port Philip, with Gippsland being the second most popular location.



[10] 2015 Economic Study

1.4.2 Recreational boating

Based on an analysis of the information from the surveys, some of the key participation estimates are as follows:

- In 2018/19, 696,072 adult Victorian residents participated in recreational boating across Victoria. These individuals made 6.4 million recreational boating trips across Victoria, with over half of these trips occurring in regional areas
- Recreational boaters spent on average an estimated $338 per boating trip on trip related expenses (e.g. vessel hire, berth fees, food and accommodation) with 83% of this incurring in Victoria ($281 spent in Victoria). This excludes fishing related expenses
- Recreational boaters also spent an estimated $1,781 per year on annual ad-hoc expenses (e.g. clothing, vessel club fees, licencing costs) with 84% of this incurring in Victoria ($1496 spent in Victoria). This equates to an estimated $194 on a per trip basis ($162 spent in Victoria). This excludes fishing related expenses
- Recreational boaters spent an estimated $2,724 in Victoria on vessels (excluding maintenance costs)
- In summary, on a per trip basis, an estimated $531 was spent per fisher on each trip ($443 in Victoria). This includes per trip and annual expenditure. In addition, on an average basis, $2,742 was spent on boats per fisher (related to recreational fishing activity)
- The primary location for boating trips in Victoria is Port Phillip, with motorised trailered fishing boat being the most popular type of boating.

1.5 Unmet demand for recreational fishing

The survey identified the issues that are preventing Victorians from participating in recreational fishing more often and also the actions that would motivate people to spend more time recreationally fishing.

The majority of respondents reported that no issues prevented them from going recreational fishing and they fish as much as they want to. However, lack of time and being too far from a fishing location were the top two issues preventing people from fishing more. This was followed by recreational fishing considered being too expensive.

The majority of respondents also noted that no specific actions would motivate them to fish more and they fish as much as they want to. Improved access and improved facilities are the top two actions that would motivate others to recreationally fish more often.

1.6 Limitations

The methodology used to estimate the economic contribution of recreational fishing and boating was developed under best practice principles. However, certain limitations should be considered when interpreting the results of this study. These limitations are outlined in Section 5 of the report.

2. Introduction

In May 2019 the VFA and Better Boating Victoria commissioned EY to estimate the economic value generated by recreational fishing and boating across Victoria. This report details the findings of this study.

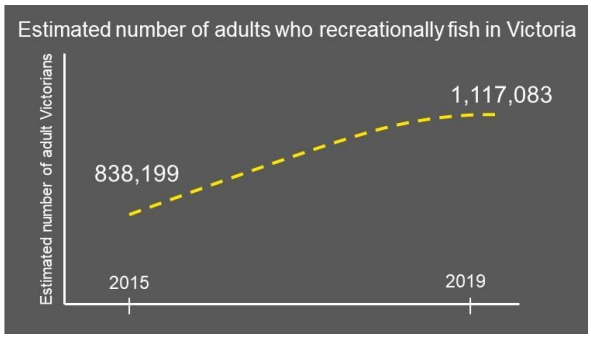
Specifically, the report outlines:

- The recreational fishing and boating industry generated a combined estimated $14.00 billion direct and indirect output, $5.82 billion in direct and indirect value added and 55,780 direct and indirect jobs (FTE) to Victoria in 2018/19
- The recreational fishing industry generated an estimated $8.14 billion direct and indirect output, $3.80 billion in direct and indirect value added and 36,037 direct and indirect jobs (FTE) to Victoria in 2018/19
- The recreational boating industry generated an estimated $8.07 billion direct and indirect output, $3.05 billion in direct and indirect value added and 26,662 direct and indirect jobs (FTE) to Victoria in 2018/19.

It is to be noted that the combined economic contribution of the recreational fishing and boating industry (i.e. $14.00 billion in output) does not does not represent the total combined impact of the two industries on an individual basis (i.e. $8.14 billion for recreational fishing plus $8.07 billion for recreational boating). As the economic contribution of recreational fishing includes boat purchase expenditure, proportioned for the amount of time recreational fishers use their purchased boat for fishing related activity, this expenditure has been removed in the total calculation to avoid double counting with the total economic contribution for recreational boating.

2.1 Recreational fishing in Victoria

According to the VFA, recreational fishing[11] is one of the most popular recreational pursuits in Victoria, with participation increasing year on year.



In 2015, it was estimated that 838,119 adults recreationally fished in Victoria each year.[12]

In 2018 it was estimated that over 1 million adult Victorians had recreationally fished in Victoria over the previous 12 months. This estimate is from a Victorian recreational fishing participation survey undertaken by the VFA in 2018.[13]

In 2019, this study found that 1.12 million Victorians recreationally fished in Victoria in 2019. This study also found that these adult fishers made 7.6 million recreational fishing trips across Victoria, with over half of these trips occurring in regional areas.

[11] Recreational fishing is defined as fishing for pleasure or competition (excluding commercial fishing (i.e. fishing for profit))
[12] Victorian Recreational Fishing Peak Body and EY, Economic Study of Recreational Fishing in Victoria, 2015
[13] The VFA Participation Study undertaken in 2018 estimated that 1,000,841 adult Victorian's had recreationally fished in Victoria over the previous 12 months

2.2 Recreational boating in Victoria

With 197,000 registered vessels in Victoria and 417,000 licence holders, according to the VFA recreational boating is growing in popularity as more Victorians get out on the water to discover the state's coastline, rivers, lakes and estuaries.[14] Recreational vessel registrations have grown at 2.5 per cent per annum over the past eight years.[15] In addition to licence holders, there are 256,000 licence endorsements for personal watercraft or jet skis.[16]

This study found that in 2019, there were approximately 696,000 people who participated in recreational boating across Victoria, with an estimated 48% of these also recreationally fishing

2.3 Victorian Government commitment

2.3.1 The Victorian Fisheries Authority

Recognising the importance of recreational fishing to the Victorian population, the Victorian Government has made changes and committed a significant amount of investment to improve the recreational fishing industry. This included establishing a new independent statutory authority, the VFA, to manage fisheries and resources state-wide and investing $81 million to grow participation in recreational fishing and improve resources (program referred to as Target One Million). The VFA is directly accountable for the administrative, licensing, compliance and enforcement functions that were previously undertaken by the former Fisheries Victoria, a business unit within the former Department of Economic Development, Jobs, Transport and Resources (DEDJTR).

The VFA is responsible for the management and regulation of fisheries including licensing, development of management plans and compliance and enforcement functions. The VFA also supports the development of recreational and commercial fishing and aquaculture in Victoria and provides advice to Government on a range of fisheries management opportunities. The VFA aims to deliver three outcomes:[17]

- Sustainable fishing and aquaculture
- Clear resource access and sharing arrangements
- Increased economic, social and cultural value.

To support the Minister for Fishing and Boating as the responsible Minister for fisheries in Victoria, Department of Job, Precincts and Regions (DJPR) retains a role in coordination and strategic policy. DJPR and the VFA work closely together, as well as with the Commonwealth Government and other key stakeholders.

A timeline of events related to fishing in Victoria from 2013 to 2019 is outlined in Figure 2.

[14] Department of Transport (Victoria), Fishing and boating, available at: https://transport.vic.gov.au/fishing-and-boating, accessed 21.02.2020
[15] Department of Transport (Victoria), Fishing and boating, available at: https://transport.vic.gov.au/fishing-and-boating, accessed 21.02.2020
[16] Fishing and boating, available at: https://transport.vic.gov.au/fishing-and-boating
[17] Victorian Fisheries Authority, available at: https://vfa.vic.gov.au/about, accessed: 10.10.2018

Figure 2: Timeline of events (2015 – 2019)

2.3.2 Better Boating Victoria

Better Boating Victoria was created on Monday 25 March 2019 and is tasked with progressing the 2018 boating election commitments made by the Victorian State Government to make it cheaper and easier for boaters and anglers to get out on the water. The following recreational boating initiatives are being delivered by Better Boating Victoria:[18]

- Abolishing all boat ramp parking and launching fees at Victorian boat ramps
- Ensuring every cent of licencing and registration fees is spent on improving boat ramps, boating safety and facilities
- Establishing a Better Boating Fund to get to work immediately on urgent boat ramp upgrades
- Undertaking critical maintenance at Cowes Jetty
- Providing eight new casual berths across Port Phillip that are accessible to the public
- Reviewing management of boating infrastructure in Port Phillip and Western Port and
- Establishing a dedicated boating infrastructure authority called Better Boating Victoria.

Better Boating Fund

The Victorian Government has committed to returning all funds from marine licensing and boat registration fees to improving boating safety and facilities through the establishment of a Better Boating fund. The fund will collect money from boat registration and marine licensing fees and use it exclusively to improve boating facilities and safety.[19] Measures to establish the fund are being investigated by the Department of Transport.[20]

[18] Victorian Fisheries Authority, Target One Million Budget 2015-2019, available at: https://vfa.vic.gov.au/recreational-fishing/targetonemillion2/target-one-million/budget# accessed: 22.01.2010
[19] Better Boating Victoria, available at: https://transport.vic.gov.au/fishing-and-boating/better-boating-victoria, accessed: 04.10.2019
[20] Better Boating Victoria, available at: https://transport.vic.gov.au/fishing-and-boating/better-boating-victoria, accessed: 04.10.2019

2.3.3 Economic Study of Recreational Fishing in Victoria 2015

In 2015 an Economic Study of Recreational Fishing in Victoria ('2015 Economic Study'), conducted by EY, was published for the Victorian Recreational Fishing Peak Body.[21] The 2015 Economic Study highlighted the importance of the recreational fishing industry to Victoria, estimating that the industry generated an estimated $7.1 billion combined direct and indirect output and $3.9 billion in combined direct and indirect value added in Victoria and generated 33,967 direct and indirect FTE.

$7.1 billion
Direct and indirect **output**

$3.9 billion
Direct and indirect **value add**

33,967
Direct and indirect **FTE**

It also estimated other key measures, such as the estimated number of participants (838,199), number of fishing trips (6.1 million) and average catch size.

The 2015 Economic Study was a follow on from a 2009 Economic Study (completed by EY). The intent of the economic study from 2015 was to replicate the outputs and approach of the original 2009 study, with only minor refinements and revisions to the original scope.

The key findings of the 2015 Economic Study are outlined below.

Economic Study of Recreational Fishing in Victoria[22]

In 2013/14, recreational fishing in Victoria generated an estimated:

- $7.1 billion combined direct and indirect output, including $2.6 billion direct output
- $3.9 billion combined direct and indirect value added, including $1.6 million direct value added
- 33,967 combined direct and indirect full-time equivalent (FTE) jobs, including 16,257 direct jobs.

Between 2013/14 and 2033/34, recreational fishing in Victoria is estimated to generate the following:

- Output contribution (direct and indirect) from $7.1 billion (in 2013/14) to $9.6 billion (in 2032/33)
- Value added contribution (direct and indirect) from $3.9 billion (in 2013/14) to $5.3 billion (in 2032/33)
- Employment contribution (direct and indirect) from 33,967 (in 2013/14) to 45,992 (in 2032/33).

2.3.4 Target One Million – Phase 1

The Victorian Government committed to growing recreational fishing in Victoria through initiating the Target One Million (TOM) in 2015. The Victorian Government initiated the TOM in 2015.[23]

The TOM program was an election commitment announced as part of the Labor Government's campaign in the 2014 State election, which saw the formation of the Andrews Government. The headline message of the TOM program was 'to get more people fishing, more often'. The program aimed to increase participation in recreational fishing in Victoria to one million anglers by 2020. The TOM program, which commenced in 2015, outlined a number of individual commitments designed to improve the recreational fishing experience for all Victorians. The election commitments were implemented by the then Fisheries Victoria, a business unit within the then DEDJTR. The Andrews Government committed $35 million to the initiative, which

[21] EY, VRFish - Economic Study of Recreational Fishing in Victoria, 2015
[22] EY, VRFish, Economic Study of Recreational Fishing in Victoria, 2015
[23] Victorian Fisheries Authority, Target One Million Budget 2015-2019, available at: https://vfa.vic.gov.au/recreational-fishing/targetonemillion2/target-one-million/budget# accessed: 22.01.2010

was later increased to $46 million to accommodate the requirements of the program.[24]

The TOM program included the establishment of a new independent statutory authority, the VFA to manage fisheries and resources state-wide. The VFA was established on 1 July 2017, replacing Fisheries Victoria[25], and has been responsible for continuing the delivery of the TOM program.

With the aim of increasing recreational fishers in Victoria to one million participants, some of the key initiates from TOM Phase 1 include:[26]

- Establish a Better Fishing Facilities Fund and allocate 'Stronger Fishing Club' grants
- Halt commercial netting in Port Philip and Corio Bays over eight years
- Ban netting at the mouths of rivers in the Gippsland Lakes
- Increase fish stocking to 5 million fish per year
- Deliver school education and children's fishing programs.

[24] Victorian Fisheries Authority, Target One Million Budget 2015-2019, available at: https://vfa.vic.gov.au/recreational-fishing/targetonemillion2/target-one-million/budget# accessed: 22.01.2010
[25] Fisheries Victoria are a former business unit within the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).
[26] The Victorian Fisheries Authority, Target One Million – Phase 1, available at: https://vfa.vic.gov.au/recreational-fishing/targetonemillion2/target-one-million

2.3.5 Target One Million – Phase 2

The Government that committed to TOM Phase 1 was re-elected in the 2018 state election and committed a further $35 million to extend the TOM phase one plan into phase two.[27] The following recreational boating and fishing initiatives are included in Phase 2:[28]

Fishing commitments

- Phase out commercial fishing in the Gippsland Lakes through a compulsory buyout to give the Lakes back to recreational anglers, boost tourism and create jobs
- Construct a new $7 million native fish hatchery in Shepparton focussed on warm water species such as Murray cod and golden perch and release more native fish including Murray cod, golden perch and silver perch into suburban lakes
- Increase fish stocking to 10 million fish annually by 2020
- Mandate access for fishing and camping through opening up hundreds of kilometres of crown land river frontages, many covered by grazing licences and allow anglers to use boats and kayaks with electric motors on some lakes and reservoirs
- Stock Eastern King Prawns into Lake Tyers
- Invest in science and habitat restoration in the Gippsland Lakes to ensure the environment remains healthy
- Invest $1.5 million for a new on water café on Bullock Island in partnership with the Lakes Entrance Fishermen's Co-operative Society
- Invest $600,000, in addition to fishing licence fees, on fish cleaning tables and fishing platforms around Port Phillip including Corio Bay
- Improve fish habitat in Port Phillip by investing $2.5 million reef development
- Advocate for Southern Bluefin Tuna to protect the fishery from bag limit cuts by the Commonwealth
- Introduce a new Fishing for All program to get more people into fishing, including a further $200,000 into the Vic Fish Kids program
- Offer number plates for recreational fishers
- Invest $200,000 to develop a recreational fishing tourism plan with a focus on events and marketing regions and towns with specific species.

Boating commitments

- Abolish all boat ramp parking and launching fees at Victorian boat ramps
- Ensure every cent of licencing and registration fees is spent on improving boat ramps, boating safety and facilities
- Establish a Better Boating Fund to get to work immediately on urgent boat ramp upgrades across the state including Mordialloc, Queenscliff, Point Richards, Hastings and Rhyll
- Undertake critical maintenance at Cowes Jetty
- Provide eight new casual berths across Port Phillip that are accessible to the public
- Review management of boating infrastructure in Port Phillip and Western Port
- Establish a dedicated boating infrastructure authority.

2.3.6 TOM program evaluation

In September 2018, EY were commissioned by the VFA to conduct an evaluation of Phase 1 of the TOM program, in line with lapsing program requirements of the Victorian Government's Performance Management Framework.[29] Some of the key findings of this program evaluation are detailed below.[30]

Key findings of the TOM Phase 1 program evaluation

1. Increased the number of recreational fishers and total fishing trips in Victoria

- Successfully increased the number of recreational fishers in Victoria to 1,000,841 in 2018; a 21% increase from 2014

[27] Victorian Fisheries Authority, Target One Million Budget 2015-2019, available at: https://vfa.vic.gov.au/recreational-fishing/targetonemillion2/target-one-million/budget# accessed: 22.01.2010
[28] Victorian Fisheries Authority, Target One Million Budget 2015-2019, available at: https://vfa.vic.gov.au/recreational-fishing/targetonemillion2/target-one-million/budget# accessed: 22.01.2010
[29] Victorian State Government, Performance Management Framework, June 2017
[30] Victorian Fisheries Authority and EY, Program Evaluation of Target One Million, 2018

- Delivered 180 grants of $2,000 to fishing clubs through the Stronger Fishing Clubs program (totalling $360,000)
- Held 12 'Vic Fish Kids' events over 2017 and 2018 introducing thousands of children to fishing for the first time; 281,370 children between the ages of 5 and 17 fished for the first time between 2015 and 2018.

2. Increased fish stocking throughout Victoria

- Stocked 6 million fish in 2018 into more than 200 waters across Victoria, exceeding the goal to increase from 3 to 5 million fish per year
- Released 12 million native fish over four years almost doubling the number between 2014 and 2018.

3. Upgraded fishing facilities/infrastructure and improve access for recreational fishers

- Provided $3.3 million in grants through the Better Fishing Facilities Program to improve recreational fishing facilities across Victoria and achieved $15.5 million worth of co-investment from project partners.

2.4 This study

The 2015 Economic Study estimated that the economic contribution of recreational fishing to Victoria was $7.1 billion (combined direct and indirect output). Since 2015, the Victorian Government has invested in both the recreational fishing and boating industries in Victoria.

In order to continue to support policy implementation, conduct management planning, support advocacy, and enable decision making in the industry, the VFA commissioned EY in May 2019, with an equal funding contribution by Better Boating Victoria, to undertake a revised study on the economic contribution of recreational fishing, together with an additional study to estimate the economic contribution of boating to Victoria.

This study estimates the economic contribution[31] of recreational fishing and boating in Victoria[32]. It also estimates other key measures, such as the number of participants, number of fishing and boating trips and location of boating trips.

2.5 Approach

As noted above, the approach used to estimate the economic contribution of recreational fishing was revised from the 2015 Economic Study and an additional study to estimate the economic contribution of recreational boating was developed. An overview of the approach is outlined below.

Whilst the 2015 survey included some questions on recreational boating, it was re-developed by EY in order to differentiate between fishing and boating related questions.

Survey design

A survey was administered by EY to a random sample of the Victorian population in order to obtain data on the number of people who recreationally fish and boat, behaviour patterns related to recreational fishing and boating (e.g. where people fish and boat) and their average expenditure pattern (e.g. per trip expenditure and annual expenditure).

The survey administered for the 2015 Economic Study was examined to assess if questions remained relevant for the current study. Certain questions were revised, and additional questions developed for the purposes of the current study as appropriate.

Questions related to the economic impact of recreational boating were also included.

[31] This is an economic accounting exercise that captures all of the market-related expenditure for a specified industry or activity. The numbers generated by economic contribution studies would typically include all expenditures generated by an industry/project ("in-scope expenditures"), and can be expressed as both output (turnover) and value add. (The 2009 study identified industry value added only)

[32] The following activities are not included in the study: Recreation fishing by interstate and overseas fishers in Victoria, recreation fishing by Victorians that occurs outside Victoria and commercial fishing

Survey implementation

The survey panel was selected by EY to best represent the Victorian population (individuals who both recreationally fish / boat and who do not recreationally fish / boat). A total of 2,991 individuals started the survey with 1,000 individuals completing the survey. The survey panel administered by EY included soft quotas for gender and age. The survey consisted of online questionnaires of fisherman, boaters, non-fisherman and non-boaters. The survey 563 individuals who fished and 321 individuals who boat and 116 people who neither recreationally boat nor fish. The survey questionnaire is set out in in Appendix D.

Participation

EY estimated the total annual recreational fishing and boating participation by applying the proportion of survey respondents that recreationally fish and boat to the Victorian population.[33]

Estimated economic contribution

Utilising the survey data and other relevant inputs EY developed a model to estimate the direct expenditure related to recreational fishing and boating, including:

- Average expenditure per trip (e.g. berth fees, boat fuel, bait, food and accommodation, equipment hire etc.)
- Annual average expenditure (e.g. licencing costs, clothing, club administration fees, boating maintenance etc.)
- Boat purchase cost.

The methodology enabled clear separation between expenditure and activity generated from recreational fishing and boating.

This direct expenditure was placed in an input – output model to determine the indirect, or flow-on, impacts that the expenditure on recreational boating and fishing activities has on the broader Victorian economy. This process then facilitated the estimation of the total economic contribution of recreational fishing and boating on the Victorian economy.

2.6 Differences in recreational fishing surveys

The methodology used in this study adopted a statistical approach to estimate the number of people participating in recreational fishing and the economic contribution of recreational fishing. Data collection included:

- Desktop research, including relevant benchmark studies
- Market research through surveying
- Consultation.

These are outlined further in Appendix A.

As outlined previously, the survey was administered to a random sample of the Victorian population in order to obtain data on the number of people who recreationally fish, behaviour patterns related to recreational fishing (e.g. where people fish) and their expenditure pattern (e.g. per trip expenditure

[33] Victoria in Future – Planning, available at: https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future, accessed: 03.10.2019

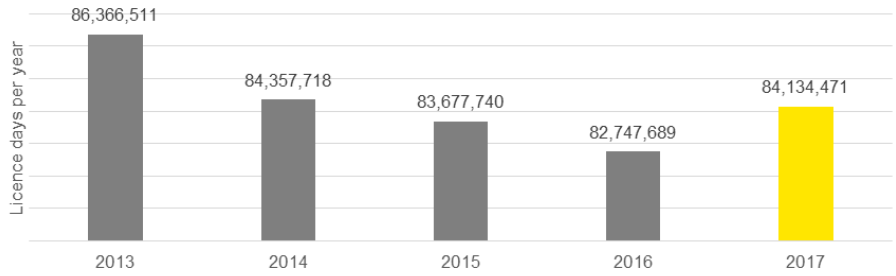
and annual expenditure). EY then estimated the total annual recreational fishing participation by applying the proportion of survey respondents that recreationally fished to the Victorian population.[34]

Other studies have used different methodologies to estimate a proportion of people in a population who recreationally fish. It is expected that different methodologies adopted may yield varying results. Approaches adopted in other studies have included:

Review of recreational fishing licence sales in Victoria[35]

Over 40% of the Victorian population are not aware that a licence is needed to recreationally fish in Victoria. This number is consistent across Victorians who both fish and do not fish. [36] As such, an overview of trends of recreational fishing licence sales in Victoria is not an accurate representation of the number of people who recreationally fish in the State.

However, a review of recreational fishing licences is outlined below for information purposes. To allow a detailed comparison of trends in fishing licence sales the most accurate measure is analysing total licence days per year, rather than total licence sales. Aggregating the licences held by day removes the variance of licence type from the equation (i.e. purchasing a 3 day, 28 day, 1 year or 3 year licence).[37]



It is to be noted that there are a number of people who are exempt from requiring a fishing licence including those under 18 years of age and over 70 years of age, those who hold a seniors card, those who hold a veterans affairs pensioner concession card and those who are the traditional owner under a natural resource agreement.

Key aspects that explain the variation between sales of fishing licences and total anglers include:[38]

- The VFA reported that record rainfall and extreme weather events in September, October and November of 2016 significantly affected the number of recreational fishers during that period, eliminating the traditional spring bounce. Victorians did not resume fishing in significant numbers until January 2017.

- The Recreational Fishing Licence fee was increased from $24.50 to $35 in 2016. As a result of this increase, a number of people sought to purchase a three year licence prior to the increase and consequently, there was a spike in licence purchases in that year

- VFA are also finding that an older demographic of fishers are now progressing into an exempt category meaning that they no longer require a licence.

State-wide Recreational Fishing Survey[39]

The 2013/14 state-wide Recreational Fishing Survey performed by the Queensland Department of Agriculture and Fisheries collected reliable estimates of recreational participation rates, state-wide

[34] Victoria in Future – Planning, available at: https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future, accessed: 03.10.2019
[35] EY, Target One Million – Program Evaluation – Victorian Fisheries Authority, December 2018
[36] Victorian Fisheries Authority, Victorian Fishing Analytics Report, 2018
[37] Fish licence types and prices can be found at: https://vfa.vic.gov.au/recreational-fishing/fishing-licence, accessed: 13.10.2018
[38] EY, Target One Million – Program Evaluation – Victorian Fisheries Authority, December 2018
[39] Australian Government Department of Agriculture, available at: http://www.agriculture.gov.au/abares/research-topics/fisheries/fisheries-and-aquaculture-statistics/recreational-and-charter-fishing-2017#western--australia, accessed: 04.10.19

and regional annual catch, common species caught by recreational fishers and regions where recreational fishing activities took place.

The survey results estimated that 15% of Queenslanders (642,000 people) aged five years and over had engaged in recreational fishing. The survey combined diary and telephone surveys to collect high-quality data over 12 months. The Queensland Department of Agriculture and Fisheries estimated that the commercial equivalent for recreational catch in Queensland in 2016/17 was $94 million.

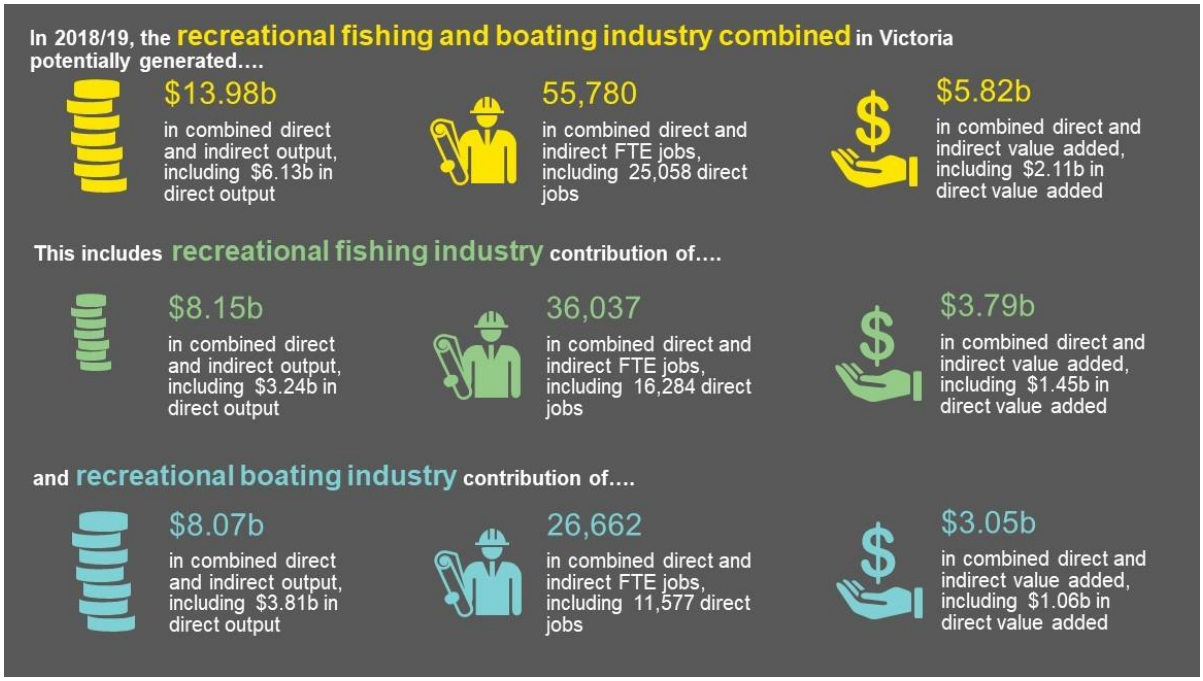
Australia-wide Recreational Fishing Survey[40]

Comprehensive national recreational fisheries statistics are not available for recent years. The last Australia-wide survey of the sector was the 2000/01 National Recreational and Indigenous Fishing Survey (NRIFS) conducted by Australian Government and state/territory fishery management agencies (Henry & Lyle 2003). The study used a telephone screening survey of the general population (March to April 2000) to estimate the number of recreational fishers in each state and territory and a diary survey of recreational fishers (May 2000 to April 2001) to gather information on the extent of their activities.

The survey results indicated that 3.4 million fishers participated in recreational fishing in the 12 months to May 2000.

[40] Australian Government Department of Agriculture, available at: http://www.agriculture.gov.au/abares/research-topics/fisheries/fisheries-and-aquaculture-statistics/recreational-and-charter-fishing-2017#western--australia, accessed: 04.10.19

3. Economic contribution



An economic contribution is defined as the gross changes in a region's existing economy that can be attributed to a given industry, event, or policy[41], in this case the Victorian recreational fishing and boating industry.

This chapter presents the results of the economic contribution analysis and proceeds as follows:

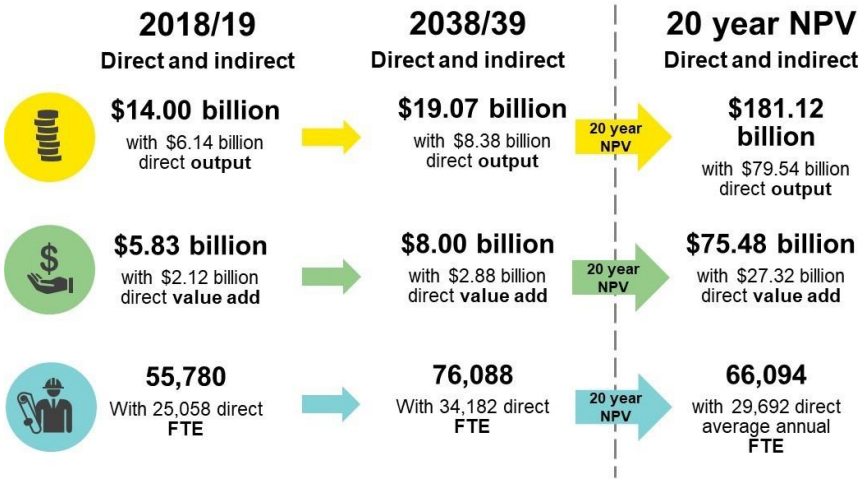
- Direct industry output, value added and employment of recreational fishing and boating (Chapter 3.1)
- Combined direct and indirect contribution of recreational fishing and boating (Chapter 3.2)
- Future contribution of recreational fishing and boating (Chapter 3.4).

The detailed assumptions underpinning this analysis are presented in Appendix A.

[41] Watson, P; Wilson, J; Thilmany, D, 'Determining economic contribution and impact: What is the difference and why do we care', 2007

3.1 Direct industry output, value added and employment

Figure 3: Summary of estimated output



In 2018/19, recreational fishing in and boating in Victoria combined, directly generated an estimated:

- $6.14 billion direct industry **output**
- $2.12 billion direct **value added**
- 25,058 direct FTE **jobs**.

The direct contribution estimated to be generated per region is outlined in in the figures below. This has been shown excluding the cost of the boat. The distribution across regions has been generated based on the estimated spend from each region, on the basis of the survey responses.

Figure 4: Recreational fishing - Direct economic output, value added and employment, by region

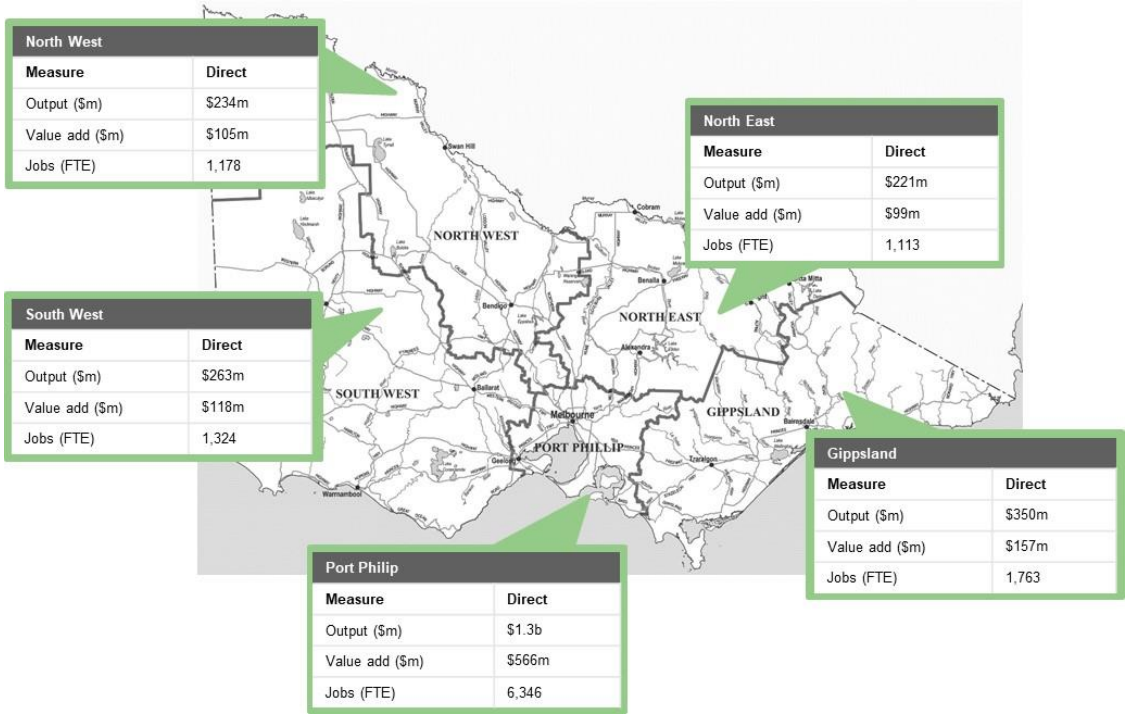
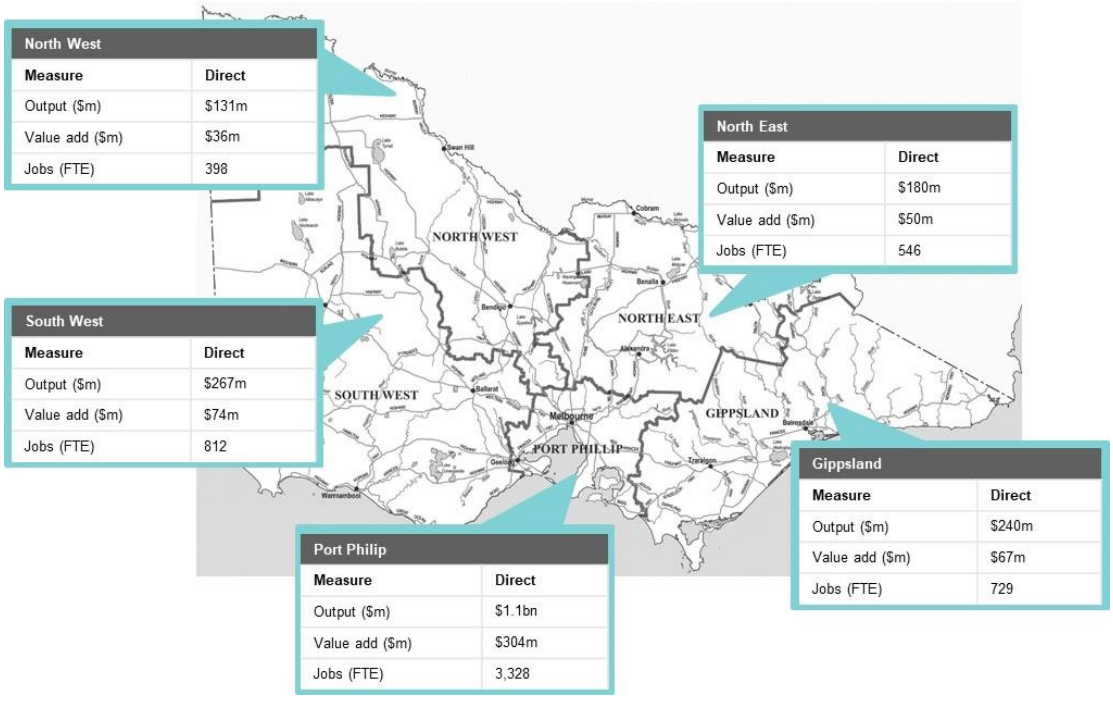


Figure 5: Recreational boating - Direct economic output, value added and employment, by region



3.2 Indirect and total contribution

In 2018/19, recreational boating and fishing in Victoria generated an estimated contribution of:[42]

- **$14.00 billion combined direct and indirect output,** including $7.83 billion indirect output
- **$5.82 billion combined direct value added,** including $3.72 indirect value added
- **55,780 combined FTE jobs**, including 30,721 indirect jobs.

[42] Although many studies apply multipliers to direct industry expenditure to capture the flow on or 'indirect' impacts of industries, the Victorian Department of Treasury and Finance (DTF) is critical of this approach. Generally, when comparing the contribution of industries, it is standard practice (by statistical agencies such as the ABS) to focus solely on direct industry value added(i.e. without multipliers). The direct value added measure enables meaningful comparisons of industry size to be made between industries. While the use of multipliers will provide a wider contribution estimate of an industry it will not take into account substitution effects (i.e. impacts). As such, indirect contribution should be read and interpreted with caution.

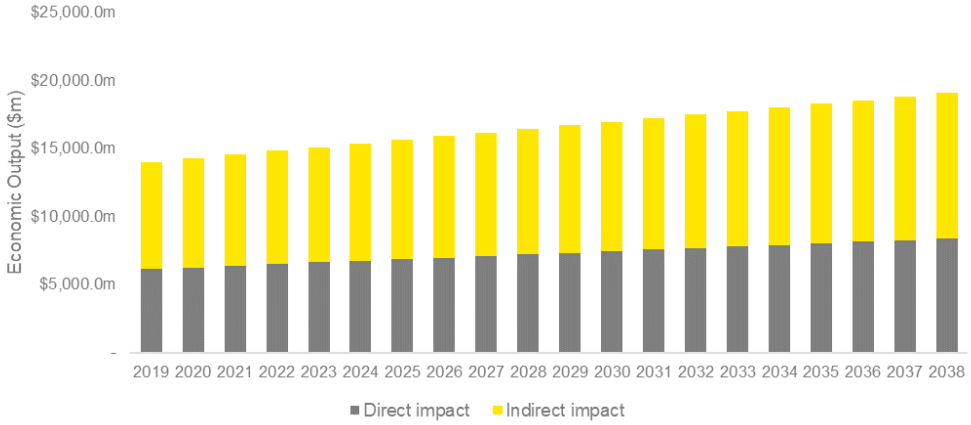
3.3 Future estimated contribution

The impact of recreational fishing and boating between 2018/19 and 2038/39 was also estimated using Victorian Government population projections. Between 2018/19 and 2038/39, recreational fishing and boating in Victoria was estimated to generate the following:[43]

- Output contribution (direct and indirect) from $14.00 billion (in 2018/19) to $19.07 billion (in 2038/39)
- Value added contribution (direct and indirect) from $5.82 billion (in 2018/19) to $7.95 billion (in 2038/39)
- Employment contribution (direct and indirect) from 55,780 (in 2018/19) to 76,088 in (2038/39).

The net present value (NPV) of the recreational fishing and boating industry over the 20-year model period is $119.6 billion output, $83.2 billion value added. Average estimated annual employment is 72,841 FTE jobs.

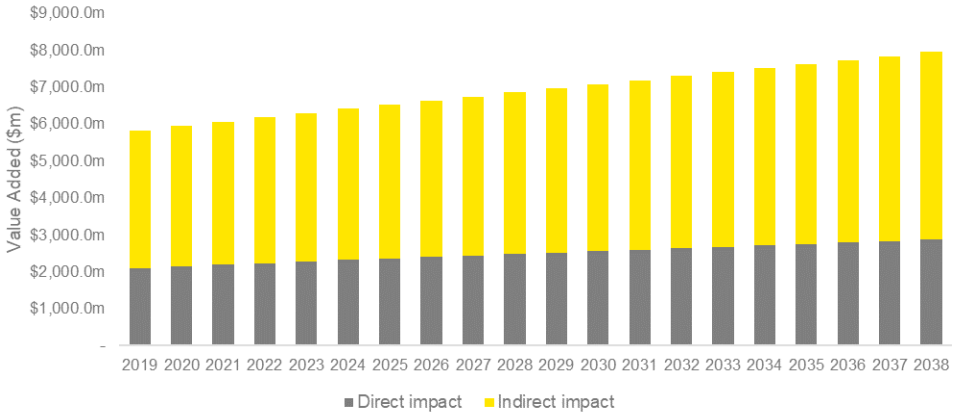
Figure 6: Forecast output ($ billion)



Source: EY analysis of survey data

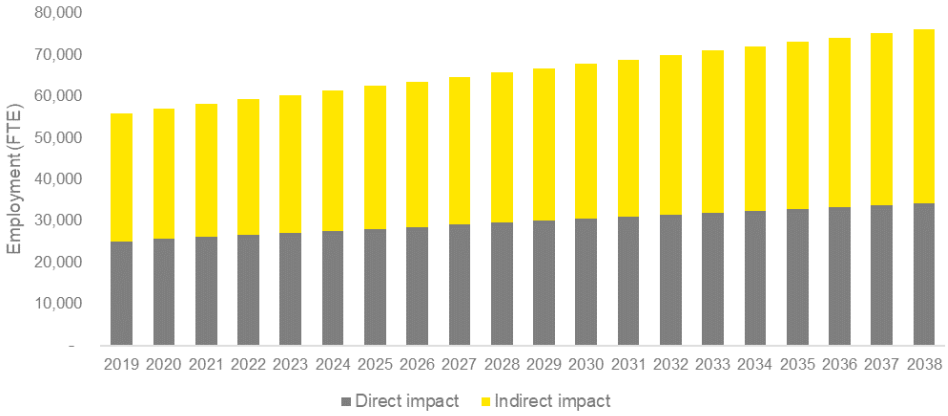
[43] https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future

Figure 7: Forecast value added ($ billion)



Source: EY analysis of survey data

Figure 8: Forecast employment (FTE)



Source: EY analysis of survey data

3.4 Additional health benefits not quantified in this study

Numerous studies have investigated the social benefits attributed to fishing. Research includes studies on the health and psychological benefits of fishing, the health benefits of sport and the benefits of exposure to the natural environment and open space.

The health benefits of recreational boating were not assessed as part of this study.

Health

International research has been conducted on the social benefits attributed to fishing:

- Research undertaken for the Fisheries Research and Development Corporation found that participation in recreational fishing generates a number of psychological, physiological and social benefits. Fishing also promotes general health and well-being, reduces stress and improves mental health[44]. The study also found significant health and wellbeing benefits related to youth development, breast cancer recovery and mental health while also being a viable option for people with disabilities

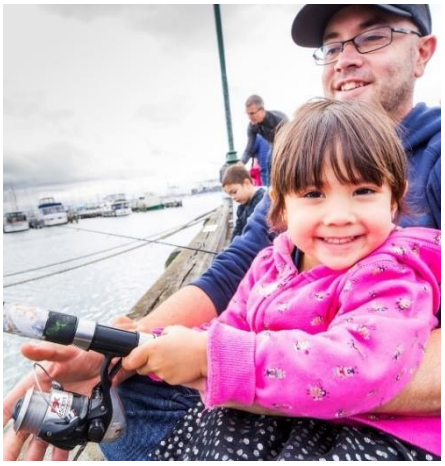
[44] McManus, Hunt, Storey, Fisheries Research and Development Corporation, Identifying the health and wellbeing benefits of recreational fishing F White, 2013, p. 7, 12

- A survey undertaken by the Centre for Research and Action in Public Health acknowledged a direct link between recreational fishing and wellbeing. The study concluded that happiness/enjoyment of fishing and people's sense of wellbeing are intrinsically linked[45]

- In 2011, the Recreational Fishing Advisory Committee developed a national industry development strategy for recreational fishing in Australia. The Committee acknowledged that recreational fishing is as an important activity that contributes to the health and wellbeing of Australian society.[46]

Psychological benefits

It was found that interacting with animals lead to multiple positive physiological effects on human health. These include: [47]



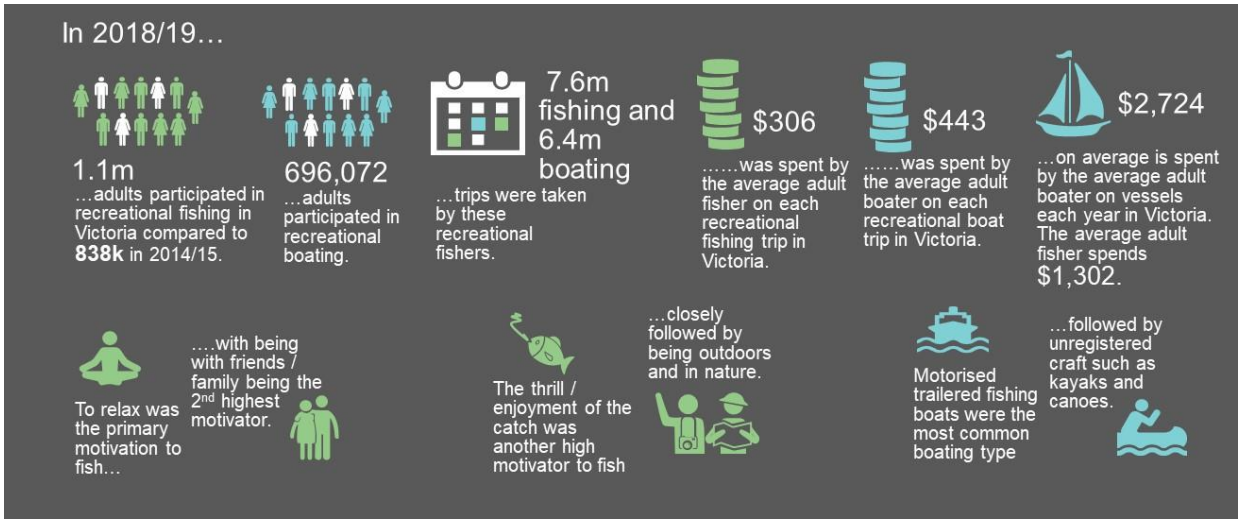
- Observing native animals, having them nearby, or interacting with them improves quality of life

- Interacting with animals can decrease blood pressure, heart rate and cholesterol

- Interacting with animals reduces anxiety and stress and provides protection against stress-related diseases.

[45] Schirmer, J, Centre for Research and Action in Public Health, University of Canberra, Understanding the social dimensions of recreational fishing in South Australia, 2012
[46] Department of Agriculture, Recreational Fishing, available at: https://www.agriculture.gov.au/fisheries/recreational, accessed: 23.01.2020
[47] Deakin University, School of Health and Social Development and Faculty of health, Medicine, Nursing and Behavioural Sciences, Healthy parks, healthy people, 2008, p. 54

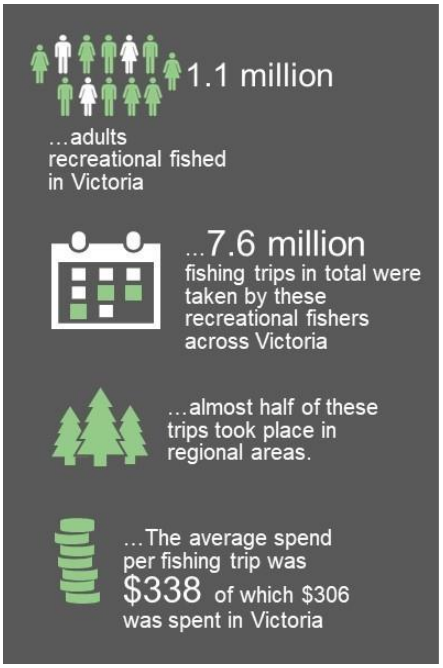
4. Participation and other measures



This section outlines participation estimates and other key metrics that were determined and estimated as part of the study, including:

- Participation in recreational fishing and boating
- Expenditure on fishing and boating trips
- Other measures on fishing and boating demographics and preferences
- Unmet demand for fishing.

4.1 Participation and incidence



Recreational Fishing

As outlined in Section 2.4, the total number of Victorians participating in recreational fishing was estimated by applying the proportion of survey respondents that recreationally fished to the Victorian population.[48] Some of the key participation stats for 2018/19 are as follows:

- In 2018/19, 1.1 million adult Victorian residents participated in recreational fishing across Victoria (compared to 838,119 adult fishers in 2015).[49]
- These recreational fishers made an estimated 4.6 million recreational fishing trips across Victoria, with over half of these trips occurring in regional areas
- The primary location for fishing trips in Victoria is Port Phillip, with Gippsland being the second most popular location.

[48] Victoria in Future – Planning, available at: https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future, accessed: 03.10.2019
[49] 2015 Economic Study

This study did not account for the proportion of male verses female recreational fishers. However, recent studies have shown that between 20% and 30% of recreational fishers are female.[50]

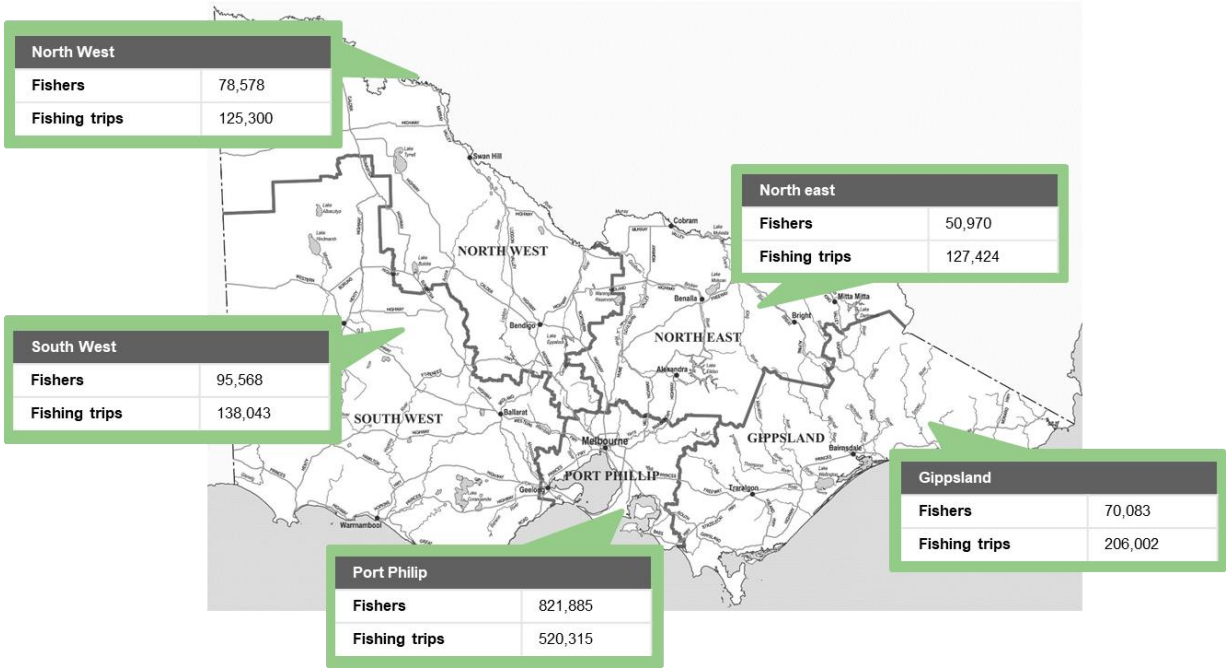
Fishers: The estimated number of recreational fishers who reside in that region

- Fishing trips: The estimated number of people who note that region as their primary recreational fishing destination.

Figure 9 below shows for each region:

- **Fishers:** The estimated number of recreational fishers who reside in that region
- **Fishing trips:** The estimated number of people who note that region as their primary recreational fishing destination.

Figure 9: Number of fishers and fishing trips (2019), by region



[50] Victorian Fisheries Authority, Victorian Fishing Analytics Report, 2018 and 2017

Recreational Boating

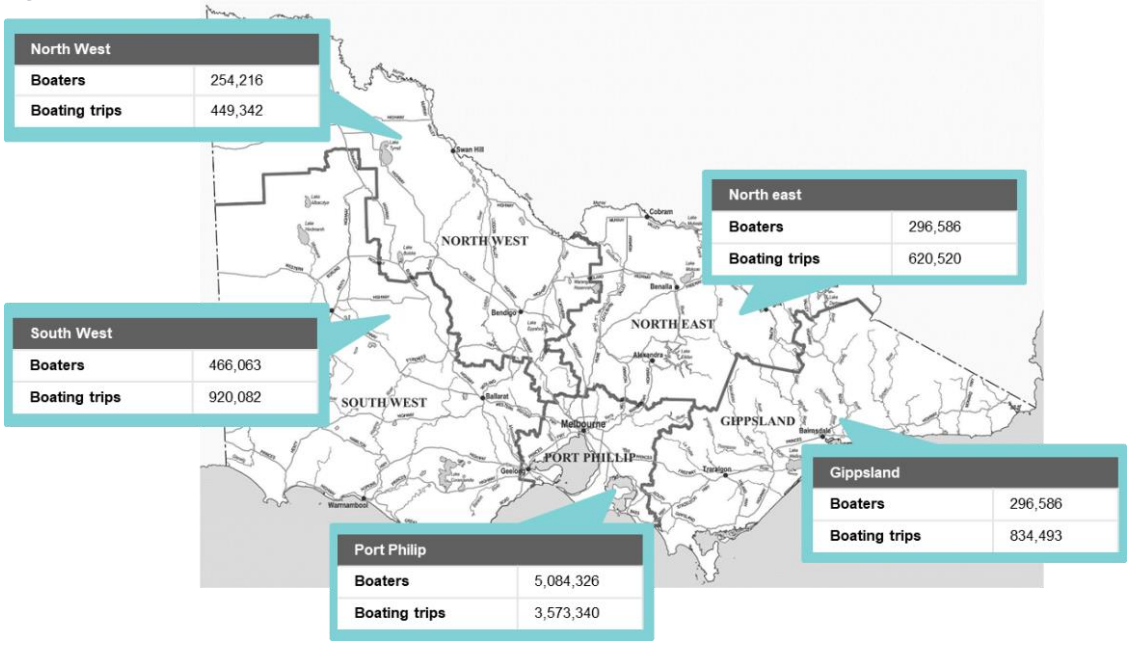
The total number of Victorians participating in recreational boating was estimated by applying the proportion of survey respondents that recreationally boat to the Victorian population.[51] Some of the key participation stats for 2018/19 are as follows:

- In 2018/19, an estimated 696,000 adult Victorian residents participated in recreational boating trips across Victoria
- These individuals made an estimated 6.4 million recreational boating trips across Victoria
- 48% of those who recreationally boat also recreationally fish.

Figure 10 below shows for each region:

- **Boaters:** The estimated number of recreational boaters who reside in that region
- **Boating trips:** The estimated number of people who note that region as their primary recreational boating destination.

Figure 10: Recreational boating residencies and Primary boating trip locations (2019), by region



[51] Victoria in Future – Planning, available at: https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future, accessed: 03.10.2019

Fishing incidence

The figures below present key participation and fishing incidence measures.

Figure 11: Type of fishing

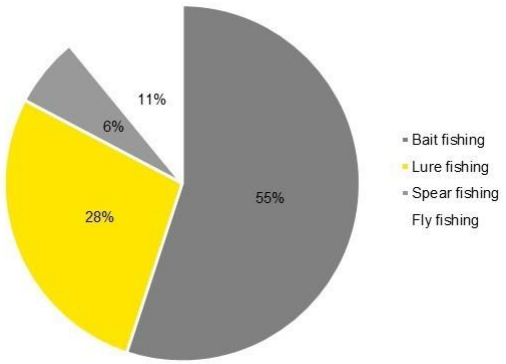


Figure 12: Distribution of fishing trips: Regions

Figure 13: Percentage of time spent fishing Inland verses Marine / Estuarine

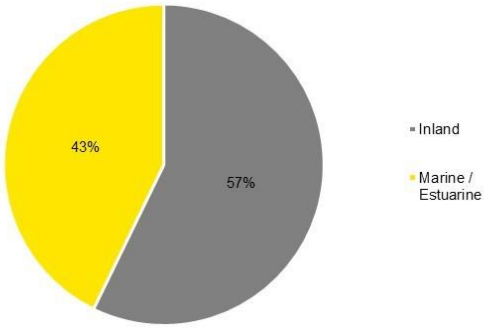


Figure 14: Fish caught: Inland

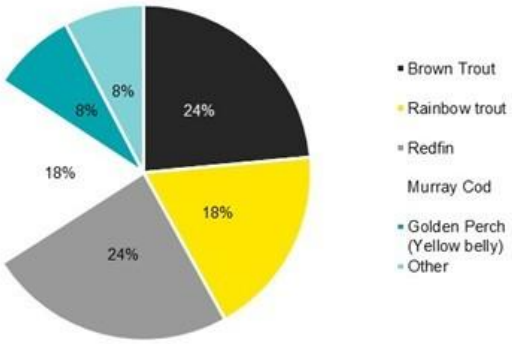


Figure 15: Fish targeted: Estuarine / Marine

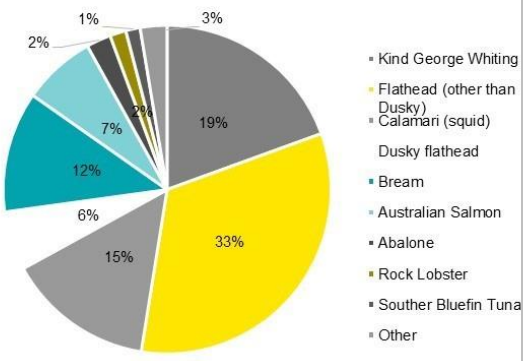
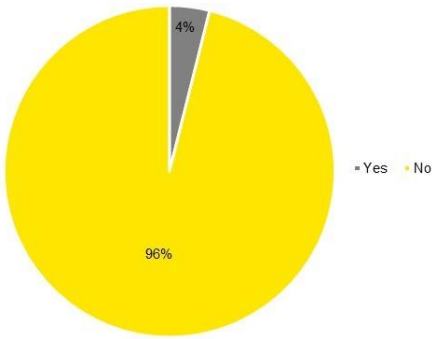


Figure 16: Fishing club membership



Source: EY analysis of survey data

Boating incidence

The figures below present key participation and boating incidence measures from the survey results of the study.

Figure 17: Usage of each boat

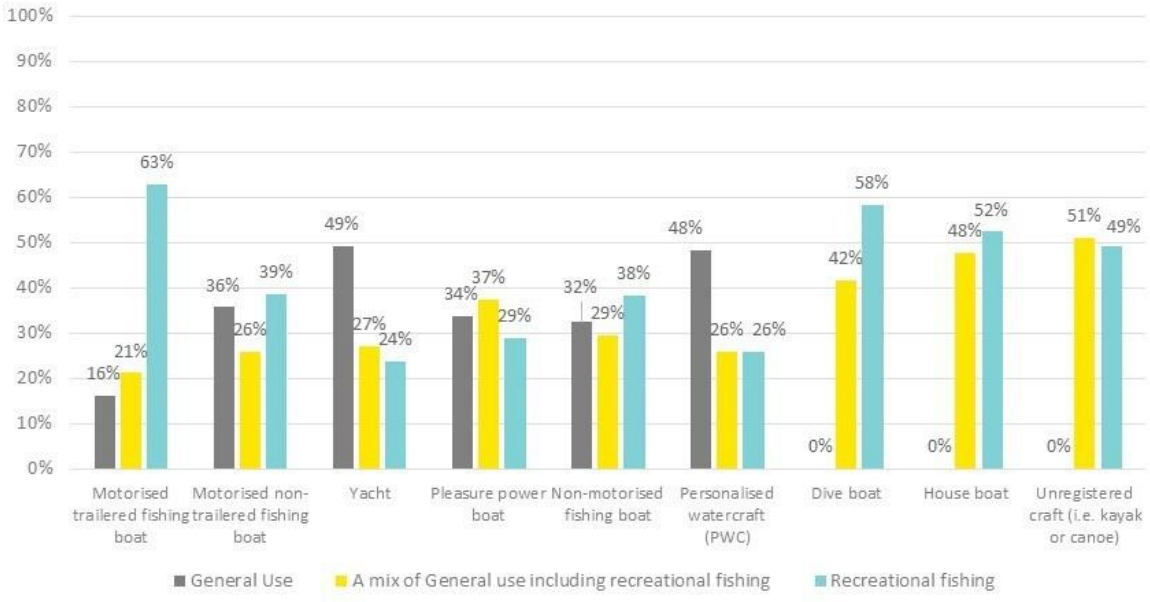


Figure 18: Distribution of boating trips: Regions

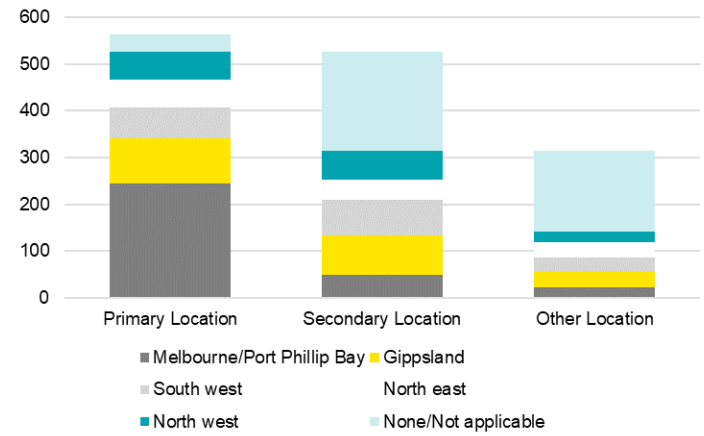
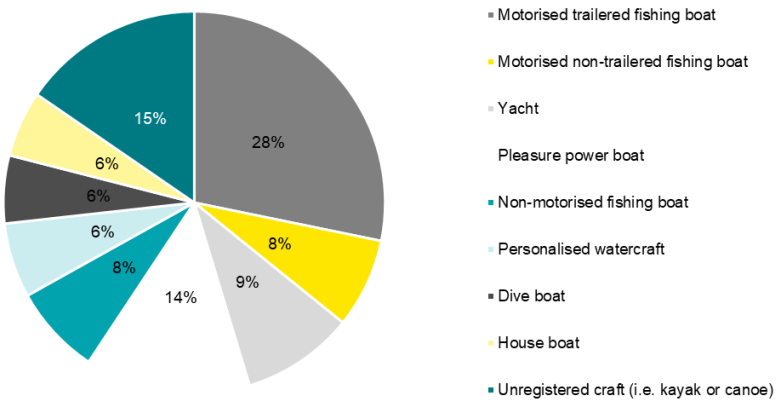


Figure 19: Percentage usage time of each boat type over the past 12 months



4.2 Expenditure

Fishing expenditure

Expenditure was calculated across three categories:

- **Per trip** - Expenditure items that are typically incurred every trip (e.g. food, bait, accommodation and transport related costs)
- **Annual** - Expenditure items that are typically used for a longer period of time (i.e. multiple trips) (e.g. clothing, licensing costs and camping gear). Average annual expenditure on these items are converted to a per trip estimates (based on the average boater embarking on 6.2 fishing trips per year)
- **Boat purchase** - Expenditure of boats, proportioned for the amount of time recreational fishers use their purchased boat for fishing related activity.

Each expenditure category is adjusted for the proportion of spending that occurred in Victoria.

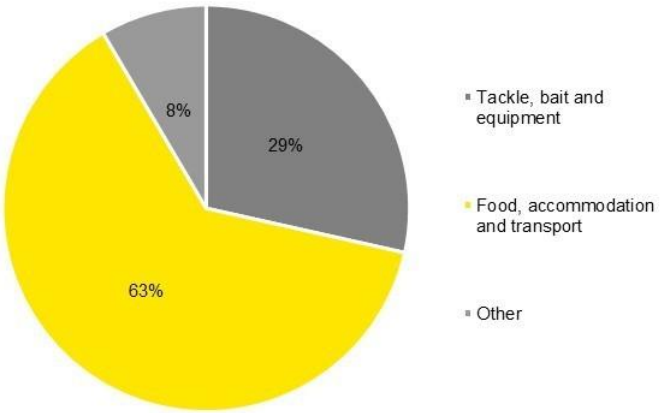
The results found that in 2018/19, on average, a recreational fisher:

- Spent $244 per fishing trip with 91% of this incurring in Victoria ($221 per fishing trip in Victoria)
- Spent $643 per year on annual ad-hoc expenses with 91% of this incurring in Victoria ($585 annually in Victoria). That equates to $95 on a per trip basis ($86 of which is spent in Victoria)
- Spent $1,302 in Victoria on boats that related to fishing. This equates to 48% of total boat spend ($2,724).

On a per trip basis, on average, an estimated $306 was spent per fisher on each trip (including per trip and annual expenditure). In addition, on an average basis, an estimated $1,302 was spent on boats per fisher (for fishing related use).

The figure below presents key expenditure measures.

Figure 20: Spend profile (excl. boat purchase)



Calculation of average expenditure for recreational fishers

Average expenditure was calculated based on survey results on the expenditure of recreational fishers across all spend categories (e.g. vessel hire, berth fees, food and accommodation etc.). The total spend of each category was divided by the total number of recreational fishers to provide an average spend per recreational fisher per category. This total was then divided by the total number of trips per recreational fisher to provide an average per trip spend.

As the expenditure of recreational fisher varies greatly depending on their choice of recreational activity (e.g. boat owners, boat hirers, equipment owners etc.), the average expenditure per trip (i.e. $306 per trip) is not an exact estimation of expenditure for each recreational fisher user group.

For further detail on the spend per category, refer to Appendix B.

Boating expenditure

Expenditure was calculated across three categories:

- **Per trip** - Expenditure items that are typically incurred every trip (e.g. food, fuel, accommodation and transport related costs)
- **Annual** - Expenditure items that are typically used for a longer period of time (i.e. multiple trips) (e.g. clothing, boat maintenance costs, boating club fees and camping gear). Average annual expenditure on these items are converted to a per trip estimates (based on the average boater embarking on 9.2 fishing trips per year)
- **Boat purchase** – Expenditure of boats that are either exclusively used for fishing or for multi-use purposes.

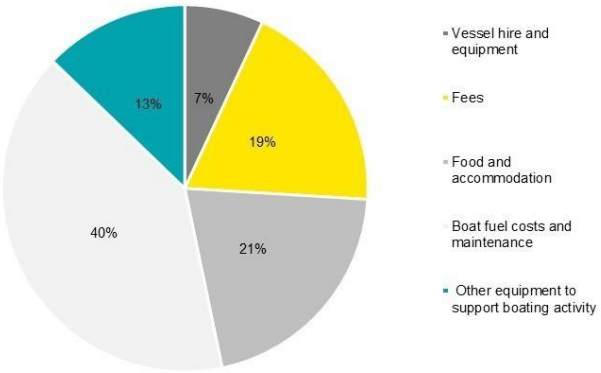
The results found that in 2018/19, on average, a recreational boater spent an estimated:

- $338 per fishing trip with 83% of this incurring in Victoria ($281 per fishing trip in Victoria)
- $1,781 per year on annual ad-hoc expenses with 84% of this incurring in Victoria ($1,496 annually in Victoria). That equates to $194 on a per trip basis ($162 of which is spent in Victoria)
- An average of $2,742 in Victoria on boats.

In summary in 2018/19, on a per trip basis, an estimated $443 was spent in Victoria per boater on each trip (including per trip and annual expenditure). In addition, on an average basis, an estimated $2,742 was spent on boats.

The figure below presents key expenditure measures.

Figure 21: Spend profile (excl. fishing)



Calculation of average expenditure for boat user

Average expenditure was calculated based on survey results on the expenditure of boat users across all spend categories (e.g. vessel hire, berth fees, food and accommodation etc.). The total spend of each category was divided by the total number of boat users to provide an average spend per boat user per category. This total was then divided by the total number of trips per boat user to provide an average per trip spend.

As the expenditure of boat users vary greatly depending on their choice of recreational activity (e.g. boat owners, boat hirers, mooring boats etc.), the average expenditure per trip (i.e. $443 per trip) is not an accurate estimation of expenditure for each boat user group.

For further detail on the spend per category, refer to Appendix B.

4.3 Unmet demand for recreational fishing

The survey identified the issues that are preventing Victorians from participating in recreational fishing more often and also the actions that would motivate people to spend more time recreationally fishing.

The majority of respondents reported that no issues prevented them from going recreational fishing and they fish as much as they want to. However, lack of time and being too far from a fishing location were the top two issues preventing people from fishing more. This was followed by recreational fishing being considered too expensive.

The majority of respondents noted that no specific actions would motivate them to fish more and they fish as much as they want to. Improved facilities and improved access are the top two actions that would motivate some people to recreationally fish more often.

5. Limitations

The methodology used to estimate the economic contribution of recreational fishing and boating was developed under best practice principles. However, the following limitations should be considered when interpreting the results of this study:

- The outputs of this study are based on the results of a survey conducted by EY on the Victorian population. The results of the survey are extrapolated against Victorian Government population estimates in 2018/19 in order to estimate the impact on the State.[52] This method assumes that the survey panel selected was a representation of the Victorian population.

- In order to calculate the estimated future contribution of recreational fishing and boating in Victoria from 2018/19 to 2038/39, the survey results were extrapolated against Victorian Government future population projections over the 2018/19 to 2038/39 period. It is to be noted that projections are not exact approximations.

- To estimate the economic contribution of recreational fishing and boating in Victoria to the Victorian economy, an input-output (I-O) methodology is applied to calculate flow-on impacts of users on the economy. The operation of Victorian recreational fishing and boating participants and the range of activities associated with these operations highlight the complex way the modern economy operates. It involves the use and provision of infrastructure, a variety of administrative and regulatory functions of government and a variety of services provided by operators that are supported by a vast array of specialist support services.

- Impact studies of particular industries or user groups are normally best carried out through the construction of specific sectors to be included in the I-O table. This is because the sector specification used in the tables involves the aggregation of a number of related activities to make them manageable. Thus, the industry may not be appropriately represented by the aggregated sector as not all of the industries in a sector are homogeneous in terms of products produced, markets served, technologies used or source of inputs used. The industry segments used in this study are outlined in Appendix A.

- Given that the multipliers are derived from a general equilibrium model, the outcomes should not be overstated and will be more defensible than standard I-O multipliers. The I-O multipliers are developed with price and labour constraints inbuilt and provide a more realistic output when estimating economic contribution.

- This study does not measure the economic impact of recreation fishing and boating. It is important to distinguish economic contribution and economic benefit studies from economic impacts. Economic impact requires the consideration of a counter factual scenario (that is, what would people spend their money on in the absence of a recreational boating / fishing sector?).

[52] https://www.planning.vic.gov.au/land-use-and-population-research/victoria-in-future

6. Comparison to previous studies

The table below compares the key outputs between this study, the 2015 and the 2009 EY studies on the estimated economic contribution of recreational fishing in Victoria. Note that due the limited model time period of the 2009 and 2015 study, a comparison cannot be drawn between estimates for 2039. As such, the estimates for 2029 have been displayed.

Note that this relates to the economic contribution of recreational fishing only.

Table 1: Comparison to previous studies

Study:	2009 study*		2014 study		2019 study	
Year of output estimate:	2019	2029	2019	2029	2019	2029
Economic contribution: Direct						
Output ($bn)	$2.6	$2.9	$2.8	$3.3	$3.2	$3.9
Gross State Product ($bn)	$1.6	$1.8	$1.8	$2.1	$1.5	$1.7
Employment	16,268	18,512	17,766	20,821	16,284	19,471
Economic contribution: Indirect						
Output ($bn)	$4.5	$5.1	$4.9	$5.8	$4.9	$5.9
Gross State Product ($bn)	$2.3	$2.6	$2.5	$3.0	$2.3	$2.8
Employment	17,722	20,167	19,354	22,682	19,753	23,619
Economic contribution: Total						
Output ($bn)	$7.0	$8.0	$7.8	$9.1	$8.1	$9.7
Gross State Product ($bn)	$3.9	$4.4	$4.3	$5.1	$3.8	$4.5
Employment	33,991	36,679	37,120	43,503	36,037	43,090
Other measures						
Number of adult fishers (‘000)	820	933	916	1,073	1,117	1,336
Number of fishing trips: Adult fishers (‘000)	9,880	11,243	6,677	7,825	7,607	9,096

**To allow for a meaningful comparison of results between the 2009, 2015 and 2019 study, results from the 2009 study have been updated to reflect current leading practice and recent improvements in the sophistication of I-O multipliers.*

Source: EY Analysis

While it is important to keep the approach consistent as far as possible (to enable us to maintain a time series of information that will demonstrate trends over time etc.), EY has made a number of refinements to the previous methodology. The methodology and detailed assumptions are presented in Appendix A and Appendix B.

Appendix A Methodology

The methodology applied in this study is summarised in Figure 22 and outlined below.

Figure 22: Methodology

Stage 1: Define scope and key measures

In Stage 1, the following were discussed and agreed between EY and VFA:

- Scope – The scope of the economic analysis
- Key measures – Common indicators of an industry or economic size or value.

These are discussed below.

Scope of study

This economic study incorporates two key economic principles:

Economic contribution to Victoria - This study provides an estimate of the economic contribution (not impact) of recreational fishing in Victoria. This is an economic accounting exercise that captures all of the market-related expenditure for a specified industry or activity. The numbers generated by economic contribution studies would typically include all expenditures generated by an industry/project ("in-scope expenditures"), and can be expressed as both output (turnover) and value add. These are generally descriptive studies to measure the size and/or "importance" of an industry in terms of their output, value add and employment

Scope exclusions

This study does not measure the economic impact of recreational fishing and boating. It is important to distinguish economic contribution and economic benefit studies from economic impacts. Economic impact requires the consideration of a counter factual scenario (that is, what would people spend their money on in the absence of a recreational fishing and boating sector?).

Key measures of economic contribution

Three common indicators of an industry or economic size or value are:

- Gross output – Market value of goods and services produced, often measured by turnover/revenue. Gross output is also referred to as 'gross economic contribution'
- Value added – Market value of goods and services produced, after deducting the cost of goods and services used
- Employment – Number of FTE jobs generated by an industry or attraction.

All three measures are valuable in their own right. Industry output is a measure of production, value add is a measure of wealth generation, and arguably, employment is a measure of the distribution of income.

In comparing an industry's size against others, it is generally accepted to discuss this in terms of its industry value add. Industry value add measures net of the costs of production (that is, inputs sourced from other sectors) from the industry's outputs. This avoids the inclusion of revenues to other industries and any associated double counting. In practice, industry value add largely comprises wages, salaries and the operating surplus of an industry (i.e. the industry's income). The Study looks at all three measures, but attention should be placed on industry value add measures when making comparisons to other industries. The value added measure is commonly put forward as the most appropriate measure of an industry's contribution to the national economy.

Stage 2: Industry definition

The Victorian recreational fishing industry is defined as fishing by Victorian residents for pleasure or competition.[53]

The Victorian recreational boating industry is defined as boating by Victorian residents for pleasure or competition.[54]

The following activities are not included in the study:

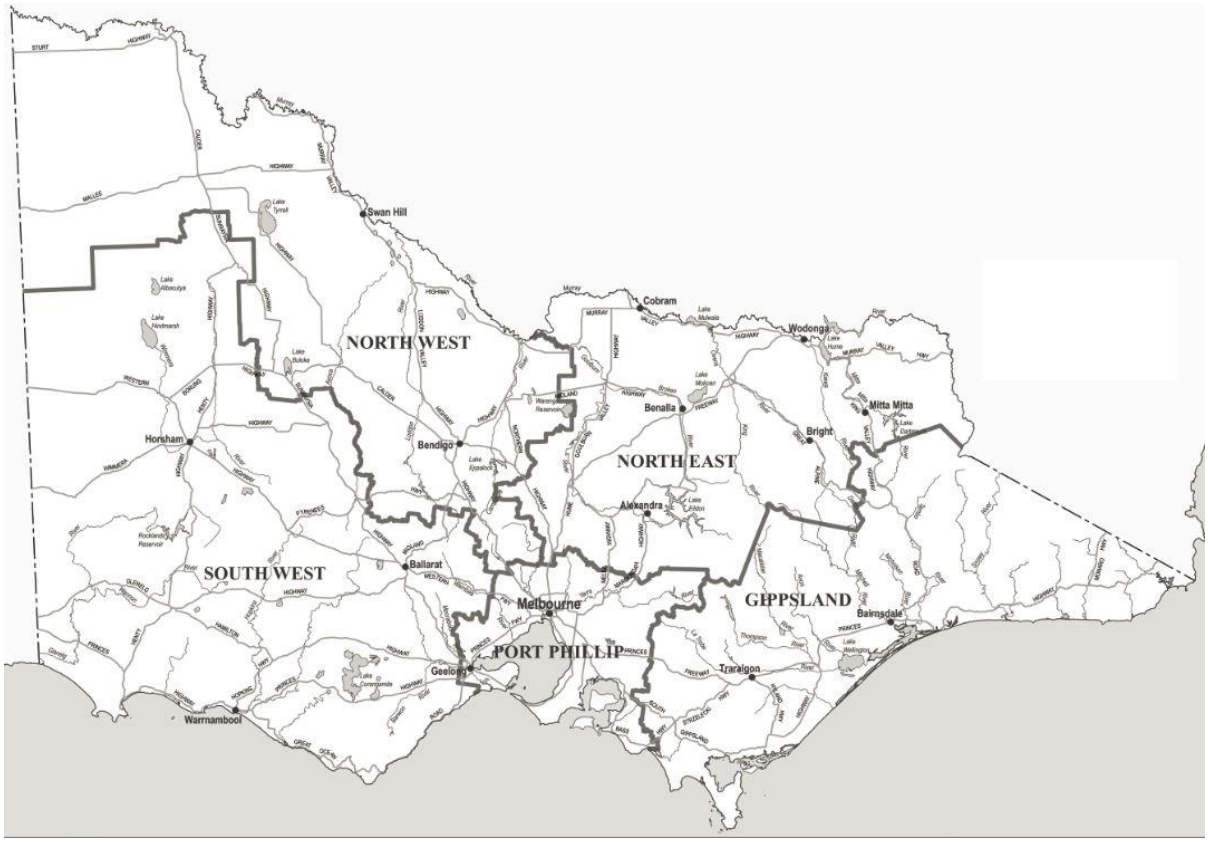
- Recreation fishing and boating by interstate and overseas fishers in Victoria
- Recreation fishing and boating and/or expenditure by Victorians that occurs outside Victoria (e.g. some online purchases)
- Commercial fishing and boating.

[53] Victorian Fisheries Authority, 2015
[54] Victorian Fisheries Authority, 2015

The Victorian Fisheries Authority recognises the following regions:

- Port Phillip[55]
- South West[56]
- North East[57]
- North West[58]
- Gippsland[59].

Figure 23: Victorian Fisheries Authority regions



Source: Victorian Fisheries Authority

[55] Melbourne/Port Phillip Bay is made up of the following LGAs: Greater Geelong, Wyndham, Melton, Hume, Whittlesea, Nilliubik, Cardinia, Casey, Mornington Peninsular, Frankston, Greater Dandenong, Dandenong, Bayside, Glen Ira, Monash, Knox, Whitehorse, Maroondah, Manningham, Banule, Darebin, Moreland, Mooney Valley, Brimbank, Boroondara, Stonnington, Port Phillip, Yarra, Melbourne, Maribyrnong and Hobson's Bay

[56] South West region is made up of the following LGAs: Yarriambiack, Hindmarsh, West Wimmera,Horsham, Northern Grampians, Central Goldfields, Mount Alexander, Hepburn, Moorabool, Ballarat, Pyrenees, Glenelg, Southern Grampians, Ararat, Moyne Corangamite, Golden Plains, Colac-Otway, Surf Coast

[57] North East region is made up of the following LGAs: Mansfield, Murrindindi, Strathbogie, Greater Shepparton, Benalla, Wangaratta, Alpine, Towong, Indigo

[58] North West region is made up of the following LGAs: Mildura, Swan Hill, Buloke, Gannawarra, Loddon, Greater Bendigo

[59] Gippsland region is made up of the following LGAs: East Gippsland, Wellington, La Trobe, South Gippsland, Baw Baw

Stage 3: Data gathering

This stage of the study involved collecting the data required to undertake the economic modelling. Data used in this study was obtained from the following:

- Desktop research, including relevant benchmark studies
- Market research through surveying
- Consultation.

These are outlined below.

Desktop research

The desktop research captured existing available data on:

- Relevant benchmark studies, including the URS study comparing economic analysis methodologies applied in a sample of existing studies.
- Wider benefits of recreational fishing, including health benefits
- Other supporting information (e.g. ABS's historical consumer price index and catch and bag limits imposed through Victorian fisheries regulations).

Findings from the desktop research informed the market research (i.e. survey design (see below)) and economic analysis/modelling (Stage 4).

Market research

To gain a detailed understanding of the nature of recreational fishing and boating in Victoria, we undertook detailed market research using an Internet based response approach (facilitated by EY Sweeney).

Survey design

A survey was administered by EY to a random sample of the Victorian population in order to obtain data on the number of people who recreationally fish and boat, behaviour patterns related to recreational fishing and boating (e.g. where people fish and boat) and their average expenditure pattern (e.g. per trip expenditure and annual expenditure).

The survey administered for the 2015 Economic Study was examined to assess if questions remained relevant for the current study. Certain questions were revised, and additional questions developed for the purposes of the current study as appropriate.

Questions related to the economic impact of recreational boating were also included.

The survey included questions relating to:

- Demographics, including age, gender, pre-tax income, usual place of residence
- Activity profile of recreational fishers and boaters (for the previous 12 months), including number of fishing / boating trips/days, type of fish targeted, quantity and type of fish caught, primary fishing / boating location, type of boat used and motivations for recreational fishing.
- The expenditure profile of recreational fishers and boaters (for the previous 12 months) measures, including average expenditure per trip (e.g. bait, food and accommodation, boat hire), annual average expenditure (e.g. fishing club fees, boating club fees, clothes) and boat related expenditure (e.g. purchase price and maintenance).

The survey is presented in Appendix D.

The survey was administered to a random sample of the Victorian population in order to obtain data on the number of people who recreationally fish and participate in recreational boating, behaviour patterns related to recreational fishing and boating (e.g. where people fish / boat) and their expenditure pattern (e.g. average per trip expenditure and annual expenditure).

Survey implementation

The survey panel was selected by EY to best represent the Victorian population (individuals who both recreationally fish / boat and who do not recreationally fish / boat). A total of n=2,991 individuals started the survey with n=1,000 individuals completing the survey. The survey panel included soft quotas set by EY for gender and age set by EY. The survey consisted of an online questionnaire of people who recreational fish and /or recreational boat and / or who do neither. The survey reached 563 individuals who fished and 321 individuals who boat and 116 people who neither recreationally boat nor fish.

The number of surveys completed provides a statistically significant result which means that the outcomes can be transposed to the general Victorian population. The sample size gives a confidence level of ± 3.08% at the 95% confidence level. The 95% confidence interval for this estimate is p% ± 3.08%. This means that if this survey were completed 100 times, for 95 of these times the results would be within (p% + 3.08%, p% - 3.08%).

Table 2 provides an overview of the demographic profile of the 563 recreational fishers that responded to the survey and the 321 recreational boaters that responded to the survey.

Table 2: Demographic characteristics of survey respondents who recreational fish and / or recreationally boat.

Recreational fishing response	Number	%*
Gender		
Male	295	52.40%
Female	268	47.60%
Total	**563**	**100.00%**
Age		
18 to 34 years	176	31.26%
35 to 54 years	179	31.79%
55+ years	208	36.94%
Total	**563**	**100.00%**
Primary place of residence		
Melbourne/Port Phillip	400	71.05%
South West	45	7.99%
North West	37	6.57%
North East	24	4.26%
Gippsland	33	5.86%
Interstate	13	2.31%
Unknown/Not stated	11	1.95%
Total	**563**	**100%**
Recreational boating response	**Number**	**%***
Gender		
Male	167	52.02%
Female	154	47.98%
Total	**321**	**100.00%**
Age		
18 to 34 years	133	41.43%
35 to 54 years	127	39.56%
55+ years	61	19.00%
Total	**321**	**100.00%**
Primary place of residence		
Melbourne/Port Phillip	243	75.70%
South West	14	4.36%

Recreational fishing response	Number	%*
North West	22	6.85%
North East	12	3.74%
Gippsland	14	4.36%
Interstate	7	2.18%
Unknown/Not stated	9	2.80%
Total	**321**	**100%**

**Totals may not add due to rounding*

Consultation

In addition to the survey, EY consulted with and received input from the following:

- Dallas D'Silva (Director, Fisheries Policy, Management, Science and Licensing - Victorian Fisheries Authority)
- Katherine Grech (Director, Better Boating Victoria).

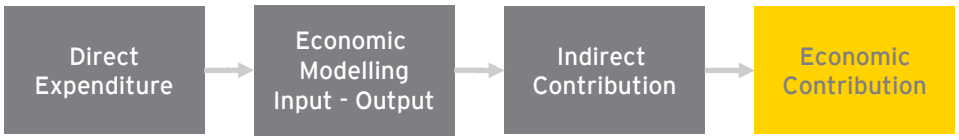
Stage 4: Economic modelling

In this stage, EY developed an economic model to analyse the data collected in Stage 3. The calculation and estimation methods applied in this study are outlined below.

Economic contribution

Economic contribution is a measure comprising all market-related expenditure generated by a specified industry or an activity. An illustration of the methodology used in this assessment to capture the economic contribution of the recreational fishing and boating industry is presented in the figure below.

Figure 24: Economic contribution methodology



Direct expenditure represents the transaction levels within the Victorian economy (i.e. excluding expenditure that is not incurred in Victoria, such as some online purchases). The detailed direct expenditure assumptions applied in the economic modelling are presented in Appendix B.

This direct expenditure is placed in an input – output model to determine the flow on impacts that the expenditure on recreational fishing activities has on the broader Victorian economy. This process then allows for the calculation of the total economic contribution of recreational fishing and boating on the Victorian economy.

To estimate the economic contribution of recreational fishing and boating in Victoria to the Victorian economy, an input-output (I-O) methodology has been chosen as the appropriate method for calculating flow-on impacts of users on the economy.

Input-output (I-O) methodology

To estimate the economic contribution of recreational fishing and boating in Victoria to the Victorian economy, an input-output (I-O) methodology is applied to calculate flow-on impacts of users on the economy.

The operation of Victorian recreational fishing and boating participants and the range of activities associated with these operations highlight the complex way the modern economy operates. It involves the use and provision of infrastructure, a variety of administrative and regulatory functions of government and a variety of services provided by operators that are supported by a vast array of specialist support services.

Impact studies of particular industries or user groups are normally best carried out through the construction of specific sectors to be included in the I-O table. This is because the sector specification used in the tables involves the aggregation of a number of related activities to make them manageable. Thus, the industry may not be appropriately represented by the aggregated sector as not all of the industries in a sector are homogeneous in terms of products produced, markets served, technologies used or source of inputs used.

The compilation of specific sectors that are superior to the sector in the I-O table is a considerable task and requires access to detailed information on the cost structure of the industries. Further, if the industry to be studied comprises a dominant part of the relevant sector in the input output table, then that sector will tend to reflect the characteristics of the dominant sector. For some sectors, there is likely to be little variation in its characteristics from region to region, such as the retail sector.

For this study:

The recreational fishing industry has been constructed from the following industry segments:

- Fishing, hunting and trapping
- Accommodation and food services
- Transport equipment and parts manufacturing
- Transport
- Retail trade
- Public administration.

The recreational boating industry has been constructed from the following industry segments:

- Transport
- Public Administration, Regulatory Services, Order & Safety
- Accommodation and food services
- Transport Equipment & Parts Manufacturing
- Retail trade
- Sports, Recreation & Gambling.

The combined recreational fishing and boating industry has been constructed from the following industry segments:

- Fishing, hunting and trapping
- Transport
- Public Administration, Regulatory Services, Order & Safety
- Accommodation and food services
- Transport Equipment & Parts Manufacturing
- Retail trade
- Sports, Recreation & Gambling.

The multipliers used for this study have been developed by EY and are derived from EY's general equilibrium model, based on the relative significant (i.e. expenditure split) of the above industry segments. The table below presents the direct value added and employment, and indirect output, value added and employment generated by every $1 million of direct output generated by recreational fishing.

Table 3: Recreational fishing industry multipliers

	Direct Effect	Industrial Effect	Consumption Effect	Total Effect	Type 1 Multiplier	Type 2 Multiplier
Output ($m)	3,477	2,352	2,925	8,754	1.676	2.518
Employment (FTE)	17,500	6,613	9,460	33,573	1.378	1.918
Wages and Salaries ($m)	983	543	649	2,176	1.553	2.213
Value-add ($m)	1,561	1,021	1,491	4,073	1.654	2.609

Table 4: Recreational boating industry multipliers

	Direct Effect	Industrial Effect	Consumption Effect	Total Effect	Type 1 Multiplier	Type 2 Multiplier
Output ($m)	4,194	2,162	2,529	8,885	2	2
Employment (FTE)	12,748	6,011	8,178	26,937	1	2
Wages and Salaries ($m)	817	503	561	1,881	2	2
Value-add ($m)	1,164	910	1,289	3,363	2	3

Table 5: Combined recreational boating and fishing industry multipliers

	Direct Effect	Industrial Effect	Consumption Effect	Total Effect	Type 1 Multiplier	Type 2 Multiplier
Output ($m)	6,765	3,875	4,765	15,405	2	2
Employment (FTE)	27,617	10,829	15,409	53,855	1	2
Wages and Salaries ($m)	1,592	894	1,058	3,544	2	2
Value-add ($m)	2,323	1,667	2,428	6,419	2	3

Given that the multipliers are derived from a general equilibrium model, the outcomes should not be overstated and will be more defensible than standard I-O multipliers. The I-O multipliers are developed with price and labour constraints inbuilt and provide a more realistic output when calculating economic contribution.

The economic contribution analysis has been undertaken for two periods of time:

- For a single period in time, being 2018/19 (financial year)
- Over a 20-year evaluation from 2018/19 to 2038/39 (financial year).

Stage 5: Finalisation

In this stage, EY distributed the preliminary economic modelling outputs to, and received feedback from the following

- Dallas D'Silva (Director, Fisheries Policy, Management, Science and Licensing - Victorian Fisheries Authority)
- Katherine Grech (Director, Better Boating Victoria).

Appendix B Direct economic contribution assumptions

In this stage, EY distributed the preliminary economic modelling outputs to, and received feedback from VFA and Better Boating Victoria in respect of the following:

- Fishing incidence (i.e. the number of Victorian residents who have gone recreational fishing in Victoria in the last 12 months) and number of trips
- Expenditure per adult fisher (excluding boat purchase and maintenance), including an estimate of the expenditure incurred in Victoria (i.e. accounting for online purchases)
- Boating incidence (i.e. the number of Victorian residents who have gone recreational boating in Victoria in the last 12 months) and number of trips
- Expenditure per adult boater including an estimate of the expenditure incurred in Victoria (i.e. accounting for online purchases)
- Boat ownership and purchase price.

Fishing incidence and number of trips

To determine the total participation of the Victorian population, the following information was sourced:

- **Victorian adult population** - The size (current and forecast) of the Victorian adult population (from Victoria In Future 2018)
- **Fishing incidence (adults)** - The proportion of the Victorian adult population that has gone recreational fishing in the last 12 months (from the 2019 Survey)
- **Boating incidence (adults)** - The proportion of the Victorian adult population that has gone recreational boating in the last 12 months (from the 2019 Survey)
- **Number of fishing trips** - The average number of trips survey respondents undertook for purposes of recreationally fishing per annum (from the 2019 Survey)
- **Number of boating trips** - The average number of trips survey respondents undertook for purposes of boating per annum (from the 2019 Survey).

These are discussed below.

Victorian adult population

The Victorian adult population is estimated to be 6,460,675, at the beginning of the period of 2019 (increasing to 8,844,131 million in 2038). In 2019, 78% of the Estimated Resident Population are adults (i.e. 18 years old or older). This is based on information extracted from Victoria In Future 2019.

Fishing incidence

- An estimated 1,117,083 adults Victorian residents participated in recreational fishing across Victoria in 2018/19.

The assumptions supporting these numbers are presented below.

- Based on the results of the 2019 survey, 22% of respondents (i.e. adults only) had recreationally fished within the last 12 months in Victoria. As noted in Appendix B, the sample size for this survey is considered statistically significant and, as such, the outcomes of the survey can be applied to the population of Victoria to determine total levels of participation

- Based on the estimated Victorian adult population and fishing incidence outlined above, EY estimates that there were 1.1 million adult fishers in Victoria in 2018/19, increasing to 1.5 million by 2038

- EY estimates that adult fishers made 7.6 million fishing trips in Victoria, in 2018/19 (increasing to 10.4 million trips in 2038/39). The above estimates are based on the results of the 2019 survey, which indicate that the average fisher embarks on 6.8 fishing trips per year.

Boating incidence

- An estimated 696,072 adult Victorian residents participated in recreational boating across Victoria in 2018/19.

The assumptions supporting these numbers are presented below.

- Based on the results of the survey, 14% of respondents (i.e. adults only) had participated in recreational boating within the last 12 months in Victoria. The sample size for this survey is considered statistically significant and, as such, the outcomes of the survey can be applied to the population of Victoria to determine total levels of participation

- Based on the estimated Victorian adult population and boating incidence outlined above, EY estimates that there were 696,072 adult boaters in Victoria in 2018/19, increasing to 949,503 by 2038.

- EY estimates that adult boaters made 6.4 million trips in Victoria, in 2018/19 (increasing to 8.7 million trips in 2038/39). The above estimates are based on the results of the 2019 survey, which indicate that the average participator in recreational boating embarks on 9.2 boating trips per year.

Direct recreational fishing expenditure and contribution

The expenditure estimates applied in the economic modelling are based on the results from the 2019 survey. The 2019 survey defined two broad categories of expenditure:

- **Per trip** - Expenditure items that are typically incurred every trip (e.g. bait, food, accommodation and transport related costs)

- **Annual** - Expenditure items that are typically used for a longer period of time (i.e. multiple trips) (e.g. clothing, licensing costs and vessel maintenance). Average annual expenditure on these items are converted to per trip estimates (based on the average fisher embarking on 6.8 fishing trips per year)

- **Boat purchase** - Expenditure of boats, proportioned for the amount of time recreational fishers use their purchased boat for fishing related activity.

Direct recreational boating expenditure and contribution

The expenditure estimates applied in the economic modelling are based on the results from the 2019 survey. The survey defined three broad categorised of expenditure:

- **Per trip** - Expenditure items that are typically incurred every trip (e.g. food, accommodation and transport related costs)

- **Annual** - Expenditure items that are typically used for a longer period of time (i.e. multiple trips) (e.g. clothing, licensing costs and camping gear). Average annual expenditure on these items are converted to a per trip estimates (based on the average boater embarking on 9.2 fishing trips per year)

- **Boat purchase** - Expenditure of boats that are either exclusively used for fishing or for multi-use purposes.

Average expenditure per trip (excluding boat purchase)

Recreational fishing

Based on the results of the 2019 survey, the average adult fisher spends $244 per fishing trip. Of this, $221 (i.e. 91%) is incurred in Victoria (Table 6). The average adult fisher spends $94 on annual expenditure items for each trip, of this $86 is incurred in Victoria.

For the economic contribution assessment, only expenditure that is incurred in Victoria is modelled (i.e. expenditure incurred interstate/overseas is not modelled, such as some online purchases)[60].

Table 6: Average expenditure on per trip related items* per fisher, by expenditure type and primary purchase location

Average expenditure per trip - Fishing	Primary purchase location		Total expenditure per trip (average)
	Victoria	Other	
Tackle and equipment	$25.51	$2.75	$28.25
Bait	$17.12	$2.47	$19.59
Food & accommodation	$56.36	$5.75	$62.11
Transport to & from fishing venue	$39.48	$4.21	$43.70
Other	$13.38	$0.82	$14.20
Boat hire	$19.36	$2.19	$21.56
Fuel for boat	$49.37	$4.74	$54.11
Total	**$220.59**	**$22.93**	**$243.52**

Source: EY Analysis

**Expenditure items that are typically incurred every trip (e.g. food, accommodation and transport related costs)*

Table 7: Average expenditure per fisher on an-hoc items* (per trip), by expenditure type and primary purchase location

Average expenditure annual - Fishing	Primary purchase location		Total expenditure per trip (average)
	Victoria	Other	
Clothing for fishing	$7.77	$1.86	$9.62
Fishing club fees	$1.59	$0.28	$1.87
Licensing costs	$5.54	$0.59	$6.12
Camping gear	$11.11	$0.90	$12.02
Other	$6.18	$0.20	$6.38
Boating registration	$21.96	$3.09	$25.05
Boat maintenance	$30.90	$2.52	$33.41
Total	**$85.64**	**$8.83**	**$94.46**

Source: EY Analysis

**Expenditure items that are typically used for a longer period of time (i.e. multiple trips) (e.g. clothing, licensing costs and camping gear). Average annual expenditure on these items are converted to a per trip estimates (based on the average boater embarking on 9.2 fishing trips per year)*

Boat ownership and purchase price

Based on the results of the Victorian Recreational Fishing Survey 2019, the average adult fisher owns 1.1 boats (purchased in Victoria), 48% which are used for recreational fishing purposes. These boats are either:

- **Primarily used for recreational fishing** - 36% of all boats are primarily used for recreational fishing
- **Mix use of recreational fishing and general use** - with 12% used as a mix of general use and recreational fishing.

Based on the above, the average boat is used for recreational fishing 48% of the time.

Based on the results of the Victorian Recreational Fishing Survey 2019, the average purchase price of recreational fishing boats (including general use boats) in Victoria is $15,849. Given the average boat

[60] For both traditional retail and online fishing related purchases, survey respondents were asked to identify their primary location of fishing related purchases (i.e. within my region, rest of state, interstate or overseas)

replacement time of 5.82 years, the annual / amortised value of spend on boats in Victoria is $2,724 per annum.

Given the average boat is used for recreational fishing 48% of the time, the annual / amortised value of spend related to fishing related use is $1,302 per annum.

Recreational boating

Based on the results of the survey, the average adult boater spends $338 per fishing trip. Of this, $281 (i.e. 83%) is incurred in Victoria. For the economic contribution assessment, only expenditure that is incurred in Victoria is modelled (i.e. expenditure incurred interstate/overseas is not modelled, such as some online purchases)[61].

Table 8: Average expenditure per boater per trip, by expenditure type and primary purchase location

	Primary purchase location		Total expenditure per trip (average)
	Victoria	Other	
Vessel hire and equipment	$19.36	$2.19	$21.56
Trailers and trailer maintenance	$17.86	$2.32	$20.18
Berth fees	$20.75	$10.41	$31.17
Launching or parking fees	$22.52	$4.91	$27.44
Food and accommodation on trips in Victoria	$53.94	$10.19	$64.13
Boat fuel costs	$49.37	$4.74	$54.11
Boat maintenance	$42.59	$8.05	$50.64
Equipment to support boating activity (e.g. safety gear, tow sport equipment, fishing gear etc)	$32.68	$6.89	$39.58
Other	$22.26	$7.00	$29.25
Total	**$281.32**	**$56.74**	**$338.06**

Source: EY Analysis

Table 9: Average annual expenditure per boater (per trip), by expenditure type and primary purchase location

Average expenditure annual - Boating	Primary purchase location		Total expenditure per trip (average)
	Victoria	Other	
Clothing (e.g. wetsuit, wet weather gear, jackets etc)	$28.67	$14.63	$43.30
Vessel club fees	$16.20	$4.00	$20.20
Licencing costs	$26.15	$3.16	$29.30
Vessel registration	$34.04	$4.79	$38.84
Vessel maintenance	$25.02	$2.04	$27.05
Trailer maintenance	$14.83	$1.89	$16.72
Other	$17.26	$1.19	$18.45
Total	**$162.17**	**$31.70**	**$193.87**

Source: EY Analysis

Calculation of average expenditure for boat users

Average expenditure was calculated based on survey results on the expenditure of boat users across all spend categories (e.g. vessel hire, berth fees, food and accommodation etc.). The total spend of each category was divided by the total number of boat users to provide an average spend per boat user per category. This total was then divided by the total number of trips per boat user to provide an average per trip spend.

As the expenditure of boat users vary greatly depending on their choice of recreational activity (e.g. boat owners, boat hirers, mooring boats etc.), the average expenditure per trip (i.e. $443 per trip in Victoria) is not an accurate estimation of expenditure for each boat user group.

[61] For both traditional retail and online fishing related purchases, survey respondents were asked to identify their primary location of fishing related purchases (i.e. withing my region, rest of state, interstate or overseas)

Boat ownership and purchase price

Based on the results of the Victorian Recreational Fishing Survey 2019, the average adult fisher owns 1.1 boats (purchased in Victoria), 48% which are used for recreational fishing purposes. These boats are either:

- **Primarily used for recreational fishing** - 36% of all boats are primarily used for recreational fishing
- **Mix use of recreational fishing and general use** - with 12% used as a mix of general use and recreational fishing.

Based on the above, the average boat is used for recreational fishing 48% of the time.

Based on the results of the Victorian Recreational Fishing Survey 2019, the average purchase price of recreational fishing boats (including general use boats) in Victoria is $15,849. Given the average boat replacement time of 5.82 years, the annual / amortised value of spend on boats in Victoria is $2,724 per annum.

Appendix C Literature review

Report	Methodology	Key findings	Relevance to this study
Economic impact/contribution: Victoria			
National Institute of Economic and Industry Research, 'The Economic Significance of Recreational Fishing in Victoria', June 1997	► 790 field surveys of persons fishing, conducted through on-site interviews of fishers from mid-January 1997 to the end of April 1997. ► Expenditure data allocated by their relationship to the given activity of fishing[62]. ► Total economic value determined using an input-output methodology.	► Estimated contribution of the recreational fishing industry to Victoria's GSP in 1996 was $1,265 million, and created approximately 27,000 jobs. ► Total value of expenditure on recreational fishing in Victoria in 2007 was estimated at $1,037.1 million. ► 2007 current expenditure was valued at $277.5 million. ► 2007 expenditures on annual and capital items were estimated to total $759.5 million.	► Approach consistent with EY approach in the current study.
EY, 'Economic Study of Recreational Fishing in Victoria', November 2009	► Sample size of 1,000 web-based surveys (500 general population responses and 500 fishers responses). ► To verify the expenditure levels determined through the survey, the survey was compared to responses provided by 207 members of VRFish. ► Total economic value determined using an input-output methodology.	► Average expenditure per trip per fisher is estimated to be $250 inclusive of variable costs (such as accommodation, bait, fuel etc.) and fixed costs (such as equipment and capital). ► Total direct expenditure was valued at $2.3 billion in 2008-09. ► The industry produced an estimated total Gross State Product (GSP) of $825 million in 2008-09. ► The recreational fishing industry contributed 5,200 jobs in Victoria in 2008-09 (including flow on jobs).	► Approach consistent with EY approach in the current study.
EY, 'Economic Study of Recreational Fishing in Victoria: Murray Cod Assessment', February 2010	► Consistent with approach applied in EY's 2009 study (see above).		
EY, 'Economic contribution of recreational fishing in the Murray Darling Basin', August 2011	► Consistent with approach applied in EY's 2009 study (see above).		
Department of Primary Industries (now DEPI), 'Goulburn River Trout Fishery: Estimates of Catch, Effort, Angler-Satisfaction and Expenditure', July 2007	► 338 people interviewed for the 2003/04 fishing season. Data from questions on angler expenditure were summed and a mean and variance calculated for all interviews in each level of stratification. Total expenditure for each stratum was estimated by multiplying the mean expenditure by weighting factors. Estimates of the number of accommodation nights away from	► The individual expenditure varied widely (from $0 to $2,660), resulting in total expenditure of anglers fishing of $418,320 (+/- $496), or an average of $1,390 per person.	► Approach consistent with EY approach in the current study.

[62] All purchases of fishing equipment and related clothing, bait and tackle were allocated 100% to fishing expenditure. Expenditure which were made by persons fishing but not incurred solely for fishing, such as travel costs, boat fuel, food and drink, were allocated to fishing at a rate of 50%

Report	Methodology	Key findings	Relevance to this study
	home were also made by calculating the average for each stratum and multiplying by the appropriate weighting factor.		
Ezzy, E and Scarborough, H (Deakin University), 'Estimation of the recreational use value gained from recreational fishing of Southern Bluefin tuna at Portland', February 2011	► Travel cost study was undertaken to estimate the recreational use value of the fishery. ► 257 surveys were completed, with 200 of these used in the travel cost analysis (included average car costs, boat fuel costs, gear costs and opportunity cost of time). Data collected during four randomly selected weeks (23 survey days) between April and June 2010. ► An estimate of the total economic value was not included in this study (i.e. direct expenditure only).	The on-site recreational use value (consumer surplus) per person per visit is estimated to be between $33 and $132 and the on-site annual recreational use value of the fishery for this one season is estimated to be between $449,533 and $1,325,124.	► Approach consistent with EY approach (non-market value based on benefit transfer approach).
Deloitte Access Economics, 'Assessing the Economic Value of the 2012 Victorian Recreational Southern Bluefin Tuna Fishery in Portland', May 2013	► Travel cost approach, supplemented by contingent valuation (for non-market value), used to assess the direct value of the recreational SBT fishery in Portland. ► 497 surveys, delivered through face-to-face interviews, collected from recreational anglers (330 surveys) and anglers on charter boats (167 surveys). ► Interviews were conducted in four blocks of five days across May and the first half of June 2012.	► The total observed expenditure associated with the 2012 SBT season in Portland is on average $381 per angler fishing day. However, total willingness to pay, consisting of the travel cost expenditure and additional stated willingness to pay, adds to a total value per angler fishing day of about $454. This represents the average valuation of the experience per angler fishing day, of which $73 represents surplus value. ► Industry value of the 2012 recreational SBT fishery in Portland of between $5.64 million and $7.58 million. After accounting for the anglers' additional willingness to pay, the industry estimate could increase to between $6.72 million and $9.03 million in 2012.	► Approach consistent with EY approach in the current study.
Economic impact/contribution: Other Australian jurisdiction			
Department of Agriculture, Fisheries and Forestry, 'National recreational and indigenous fishing survey: Economic Report', 2005	► General population screening survey[63]: Telephone survey of 9,055 Victorian households (44,000 surveys across Australia). ► Diary survey[64]: All respondents with an intention to go recreational fishing in the 12 months following the screening interview were invited to participate in the diary survey. The diary survey was conducted between May 2000 and April 2001. ► Attitudinal survey: An attitudinal telephone survey was conducted with diarists at the completion of the diary survey, in May/ June 2001. ► An estimate of the total economic value was not included in this study.	The results indicated that from May 2000 to April 2001 Victoria: ► Had the second highest total expenditure on recreational fishing in Australia ($396 million) ► Realised the highest level of per fisher expenditure on travel of any state or territory ($177) ► Had an average expenditure of $721 per fisher, the highest of any state or territory in Australia ► Had 549,803 fishers, accounting for 16% of fishing participants in Australia, whilst having 25% of Australia's population.	► Survey: Approach consistent with EY approach in the current study. ► Fishing diary: Outside EY's agreed scope of work. Recall bias to be addressed by applying an adjustment factor to survey results (based on existing studies).

[63] Data quality issues were addressed through a series of calibration surveys designed to provide adjustments for non-response and to assess the extent of behavioural change (unexpected fishing) during the diary period. Australian Bureau of Statistics (ABS) resident population information was used to benchmark survey data for coverage and representation and to provide the basis for expansion of data to 'population' estimates

[64] On-site (creel) surveys were also conducted in each State and Territory to assess fish identification skills of recreational fishers, determine the size distribution of common species and provide independent verification of certain recreational fishing activities

Report	Methodology	Key findings	Relevance to this study
URS, 'Final Report: Review of techniques for the valuation of recreational fishing', 2011	This study examines a range of techniques used to estimate the value of recreational fishing, including: Revealed preference techniques ► Travel Cost Method uses actual direct and indirect expenditure including transport to the activity site, access fees, equipment and the opportunity cost of time as a guide to the value of the activity. Expenditure data is collected through surveys of a sample of visitors ► Random Utility Modelling is commonly used as an extension to the Travel Cost Method. Travel costs and site attribute data are collected through surveys for a number of substitute sites, mathematical relationships are then developed to capture the considerations of a respondent for a range of alternative sites as single decision events. This method enables the estimation of the probability that a respondent will visit a particular site and the value they will derive based on the site's attributes. Stated preference techniques ► Contingent Valuation requires a survey asking respondents a series of questions with the intention of creating a 'hypothetical' market for a non-priced good or service in their mind. Respondents express their willingness to pay for, or accept compensation for, a change in the good or service being valued. ► Choice Modelling uses a survey presenting a number of 'choice sets' associated with changes to the good or service being valued. Random Utility Modelling is used to analyse the responses to the choice sets with the aim being to assign a value to the individual attributes of the good or service.	► The most important determinant of the right valuation technique to use is the reason why a value of recreational fishing is being sought. ► Revealed preference methods such as the Travel Cost Method and Random Utility Modelling are the most cost effective and have the lowest potential for respondent bias, however, as they are based on expenditure data they do not capture consumer surplus or non-use value. ► Stated preference methods such as Contingent Valuation and Choice Modelling are best for capturing the total use and non-use value to recreational fishers, however, they have the potential for respondent bias so it is important to minimise this through survey and questionnaire design. ► If all that is required is the value that recreational fishers derive from the use of a particular site to inform management, the Travel Cost Method may be most appropriate. Random Utility Modelling can be introduced if assessing multiple sites. ► If a change in value arising from a change in the overall state of the site is sought, i.e. marginal value, Contingent Valuation may be most appropriate. ► If the valuation is sought in order to evaluate the effects of a variety of potential changes to the site that may affect individual attributes differently, Choice Modelling will be most effective. An example of when this may be appropriate is the assessment of a variety of proposed policy changes.	► To mitigate the risk of response bias from poorly constructed studies, EY applied the average of three relevant studies. (see Appendix D).
Fisheries Research and Development Corporation, 'Part 2: Final Submission: A coordinated and participatory solution to the rezoning of the Moreton Bay Marine Park', 2007	► Expenditure estimates from the *National recreational and Indigenous fishing survey: Economic Report (2005)* were used, with assumptions being made about the proportion of expenditure that could be attributed to fishing within the Moreton Bay Marine Park.	An estimated $48 million of recreational fishing expenditure can be attributed to areas proposed as green zones by the Queensland Environmental Protection Agency compared to an estimate of approximately $6 million of recreational fishing expenditure attributable to the areas proposed as green zones by the Moreton Bay Access Alliance.	► Approach consistent with EY approach in the current study.
Various other studies that estimate the benefit values per recreational fishing trip	► See Appendix D for commentary and references.		

Report	Methodology	Key findings	Relevance to this study
Other benefits			
McManus, A; Hunt, W; Storey, J, and White, J (Curtin University), 'Identifying the health and well-being benefits of recreational fishing', December 2011	► Literature review: A search of 156,776 references identified 705 references relating to 'health and well-being' and 147 references relating to 'recreational fishing' (3 of the references focussed on the health and well-being benefits of recreational fishing). ► Consultation: 48 organisations and contacts. ► Pilot survey: Survey provided to a random sample of 40 participants (29 valid surveys completed).	► There is little published research looking at the link between recreational fishing and health and well-being, both within Australia and internationally. ► Emergent areas of health benefit identified in: mental health, recreation for the disabled, outdoor recreation for youth, antisocial behaviour deterrents, outdoor recreation for seniors and intergenerational transfer of knowledge and skills.	See Chapter 3.2
Various other studies investigating the health benefits of recreational fishing and exposure to the natural environment.	► See Chapter 3.2 for commentary and references.		

Appendix D Victorian Recreational Fishing and Boating Survey 2019

EY Sweeney

Victorian Recreational Fishing and Boating Survey

INTRODUCTION

The purpose of this survey is to collect data to establish the nature and scale of vessel ownership and recreational fishing in Victoria, and the contribution it makes to Victoria's economy. For the purpose of this study, we define recreational fishing as any fishing which is not undertaken for commercial purposes.

Thank you for your time, this survey will take less than 7-15 minutes to complete, depending on your answers.

How To Complete The Survey…

Use your mouse to "Click" the relevant circles or boxes to mark your selection with a black dot or a cross. Some questions require you to type in your answers.

You may close the survey down and re-enter at the point you left off using the link emailed to you.
Once you have completed all questions on a page you will need to click the "Next" Button to proceed to the next screen.
In order for your answers to be sent you must click the "Submit" button at the end of the survey.

We hope you enjoy the survey!

Please press **NEXT** to continue

SECTION 1. SCREENING

PROGRAMMER: DO NOT TERMINATE RESPONDENTS UNLESS SPECIFIED

We would like to ask you a few short questions to make sure we are talking to the right people.

Q1. Are you… **SINGLE RESPONSE**	Male O1 Female O2
Q2. Which of the following age groups do you fit into? **(PLEASE CLICK ONE RESPONSE ONLY)**	Under 18 years **TERMINATE** O 01 18 to 24 years O 02 25 to 34 years O 03 35 to 44 years O 04 45 to 54 years O 05 55 to 64 years O 06 65 to 69 years O 07 70+ years O 08

SECTION 2. VESSEL OWNERSHIP

Thank you. Welcome to the main survey.

Q6.	Do you own a boat (e.g. motor boat or yacht) which you use for recreational fishing purposes?	Yes ○1 No **[GO TO Q12]** ○2

ASK IF Q6=1 (YES – OWN A BOAT FOR RECREATIONAL FISHING)

Q6a.	For each of the following types of vessels, please type in the number you currently own. **PROGRAMMER NOTE: ALLOW RESPONDENT TO ENTER UP TO A MAXIMUM OF 5 PER BOAT TYPE** **PROGRAMMER NOTE: ALLOCATE TO 'BOATING' QUOTA IF THEY TYPE IN ANY ANSWER OTHER THAN CODE 99**	Motorised trailered fishing boat Motorised non-trailered fishing boat Yacht Pleasure power boat Fishing boat Personalised watercraft (PWC) Dive boat House boat Unregistered craft (i.e. kayak or canoe) Other (please specify) None **[GO TO Q12]** ○99

Q48.	How many people, on average, accompany you on each boating trip in Victoria?	None ○99 1 ○1 2 ○2 3 ○3 4 ○4 5 ○5 6 ○6 7 ○7 8+ ○8

IF Q48 = 99 (NONE) – SKIP Q49

Q49. What is the age of each accompanying person?
PIPE THROUGH NUMBER INDICATED AT Q14 (MAXIMUM OF 8)

First Name	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8
Age								
< 13 years	○ 1	○ 1	○ 1	○ 1	○ 1	○ 1	○ 1	○ 1
13 - 18 years	○ 2	○ 2	○ 2	○ 2	○ 2	○ 2	○ 2	○ 2
18 - 24 years	○ 3	○ 3	○ 3	○ 3	○ 3	○ 3	○ 3	○ 3
25 - 34 years	○ 4	○ 4	○ 4	○ 4	○ 4	○ 4	○ 4	○ 4
35 – 44 years	○ 5	○ 5	○ 5	○ 5	○ 5	○ 5	○ 5	○ 5
45 – 54 years	○ 6	○ 6	○ 6	○ 6	○ 6	○ 6	○ 6	○ 6
55 - 64 years	○ 7	○ 7	○ 7	○ 7	○ 7	○ 7	○ 7	○ 7
65 – 70 years	○ 8	○ 8	○ 8	○ 8	○ 8	○ 8	○ 8	○ 8

70+ years	○ 9	○ 9	○ 9	○ 9	○ 9	○ 9	○ 9	○ 9
Relation to you								
Immediate family	○ 13	○ 13	○ 13	○ 13	○ 13	○ 13	○ 13	○ 13
Extended family	○ 14	○ 14	○ 14	○ 14	○ 14	○ 14	○ 14	○ 14
Other (e.g. friend)	○ 15	○ 15	○ 15	○ 15	○ 15	○ 15	○ 15	○ 15

Q7a. Please provide the cost (incl. modifications) for each vessel type. Your best guess is all we are after.

PIPE THROUGH TOTAL NUMBER OF VESSELS INDICATED AT Q6A AND NAME AS E.G. MOTOR BOAT 1, MOTOR BOAT 2 AND YACHT 1 ETC.

Details	**UP TO 15 BOATS**							
Cost of Vessel (Including any modifications) [SEPARATE SCREEN]								
$_____	○ 9	○ 9	○ 9	○ 9	○ 9	○ 9	○ 9	○ 9
Don't know/can't remember	○ 10	○ 10	○ 10	○ 10	○ 10	○ 10	○ 10	○ 10

\Q8a On average, how often do you replace each of the following types of Vessels?

PROGRAMMER NOTE: PIPE THROUGH ANSWERS FROM Q6A

XXX **ASK IF Q6a=1 (OWN A MOTOR BOAT)**	Every ____ years ○ 1	Have not replaced any motor boat ○ 2	Don't know/can't remember ○ 3

\Q8a Did you replace the following vessels with new or old vessels?

PROGRAMMER NOTE: PIPE THROUGH CODES FROM ABOVE – ONLY CODE 1

Motor boats **ASK IF Q6a=1 (OWN A MOTOR BOAT)**	New ○ 1	Second had ○ 2	Both new and second hand ○ 2

Q9. How many times in the last 12 months have you used each vessel?	**SHOW OPTIONS FOR EACH OF THE VESSELS OWNED. E.G. MOTOR BOAT 1, MOTOR BOAT 2 AND YACHT 1** _____ times a year

Q10. What is the primary purpose of each of the vessel? **PLEASE SELECT ONE RESPONSE ONLY**	**SHOW OPTIONS FOR EACH OF THE VESSEL OWNED. E.G. MOTOR BOAT 1, MOTOR BOAT 2 AND YACHT 1** Recreational fishing ○1 General Use ○3 A mix of General use including recreational fishing ○2

ASK Q11 IF Q10 = 2 (GENERAL USE - FOR ANY OF THE VESSELS SELECTED)

Q11.	What percentage of your usage for each general use vessel is for recreational fishing? (Your best guess is all we are after)	**SHOW OPTIONS FOR EACH OF THE VESSEL OWNED. E.G. MOTOR BOAT 1, MOTOR BOAT 2 AND YACHT 1** _____ % Don't know O1

Q50. Where do you usually use your vessel in Victoria?

(PLEASE SELECT ONE RESPONSE PER STATEMENT IN COLUMN)

PROGRAMMER NOTE: SHOW MAP AT THIS QUESTION. LOCATIONS ON Y AXIS – WITH A DROP DOWN FOR EACH LOCATION

		Primary Location	Secondary Location	Other Location
1.	Melbourne/Port Phillip Bay	O 1	O 2	O 3
2.	North west	O 1	O 2	O 3
3.	North east	O 1	O 2	O 3
4.	South west	O 1	O 2	O 3
5.	Gippsland	O 1	O 2	O 3
6.	None/Not applicable	O 1	O 2	O 3

SECTION 3. EXPENDITURE OF REGISTERED VESSELS IN VICTORIA

Please note the following questions relate to expenditure IN VICTORIA ONLY.

Q51. Approximately how much do you spend on recreation per week? This includes all expenditure on items such as movies, theatre, restaurants, hobbies, holidays and any other expenditure that is directly related to recreation.	$_____per week

Q52. Approximately, what would be spend on the following items over the last 12 months (in Victoria)? (Please enter zero if you have no spend on each item)

[SPLIT INTO TWO SCREENS]

Item	**Per Trip Expenditure ($)**
Vessel hire and equipment	$
Trailers and trailer maintenance	$
Berth fees	$
Launching or parking fees	$
Food and accommodation on trips in Victoria	$
Transport to and from boating venue (either fuel costs or public transport costs)	$
Boat fuel costs	$
Boat maintenance	$
Equipment to support boating activity (e.g. safety gear, tow sport equipment, fishing gear etc)	$
Other	$

F PER TRIP SPEND FOR ANY OF THE ITEMS AT Q52 = 0, THEN DO NOT SHOW AT Q52A

Q52a. What is the primary location where you purchase each of these items?

PLEASE SELECT ONE RESPONSE PER ROW ONLY

Primary Location of Purchase(s) – Please select only 1 response per row								
Traditional Retail Outlet				**Online Store**				
Within my region	**Rest of the state**	**Interstate**	**Overseas**	**Unknown ware-house location**	**Within my region**	**Rest of the state**	**Interstate**	**Overseas**

O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9

Q53. Approximately, what would be your **per year** spend on the following items for vessels? What is the primary location where you purchase each of these items?

(PLEASE SELECT ONE RESPONSE PER STATEMENT IN COLUMN)

[SPLIT INTO TWO SCREENS]

Item	Per Year Expenditure ($)	Primary Location of Purchase(s) – Please select only 1 response per row								
		Traditional Retail Outlet				Online Store				
		Within my region	Rest of the state	Interstate	Overseas	Unknown warehouse location	Within my region	Rest of the state	Interstate	Overseas
Clothing (e.g. wetsuit, wet weather gear, jackets etc)	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
Vessel club fees	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
Licensing costs	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
Vessel registration	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
Vessel maintenance	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
Trailer maintenance	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
Other	$	O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9

Q12.	Have you gone fishing (without a vessel) for recreational purposes in the past 12 months in Victoria?	Yes [ALLOCATE TO 'FISHERS' QUOTA] O1 GO TO Q42 O2

SECTION 4. FISHING ACTIVITY (WITHOUT A VESSEL)

Please note that the following questions relate to fishing in Victoria Only

Q14.	How many people, on average, accompany you on each fishing trip in Victoria?	None O1 1 O2 2 O3 3 O4 4 O5 5 O6 6 O7 7 O8 8+ O9

IF Q14 = 1 (NONE) – SKIP Q15

Q15. What is the age of each accompanying person, and do they participate in recreational fishing?
PIPE THROUGH NUMBER INDICATED AT Q14 (MAXIMUM OF 8)

First Name	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8
Age								
< 13 years	O 1	O 1	O 1	O 1	O 1	O 1	O 1	O 1
13 - 18 years	O 2	O 2	O 2	O 2	O 2	O 2	O 2	O 2
18 - 24 years	O 3	O 3	O 3	O 3	O 3	O 3	O 3	O 3
25 - 34 years	O 4	O 4	O 4	O 4	O 4	O 4	O 4	O 4
35 – 44 years	O 5	O 5	O 5	O 5	O 5	O 5	O 5	O 5
45 – 54 years	O 6	O 6	O 6	O 6	O 6	O 6	O 6	O 6
55 - 64 years	O 7	O 7	O 7	O 7	O 7	O 7	O 7	O 7
65 – 70 years	O 8	O 8	O 8	O 8	O 8	O 8	O 8	O 8
70+ years	O 9	O 9	O 9	O 9	O 9	O 9	O 9	O 9
Activity Undertaken								
Fishing	O 10	O 10	O 10	O 10	O 10	O 10	O 10	O 10
Accompanying only (i.e. did not fish)	O 11	O 11	O 12	O 12	O 12	O 12	O 12	O 12
Relation to you								
Immediate family	O 13	O 13	O 13	O 13	O 13	O 13	O 13	O 13
Extended family	O 14	O 14	O 14	O 14	O 14	O 14	O 14	O 14

Other (e.g. friend)	○ 15	○ 15	○ 15	○ 15	○ 15	○ 15	○ 15	○ 15

Q16. What percentage of your time (based on number of fishing days) do you spend fishing in each of the following waters? ***PROGRAMMING NOTE: SET THE TALLY TO CHECK THAT THE TOTAL IS 100%***	[Please add a header on top of the response fields (i.e. "%")] Inland **IF '0%' SKIP TO Q17** ☐ % Estuarine / Marine **IF '0%' SKIP TO Q18** ☐ %

ASK Q17 IF Q16 CODE 1 = >0%

Q17. What type/s of fish does your fishing group normally target when fishing in **inland** waters?			
		Quantity caught per trip (average)	**Quantity released per trip (average)**
1. Brown Trout	○ 1	☐	☐
7. Rainbow Trout	○ 7	☐	☐
2. Redfin	○ 2	☐	☐
3. Murray Cod	○ 3	☐	☐
4. Golden Perch (Yellow Belly)	○ 4	☐	☐
5. Other **Please specify**	○ 5	☐	☐
6. Don't target any specific fish	○ 6		

ASK Q18 IF Q16 CODE 2 = >0%

Q18. What type/s of fish does your fishing group normally target when fishing in estuarine or **marine** waters?			
		Quantity caught per trip (average)	**Quantity released per trip (average)**
1. Snapper	○ 01	☐	☐
2. King George Whiting	○ 02	☐	☐
3. Flathead (other than Dusky)	○ 03	☐	☐
4. Calamari (squid)	○ 04	☐	☐
5. Dusky flathead	○ 05	☐	☐
6. Bream	○ 06	☐	☐
7. Australian Salmon	○ 07	☐	☐
8. Abalone	○ 08	☐	☐
9. Rock Lobster	○ 09	☐	☐

10.	Southern Bluefin Tuna	○ 10		
10.	Other **Please specify**	○ 10		
11.	Don't target any specific fish	○ 11		

Q20. Where do you usually fish in Victoria?

(PLEASE SELECT ONE RESPONSE PER STATEMENT IN COLUMN)

PROGRAMMER NOTE: SHOW MAP AT THIS QUESTION. LOCATIONS ON Y AXIS – WITH A DROP DOWN FOR EACH LOCATION

		Primary Location	Secondary Location	Other Location
1.	Melbourne/Port Phillip Bay	○ 1	○ 2	○ 3
2.	North west	○ 1	○ 2	○ 3
3.	North east	○ 1	○ 2	○ 3
4.	South west	○ 1	○ 2	○ 3
5.	Gippsland	○ 1	○ 2	○ 3
6.	None/Not applicable	○ 1	○ 2	○ 3

[can you ask q 21 and 21b on the same page?]

Q22. What percentage of your total fishing time do you spend on each of the following types of fishing? ***PROGRAMMING NOTE: CHECK TO ENSURE THAT %'S ADD TO 100%***	Bait fishing	%
	Soft plastics/hard bodied lures	%
	Spear fishing	%
	Fly fishing	%
	Other	%

ASK IF Q22 = OTHER

Q22a. What other types of fishing do you engage in?	_____

Q26. Do you belong to a fishing club / association? **(PLEASE SELECT ONE RESPONSE ONLY)**	Yes	○ 1
	No	○ 2

SECTION 5. EXPENDITURE OF RECREATIONAL FISHING IN VICTORIA

Please note the following questions relate to expenditure IN VICTORIA ONLY.

Q29. Approximately how much do you spend on recreation per week? This includes all expenditure on items such as movies, theatre, restaurants, hobbies, holidays and any other expenditure that is directly related to recreation.	$______________per week

Q30. Approximately, what would be your **per trip** spend on the following items for recreational fishing? (Please enter zero if you have no spend on each item)

[SPLIT INTO TWO SCREENS]

Item	**Per Trip Expenditure ($)**
Tackle and Equipment	$
Bait	$
Food and accommodation	$
Transport to and from fishing venue (either fuel costs or public transport costs)	$
Other	$

IF PER TRIP SPEND FOR ANY OF THE ITEMS AT Q30 = 0, THEN DO NOT SHOW AT Q30A

Q30a. What is the primary location where you purchase each of these items?

PLEASE SELECT ONE RESPONSE PER ROW ONLY

Primary Location of Purchase(s) – Please select only 1 response per row								
Traditional Retail Outlet				**Online Store**				
Within my region	**Rest of the state**	**Interstate**	**Overseas**	**Unknown ware-house location**	**Within my region**	**Rest of the state**	**Interstate**	**Overseas**
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9
O 1	O 2	O 3	O 4	O 5	O 6	O 7	O 8	O 9

Q31. Approximately, what would be your **per year** spend on the following items for recreational fishing? What is the primary location where you purchase each of these items?

(PLEASE SELECT ONE RESPONSE PER STATEMENT IN COLUMN)

[SPLIT INTO TWO SCREENS]										
Item	**Per Year Expenditure ($)**	**Primary Location of Purchase(s) – Please select only 1 response per row**								
		Traditional Retail Outlet				**Online Store**				
		Within my region	**Rest of the state**	**Interstate**	**Overseas**	**Unknown warehouse location**	**Within my region**	**Rest of the state**	**Interstate**	**Overseas**
Clothing for fishing	$	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9
Fishing club fees	$	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9
Licensing costs	$	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9
Camping gear	$	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9
Other	$	○ 1	○ 2	○ 3	○ 4	○ 5	○ 6	○ 7	○ 8	○ 9

SECTION 6. UNMET DEMAND FOR FISHING

Q42.	What prevents you from going recreational fishing in Victoria more often? **(PLEASE SELECT AS MANY AS APPLY)**	Nothing, I fish as much as I want to ☐ 1 Lack of time ☐ 2 Lack of port facilities e.g. wharves, jetties and slipways ☐ 3 Too expensive ☐ 4 Too far form a suitable fishing location ☐ 5 Don't like fishing ☐ 6 Other **(PLEASE TYPE IN YOUR ANSWER)** _____ ○ 7
Q43.	What would motivate you to spend more on recreational fishing? **(PLEASE SELECT AS MANY AS APPLY)**	Enhanced stocking ☐ 1 Improved access ☐ 2 Improved port facilities e.g. wharves, jetties and slipways ☐ 3 Improved research and development ☐ 4 Improved habitat ☐ 5 Nothing, I fish as much as I want to ☐ 6 Other **(PLEASE TYPE IN YOUR ANSWER)** _____ ○ 7
Q44.	If there were no constraints, such as time, cost or distance from fishing spots, how often would you go fishing? **(PLEASE SELECT ONE RESPONSE ONLY)**	Daily ○ 1 Several times a week ○ 2 Weekly ○ 3 About every 2 weeks ○ 4 Monthly ○ 5 Every 2 months ○ 6 Every 4 months ○ 7 Every 6 months ○ 8 About once a year ○ 9
Q45.	Of the following, please rank from 1 to 8 what drives you to participate in recreational fishing? (Please drag and drop each of the items to the right in the order you wish to rank them). **PLEASE RANK 1 – 8**	To be outdoors ☐ To participate in a sport ☐ To relax ☐ To be with friends/family ☐ For solitude ☐ For competition ☐ For food ☐

	Other ☐

Q45a. What other aspects (if any) drive you to participate in recreational fishing?	_____

Q46. What issues do you see facing the recreational fishing industry **(PLEASE TYPE IN YOUR ANSWER AND PROVIDE AS MUCH DETAIL AS POSSIBLE)**

Q47. Any other comments? **(PLEASE TYPE IN YOUR ANSWER)**

SECTION 7. DEMOGRAPHICS

Q5. What is your residential postcode?	Record postcode

Q5a. In which country were you born? Please select one response only.	Australia **Go to Q5c** ○ 01 Canada ○ 02 China ○ 03 Croatia ○ 04 England ○ 05 Greece ○ 06 India ○ 07 Italy ○ 08 Macedonia ○ 09 Malaysia ○ 10 New Zealand ○ 11 Pakistan ○ 12 Serbia ○ 13 Somalia ○ 14 Spain ○ 15 Sri Lanka ○ 16 Turkey ○ 17 United States of America ○ 18 Vietnam ○ 19 Other (please specify) ○ 97 Prefer not to say ○ 99

ASK IF OUTSIDE AUSTRALIA (Q5a NOT CODE 1)

Q5b. For how many years have you been living in Australia? **Please select one response only.**	Less than 2 years ○ 1 2 to 4 years ○ 2 5 to 9 years ○ 3 10 to 14 years ○ 4 15 or longer ○ 5 Prefer not to say ○ 99

Q5c. What is the main language you speak at home? **Please select one response only.** ***[PROGRAMMER NOTE: SHOW IN ALPHABETICAL ORDER. ANCHOR 'OTHER' TO BOTTOM]***	English □ 01 Arabic □ 02 Cantonese □ 03 Greek □ 04 Hindi □ 14 Italian □ 05

	Khmer □ 06 Malay □ 16 Mandarin □ 07 Maori □ 12 Pasifika language □ 13 Serbian □ 08 Spanish □ 09 Tamil □ 15 Vietnamese □ 10 Other (please specify) □ 11

Q3. Which of these household income groups do you fall into? Household income is the total income earned by all household occupants (before tax).	Under $20,000 O01 $20,000 - $39,999 O02 $40,000 - $59,999 O03 $60,000 - $79,999 O04 $80,000 - $99,999 O05 $100,000 - $149,999 O06 $150,000 - $199,999 O07 $200,000 - $299,999 O08 $300,000+ O09 Rather not say O10

Q4. What is your household disposable income as a percentage of your total household income? Household disposable income is what is left after all required household expenditure including food, rent/mortgage, transport costs and other necessary purchases. (Your best guess is all we are after)	0 - 10% O01 11 – 20% O02 21 – 30% O03 31 – 40% O04 41 – 50% O05 51 – 60% O06 61 – 70% O07 71 – 80% O08 81 – 90% O09 91 – 100% O10 Rather not say O11 Don't know O12

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