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FISHERIES RESEARCH &  
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# **Future development of recreational fishing in South Australia**

**Understanding and quantifying community attitudes to recreational fishing  
development, and to a recreational fishing licence, in South Australia**

**Dr Jacki Schirmer**

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**Future development of recreational fishing in South Australia: Understanding and quantifying community attitudes to recreational fishing development, and to a recreational fishing licence, in South Australia.**

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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# Executive Summary

This report documents results of a quantitative survey of South Australian recreational fishers that examined priorities for the future development of recreational fishing in South Australia (SA), and attitudes towards the introduction of a recreational fishing licence in SA. The survey was undertaken in 2014 by researchers from the University of Canberra.

## Background

This study was undertaken due to an identified need to better understand priorities for the future development of recreational fishing in SA, and how SA recreational fishers view the idea of a fishing licence. This need was identified by RecFish SA, who applied to the Fisheries Research and Development Corporation for funding to conduct the study, and contracted the University of Canberra to undertake the research.

## Aims/objectives

The key objectives were to understand the motivations, benefits and outcomes desired by South Australian recreational fishers from recreational fishing; to identify recreational fishing development priorities in SA; to understand and quantify attitudes of recreational fishers to a recreational fishing licence (licence) in SA; and to identify how different licence designs may affect social acceptability of a licence.

## Methodology

Data were collected via a quantitative survey of South Australian recreational fishers. The questionnaire was developed in consultation with both RecFish SA and other recreational fishing organisations, and tested with recreational fishers before being launched. Small changes were made after launch to (i) better explain the role of RecFish SA in the survey, and (ii) provide an additional question that allowed open-ended feedback about views regarding a recreational fishing licence. Data were collected during September and October 2014.

Survey participants were recruited by randomly selecting 5,000 SA residents from a database of household addresses, stratified by location. The survey was also promoted online and by email. A prize draw was offered. The survey could be completed online or on paper. A total of 545 responses were achieved as a result of mailings sent to the randomly selected sample (a 10.9% response rate). A further 310 responses were achieved via promotion on fishing websites and by recreational fishing clubs and organisations. Of the 855 respondents, 206 were non-fishers of which the large majority (>90%) had no views about recreational fishing. Twenty five non-respondents were contacted to ask why they did not complete the survey: all but one stated they were not recreational fishers and had no interest in the survey topic. This suggests that there was a high response from those who did have an interest in recreational fishing, and that these people were principally fishers. The characteristics of the sample achieved were compared to known characteristics of SA recreational fishers, using data from the 2013-14 South Australian recreational fishing survey. A response bias to more avid and older fishers was identified. To address these biases, the dataset was weighted so that analysed data more accurately represented the population it was drawn from.

## Results

### *Values and benefits of recreational fishing*

Understanding how people choose to fish, and what values and benefits they associate with fishing, can help guide the prioritisation of investment in recreational fishing. The large majority of SA fishers engage in saltwater fishing, with 93% doing this occasionally or regularly, compared to 59% who fish in freshwater. Around 80% of fishers engaged in jetty/breakwater and shore fishing, and 61% in boat-based

fishing. Fewer engaged in charter fishing (31%) or in kayak/canoe based fishing (16%). Most fishers do more than one of these things. Line fishing was the most common method of fishing, used by 97% of fishers. Crab raking and netting was used by 52%, cockling or pipi gathering by 33%, yabby/marron netting by 29%, dabbling by 20%, while 7% or less engaged in spear fishing, lobster potting/netting or diving. Men and more avid fishers (those who fished more days per year) were more likely to engage in all types of fishing.

Fishers most commonly reported fishing in the Fleurieu Peninsula and Coorong (including Kangaroo Island, Lower Yorke Peninsula, the metropolitan coast around Adelaide, and the River Murray and lower lakes regions). Women, younger fishers and less avid fishers were less likely to fish in multiple locations than men, older fishers and more avid fishers.

King George Whiting was the species most commonly targeted by fishers, with 82% reporting they occasionally or regularly target this species. More than 60% targeted Southern Calamari species, Australian Herring and Southern Garfish. Many – between 57% and 59% - targeted Blue Swimmer Crab, Snapper and Australian Salmon. Fewer (less than 40%) targeted Mulloway, Golden Perch, Trout species, or Tuna species<sup>1</sup>. Women, younger fishers and less avid fishers typically targeted fewer species than men, older fishers, and avid fishers.

When asked to rate the importance of different aspects of fishing, spending time in the outdoors was very important to 77% of fishers, followed by going fishing to relax or unwind (67%), eating catch (64%), and spending time with family and friends (56% and 54% respectively). Other values were less common: 32% or fewer fishers said it was very important to go fishing to be on their own or get away from people, to pass on knowledge about fishing, to fish for catch and release, continue a family tradition of fishing, or to participate in fishing competitions. For those aged over 60, the most highly rated aspect of fishing was eating their catch, whereas for other age groups other aspects of fishing were as or more important as eating catch.

Most fishers were somewhat to very satisfied with their fishing during the 12 months prior to completing the survey. Those who were younger and who fished regularly were more satisfied than other fishers. More than 70% of fishers reported that fishing made them feel content, less stressed, provided an enjoyable challenge, and enabled them to connect to special places. Others felt happier (63%), a sense of achievement (61%), valued spending time with family and friends (60%), learned new things (60%), felt fishing increased their physical exercise (55%), felt better able to handle unexpected situations (50%) and/or experienced increased confidence (45%). Fewer (36%) reported that fishing had helped them form new friendships. Most recreational fishers do not rely on fishing as the primary source of seafood/fish for consumption.

### ***Investment priorities***

To help identify priorities for recreational fishing investment, fishers were asked their views on current recreational fishing opportunities, access to fishing infrastructure, and priorities for investment. Most fishers (75%) were satisfied with bag limits, and availability of accessible fishing areas (54%). Just under half were satisfied with the availability of species they targeted, stock allocation to recreational fishing, use of artificial reefs, quality of fish habitat and investment in saltwater fish habitats. Dissatisfaction was greatest with access to and stocking of reservoirs, allocation processes, and current investment in freshwater fish habitat.

When asked about infrastructure, fishers were most satisfied with their access to and the safety of jetties, wharves, boat ramps and rockwalls/breakwaters; and least satisfied with their access to and the safety of

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<sup>1</sup> In the survey, the species asked about were named using common names as well as the standard fish names used in this report. For example, the survey asked fishers if they caught ‘squid (calamari)’ rather than naming ‘Southern Calamari’. In this report, standard fish names are used throughout to avoid confusion.



toilets at fishing locations, and their access to fish cleaning benches. People who fished in reservoirs, and in locations in the Copper Coast and Upper Spencer Gulf were least satisfied with the available recreational fishing infrastructure. Those who fished in the Lower Yorke Peninsula, South East, and in freshwater fishing areas other than reservoirs were most satisfied.

The areas of potential fishing investment considered most important by recreational fishers were improving sustainability, and creating and improving saltwater and freshwater fish habitats (rated very important by 75% and 74% of fishers respectively). Research into recreational fishing, improving information, training and education, and increasing fish stocking, were considered very important by 59% to 62% of fishers. Fewer rated educating adult fishers, measuring the contribution of recreational fishing, or improving policing and compliance, as very important (55%). Less than half felt it was very important to improve access to fishing locations, buy out commercial fishing licences, or improve advocacy by recreational fishing organisations.

### ***Recreational fishing management, policing and representative organisations***

Fishers were asked their views about the effectiveness of current recreational fisheries management and policing (including confidence it would result in continuing access to desired fish species and fishing locations), and recreational fishing representative organisations. One-third of respondents were confident they would have access to their desired species and fishing areas in the future. When asked about Marine Parks, 44% felt that Marine Parks benefit recreational fishing, and 28% that they had negative impacts. Men, older fishers and more avid fishers were less likely than women, younger fishers and those who fished less often to feel confident in their future access to fishing areas and species, and more likely to feel Marine Parks had negative impacts.

Most fishers were satisfied with the availability of information, advice, education and training about recreational fishing. Around one-third were satisfied with the policing of recreational fishing and management of saltwater fishing. Around half were dissatisfied with management of freshwater fishing, management of interactions between recreational and commercial fishers, and government decisions regarding Marine Parks. Men and more avid fishers were less satisfied with all aspects of recreational fisheries management compared to women and less avid fishers. Younger fishers were more satisfied than older fishers with freshwater fisheries management, government decisions about Marine Parks, but less satisfied with levels of policing, research, education and advice. Fifty two percent of fishers felt there was too little policing of recreational fishing, and only 12% felt there was too much policing. Younger and more avid fishers were more likely to feel there was inadequate policing of fishing compared to other fishers.

Only 41% of fishers knew how to contact recreational fishing representative organisations, and only 8% had done so. Many (44%) didn't know enough to rate their satisfaction with these organisations, while 34% were neither satisfied or dissatisfied, 15% were satisfied, and 7% were dissatisfied.

### ***Views about a recreational fishing licence***

Recreational fishing licences are often used to raise funds for investing in recreational fishing. Twenty nine per cent of South Australian recreational fishers reported having previously purchased a fishing licence or permit in other states. Men, older fishers, and more avid fishers, as well as those earning higher incomes, were more likely than others to have purchased a fishing licence or permit in the past.

Fishers were asked their views about the introduction of a recreational fishing licence in South Australia which had the following conditions: (i) all funds to be placed in a trust managed by an independently appointed board that includes recreational fishers, (ii) all funds to be invested in improving recreational fishing in SA, and (iii) children under 18 and pensioners to be either exempt from the licence or asked to pay a substantially reduced fee. Forty five per cent of fishers found a \$30 annual licence with these conditions acceptable, 50% unacceptable, and 6% found it neither acceptable or unacceptable. Only 28% would find a \$40 licence acceptable, and 19% would find a \$50 licence acceptable. Licences were considered more acceptable by women, those aged 30 to 44 years, avid fishers, those with higher incomes,

who were married, and who had higher levels of formal educational attainment. Fishers who had previously bought a fishing licence, and who had a history of contact with fishing organisations, were more likely to find a licence acceptable, while those who were dissatisfied with recreational fishing organisations were less likely to.

Forty per cent of fishers felt they would reduce or stop fishing in SA if a \$30 annual licence was introduced, while 59% would fish the same amount or more often. Those most likely to feel they would reduce their fishing were younger fishers, men, single fishers, less avid fishers, those on lower incomes, and those who did not complete high school. Avid fishers, those earning high incomes, those who had completed a degree, and female fishers were less likely to feel a licence would change how often they fish.

Thirty nine per cent of fishers felt they would support a licence with the specified conditions, 14% would prefer different conditions, and 46% found the idea of a licence unacceptable under any conditions.

Specific licence conditions desired by fishers included a guarantee that all funds would be invested in recreational fishing; independence governance of distribution of licence revenues by a Board with good representation of all recreational fishers; and ensuring that pensioners, seniors and children were exempt from licence fees. Several also wanted licences to have multiple purchase options.

### ***Implications***

The results of this survey suggest some clear priorities for investment in recreational fishing in South Australia. These range from the specific – for example, a need to work to improve availability of fish cleaning benches and toilets near commonly used fishing locations – to the general, such as a widely held desire to prioritise improvement of fish habitat. Investments should focus on enabling fishers to achieve the full range of benefits they desire from fishing, specifically the ability to relax and unwind, spend time with family and friends, and enjoy being outdoors, as well as to catch fish.

The introduction of a fishing licence in SA would be controversial for many fishers. It has potential to be acceptable if a number of conditions are met, and fishers trust that they are met. The results of the survey suggest that a fishing licence would only be accepted by a majority of fishers if (i) fishers felt it was affordable (annual cost of \$30 or lower); (ii) licences were flexible and easy to purchase (ideally, licences available both online and from multiple locations near fishing areas, and more than one licence option to improve affordability); (iii) those with lower ability to pay were exempted from paying for a licence or charged a substantially reduced fee (pensioners and children in particular); (iv) there was confidence that fees would be used to invest in improving recreational fishing and not for other purposes; and (v) there was confidence in the people appointed to oversee investment of funds from the licence. In particular, avid fishers, although more likely to support a licence than those who fish less often, are unlikely to accept a licence unless it is governed by a Board that has representation that goes beyond current recreational fishing organisations.

### ***Recommendations***

*Recommendation 1: Set clear objectives to guide development of recreational fishing in SA.* This survey identified multiple potential priorities for investment in recreational fishing. There is a need for a dialogue involving consultation with all recreational fishers, which can better identify shared objectives for investment in the future development of recreational fishing.

*Recommendation 2: Ensure adequate consultation processes are used to guide investment.* Low levels of engagement with recreational fishing organisations mean that the views of many recreational fishers are not necessarily heard. Based on the results of this survey, recreational fishing organisations are most likely to hear the views of avid fishers, older fishers and male fishers. This means the large majority of fishers who fish less often, as well as views of younger and female fishers, will not be heard unless there is ongoing investment in consultation processes that better incorporate their views.

*Recommendation 3: Consider use of a fishing licence if it is designed appropriately, and includes clear processes for appointing and maintaining independence of governance and distribution of funds. There is a need for extensive consultation to build confidence amongst fishers, with many lacking trust in the likely use of licence funds or in likely oversight. This trust can be built through appropriate consultation and discussion with fishers.*

**Keywords**

Recreational fishing, social benefits, values, investment priorities, South Australia, fishing licence.

# Introduction

The values, views and activities of recreational fishers evolve over time, as does understanding of how to best manage recreational fisheries to ensure ecological sustainability while also providing benefits for fishers. Across Australia, multiple organisations are involved in the ongoing evolution and development of recreational fisheries. These include government agencies responsible for managing recreational fisheries, and recreational fishing organisations that seek to represent fishers and ensure the long term future of recreational fishing as a sustainable sport engaged in by many Australians.

When considering how best to ensure the future of recreational fishing, two aspects need consideration. The first is identifying where investment is needed to support the future development of recreational fishing. What types of investment will best support achieving both ecological sustainability and provision of social benefits to recreational fishers? To identify this, the views and experiences of recreational fishers need to be understood, particularly which aspects of their fishing experience are working well and poorly. The second is identifying the best system for supporting investment in development of recreational fishing. In most Australian states and territories, recreational fishing is supported by funds raised either via general tax revenue, or via specific fishing licences. In some states, all recreational fishing requires a licence; in others, only specific activities (such as fishing in stocked dams) require the purchase of a licence. Purchase of a recreational fishing licence is required for most or all recreational fishing activities in the states of New South Wales, Victoria and Western Australia. In Tasmania, a licence is required for inland freshwater recreational fishing, but not for most types of saltwater fishing (with the exception of permits needed for activities such as abalone and rock lobster). In the Australian Capital Territory and the Northern Territory, a recreational fishing licence is not required. In Queensland, a licence is only required for specific activities such as fishing stocked dams. In South Australia, most types of recreational fishing do not require purchase of a licence.

The introduction of a recreational fishing licence is sometimes proposed in those states and territories in which a general licence is not currently required. Licences are often argued to provide a vehicle for raising funds that can then be invested in recreational fishing development. However, for this to occur there needs to be a legislative or other instrument that specifies that revenues raised by a licence will be used for this purpose and not for other purposes. Where licence fees are invested to support recreational fishing, the funds raised from licences are sometimes managed by a board that includes representatives of both government and recreational fishers, with the board guiding decisions on investment priorities. The introduction of a licence can also enable a better record of how many people are engaging in recreational fishing; in the absence of a licence system, data on recreational fishing activity are often only gathered irregularly due to the high cost of the surveys required to obtain good information. However, concerns are sometimes raised about whether the introduction of a fishing licence might reduce participation in recreational fishing, particularly for those with low income, and about the potential administrative burden associated with a licence.

This report details results of a study examining the views of South Australian (SA) residents regarding the following aspects of recreational fishing:

- What types of fishing they engage in, and what outcomes they seek from their fishing activities (e.g. to take part in competition, to eat their catch, to spend time with family)
- Benefits and costs experienced from recreational fishing.
- Access to fishing opportunities, fish stocks, and fishing infrastructure
- Fishing education, information and management in SA

- The importance of investing in different areas in future, e.g. in increasing fish stocking, improving access to fishing location, training and education, policing and compliance
- Membership of and views about recreational fishing organisations
- Views about recreational fishing licences, and whether residents would support or oppose introduction of a licence in SA, under specific conditions.

The results are analysed to better understand (i) priority areas for future development of recreational fishing in SA, and (ii) whether, when and under what circumstances SA residents would find introduction of a recreational fishing licence acceptable or unacceptable.

# Objectives

The original stated objectives of this project were to:

- Understand and quantify the attitudes of recreational fishers to a recreational fishing licence in South Australia
- Identify how the willingness of recreational fishers to accept a licence varies depending on factors such as cost, accessibility, and how funds are used
- Identify the optimal design of a licence to maximise recreational fisher acceptance of introduction of a licence.

The project objectives changed after inception of the project, to include a broader examination of recreational fishing development priorities and needs in SA. This was done as many of those advocating for or against introduction of a recreational fishing licence often made reference to its role in achieving such development priorities and needs. The revised objectives were to:

- Understand the motivations of recreational fishers in SA, and the benefits and outcomes they desire from recreational fishing
- Identify recreational fishing development priorities in SA
- Understand and quantify attitudes of recreational fishers to a recreational fishing licence in SA
- Identify whether the willingness of recreational fishers to accept a licence varies depending on factors such as cost accessibility, and how funds are used
- Identify optimal design of a recreational fishing to maximise recreational fisher acceptance of introduction of a licence.

# Method

This study collected data via a survey of SA residents. This chapter explains the:

- questionnaire design process
- survey sampling
- responses achieved, and
- data analysis, including the process used to weight responses to be representative of South Australian recreational fishers.

## Questionnaire design

Survey questions were designed using the following process:

- Initial meetings were held with a group of recreational fishing representatives, predominantly members of RecFish SA, to identify the scope of potential survey questions
- A literature review was conducted to identify questions asked in similar surveys
- An initial draft survey was designed
- A workshop was held with six recreational fishers who first completed the draft survey, and then discussed which questions they found difficult to complete, unclear, or which they otherwise felt required change. These fishers were recommended by RecFish SA members, but most were not actively involved in RecFish SA, as it was important to ensure the survey was tested by many fishers, not just those involved with one particular group
- The survey questions were revised based on the workshop feedback
- Formal pilot testing was conducted with a sample of 20 fishers. These fishers were recruited based on recommendations of the initial six recreational fishers, who recommended friends and acquaintances, as did some RecFish SA members. The 20 fishers completed the survey online and provided feedback to the researcher to enable the refinement of questions.

The survey was then finalised and launched. However, on the first day after the survey was opened to respondents, two recreational fishing organisations contacted the researchers, requesting the survey be changed to (i) better explain the role of RecFish SA in the survey, and (ii) provide an additional question that allowed open-ended feedback to be provided about views on a recreational fishing licence. As the survey had at that point been completed by only five participants, and these changes added additional valuable data, the requested changes were made.

## Survey sample

Survey data were collected between September 10<sup>th</sup> 2014 and October 15<sup>th</sup> 2014. The goal of the study was to understand the views of both recreational fishers and of non-fishers who were interested in commenting on the survey topics. While it was expected the latter group would be small, it was considered important that the survey sampling process provided opportunity to capture views of non-fishers if they existed.

Originally, it was proposed that the survey participants be recruited through handing out flyers and surveys at fishing sites, and posting an invitation to take part in the survey on fishing websites. However, previous studies indicated this sampling approach would result in a very low sample of non-avid fishers (those who fish only a small number of days each year). If this occurred, there was a risk

that too few 'non-avid' fishers would be sampled to enable analysis of the views of the many fishers who go fishing only a small number of days each year.

To address this, the sampling method was changed, so that survey participants were recruited to take part in the survey using two methods:

- Sending letters, followed by a paper survey, to a stratified random sample of South Australian residents, and
- Promoting the survey on fishing websites and through fishing-related email networks.

In addition to these two methods of promoting the survey, a prize draw was offered, with five \$100 gift cards the prizes. The survey could be completed online or on paper.

The stratified random sample was selected from a commercially available database, called Australia on Disc, which contains names and mailing addresses for a total of 414,875 households in South Australia. This represents approximately 57% of all South Australian households and is the most comprehensive publicly available database. A total of 5,000 households across SA were selected, stratified by location. Half were located in Adelaide and surrounding suburbs, and the other half selected to be evenly distributed across the remainder of SA. This sample of 5,000 people was contacted twice: first with a letter requesting participation in the survey, and including the URL at which the survey could be completed online; and second, by sending those who had not yet taken part in the survey a paper survey together with a prepaid return envelope. All material encouraging completion of the survey included specific statements encouraging non-fishers to take part in the survey.

The way a participant had heard about the survey was identified when they completed the survey, enabling tracking of the number of responses achieved using the two methods:

- 545 responses were achieved as a result of promotion via sending letters and surveys to the random sample from Australia on Disc. This represents a 10.9% response rate. Of these responses, 63 were from people who were passed the survey by its original recipient, usually because the original recipient was not a fisher and passed it to a friend who was.
- 310 responses were achieved via promotion on fishing websites and by recreational fishing clubs and organisations. Of these, 180 heard about the survey via a fishing related website, and 130 via a fishing club or organisation.

To better understand reasons for non-response, 25 non-respondents (people who were contacted via the Australia on Disc sample but who did not complete the survey) were contacted and asked why they chose not to participate. Of these 25, all but one stated they were not recreational fishers and had no interest in the survey topic. This suggests that the main reason for non-response was due to lack of interest in the survey topic, and that there was a high response from those who did have an interest in recreational fishing.

Of the 855 respondents, 206 were non-fishers. These non-fishers had an option to indicate on the survey that they had no interest in answering questions about recreational fishing, and skip to the end of the survey. Of the 206, 82% took this option, and only 18% chose to answer the survey questions about recreational fishing. The majority of this 18% answered 'don't know' to almost all questions. The remaining 649 respondents were all recreational fishers who were interested in recreational fishing, and chose to answer all questions on the survey.

The very limited participation in the survey by people who do not engage in recreational fishing, despite being encouraged to do so, suggests that there is very little interest by non-fishers in commenting on recreational fishing. Given this, the survey data are best viewed as a sample of recreational fishers only. Non-fishers were removed from the dataset when analysing results to reduce



the number of ‘don’t know’ responses and to ensure the data could be said to represent views of recreational fishers.

## Responses and weighting

The survey sample design was expected to achieve a sample biased towards more avid fishers, and older fishers. A bias towards avid fishers was expected as the people most likely to be willing to take part in a voluntary survey about recreational fishing are those with a strong interest in fishing – in particular, people who fish regularly. A bias towards older fishers was expected as most previous surveys on views of fishers, as well as surveys of Australians more broadly, have a bias towards older respondents.

As the majority of non-fishers who responded to the survey indicated they were not interested in answering questions about recreational fishing, and thus did not answer most survey questions, the most appropriate population frame against which to assess the representativeness of the survey sample was that of South Australian recreational fishers. The characteristics of the sample of recreational fishers achieved was therefore compared to known characteristics of South Australian recreational fishers, using data from the 2013-14 South Australian recreational fishing survey, a survey designed to estimate the level of participation in recreational fishing by South Australians, and their fishing effort. Preliminary findings from this survey were provided by Dr James Andrews.

Table 1 compares characteristics of the survey sample to characteristics of South Australian recreational fishers. As expected, there was a substantial bias to avid and older fishers. The gender representation was reasonably representative.

**Table 1 Comparison of survey sample to known characteristics of South Australian recreational fishers**

Demographic characteristics		2013-14 South Australian recreational fishing survey	Survey sample	Representativeness of sampling of this group
Male	Under 29	20.9%	5.5%	Undersampled
Male	30 to 44	18.8%	18.2%	Representative
Male	45 to 59	22.2%	31.7%	Oversampled
Male	60 and older	15.2%	31.7%	Oversampled
Female	Under 29	6.4%	0.4%	Undersampled
Female	30 to 44	6.6%	1.9%	Undersampled
Female	45 to 59	6.0%	4.2%	Representative
Female	60 and older	4.0%	6.4%	Representative
Days fished	1 to 4	70.5%	19.9%	Undersampled
Days fished	5 to 9	21.9%	10.5%	Undersampled
Days fished	10 to 14	3.8%	9.2%	Oversampled
Days fished	15 to 19	2.1%	14.7%	Oversampled
Days fished	20 or more	1.7%	45.6%	Oversampled

To correct for the biases identified in the sample, the dataset was weighted. ‘Weighting’ refers to a statistical process in which known biases in the responses received are corrected for. Weighting responses involves adjusting the relative contribution each survey respondent contributes to the whole when analysing survey results, so that analysed data from the survey sample more accurately represent the population it was drawn from - in this case, recreational fishers in SA. Weighting doesn’t change the answers people gave to survey questions. This means that younger people, and those who fished less often, were given a higher weight when analysing responses, and older people and those who fished more, given lower weight, to ensure that the resulting analysis was representative of the proportion of all South Australian recreational fishers these different groups represent.

Weighting has been applied to all analyses in this report. Additionally, to ensure that the views of different groups are understood, the views of older and younger respondents, and of avid and less avid fishers, are compared throughout the results.

# Results

The results are presented in four sections:

- **Values and benefits of recreational fishing.** This section explores the values recreational fishers in SA associate with fishing, the benefits they report experiencing from fishing, the ways they fish, and their overall satisfaction with their fishing. Understanding the values and benefits associated with fishing enables identification of how best to maintain and enhance these values and benefits, which in turn helps to ensure the social benefits of fishing are maintained and enhanced over time.
- **Investment priorities.** This section examines the views of recreational fishers regarding priority areas for investment in recreational fishing, including their satisfaction with the recreational fishing infrastructure currently available to them, and where they believe it is important to focus future investment in recreational fishing in general.
- **Recreational fishing management, policing and organisations.** This section examines views about the management of recreational fishing, and about organisations who are involved in advocating for recreational fishers in SA.
- **Views about a recreational fishing licence.** This section examines the social acceptability of a recreational fishing licence under differing conditions, helping identify whether a licence is likely to be considered acceptable, to be associated with change in fishing practices, and how the licence would need to be designed to be acceptable to recreational fishers.

All results presented in the following sections are weighted to be representative of South Australian recreational fishers, unless otherwise specified.

## Values and benefits of recreational fishing

It is important to understand why people choose to fish, and what values and benefits they associate with fishing. This knowledge can inform the design of recreational fisheries management, and support prioritisation of investment so that funds are directed to the areas that best support maintaining and enhancing the benefits of fishing for those who participate in it.

Surprisingly few studies have examined these issues, possibly because there is often an assumption that the social benefits of fishing are already well understood. However, the reasons people fish, and the benefits they obtain from fishing, differ for different types of people, change over time, and have not been examined in a large number of studies. The values and benefits people achieve from recreational fishing in South Australia were assessed by asking fishers:

- How they fish, what they fish for and where they fish. Understanding how fishers choose to fish can help provide insight into the aspects of fishing they most value.
- Values associated with fishing. This was assessed by asking fishers how important or unimportant different aspects of their fishing were to them.
- Benefits of fishing. This was assessed by (i) asking whether fishers agree or disagree that they are achieving a number of different benefits from their recreational fishing, (ii) identifying how much they depend on their recreational fishing for seafood consumption, and (iii) asking how satisfied they are overall with their recreational fishing.

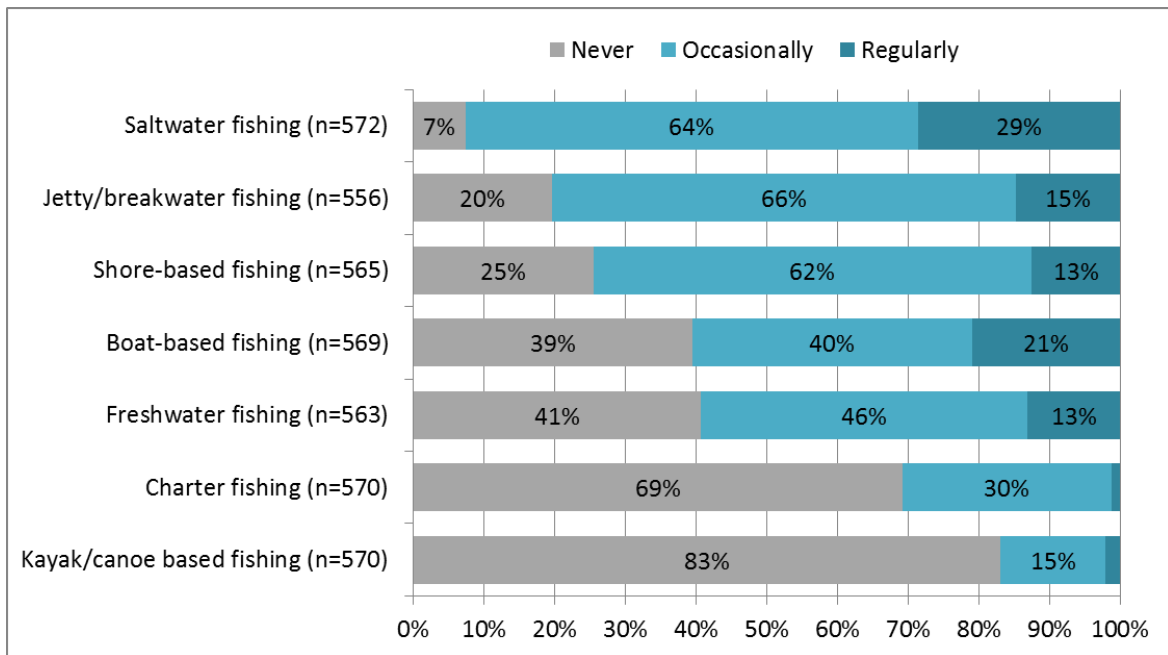
## Where and how people fish in South Australia

A first step in understanding the values and benefits of fishing is to understand how they choose to fish. To do this, fishers were asked about the fishing platforms and methods they used, as well as the species they targeted and the locations they fished in.

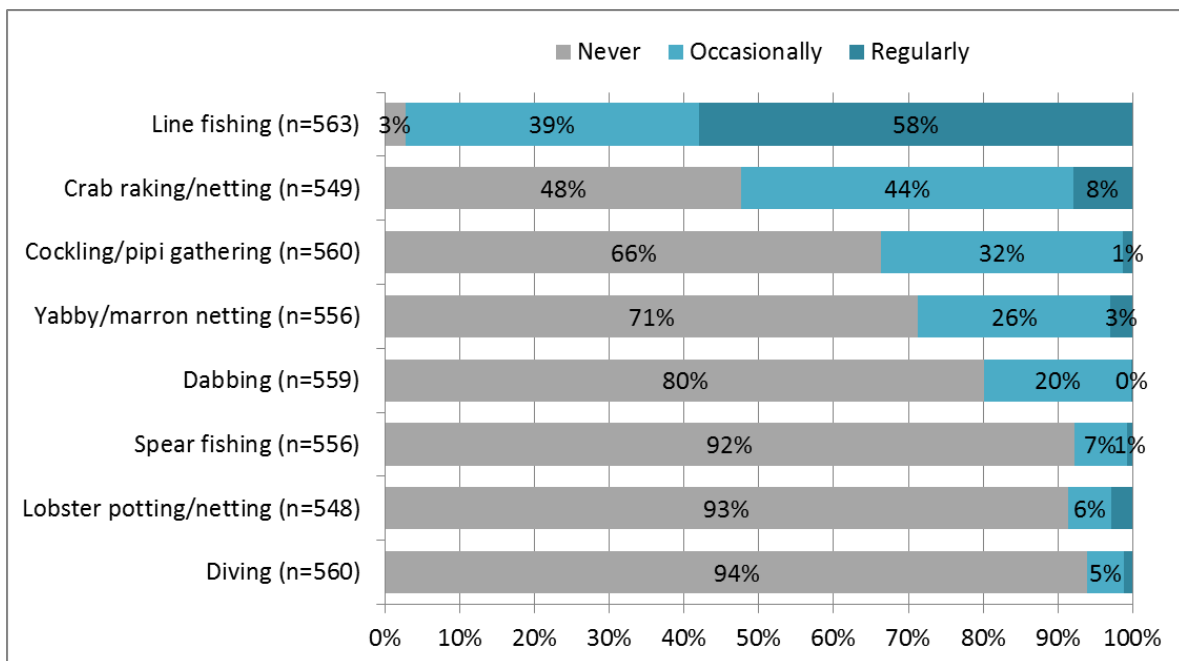
The large majority of SA fishers reported that they engaged in saltwater fishing, with 93% doing this occasionally or regularly (Figure 1). Freshwater fishing, while also popular, was undertaken by fewer fishers, with 59% doing this regularly or occasionally. Around 80% of fishers engaged in jetty/breakwater and shore fishing, and 61% went boat fishing sometimes or regularly. Fewer participated in charter fishing (31%) or in kayak- or canoe-based fishing (16%). Most fishers did more than one of these things: for example, almost all freshwater fishers also engaged in saltwater fishing; almost all boat fishers also undertook shore-based fishing of some description; and almost all charter fishers also did non-charter fishing.

Line fishing was the most common method of fishing, used by 97% of fishers (Figure 2). Fifty two per cent of fishers reported engaging in crab raking and netting, cockling or pipi gathering by 33%, yabby/marron netting by 29%, and dabbling by 20%, while 7% or less engaged in spear fishing, lobster potting/netting or diving. Table 2 examines the proportion of different groups of fishers who engage in each type of fishing. Overall:

- Women were less likely than men to report engaging in each type of fishing. This reflects that women typically do less fishing overall than men, and often use only one or two methods of fishing, whereas male fishers engaged in a greater diversity of fishing experiences.
- Younger fishers were more likely than older fishers to engage in freshwater fishing, diving, and spear fishing, but were less likely than older fishers to engage in shore-based fishing, dabbling, crab raking/netting or cockling/pipi gathering. Similar patterns were seen for those who were single (who were also often young) versus those in married or de facto relationships.
- Avid fishers (those who fished more days per year) were more likely to report engaging in all types of fishing compared to less avid fishers.
- Those earning an annual income of less than \$65,000 were less likely than those with higher incomes to engage in charter fishing, and more likely than those with higher incomes to take part in dabbling, crab raking/netting, or yabby/marron netting.



**Figure 1 Platforms and waters used by SA recreational fishers**



**Figure 2 Fishing methods used by SA recreational fishers**

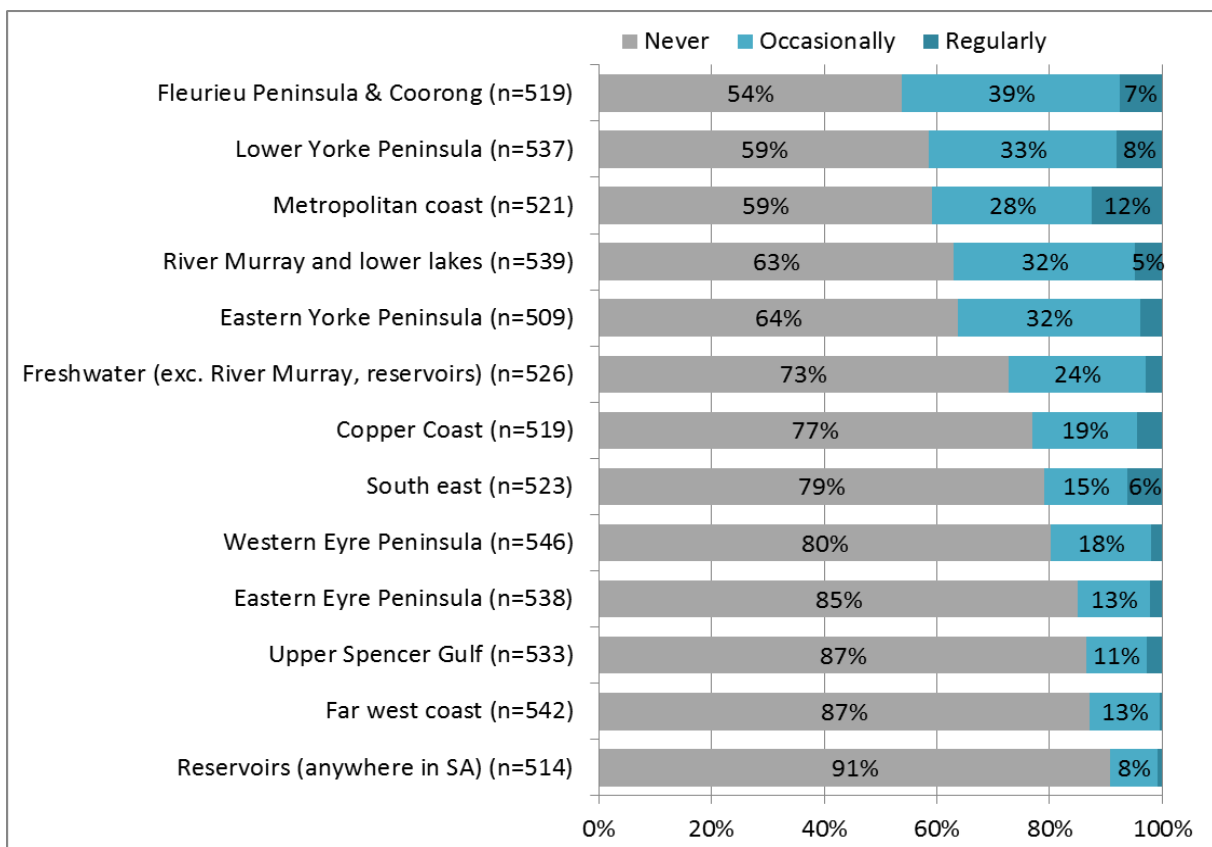
**Table 2 Platforms and waters used by SA recreational fishers, by demographic and fisher group**

	Freshwater fishing (n=563)	Saltwater fishing (n=572)	Shore-based fishing (n=565)	Jetty/ breakwater fishing (n=556)	Boat-based fishing (n=569)	Kayak/ canoe based fishing (n=570)	Charter fishing (n=570)	Line fishing (n=563)	Diving (n=560)	Spear fishing (n=556)	Dabbling (n=559)	Crab raking/ netting (n=549)	Cockling/ pipi gathering (n=560)	Lobster potting/ netting (n=548)	Yabby/ marron netting (n=556)
Female	54%	82%	71%	70%	48%	15%	22%	97%	8%	9%	16%	54%	31%	11%	14%
Male	62%	99%	76%	87%	69%	18%	35%	97%	5%	7%	23%	52%	35%	7%	36%
<29 years	99%	100%	54%	99%	63%	39%	12%	100%	4%	14%	6%	51%	18%	3%	10%
30 to 44 years	64%	82%	77%	73%	50%	9%	38%	100%	10%	16%	15%	34%	32%	17%	21%
45 to 59 years	53%	95%	74%	84%	70%	19%	32%	96%	2%	2%	25%	66%	35%	2%	34%
60+ years	52%	98%	79%	82%	60%	6%	23%	95%	8%	5%	23%	55%	38%	10%	32%
Fish < 10 days	58%	92%	73%	79%	60%	14%	31%	97%	6%	7%	20%	50%	32%	8%	28%
Fish 10-29 days	74%	100%	91%	89%	58%	43%	30%	100%	7%	18%	19%	77%	46%	8%	33%
Fish 30+ days	76%	100%	93%	91%	89%	41%	39%	99%	11%	16%	47%	66%	50%	18%	45%
<\$65,000	59%	96%	81%	88%	78%	15%	19%	100%	4%	5%	35%	55%	39%	6%	37%
\$65,000-\$129,000	75%	100%	76%	83%	57%	14%	43%	99%	4%	6%	11%	44%	29%	17%	28%
\$130,000+	41%	93%	72%	75%	67%	17%	34%	93%	4%	6%	17%	53%	24%	11%	28%
Single	76%	82%	66%	73%	63%	26%	23%	98%	7%	8%	14%	39%	25%	2%	36%
Married or defacto	55%	96%	77%	82%	62%	14%	34%	97%	6%	8%	23%	60%	34%	11%	26%
Did not complete high school	53%	80%	74%	66%	56%	10%	31%	94%	5%	3%	19%	64%	23%	8%	33%
Completed high school	67%	100%	46%	73%	85%	26%	34%	94%	2%	1%	19%	40%	16%	32%	24%
Completed degree	57%	100%	88%	92%	54%	16%	28%	100%	9%	13%	20%	46%	40%	1%	20%
Average satisfaction with fishing (0 = not at all satisfied, 10 = very satisfied)	5.6	5.8	5.8	5.9	5.5	6.2	5.4	5.6	6.5	6.6	5.2	5.3	5.7	5.5	5.8

Survey participants were also asked which regions of South Australia they fished in, and what species they targeted. A wide range of regions were fished in: the majority of fishers reported fishing in between two to four regions, with few fishing in only one (Figure 3). Fishers were most likely to report fishing in the Fleurieu Peninsula and Coorong (including Kangaroo Island, Lower Yorke Peninsula, metropolitan coast around Adelaide, and the River Murray and lower lakes.

Different types of fishers had different fishing patterns (Table 3):

- Women were less likely to fish in multiple locations than men, and were much more likely than men to focus their fishing in the regions in and nearest Adelaide, including the Yorke Peninsula, Fleurieu Peninsula and Coorong, and River Murray. Fewer women reported fishing in regions further away from Adelaide, whereas men were more likely to report fishing in a number of regions across South Australia.
- Younger people had a similar fishing profile to women, as did less avid fishers. Older people, and those who fished more days per year, were more likely to report fishing in regions right across South Australia, while younger people and those who fished fewer days were less likely to fish in multiple locations and most likely to concentrate fishing in the Adelaide metropolitan, Yorke Peninsula, Fleurieu Peninsula, and Coorong and River Murray regions.



**Figure 3 Regions in which survey participants fished**

**Table 3 Regions in which fishers reported they occasionally or regularly fished, by demographic and fisher group**

	Far west coast (n=542)	Western Eyre Peninsula (n=546)	Eastern Eyre Peninsula (n=538)	Upper Spencer Gulf (n=533)	Copper Coast (n=519)	Lower Yorke Peninsula (n=537)	Eastern Yorke Peninsula (n=509)	Metropolitan coast (n=521)	Fleurieu Peninsula & Coorong (n=519)	South east (n=523)	River Murray and lower lakes (n=539)	Reservoirs (anywhere in SA) (n=514)	Freshwater (exc. River Murray, reservoirs) (n=526)
Female	10%	6%	5%	10%	5%	33%	24%	25%	46%	16%	36%	15%	20%
Male	15%	28%	21%	15%	33%	47%	43%	49%	45%	24%	37%	5%	30%
<29 years	2%	6%	8%	4%	13%	66%	68%	96%	45%	6%	10%	32%	87%
30 to 44 years	15%	9%	11%	7%	16%	45%	25%	31%	52%	25%	42%	10%	21%
45 to 59 years	10%	23%	16%	17%	27%	36%	41%	37%	42%	12%	35%	6%	20%
60+ years	17%	28%	21%	19%	28%	39%	35%	42%	45%	29%	42%	6%	24%
Fish < 10 days	13%	19%	14%	13%	21%	41%	35%	37%	44%	21%	37%	7%	25%
Fish 10-29 days	13%	24%	21%	16%	34%	47%	40%	70%	65%	20%	31%	29%	48%
Fish 30+ days	34%	41%	48%	44%	53%	57%	64%	70%	69%	49%	57%	31%	59%
<\$65,000	14%	17%	13%	13%	29%	43%	44%	46%	42%	27%	45%	6%	24%
\$65,000-\$129,000	11%	21%	19%	14%	28%	49%	29%	39%	52%	23%	40%	4%	35%
\$130,000+	15%	28%	21%	9%	16%	30%	26%	38%	45%	27%	25%	7%	19%
Single	4%	9%	10%	10%	14%	35%	34%	48%	23%	16%	42%	8%	31%
Married or defacto	16%	22%	17%	15%	27%	46%	39%	36%	51%	22%	37%	10%	25%
Did not complete high school	15%	22%	14%	18%	30%	25%	35%	27%	32%	21%	45%	20%	15%
Completed high school	3%	9%	11%	6%	12%	56%	51%	43%	23%	38%	25%	5%	50%
Completed degree	22%	24%	20%	10%	19%	39%	26%	44%	66%	15%	30%	8%	23%
Average satisfaction with fishing (0 = not at all satisfied, 10 = very satisfied)	6.0	5.1	5.2	5.3	5.2	5.8	5.7	5.9	6.2	5.5	5.4	5.1	6.0



King George Whiting was the species most commonly targeted by fishers, with 82% reporting they occasionally or regularly targeted this species (Figure 4). More than 60% targeted Southern Calamari, Australian Herring and Southern Garfish. Many – between 57% and 59% - targeted Blue Swimmer Crab, Snapper and Australian Salmon. Fewer (less than 40%) targeted Mulloway, Golden Perch, Trout species or Tuna species. A large proportion, 48%, said they targeted some species other than those that were listed in the survey (only a relatively short list of species was asked about in the survey). When asked to list the other species they targeted, the species listed were (in alphabetical order) Abalone, Blue-Eye Trevalla, Blue Morwong, Bream species, European Carp, Catfish, Flathead species, Flounder species, Gemfish, Hapuku, Leatherjacket species, Mullet species, Murray Cod, Redfin, Redfish, Sand Whiting, Samsonfish, Shark species, Snook, Southern Rock Lobster, Swallowtail, Yabby, Yellowfin Whiting, and Yellowtail Kingfish.

When examined by type of fisher (Table 4), a number of differences were observed. Women typically targeted fewer species than men. Younger fishers targeted more species than older fishers, as did avid fishers. There was little difference in the overall satisfaction with fishing reported by fishers who targeted different species.

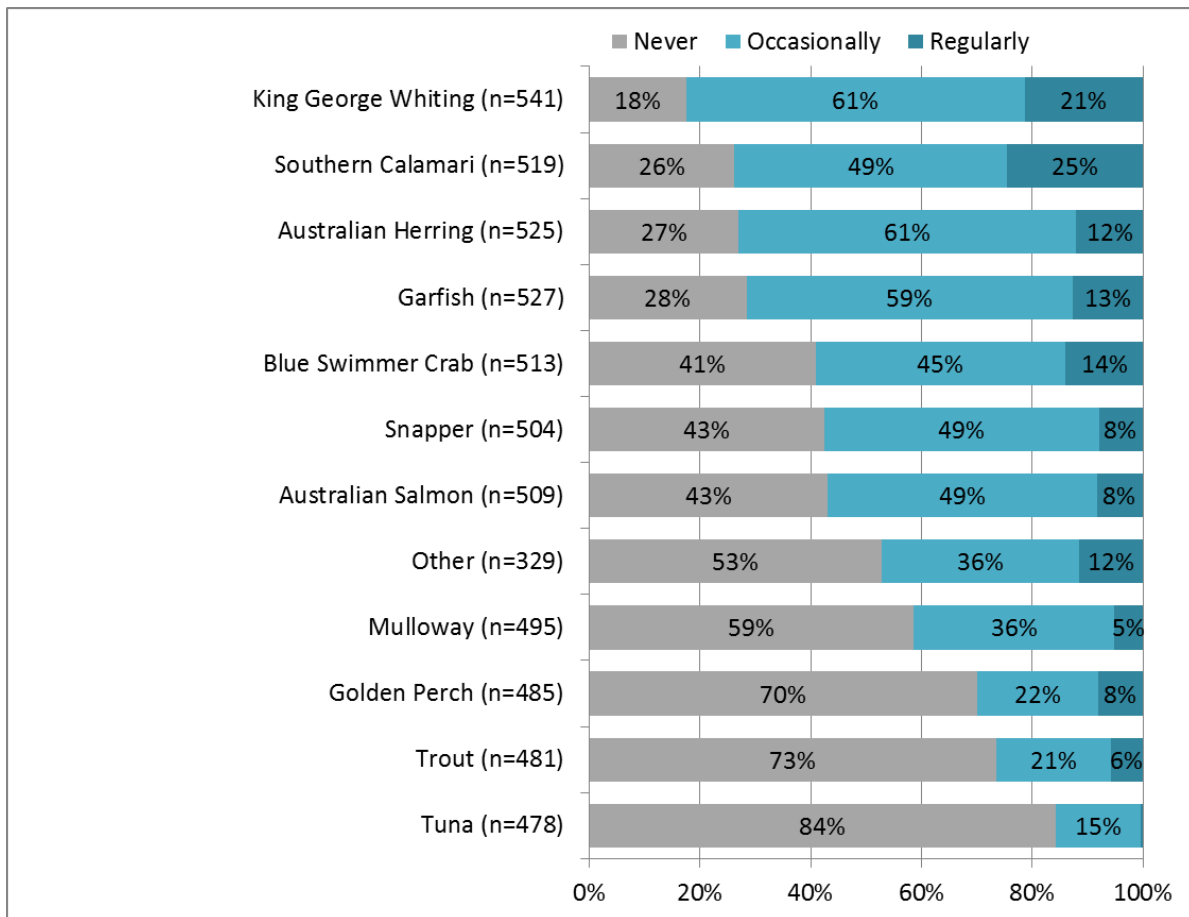


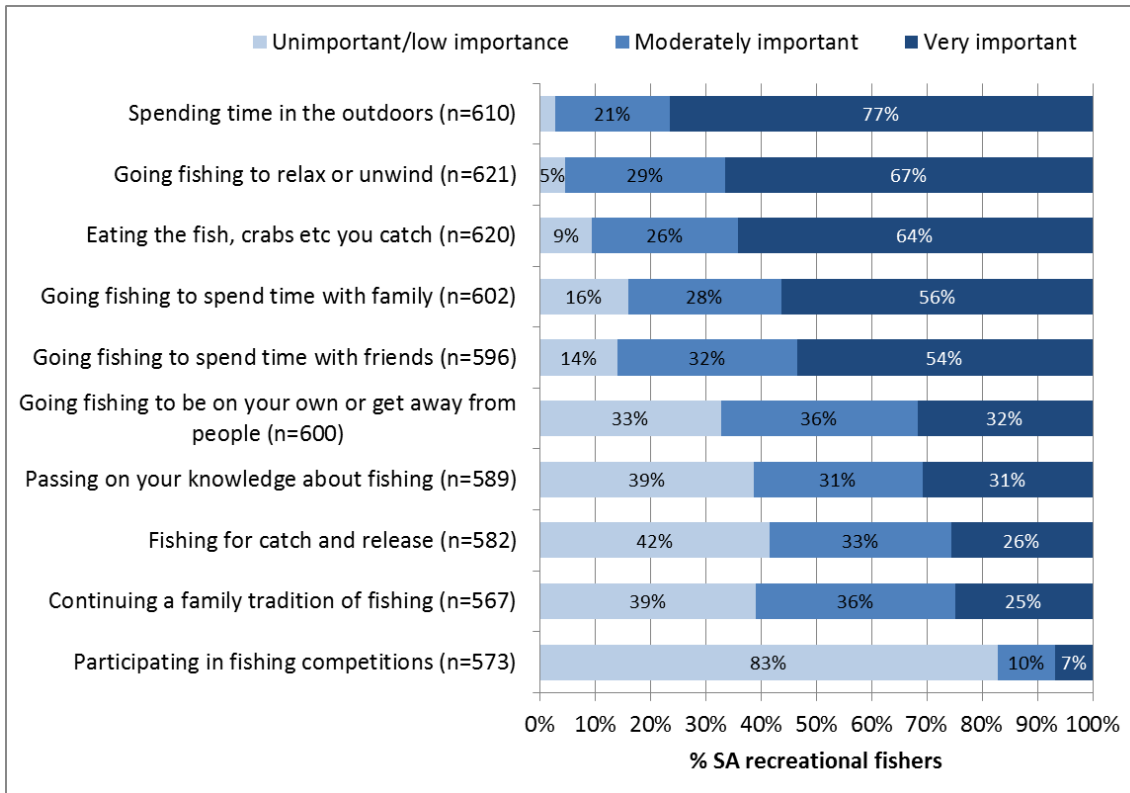
Figure 4 Species targeted by SA recreational fishers

**Table 4 Species targeted by SA recreational fishers, by demographic and fisher group**

	King George Whiting (n=541)	Snapper (n=504)	Southern Calamari (n=519)	Garfish (n=527)	Blue Swimmer Crab (n=513)	Golden Perch (n=485)	Australian Herring (n=525)	Australian Salmon (n=509)	Mulloway (n=495)	Trout (n=481)	Tuna (n=478)
Female	80%	54%	54%	68%	51%	16%	68%	41%	32%	30%	18%
Male	83%	59%	84%	73%	64%	38%	75%	65%	47%	23%	15%
<29 years	100%	98%	100%	70%	93%	54%	97%	97%	62%	91%	80%
30 to 44 years	85%	56%	51%	64%	37%	24%	68%	53%	47%	29%	20%
45 to 59 years	75%	52%	83%	68%	69%	27%	68%	56%	36%	14%	7%
60+ years	87%	58%	79%	83%	64%	35%	81%	55%	36%	17%	3%
Fish < 10 days	81%	55%	71%	71%	58%	30%	72%	54%	41%	24%	13%
Fish 10-29 days	97%	81%	94%	68%	72%	29%	83%	79%	40%	46%	38%
Fish 30+ days	91%	89%	98%	88%	69%	48%	78%	89%	77%	43%	40%
<\$65,000	87%	59%	77%	76%	59%	45%	71%	55%	50%	20%	7%
\$65,000-\$129,000	82%	47%	54%	64%	43%	28%	61%	50%	34%	24%	8%
\$130,000+	65%	57%	85%	74%	65%	11%	74%	69%	15%	10%	22%
Single	75%	71%	59%	58%	46%	48%	68%	60%	54%	44%	32%
Married or defacto	84%	56%	77%	73%	66%	25%	73%	59%	35%	20%	11%
Did not complete high school	75%	42%	64%	62%	69%	31%	60%	43%	36%	9%	4%
Completed high school	93%	76%	66%	75%	58%	35%	60%	53%	46%	28%	34%
Completed degree	74%	45%	78%	75%	51%	22%	79%	57%	34%	29%	13%
Average satisfaction with fishing (0 = not at all satisfied, 10 = very satisfied)	6.0	5.8	5.7	5.7	5.3	5.7	6.0	5.8	5.9	5.9	6.5

## Values associated with recreational fishing

Survey participants were asked how important or unimportant various aspects of their fishing were to them (Figure 5). The aspects of fishing rated highly important by the greatest proportion of fishers were spending time in the outdoors (very important to 77% of fishers), going fishing to relax or unwind (67%), eating catch (64%), and going fishing to spend time with family or friends (56% and 54% respectively). This shows the importance of the social and personal benefits achieved from recreational fishing. Other values were less common: 32% or fewer fishers said it was very important to them to go fishing to be on their own or get away from people, to pass on knowledge about fishing, to fish for catch and release, continue a family tradition of fishing, or to participate in fishing competitions.



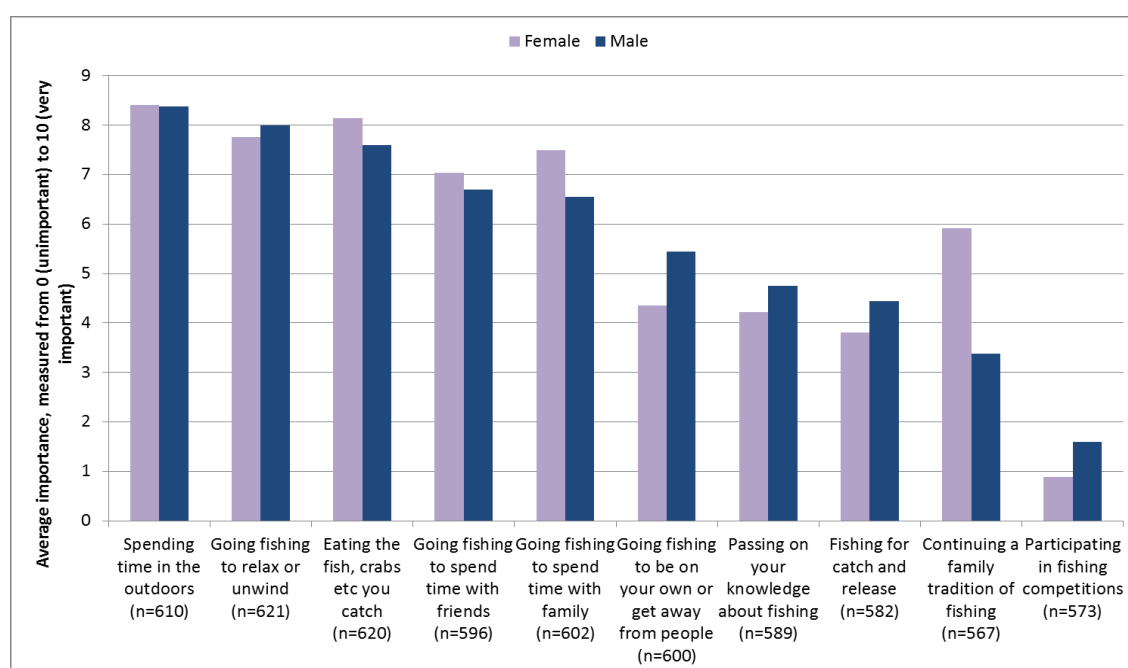
**Figure 5 SA recreational fisher's ratings of the importance of different aspects of fishing to them**

These values were fairly consistent across different types of fishers, although there were some differences (Figures 6 to 9).

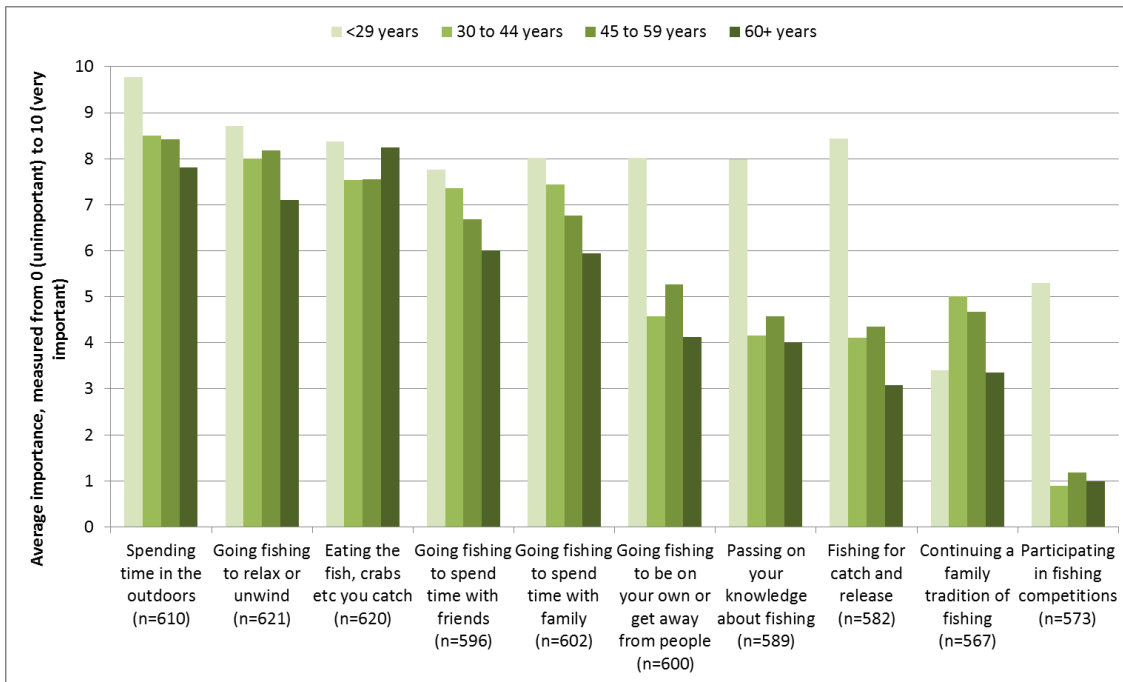
- Women were more likely than men to value fishing for being able to pass on family traditions and spend time with family, and a little more likely than men to value eating their catch.
- Men were more likely than women to value fishing for being able to get away on their own away from people, participating in fishing competitions, and catch and release fishing.
- Younger people, particularly those aged under 30, were more likely to say multiple aspects of fishing were very important to them, and much more likely than older people to report that spending time with friends and family, solitude, passing on knowledge, catch and release, spending time outdoors, and fishing competitions were important aspects of their fishing.
- Older people, particularly those aged 60 and older, rated fewer aspects of their fishing as being very important. For those aged 60 or older, the most highly rated aspect of fishing was eating the fish, crabs etc they caught, whereas for other age groups other aspects of fishing were as or more important as eating catch.
- Avid fishers were more likely than those who fished less often to report that multiple aspects of fishing were important to them, and typically rated all or almost all aspects listed in the survey as being very

important. They were much more likely than those who fished only occasionally to rate fishing with friends, achieving solitude through fishing, participating in catch and release, continuing family traditions, and participating in fishing competitions as important aspects of their fishing.

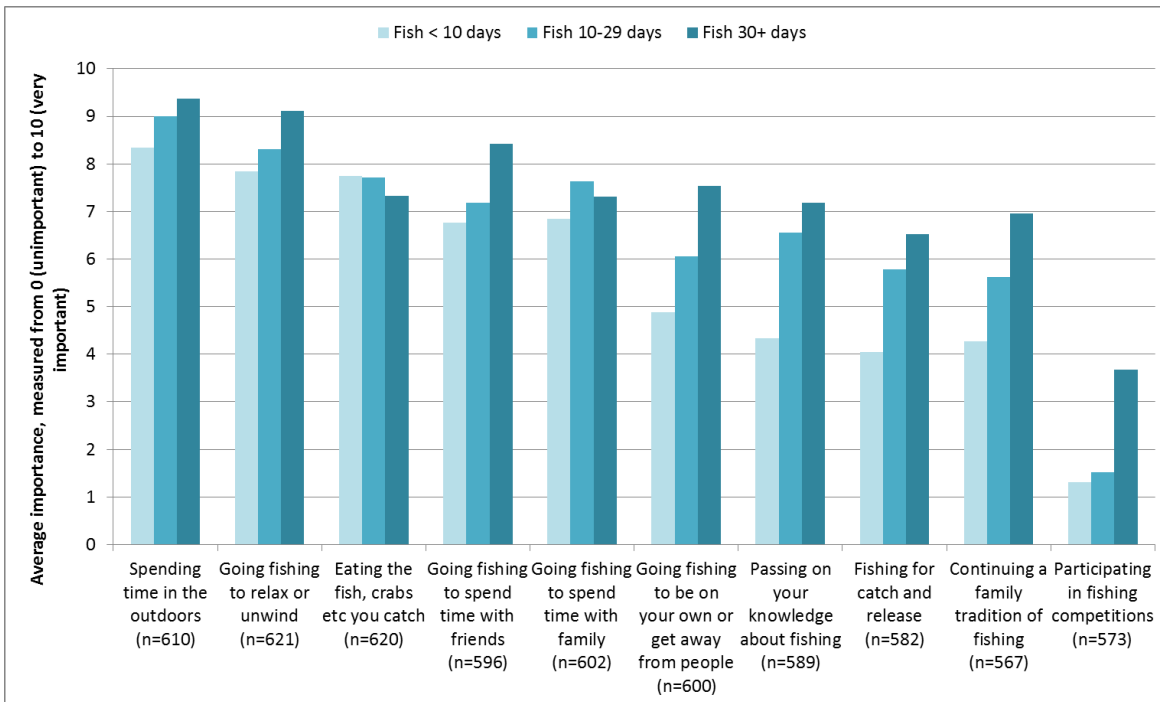
- Less avid fishers rated fewer aspects of fishing as being important. Being in the outdoors, relaxing/unwinding, and eating catch were the aspects of fishing most commonly rated as very important by this type of fisher.
- The benefits of fishing appear to differ for people in different relationship stages. Those who were single were more likely than those who were married or de facto relationships to rate multiple aspects of fishing as being very important to them, suggesting fishing plays a particularly important role in the lives of single people. In particular, single people were more likely than others to rate fishing as being very important for relaxing/unwinding, spending time with friends, achieving solitude, and participating in catch and release or fishing competitions. These differences are partly due to age, with single people on average being younger than those who were married/de facto.



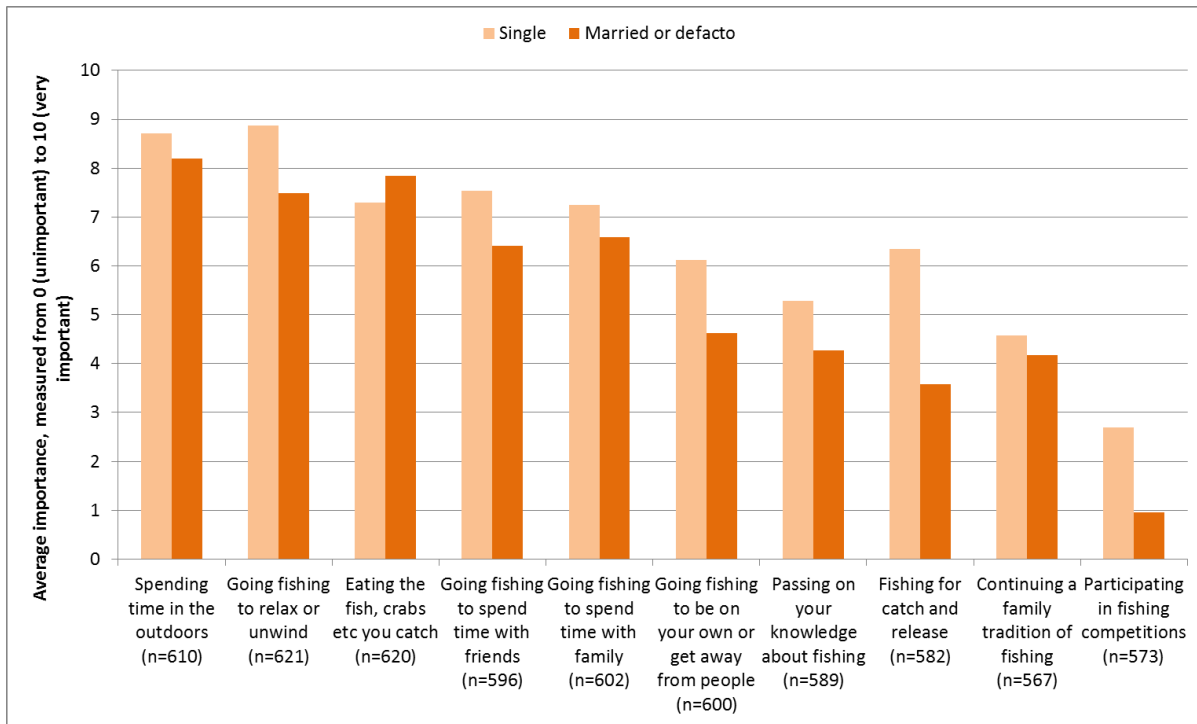
**Figure 6 Importance of different aspects of fishing, by gender**



**Figure 7 Importance of different aspects of fishing, by age group**



**Figure 8 Importance of different aspects of fishing, by fishing avidity**



**Figure 9 Importance of different aspects of fishing, by relationship status**

## Benefits of recreational fishing

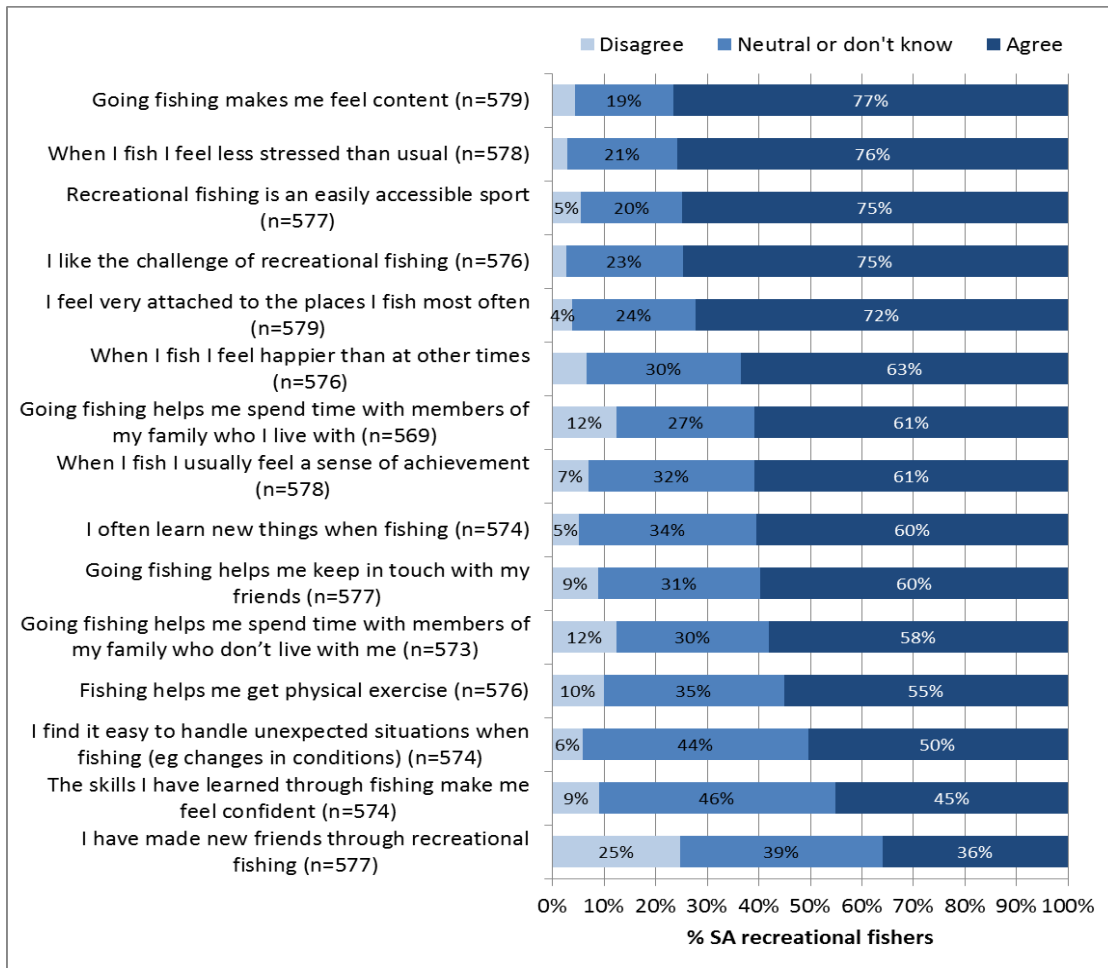
The previous section examined why people like going fishing: for example, to spend time with friends and family, eat catch, or continue a family tradition. These things all have important social or health benefits, for example they may help a person increase their sense of contentment or increase the amount of physical exercise they are engaging in. Recreational fishing can have many benefits, ranging from benefits to physical health through engaging in physical activity or consuming seafood, to broader social and emotional benefits resulting from the social aspects of fishing. Survey participants were asked if they experienced any of a number of physical, social and emotional benefits when they went fishing (Figure 10), and were also asked how often they consume the seafood they catch and seafood from other sources (Figure 11). They were then asked how satisfied they were with their fishing, to better understand which fishers are achieving the benefits they value from their fishing activities.

The benefits of fishing most commonly reported by fishers were positive emotional benefits, with fishing reported by most to provide an avenue for experiencing positive emotions such as feeling content, 'de-stressing', providing an enjoyable challenge, and enabling them to connect to special places: more than 70% of fishers reported experiencing each of these benefits (Figure 10). Other emotional benefits were experienced by a smaller proportion of fishers (although usually still a majority), including feeling happier (63%), feeling a sense of achievement or learning new things (61% and 60% respectively), improved ability to handle unexpected situations (50%) and increased confidence (45%).

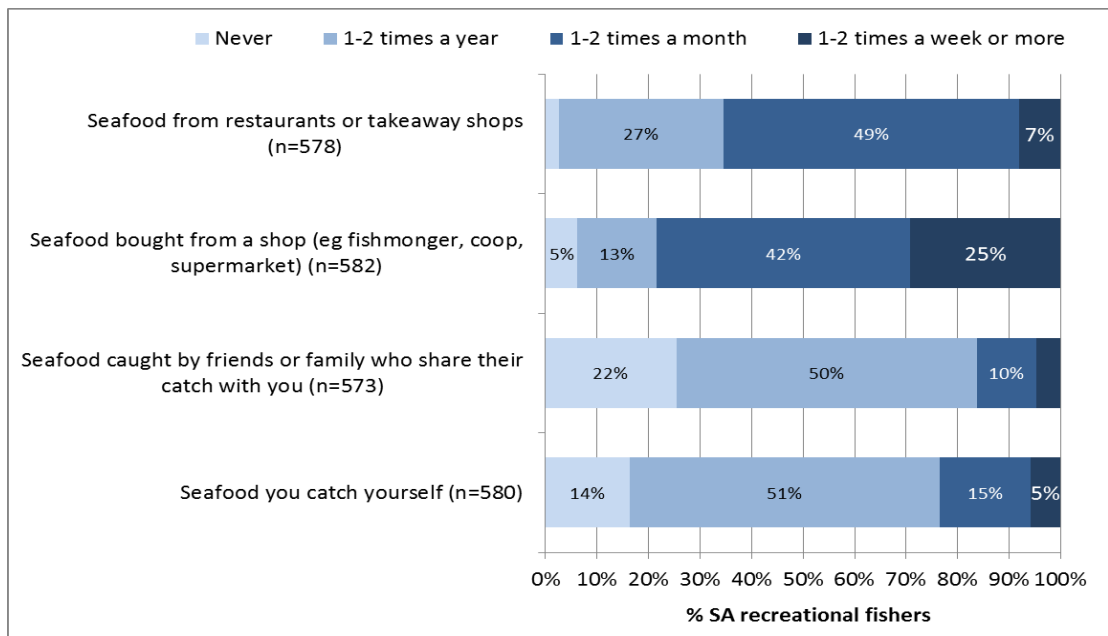
Achieving physical exercise was less commonly reported as a benefit of fishing than emotional benefits, although 55% of fishers felt their fishing enabled them to engage in physical exercise.

Social benefits - the benefits associated with engaging in social interaction with others - were reported by a small majority of fishers, with around 60% reporting that fishing let them spend more time with family and with friends. Fishing is mostly used to reinforce existing social connections, with only 36% reporting that fishing had helped them form new friendships.

Most recreational fishers do not rely on fishing as their primary source of seafood/fish for consumption (Figure 11). The majority eat fish/seafood they catch themselves once or twice a year, and only 20% eat their own catch once a month or more often. Most fishers obtain the majority of their fish/seafood based protein from supermarkets, fishmongers, takeaway shops or restaurants. This suggests that for most recreational fishers, recreational fishing is not their principle source of fish/seafood for consumption.



**Figure 10 Social, physical and emotional benefits of fishing experienced by recreational fishers**

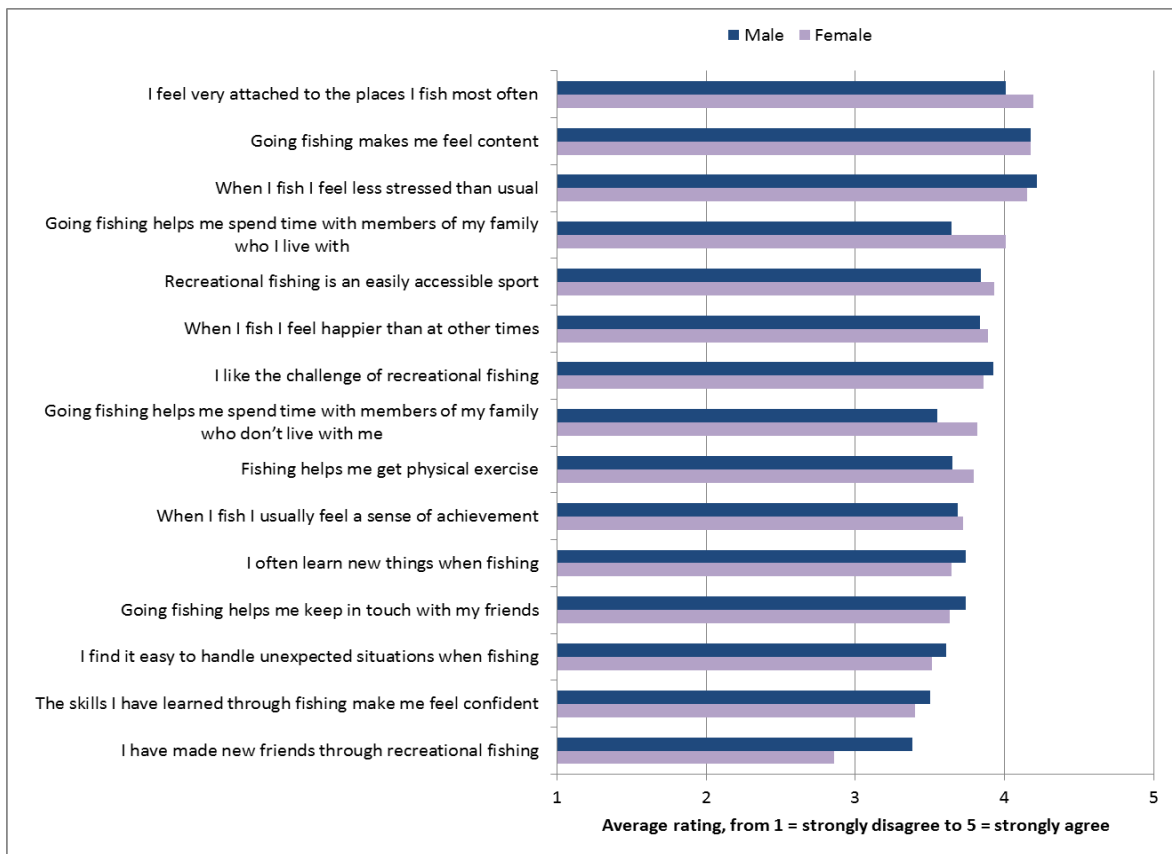


**Figure 11 How often do South Australia's recreational fishers consume seafood from different sources?**

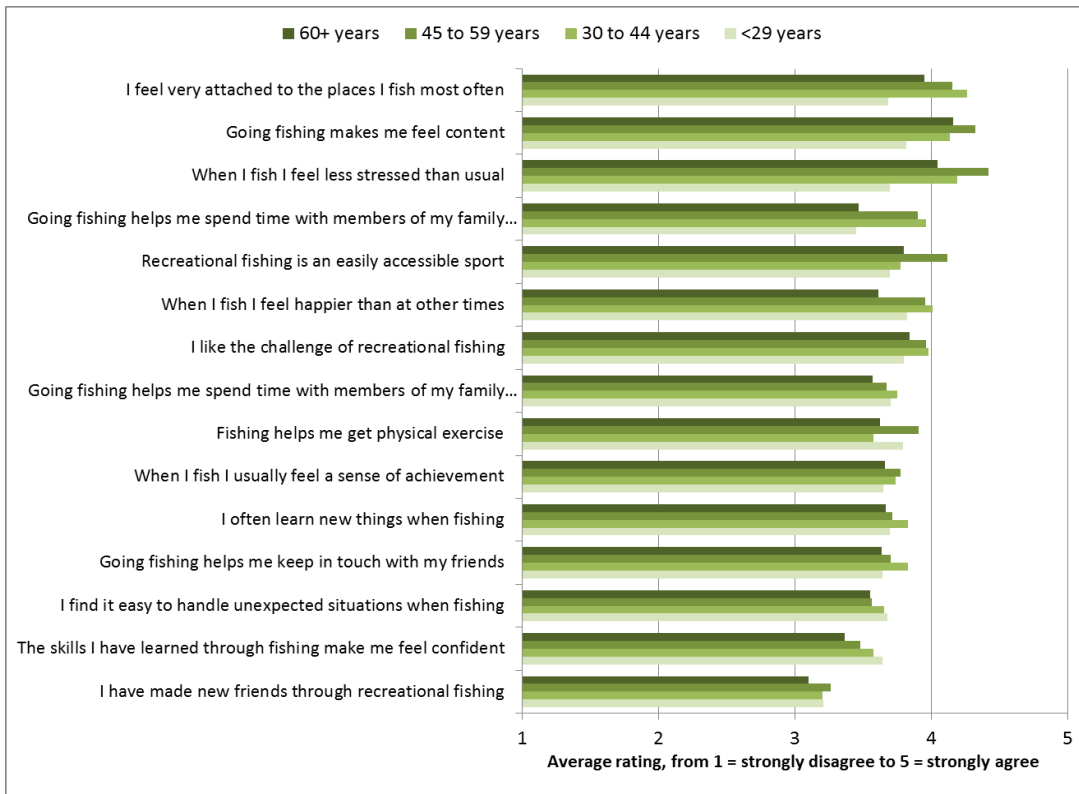
The benefits achieved from fishing differed depending on a person's stage of life and fishing avidity (Figures 12 to 16):



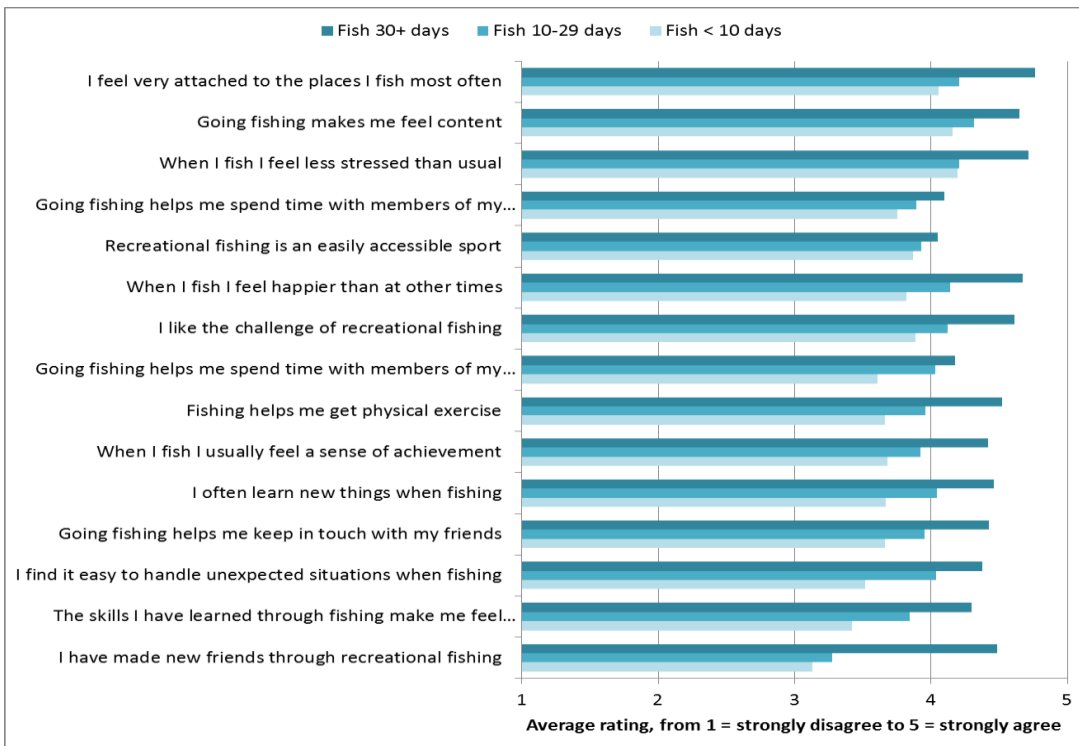
- Women were more likely than men to report that fishing increased their physical exercise, let them spend more time with family, and allowed them to spend time in special places, but were much less likely than men to regularly consume the seafood they caught.
- Men were more likely than women to report that their fishing was enjoyable because it presented challenges, enabled them to learn new things, enabled them to spend time with existing friends, and helped them make new friends.
- The more days a person spent fishing, the more likely they were to report experiencing every type of benefit examined, and to regularly consume the seafood they caught.
- Those aged 30 to 59 were more likely than those in other age groups to report that fishing helps them reduce stress and makes them content. Younger fishers (aged under 30) were more likely to report exercise and confidence-related benefits, and to regularly consume their catch (the latter is correlated with the fact that most younger fishers reported fishing frequently). Older fishers (aged 60 and over) were less likely to report experiencing all benefits.
- Fishers who were single were more likely than those who were in a married/de facto relationship to report that fishing helped them see more of their friends and to make new friends. Those who were married or in a de facto relationship were more likely than single fishers to report that fishing helped them spend time with family, and created positive challenges and learning opportunities.



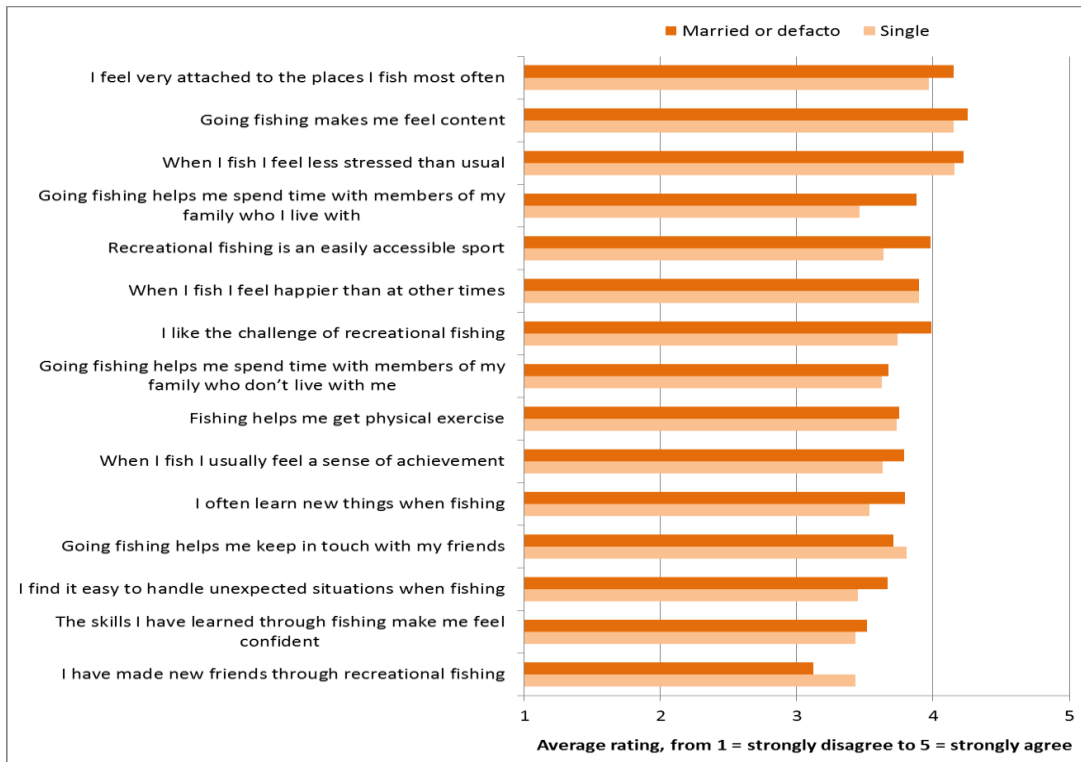
**Figure 12 Social, physical and emotional benefits of fishing – by gender**



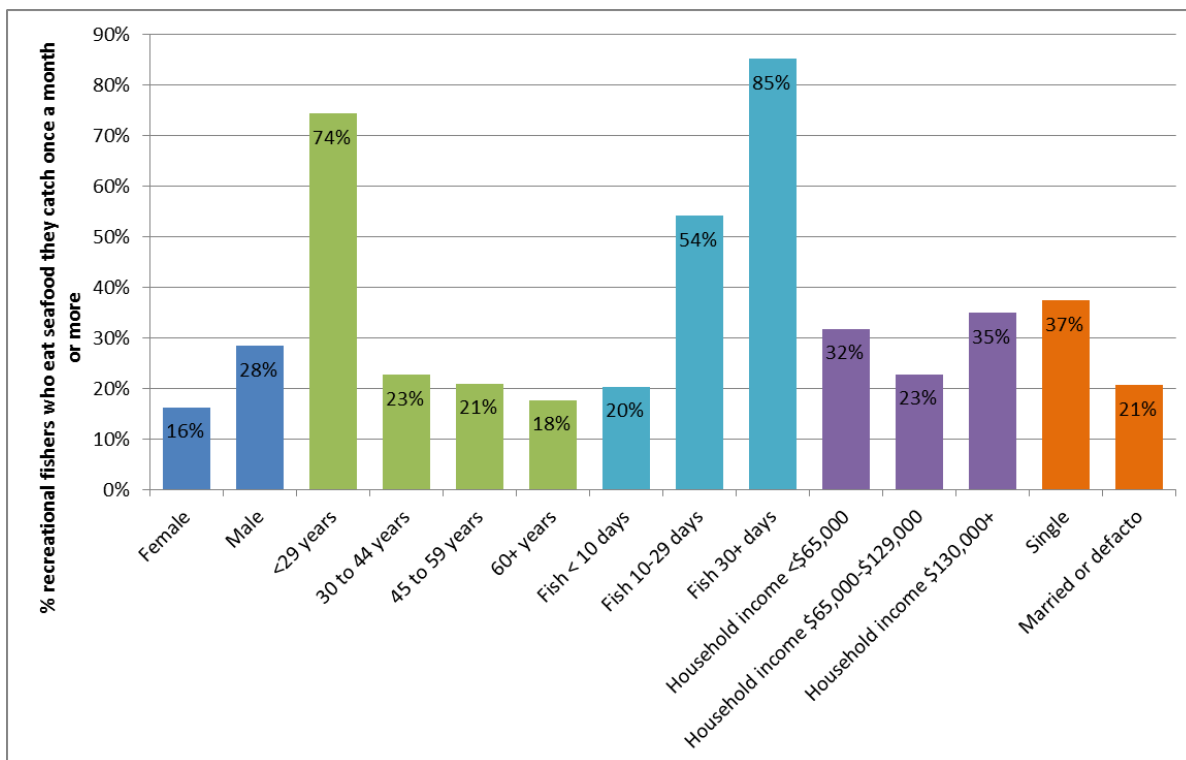
**Figure 13 Social, physical and emotional benefits of fishing – by age group**



**Figure 14 Social, physical and emotional benefits of fishing – by fishing avidity**



**Figure 15 Social, physical and emotional benefits of fishing – by marital status**



**Figure 16 Proportion of South Australian recreational fishers who consume seafood they catch once a month or more often, by group**

Fishers were asked how satisfied they had been with their recreational fishing during the 12 months prior to completing the survey, on a scale from 0 (not at all satisfied) to 10 (very satisfied), where ‘5’ was ‘somewhat satisfied’. The most common response was ‘somewhat satisfied’, followed by ratings between ‘somewhat’ and ‘very’ satisfied (Figure 17). Only 24% were less than ‘somewhat satisfied’, indicating most recreational fishers in South Australia had overall positive fishing experiences in the 12 months prior to completing the survey. Those most likely to report being satisfied with their fishing in the last year were young fishers (aged <45), and avid fishers (fished >10 days). Those least likely to report being satisfied

were men and those aged 45-59 years. Women were more satisfied with their fishing than men, and single people more satisfied than those in married/de facto relationships (Figure 18).

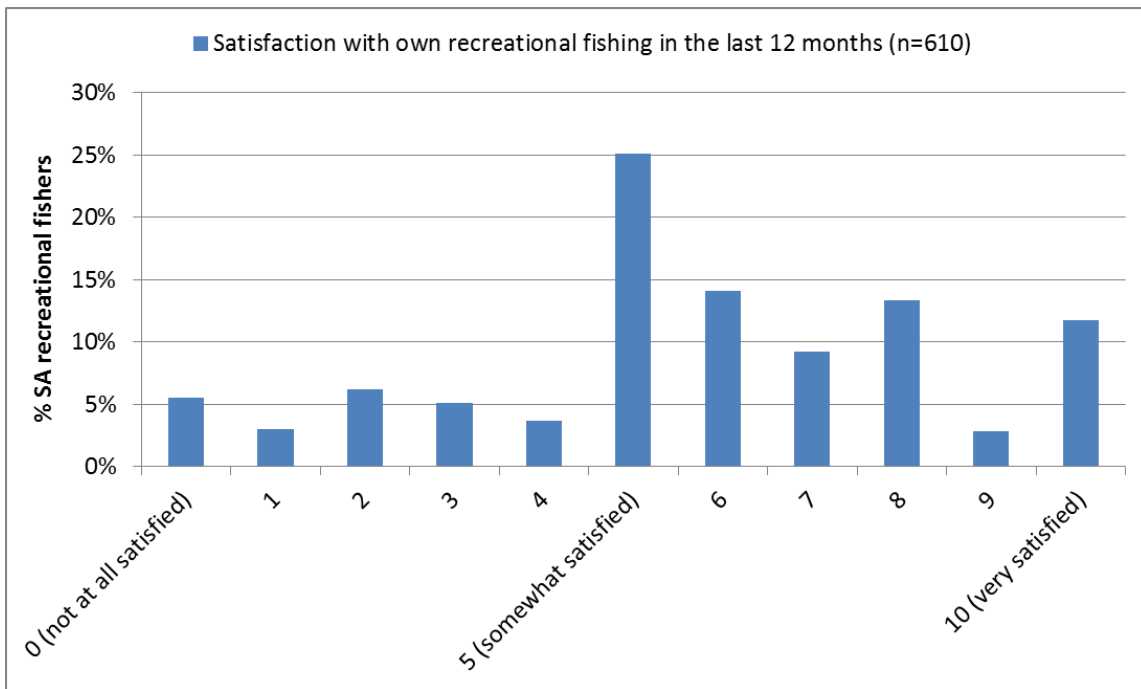


Figure 17 Fishers' self-rated level of satisfaction with their recreational fishing in the last year

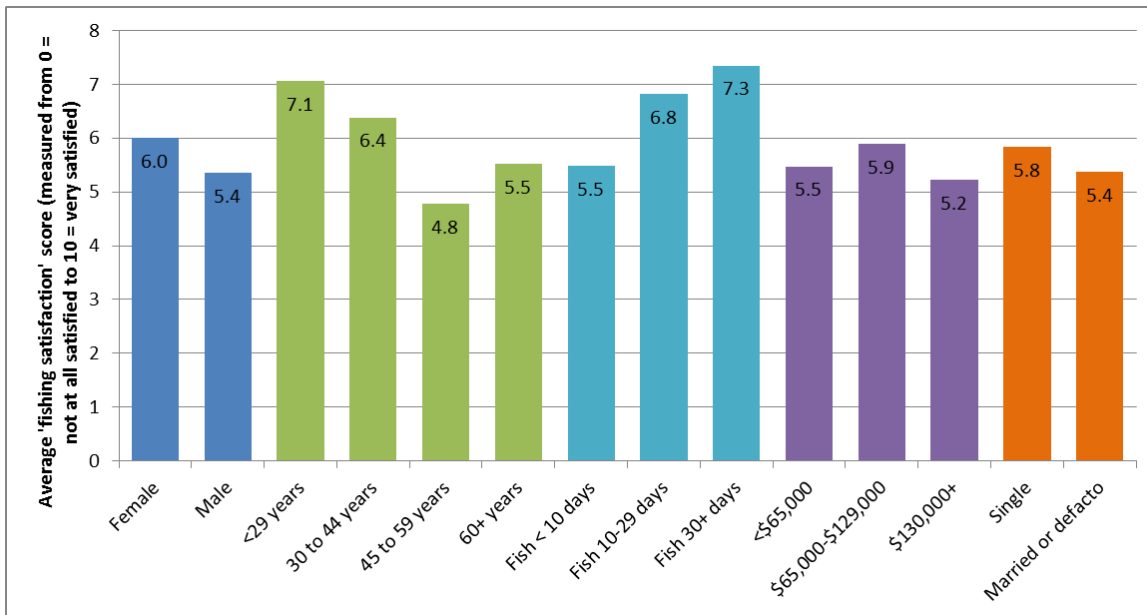


Figure 18 Fishers' self-rated level of fishing satisfaction in the last year, by group

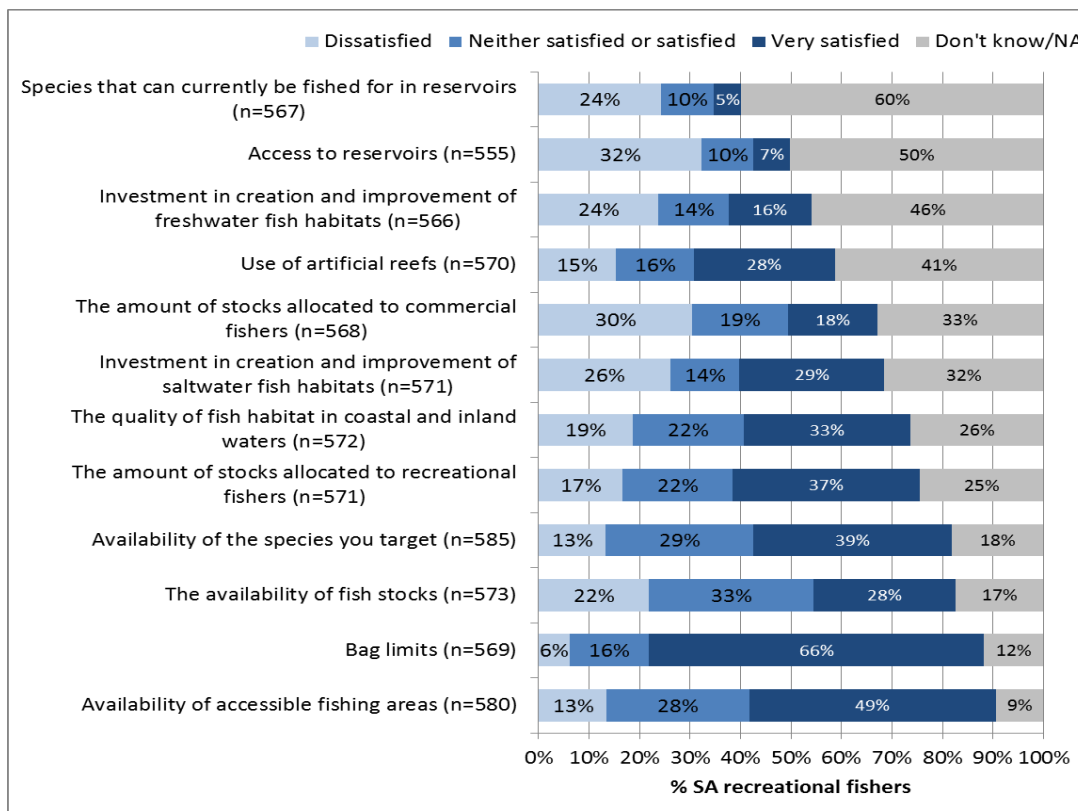
## Investment priorities

A key objective of this study was to understand priorities for investment in recreational fishing. To help identify investment priorities, fishers were asked to:

- Rate how satisfied they were with current recreational fishing opportunities in SA
- Rate their satisfaction with access to fishing infrastructure in SA
- Identify the priority they would give investing in different aspects of recreational fishing.

## Satisfaction with existing recreational fishing opportunities

Fishers were asked how satisfied or dissatisfied they were with a number of aspects of their existing recreational fishing opportunities. They could also indicate they didn't know enough to be able to rate their satisfaction: Figure 19 shows responses with these 'don't know' views included. Many fishers did not feel they had enough knowledge to rate how satisfied they were with different aspects of recreational fishing in SA. This was particularly the case for reservoirs, which was expected given that many fishers do not spend any time fishing in reservoirs. Many fishers (25% or more) were also unsure about current investment in freshwater and saltwater fish habitats and the quality of fish habitats, and stock allocations. In contrast, the large majority (80% or more) felt able to comment on bag limits, availability of accessible fishing areas, and availability of stocks and species. This suggests a need for education to improve the knowledge of recreational fishers about areas such as stock allocation and fish habitat, to enable them to develop informed views about the adequacy of current work in these areas.

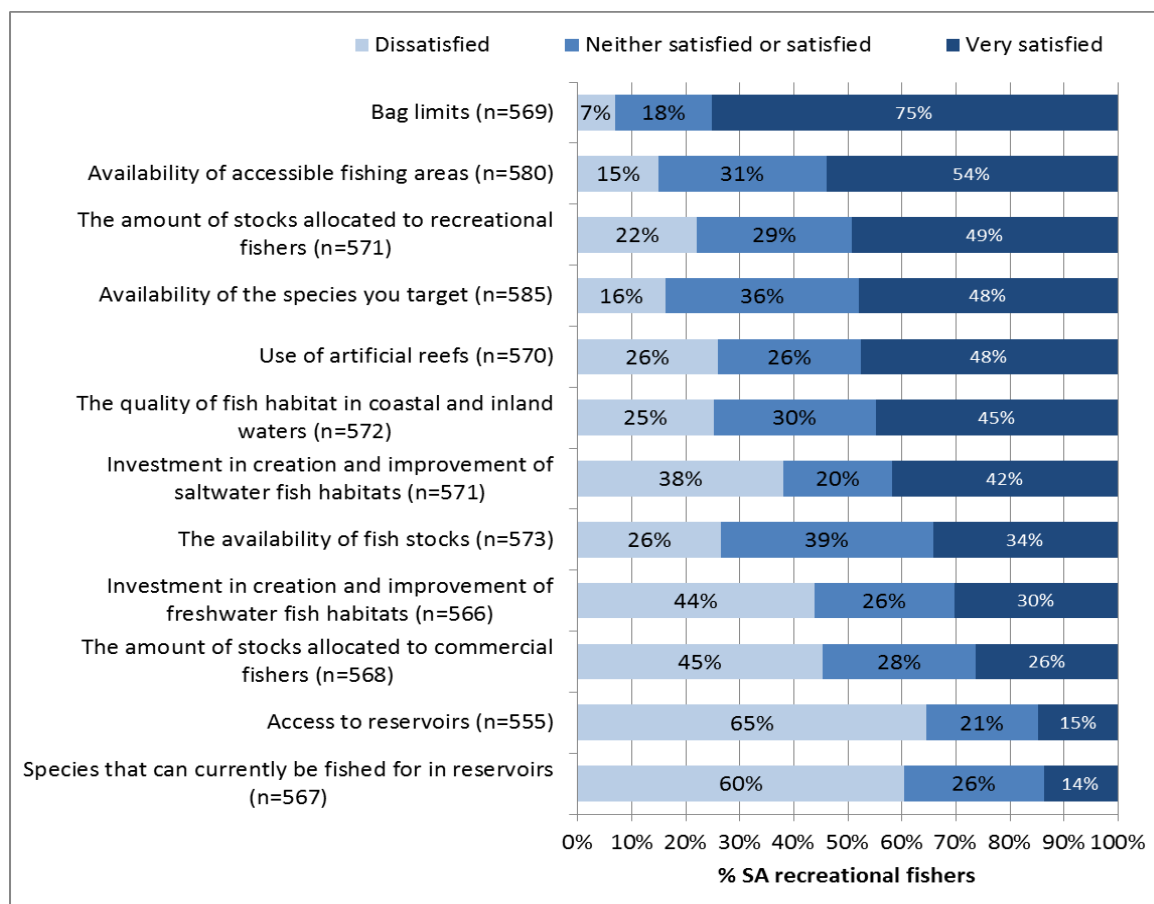


**Figure 19 Satisfaction with recreational fishing opportunities, including 'don't know' responses**

To further analyse the extent to which fishers were satisfied with different aspects of recreational fishing, 'don't know' responses were excluded, and responses ranked from those most satisfied to those least satisfied with different aspects of recreational fishing in SA (Figure 20). Most fishers (75%) were satisfied with bag limits. A small majority (54%) were satisfied with the availability of accessible fishing areas.

There was greater variability of views about the availability of species, stock allocation to recreational fishing, use of artificial reefs, quality of fish habitat and investment in saltwater fish habitats: just under half of fishers were satisfied with each of these areas, while between 16% and 38% were dissatisfied, and the remainder reported being neither satisfied or dissatisfied.

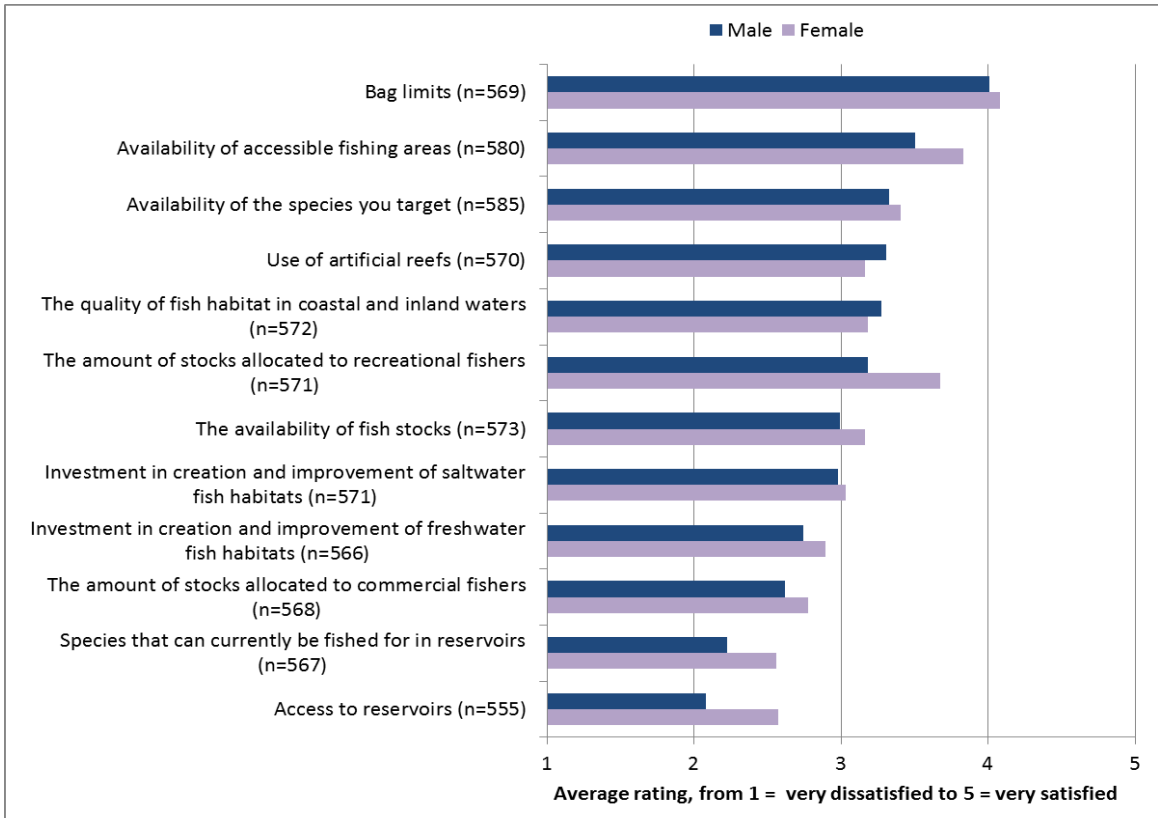
Dissatisfaction was greatest with access to reservoirs and species that can be fished for in reservoirs, with 60% and 65% of fishers respectively reporting being unsatisfied. Stock allocation to commercial fishers was also viewed negatively, with 45% of those who felt able to comment on this being dissatisfied with the proportion of allocation going to the commercial sector and only 26% satisfied. A large proportion of fishers (44%) were also dissatisfied with current investment in creation and improvement of freshwater fish habitat, while 30% were satisfied. These results indicate multiple potential priority areas for investment, particularly around fish habitat investment, reservoir access, and stock allocation.



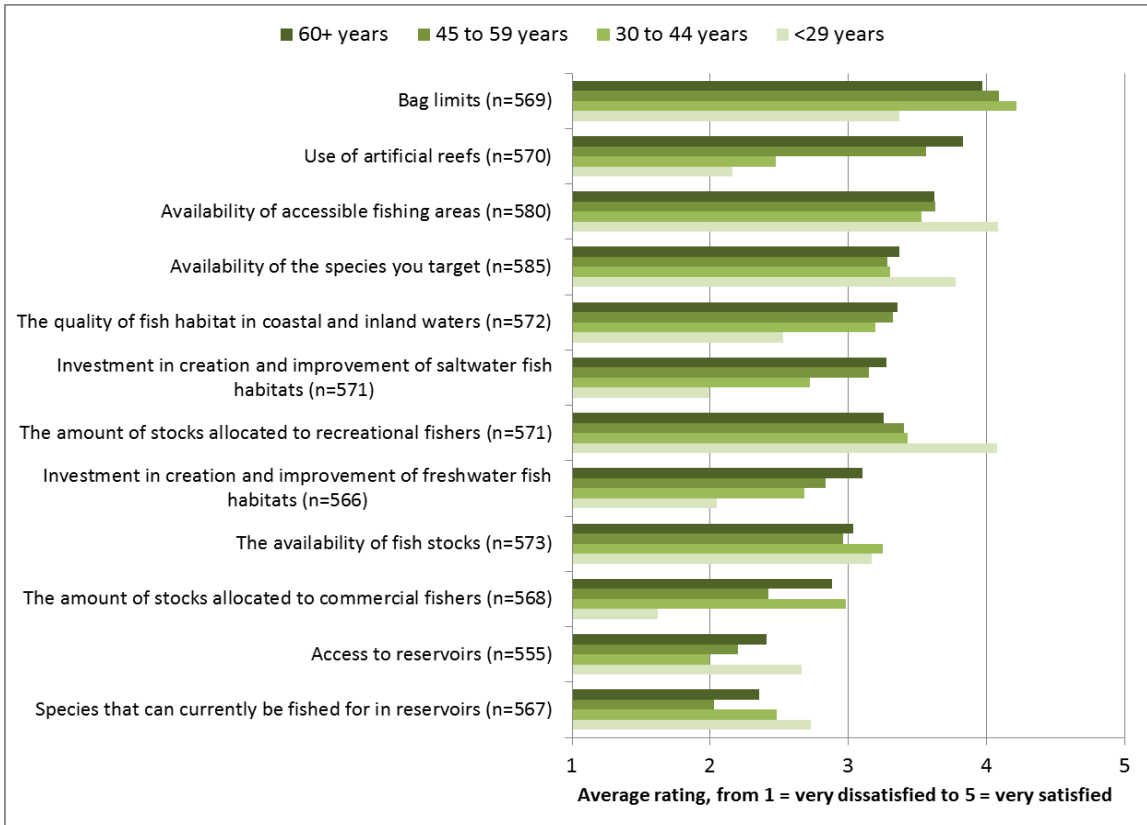
**Figure 20 Satisfaction with recreational fishing opportunities, excluding ‘don’t know’ responses**

The satisfaction of different types of fishers was compared (Figures 21 to 24):

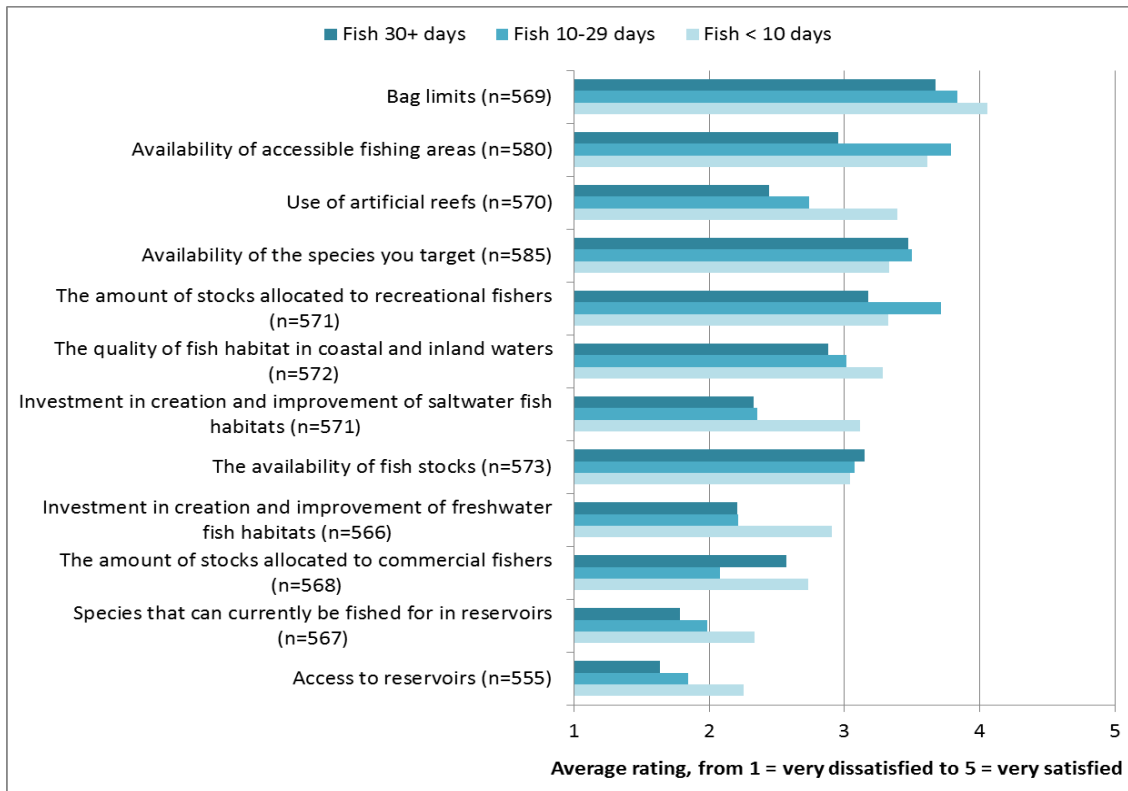
- Women were slightly more satisfied than men with most aspects of recreational fishing
- Younger fishers were less satisfied than older fishers with bag limits, artificial reefs, fish habitat investment, and allocations to commercial fishers, but more satisfied with availability of species
- Avid fishers were less satisfied with most aspects than non-avid fishers, but were similarly satisfied with the availability of fish stocks and species they targeted.



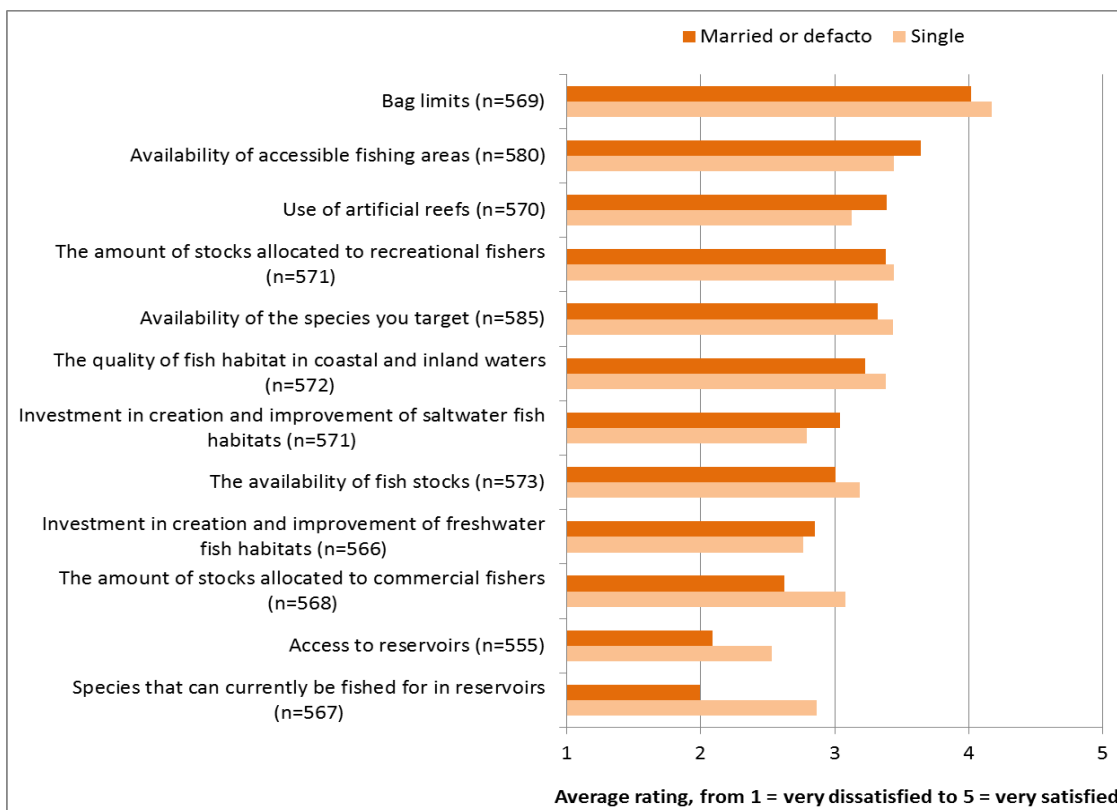
**Figure 21 Satisfaction with recreational fishing opportunities – by gender**



**Figure 22 Satisfaction with recreational fishing opportunities – by age group**



**Figure 23 Satisfaction with recreational fishing opportunities – by fishing avidity**



**Figure 24 Satisfaction with recreational fishing opportunities – by relationship status**

### Satisfaction with access to fishing infrastructure

Fishers were asked how satisfied they were with their access to different types of fishing infrastructure, such as fish cleaning benches, jetties, rockwalls, toilets and breakwaters. Most fishers felt able to comment on how good or poor the fishing infrastructure was where they fished, although for some types of infrastructure



– particularly rockwalls/breakwaters, and safety of toilets – up to one in five were unsure (Figure 25). When examined with ‘don’t know’ and ‘N/A’ responses removed (Figure 26):

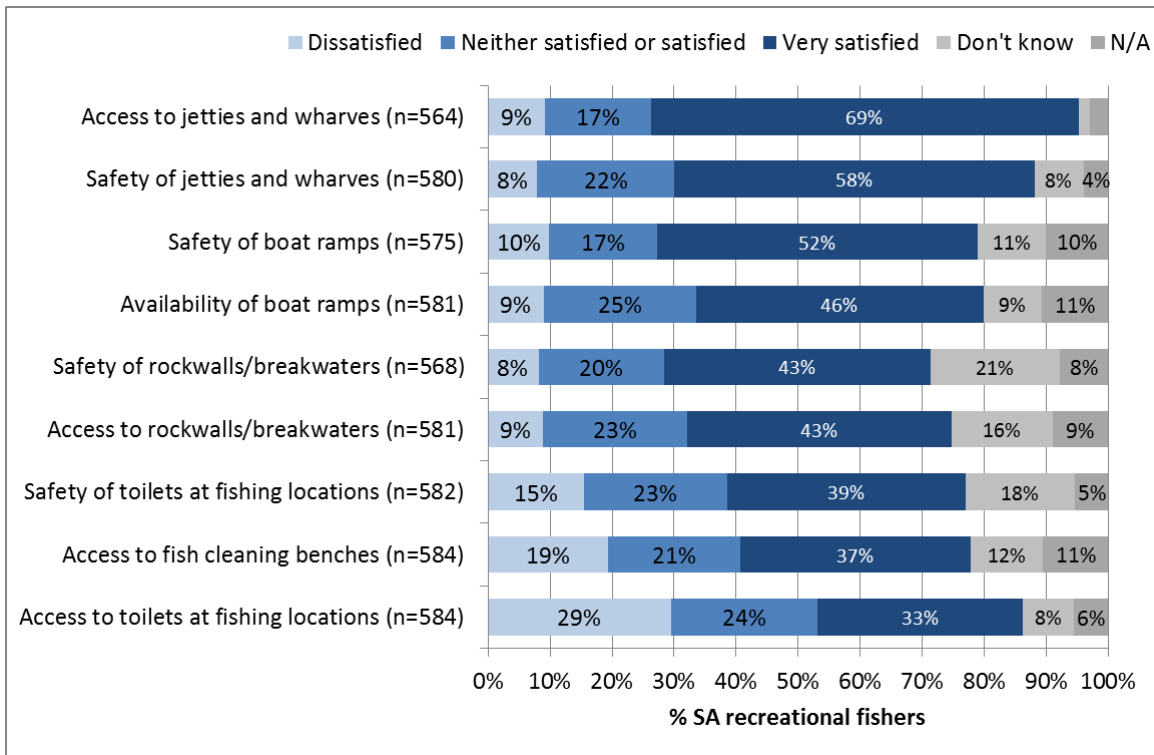
- Fishers were most satisfied with the safety and availability of jetties and wharves; and with the safety and availability of boat ramps and rockwalls/breakwater
- Fishers were least satisfied with their access to and the safety of toilets at fishing locations, and with their access to fish cleaning benches, with 20% or more reporting dissatisfaction with each of these things, while 38-50% were satisfied with each.

When different types of fishers were examined (Figures 27 to 30), women were more satisfied than men with all types of fishing infrastructure. Older fishers were less satisfied with their access to most types of infrastructure, particularly toilets, jetties/wharves and breakwaters. Younger fishers were less satisfied than older fishers with the availability of boat ramps. Avid fishers were less satisfied with their access to all types of infrastructure than less avid fishers.

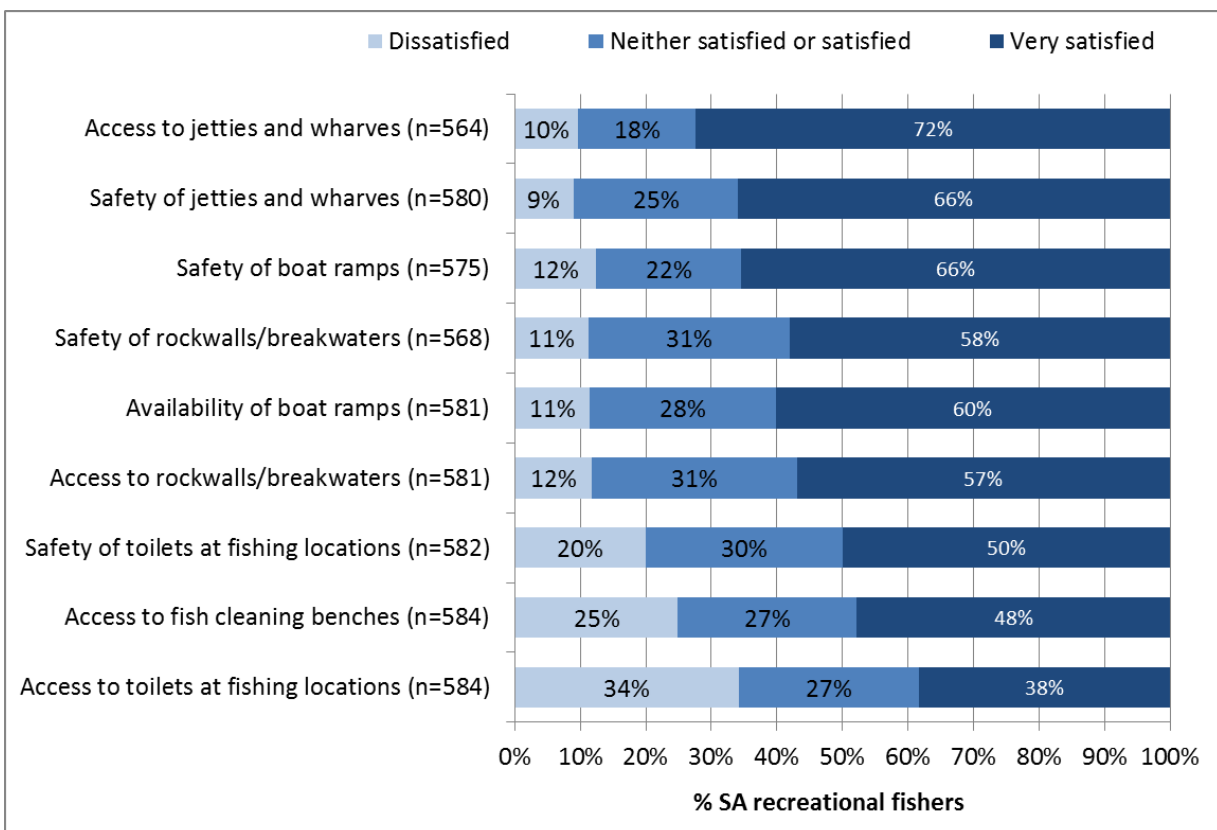
Infrastructure is, by its nature, specific to a location. Results were analysed to identify whether satisfaction with particular types of infrastructure was higher or lower in specific regions (Figure 31):

- The lowest levels of satisfaction were reported by those who fish in reservoirs. Reservoir fishers were more likely than those who fished in other places to report being dissatisfied with their access to toilets, fish cleaning benches, rockwalls, boat ramps, jetties and wharves
- Those who fish in the Copper Coast were particularly likely to be dissatisfied with their access to toilets, rockwalls, fish cleaning benches, and jetties/wharves
- Those who fished in the Upper Spencer Gulf region reported lower than average satisfaction with their access to toilets, and availability of jetties/wharves
- Those who fished in the Far West Coast reported lower than average satisfaction with their access to toilets and fish cleaning benches
- For those who fished in the Adelaide metropolitan region, the area of lowest satisfaction was access to boat ramps.

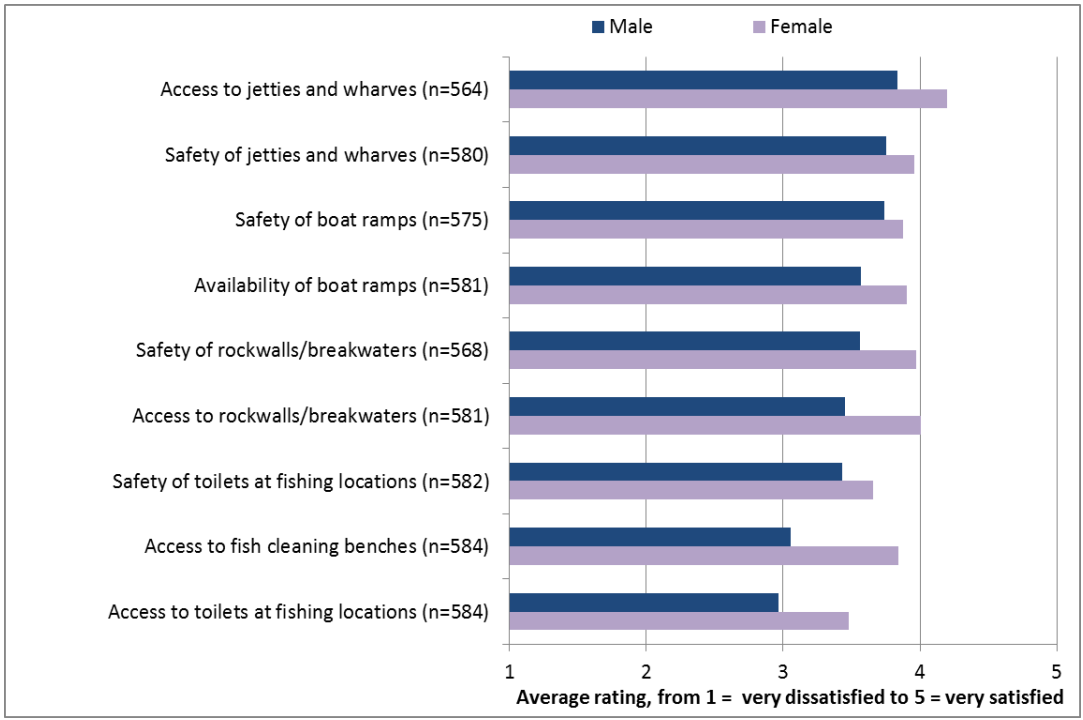
In four regions higher than average levels of satisfaction were reported with all types of infrastructure: the Lower Yorke Peninsula, South East, and freshwater areas including the River Murray and lower lakes.



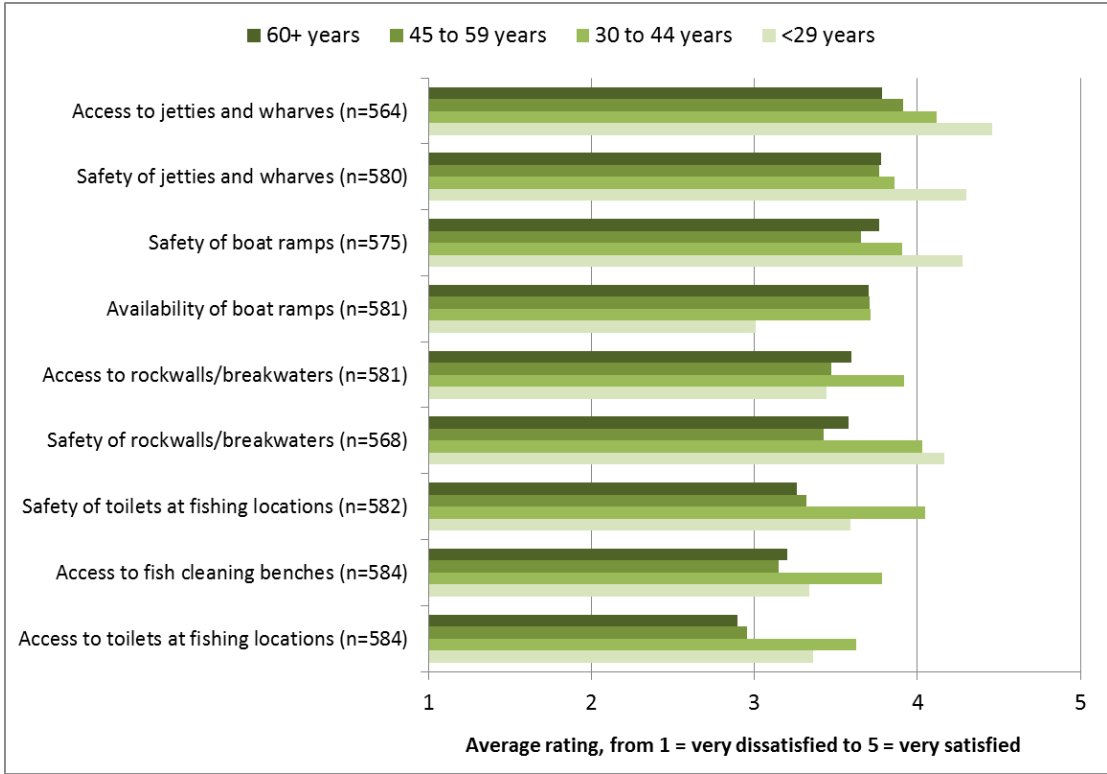
**Figure 25 Satisfaction with access to fishing infrastructure, including 'don't know' responses**



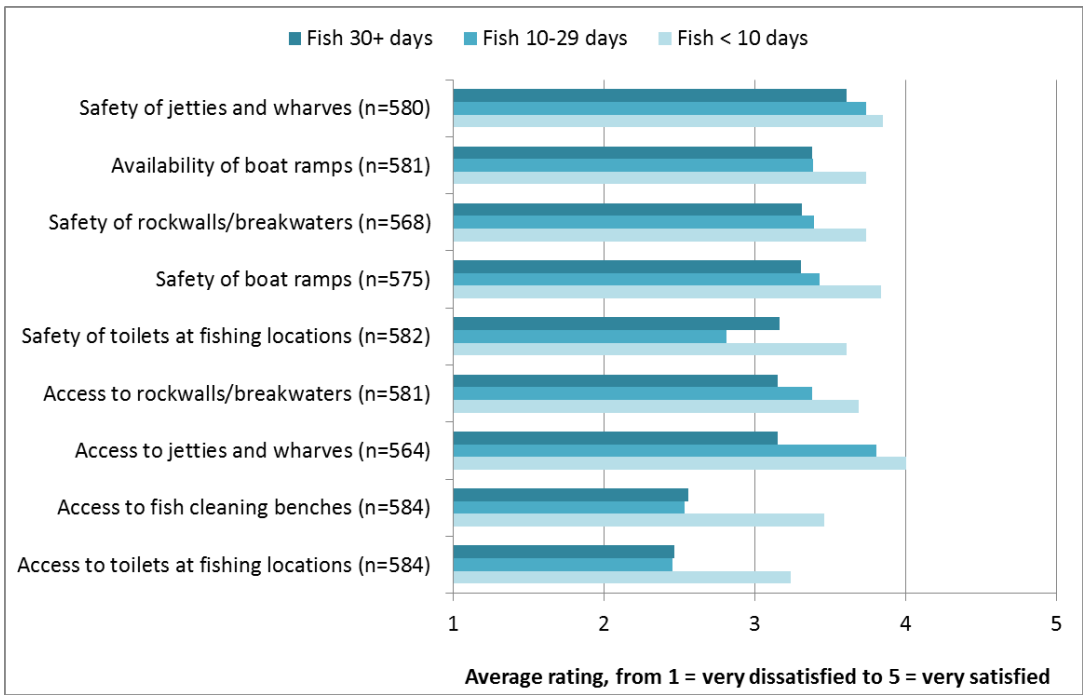
**Figure 26 Satisfaction with access to fishing infrastructure, excluding 'don't know' responses**



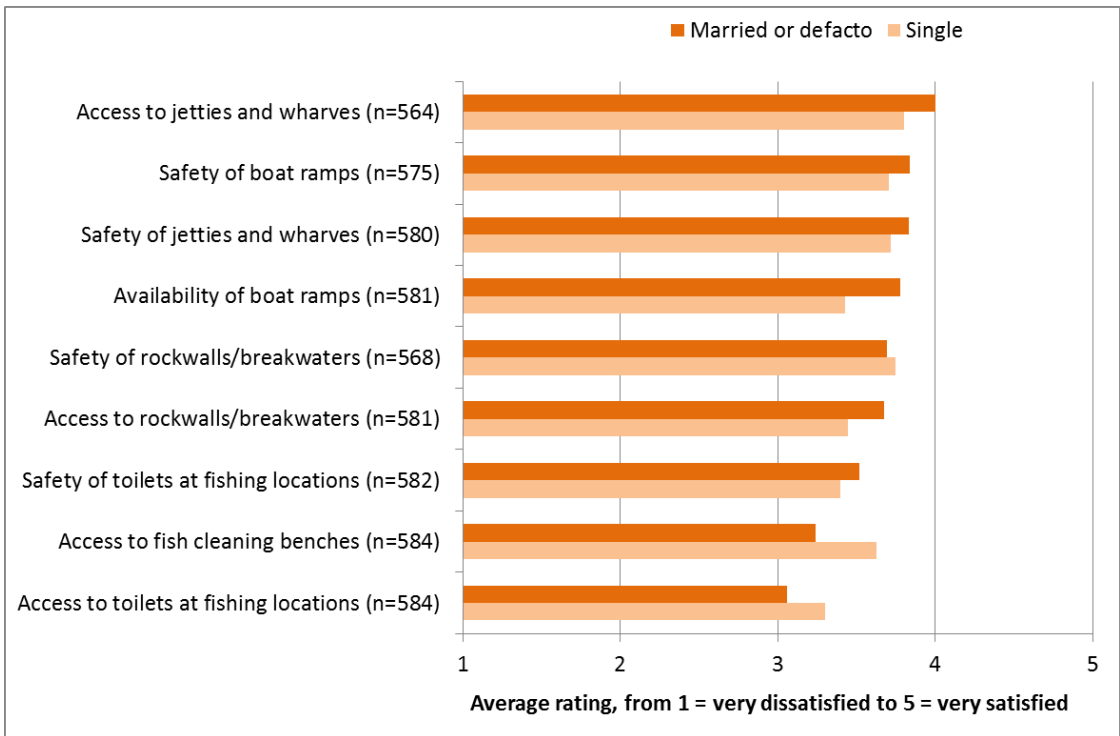
**Figure 27 Satisfaction with access to fishing infrastructure, by gender**



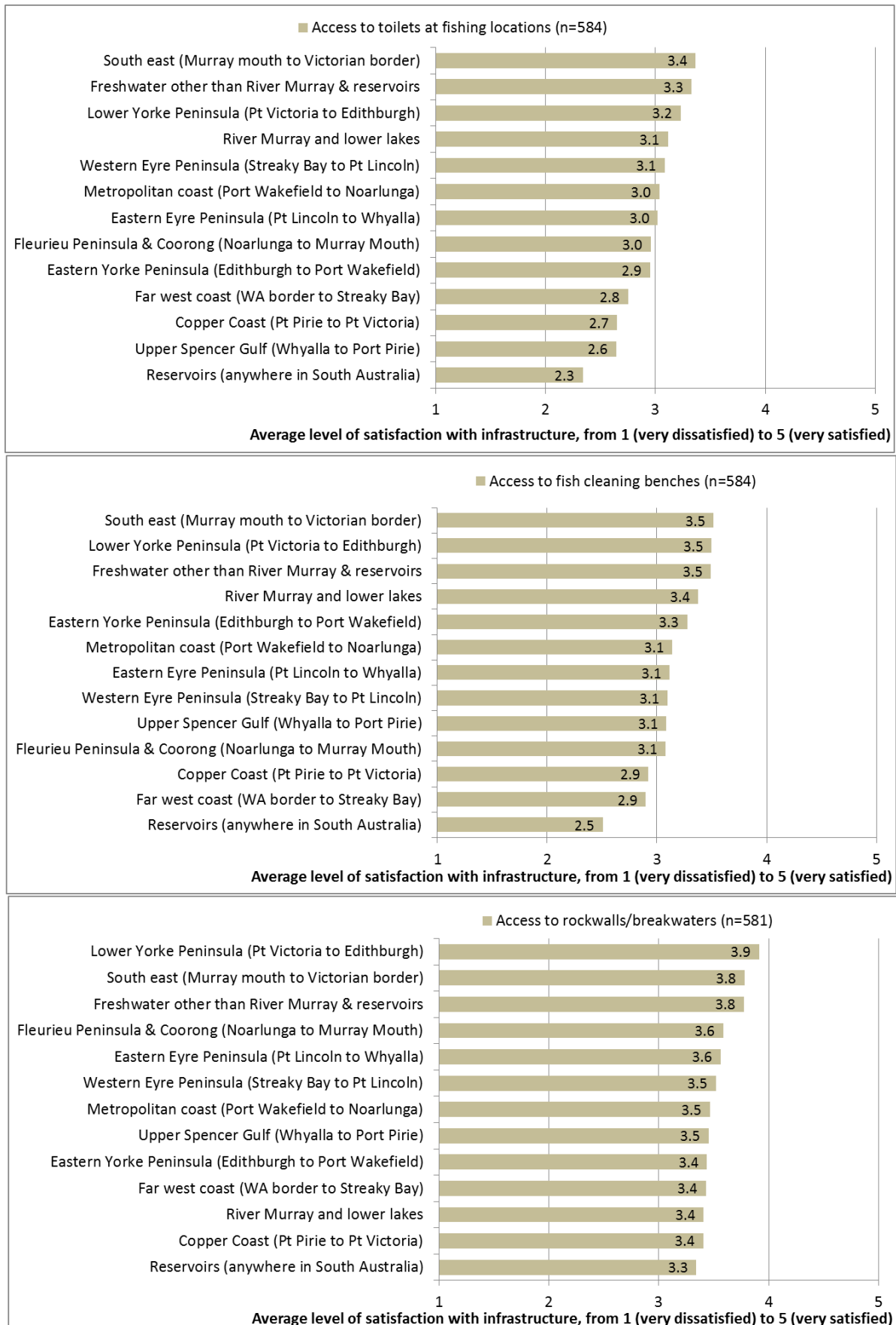
**Figure 28 Satisfaction with access to fishing infrastructure, by age group**



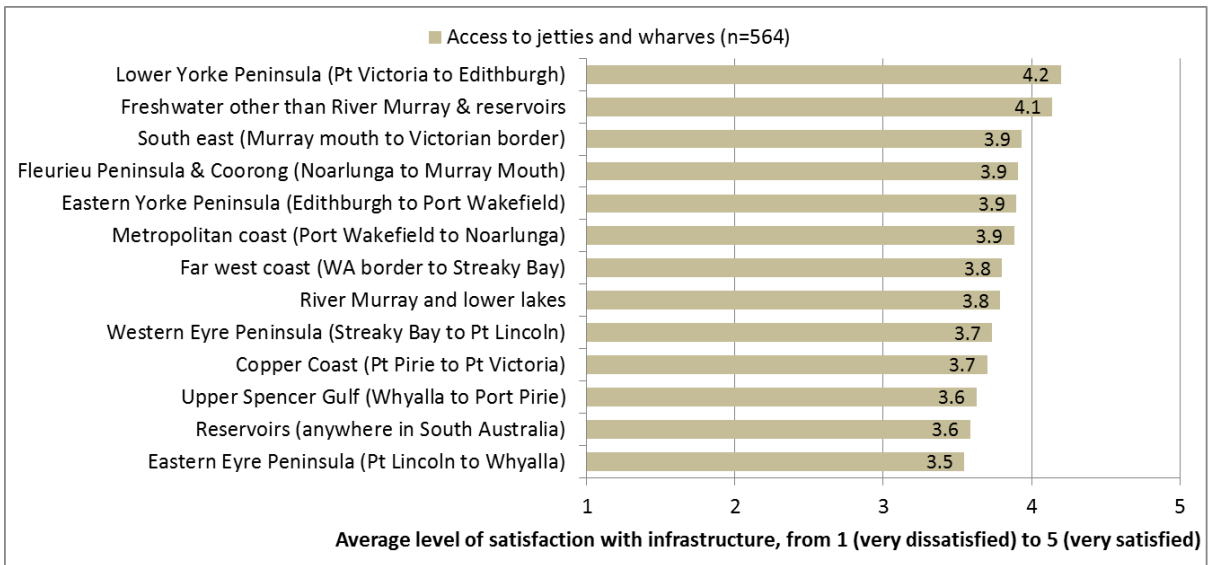
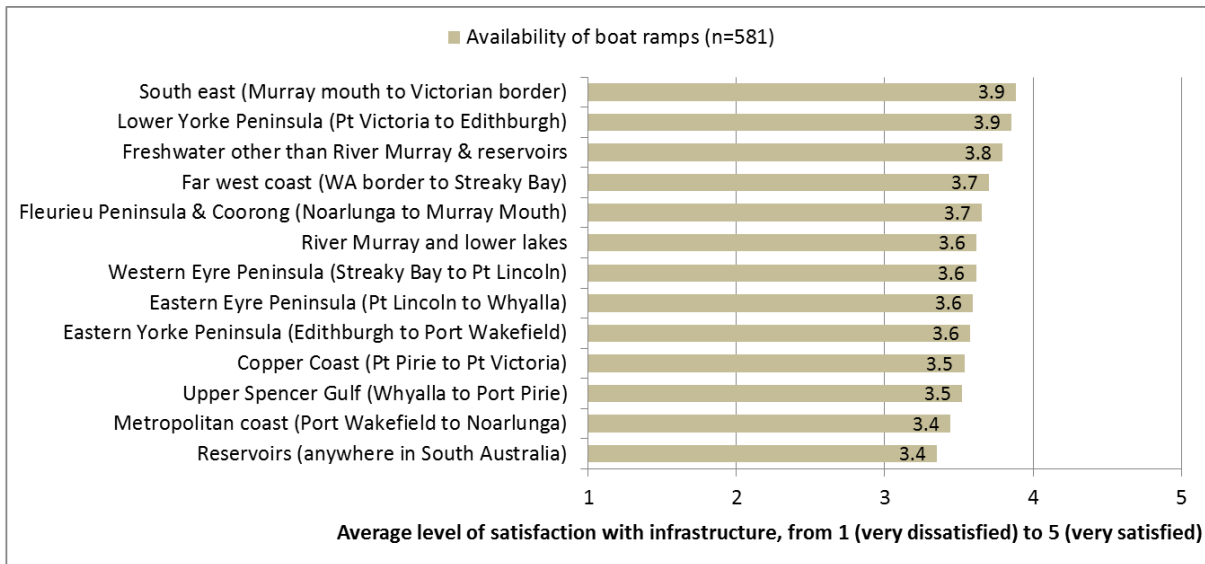
**Figure 29 Satisfaction with access to fishing infrastructure, by fishing avidity**



**Figure 30 Satisfaction with access to fishing infrastructure, by relationship status**



**Figure 31 Satisfaction with access to fishing infrastructure, by fishing location**



**Figure 31 Satisfaction with access to fishing infrastructure, by fishing location (cont.)**

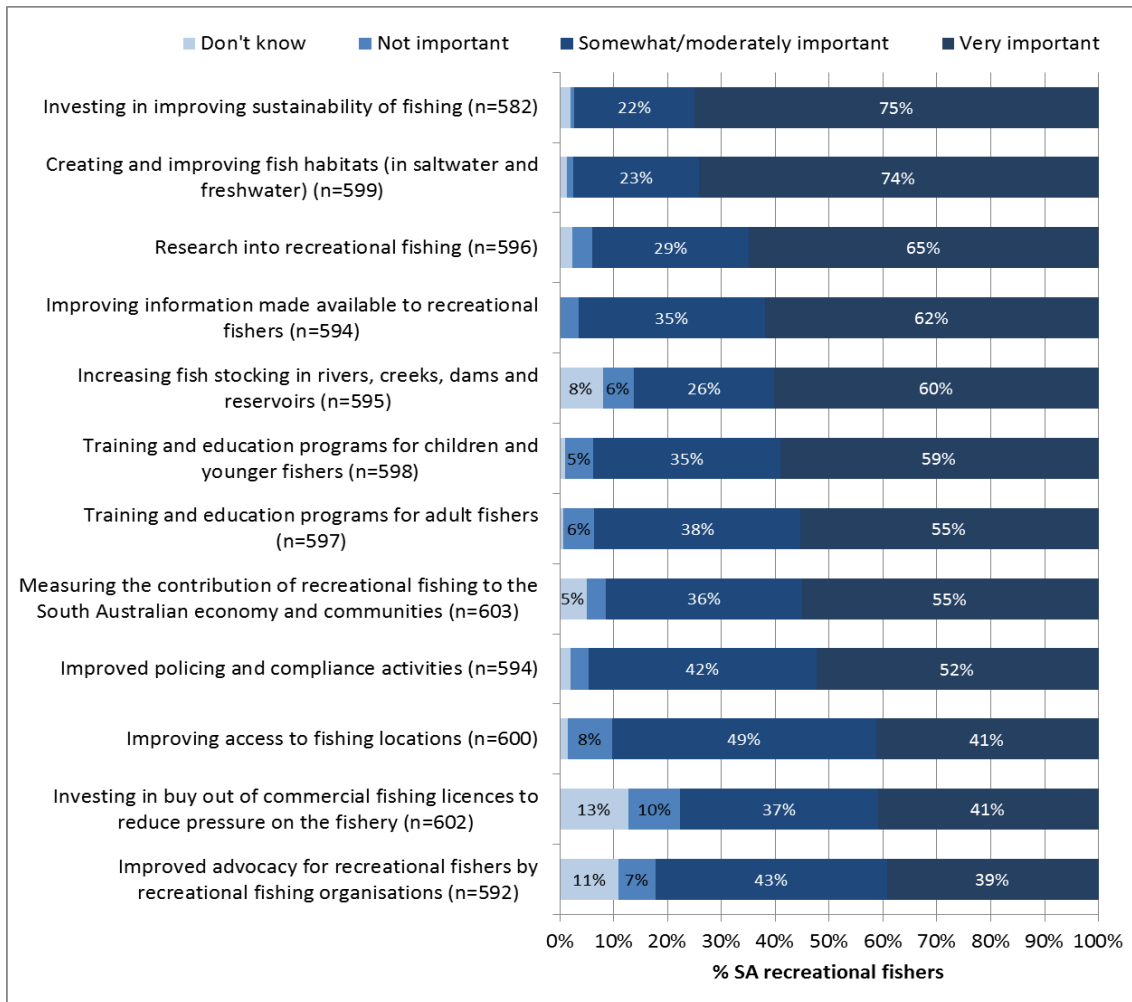
## Priorities for future recreational fishing investment

Fishers were asked how important they felt it was to invest in a number of areas to improve recreational fishing. All the areas listed in the survey were considered important by the large majority of fishers (Figure 32). However, some were more commonly rated as 'very important' than others:

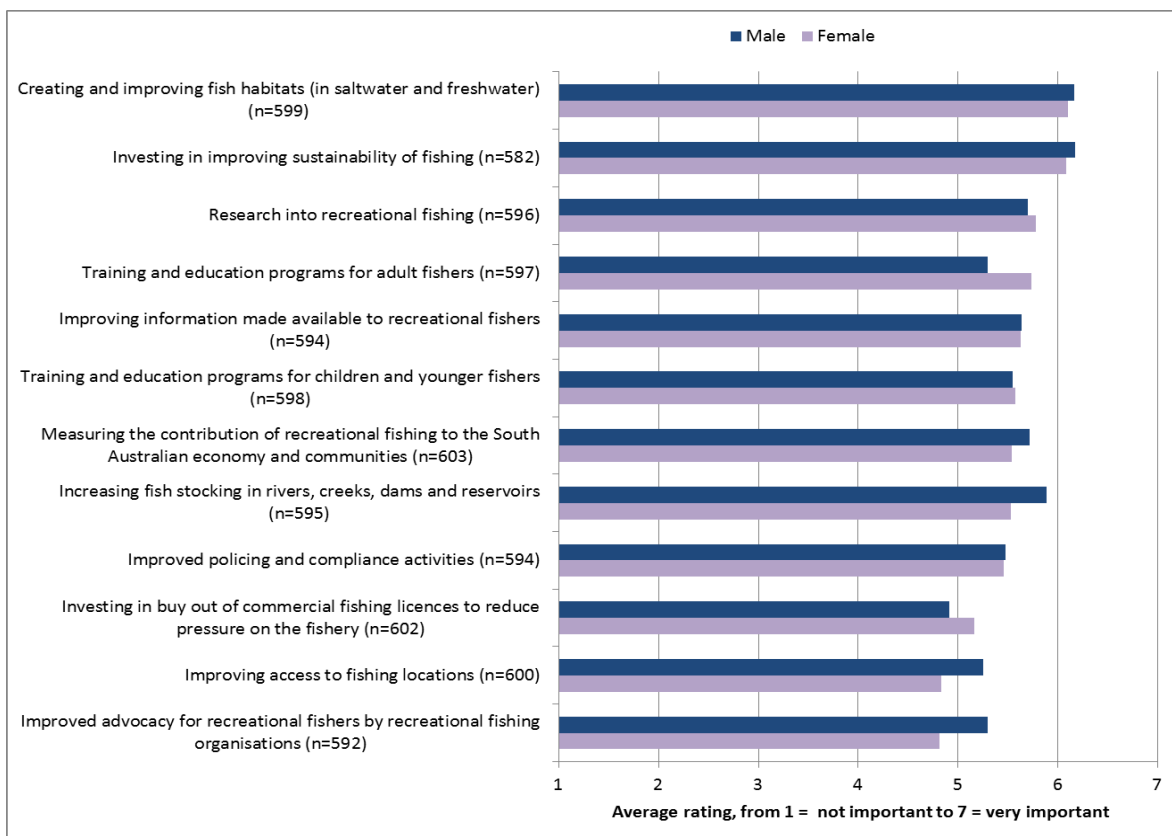
- Investing in improving sustainability, and in creating and improving fish habitats in both saltwater and freshwater, were considered very important by 75% and 74% of fishers respectively, and were ranked the top priorities for future investment.
- Conducting research into recreational fishing, improving information to recreational fishers and training and education programs for younger fishers, and increasing fish stocking, were all considered very important by 59% to 62% of fishers, and were the second most important areas for future investment.
- Slightly fewer rated educating adult fishers and measuring the contribution of recreational fishing to South Australia as very important (55% each), or improving policing and compliance (55%).
- Less than half (39% to 41%) rated improving access to fishing locations, buying out commercial fishing licences, or improving advocacy by recreational fishing organisations, as very important, with these being lowest ranked.

When different groups were compared (Figures 33 to 36), there were mostly small differences, with the following exceptions:

- Women were more likely than men to feel that investing in education and training of adult fishers was important. This likely reflects the older age at which many women begin fishing: 27% reported they started fishing at age 15 or older, compared to only 18% of male fishers. Men were more likely than women to prioritise increasing fish stocking, improving access to fishing locations and improving recreational fishing advocacy.
- Younger fishers were more likely to consider it important to improve advocacy by fishing organisations, whereas older fishers were more likely to prioritise investing in improving sustainability and buying out commercial fishing licences.
- Those who fished more often were slightly more likely to rate all areas as important for future investment, with the exception of training adult fishers. In particular, avid fishers were more likely to consider it very important to invest in improving advocacy for recreational fishing, and access to fishing locations.
- Those who were married or in a de facto relationship were more likely than single fishers to rate all areas of potential investment as being important.

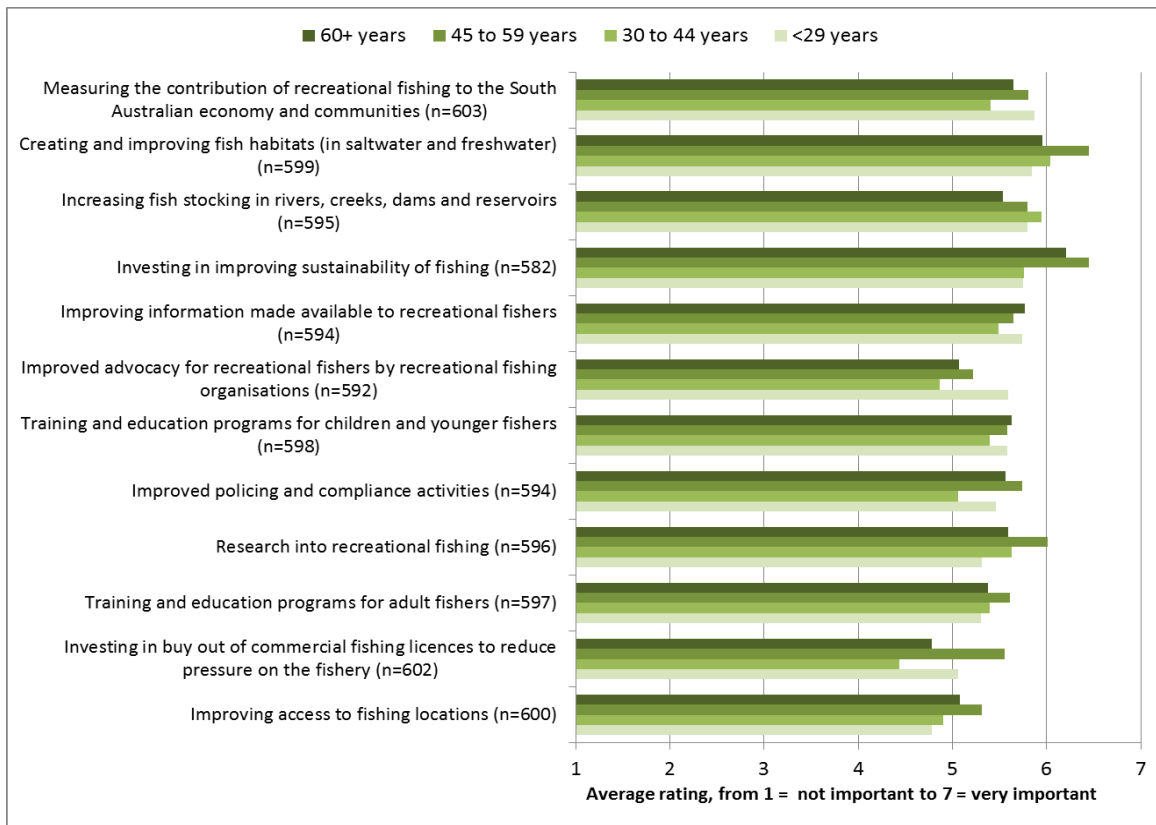


**Figure 32 Importance of investing in different areas, as rated by SA recreational fishers**

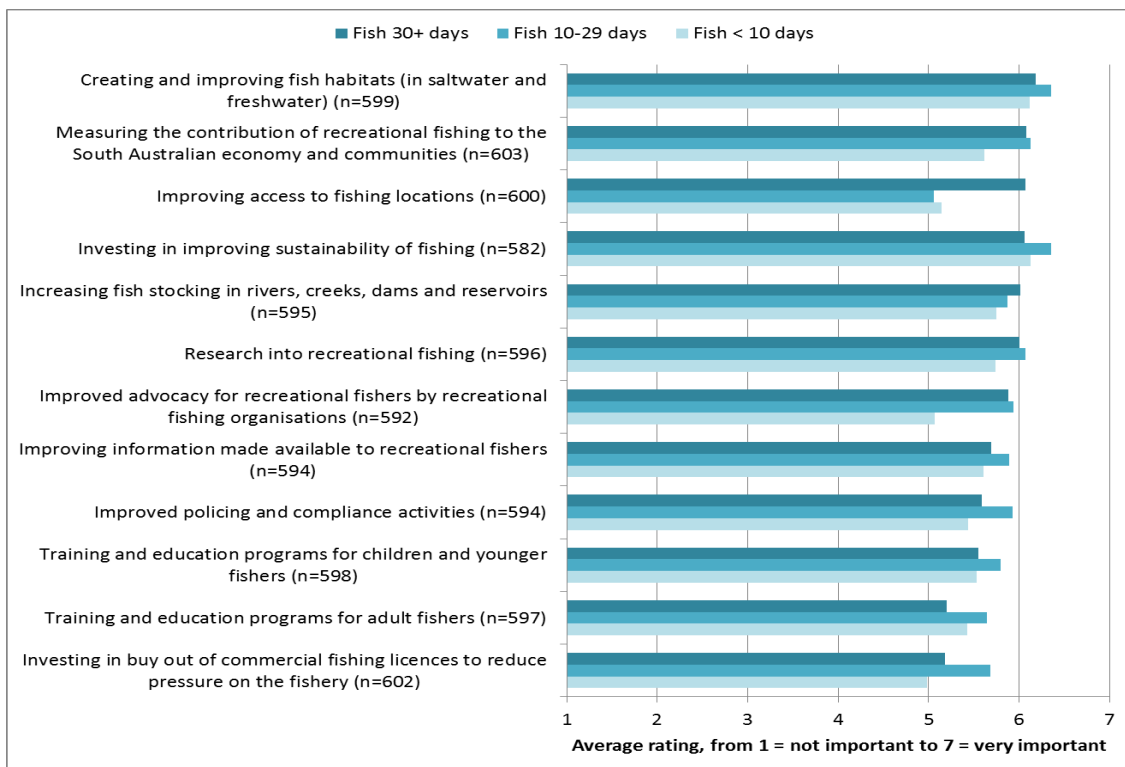




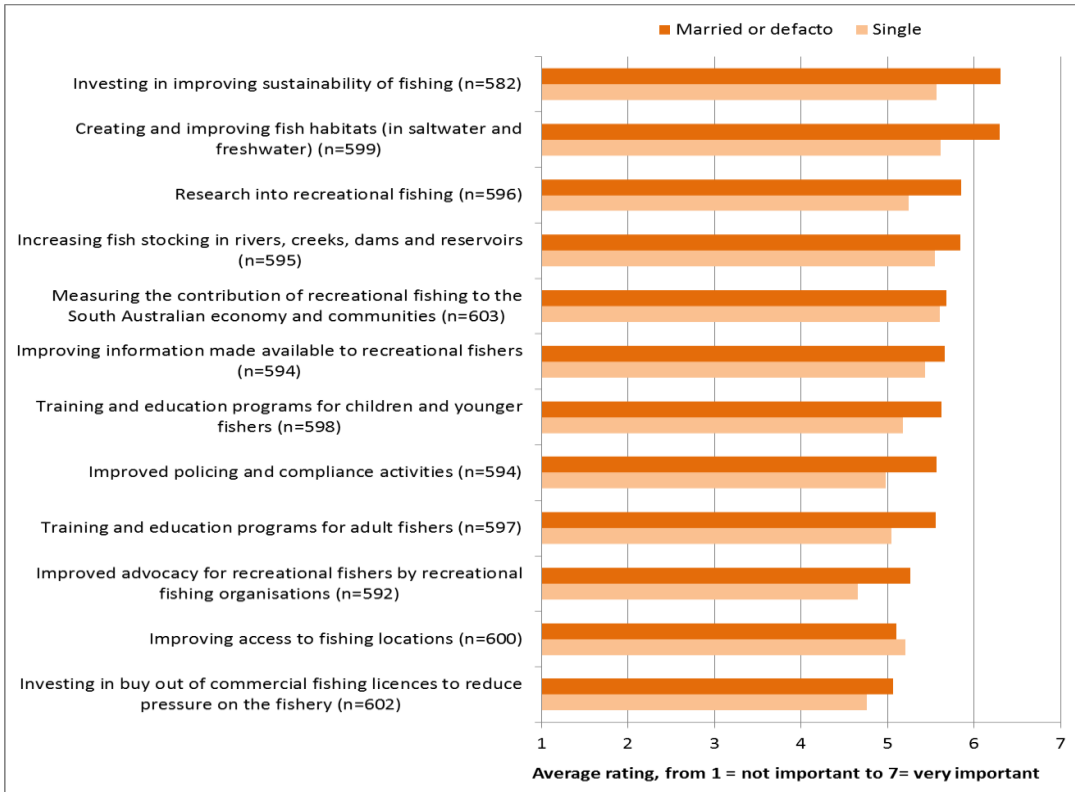
**Figure 33 Importance of investing in different areas, by gender**



**Figure 34 Importance of investing in different areas, by age group**



**Figure 35 Importance of investing in different areas, by fishing avidity**



**Figure 36 Importance of investing in different areas, by relationship status**

## Recreational fishing management, policing and representative organisations

The management and policing of recreational fishing, and the effectiveness of the organisations who advocate on behalf of recreational fishers, are important areas to assess when considering future investment in recreational fishing. Fishers were asked how confident they felt about the effectiveness of fisheries management, how they felt about policing of recreational fishing in SA, whether they knew how to contact the organisations that represent recreational fishers in SA, and how satisfied they were with those organisations.

### Confidence in future access to areas and species

First, overall confidence in the effectiveness of recreational fisheries management in SA was examined by asking fishers how confident they felt in their future access to (i) the species they want to catch into the future, and (ii) the fishing areas they care about into the future. As successful fisheries management should ideally provide confidence in fishing into the future, answers to these questions provide a useful indication of the extent to which fishers feel confident in the outcomes of fisheries management.

Fishers were also asked whether they felt Marine Parks, which can affect access to areas and species, benefit recreational fishing or have negative impacts. As the effects of Marine Parks have been widely debated, understanding fishers' views about their impacts can help in identifying the level of confidence fishers have in management of actions that have potential to influence recreational fishing activity.

The confidence of SA recreational fishers in their access to species and fishing areas was almost evenly divided, with around one third of fishers feeling confident in their future access, one third lacking confidence, and the remainder being neutral or uncertain (Figure 37). When asked about Marine Parks, 44% of fishers felt they benefit recreational fishing, and 28% that they had negative impacts.

These views differed between fishers (Figures 38 to 41). Men were less likely than women to feel confident in their future access to fishing areas and species, and more likely to feel that Marine Parks had negative impacts. Younger fishers were more confident than older fishers in their access to fishing areas and species, and were less likely to believe Marine Parks had negative impacts. Avid fishers (particularly those who fished 30 days a year or more) were much less likely than those who fished less often to feel confident in their future access to areas or species, and were much more likely than less avid fishers to feel Marine Parks had negative impacts.

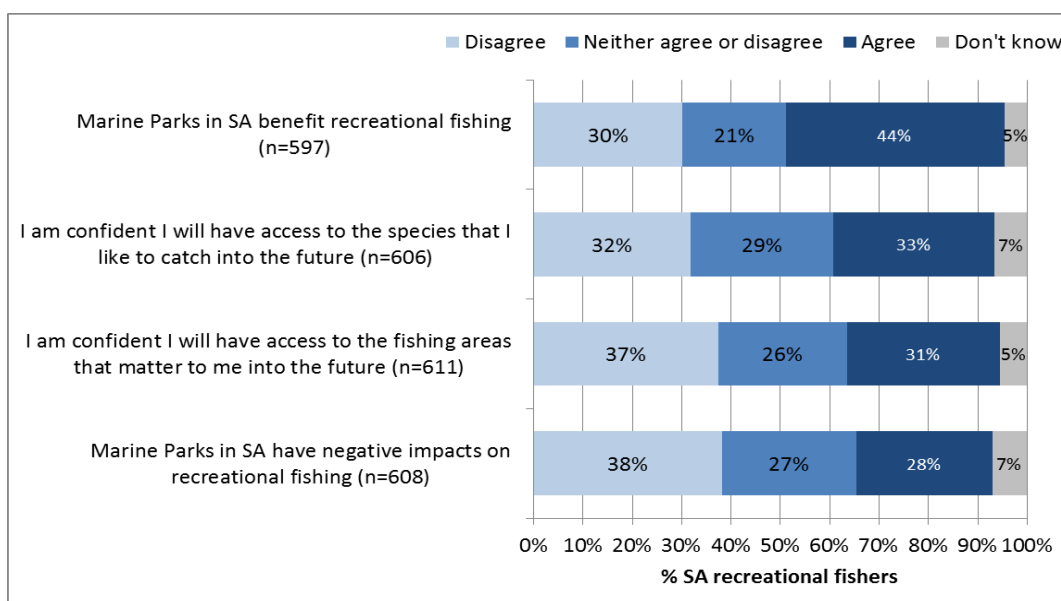
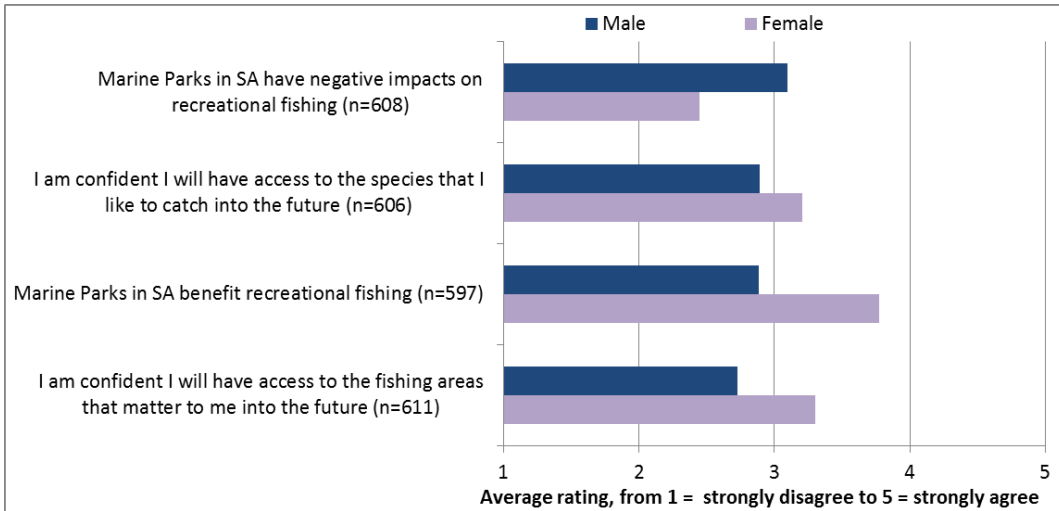
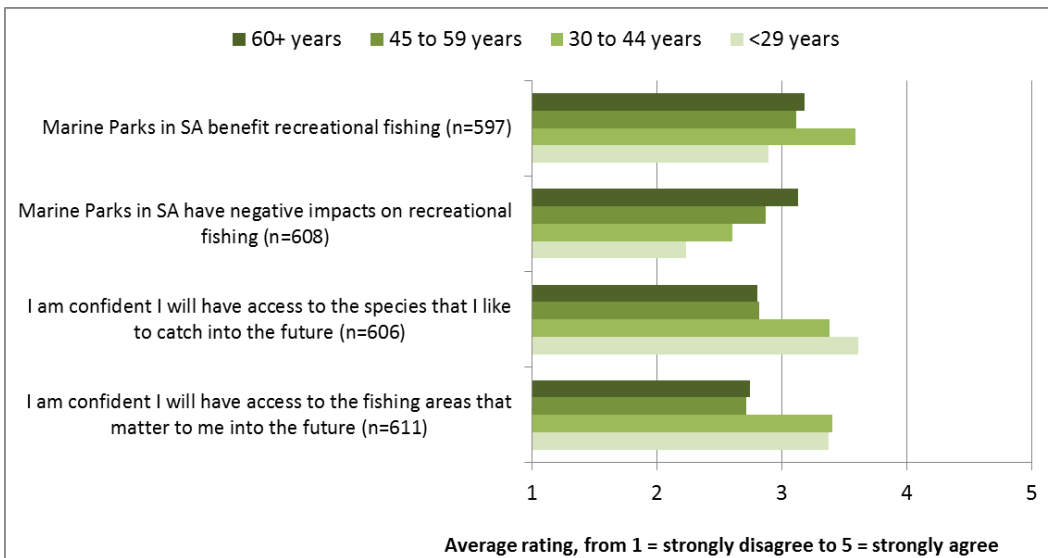


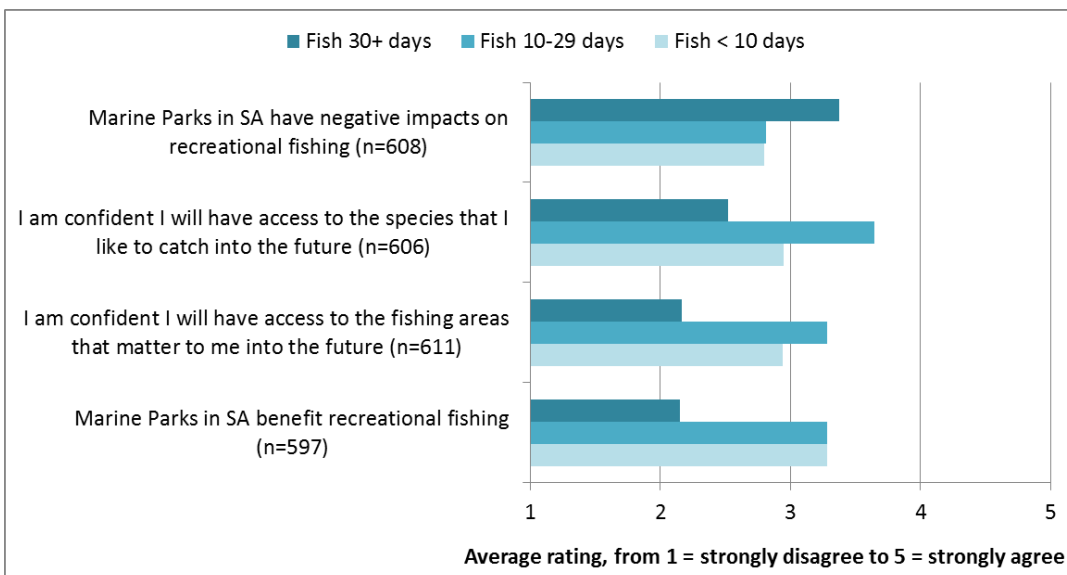
Figure 37 Views about access to fishing areas and species, and about Marine Parks



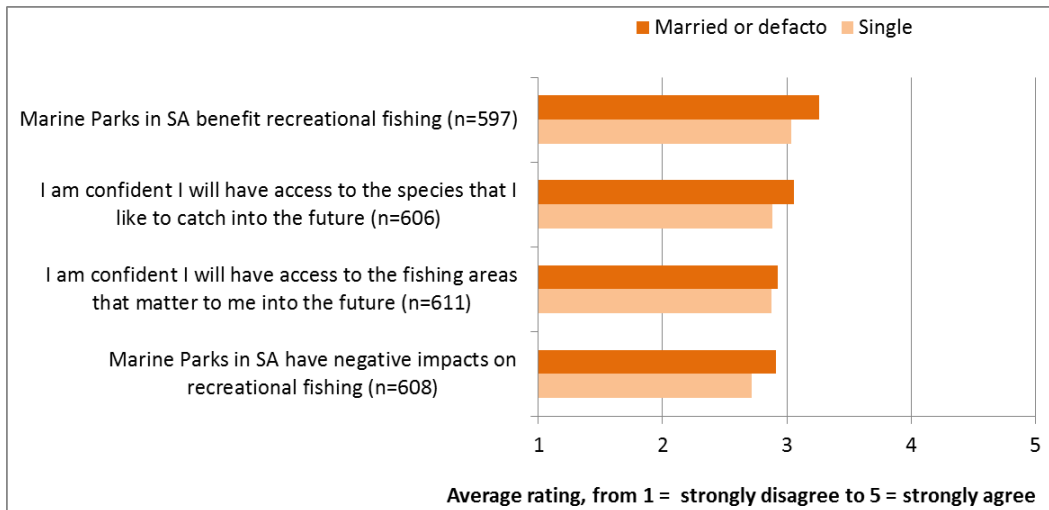
**Figure 38 Views about access to fishing areas and species, and about Marine Parks, by gender**



**Figure 39 Views about access to fishing areas and species, and about Marine Parks, by age group**



**Figure 40 Views about access to fishing areas and species, and about Marine Parks, by fishing avidity**



**Figure 41 Views about access to fishing areas and species, and about Marine Parks, by relationship status**

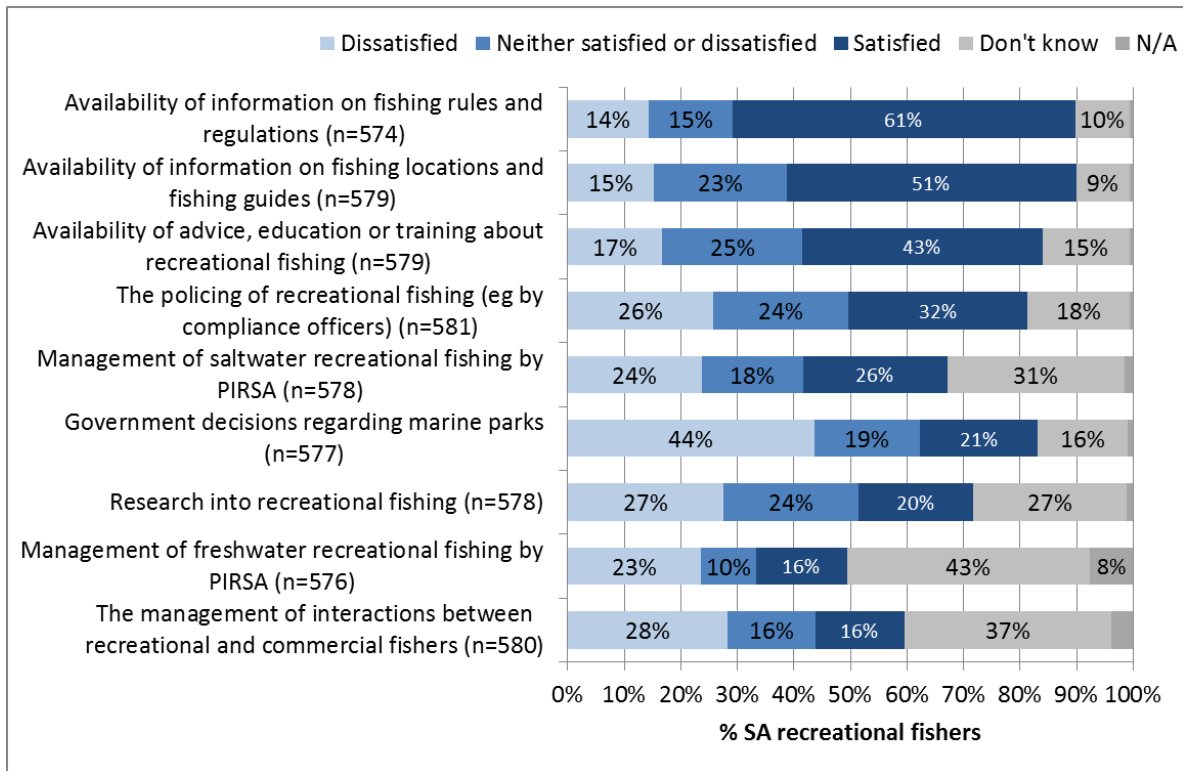
### Satisfaction with recreational fisheries management

Survey participants were asked how satisfied they were with a number of aspects of recreational fisheries management in SA. In many cases, a large proportion of fishers were unsure: more than one quarter did not feel able to rate their level of satisfaction with the management of recreational fishing by Primary Industries and Regions South Australia (PIRSA) Fisheries, research into recreational fishing, or the management of interactions between recreational and commercial fishers (Figure 42). After removing responses of those who were unsure or for whom questions were not applicable, the satisfaction of SA recreational fishers with different aspects of recreational fisheries management was found to vary substantially (Figure 43):

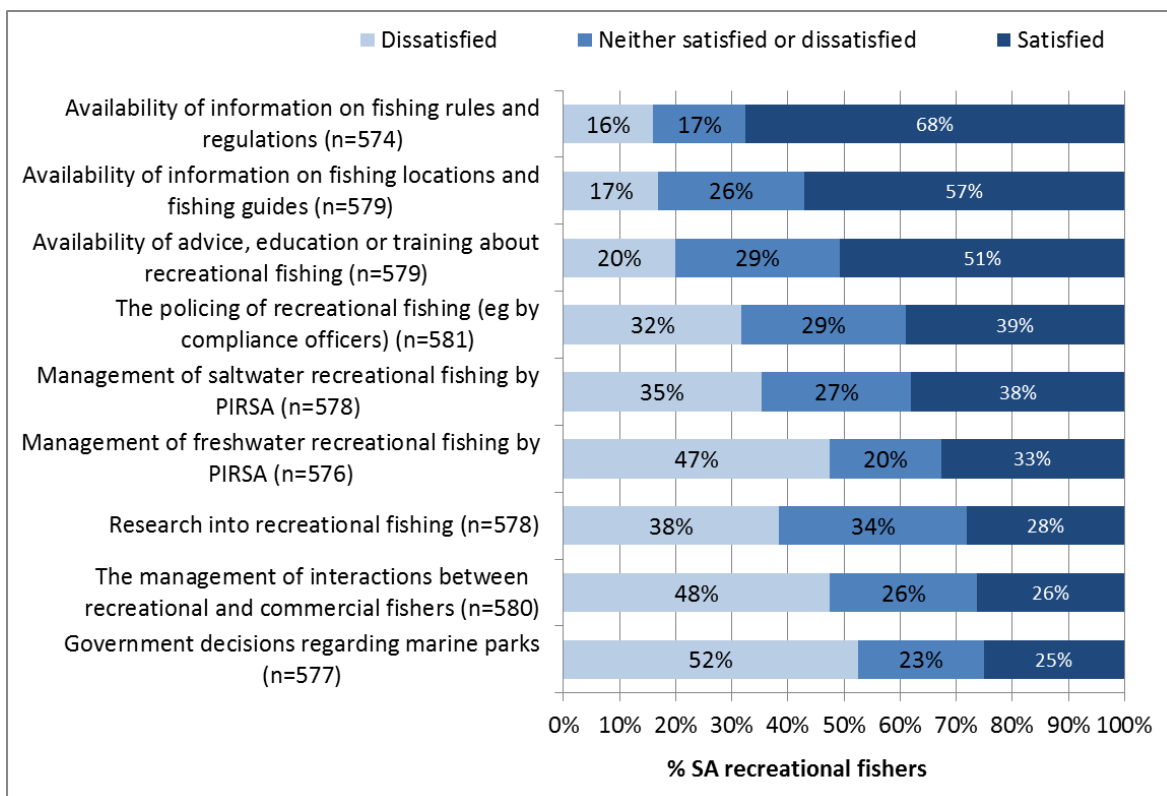
- Most fishers were satisfied with the availability of information, advice, education and training for recreational fishing: 20% or less were dissatisfied with any of these.
- Fishers were relatively evenly divided regarding the policing of recreational fishing and management of saltwater fishing: just over one-third were satisfied (39% and 38% respectively), and around one-third were dissatisfied (32% and 35% respectively).
- Fishers were most dissatisfied with management of freshwater fishing (47% dissatisfied versus 33% satisfied), management of interactions between recreational and commercial fishers (48% dissatisfied versus 26% satisfied) and government decisions regarding Marine Parks (52% dissatisfied versus 25% satisfied).

When examined by group, some differences were identified (Figures 44 to 47):

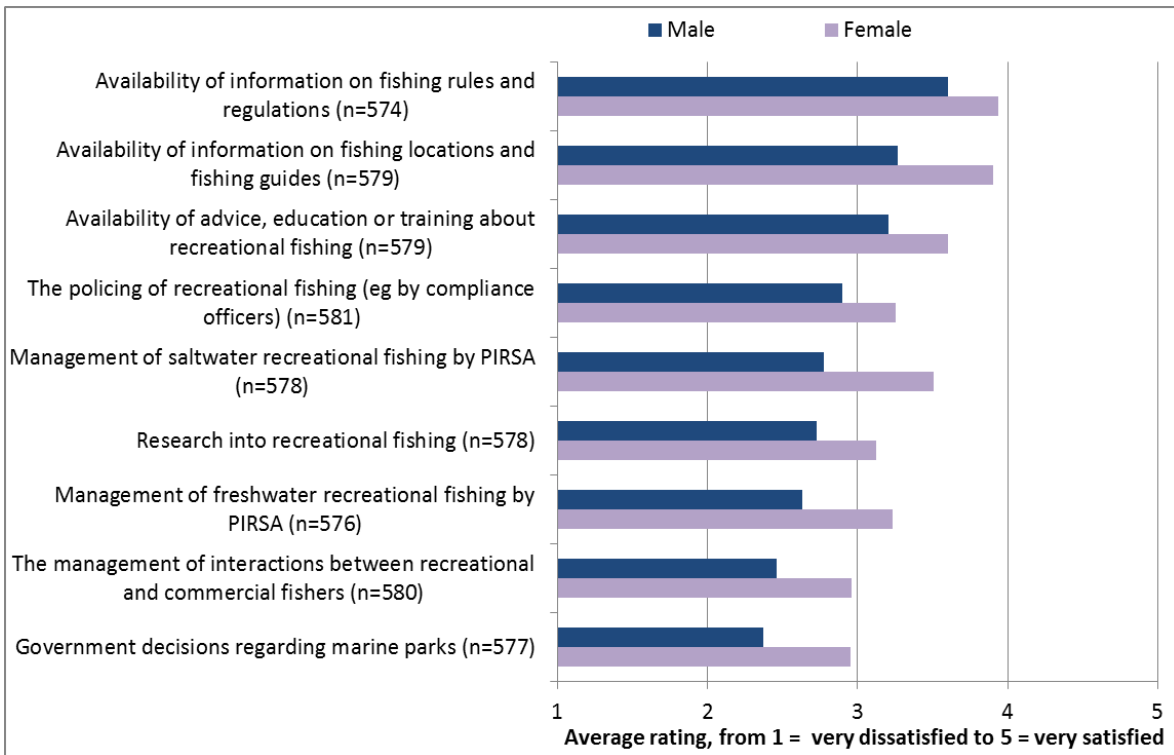
- Men were less satisfied with all aspects of recreational fisheries management than women
- Younger fishers were more satisfied than older fishers with freshwater fisheries management, government decisions about Marine Parks, but less satisfied with levels of policing, research, education and advice
- More avid fishers were less satisfied with all aspects of fisheries management than less avid fishers, and in particular with government decisions about Marine Parks
- There was little different in the views of fishers based on their relationship status.



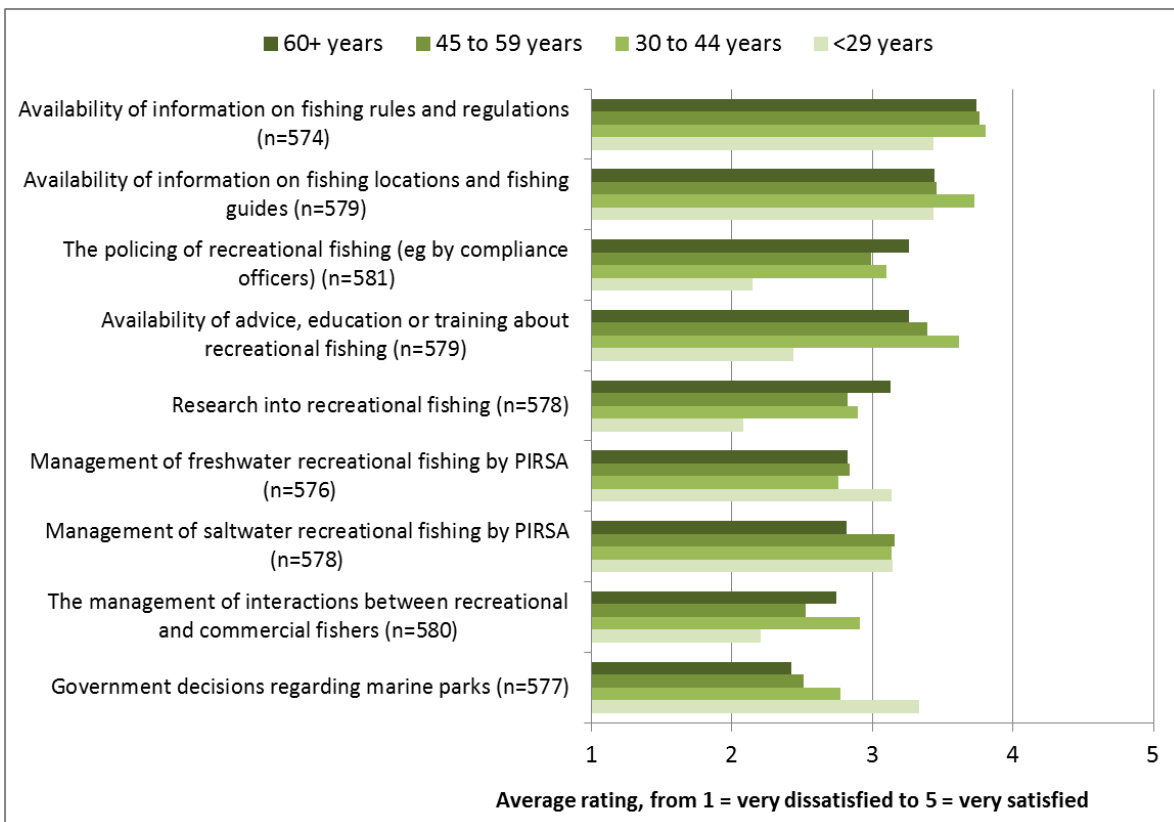
**Figure 42 Satisfaction with fisheries management and policing, including 'don't know' responses**



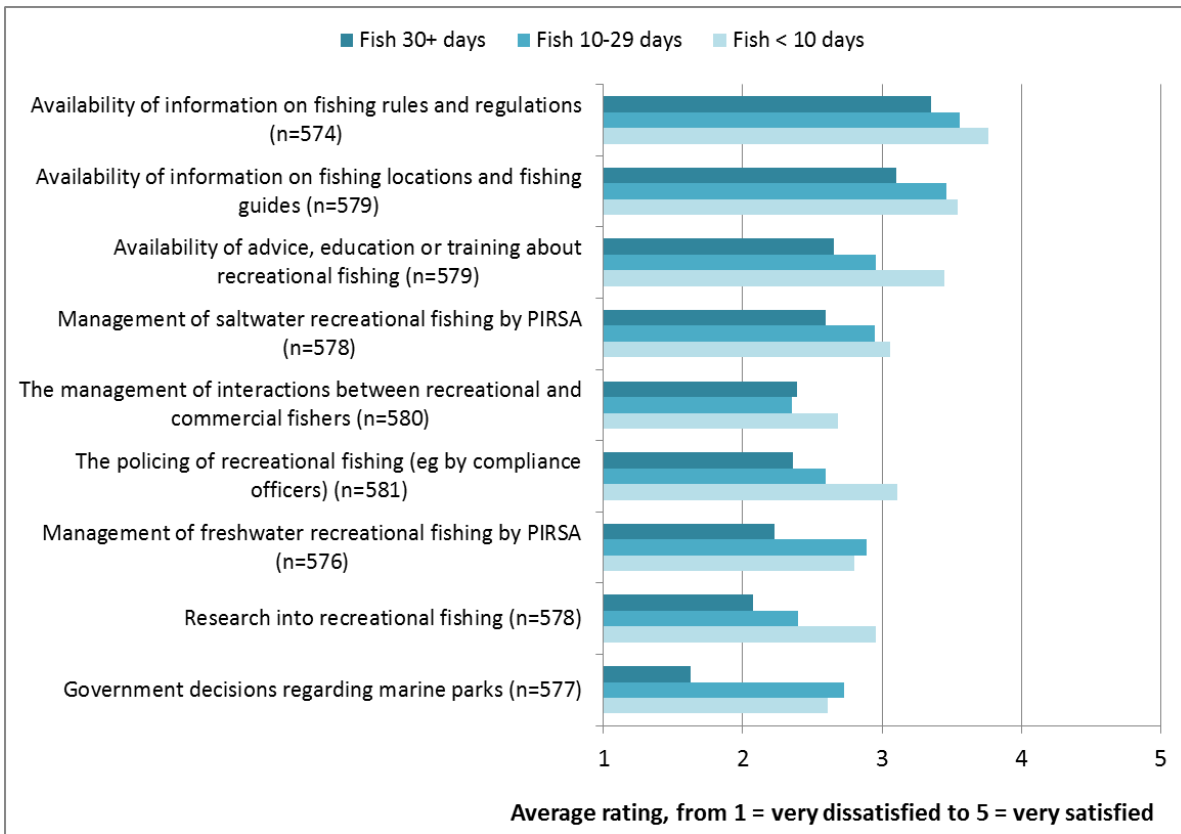
**Figure 43 Satisfaction with fisheries management and policing, excluding 'don't know' responses**



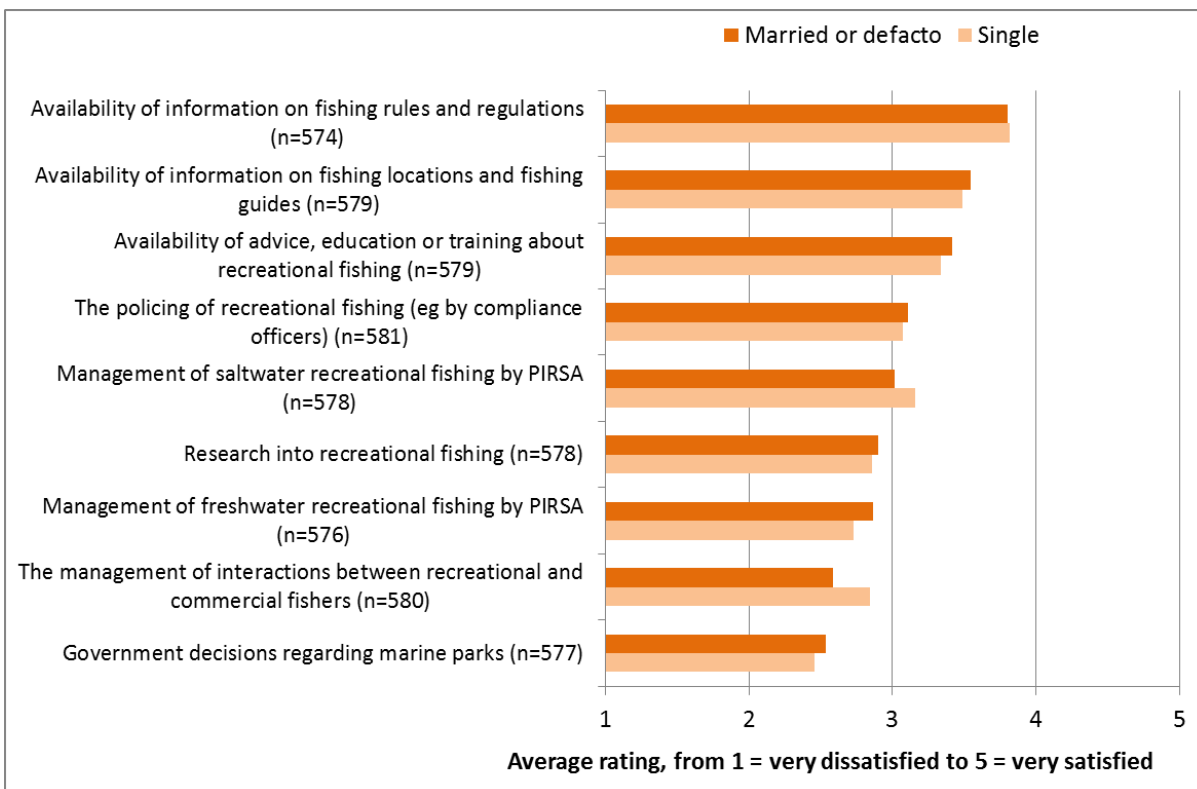
**Figure 44 Satisfaction with fisheries management and policing, by gender**



**Figure 45 Satisfaction with fisheries management and policing, by age group**



**Figure 46 Satisfaction with fisheries management and policing, by fishing avidity**

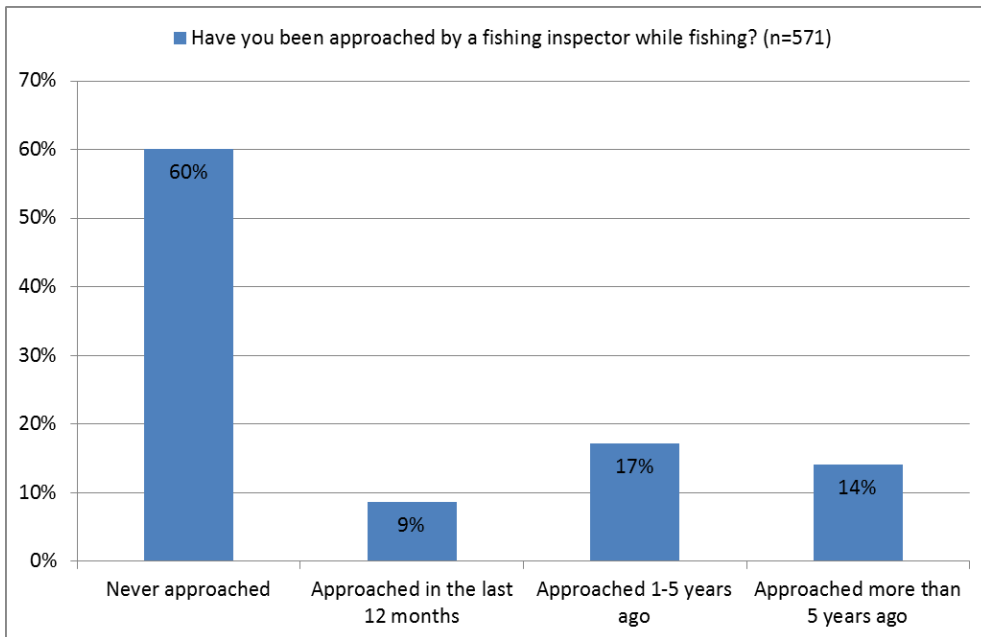


**Figure 47 Satisfaction with fisheries management and policing, by relationship status**

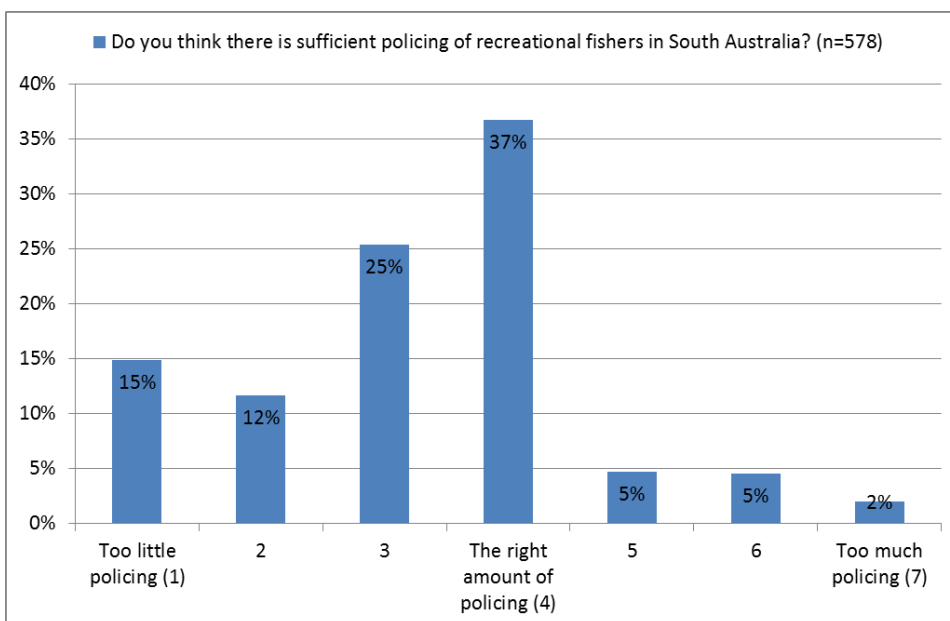


## Satisfaction with policing of recreational fishing

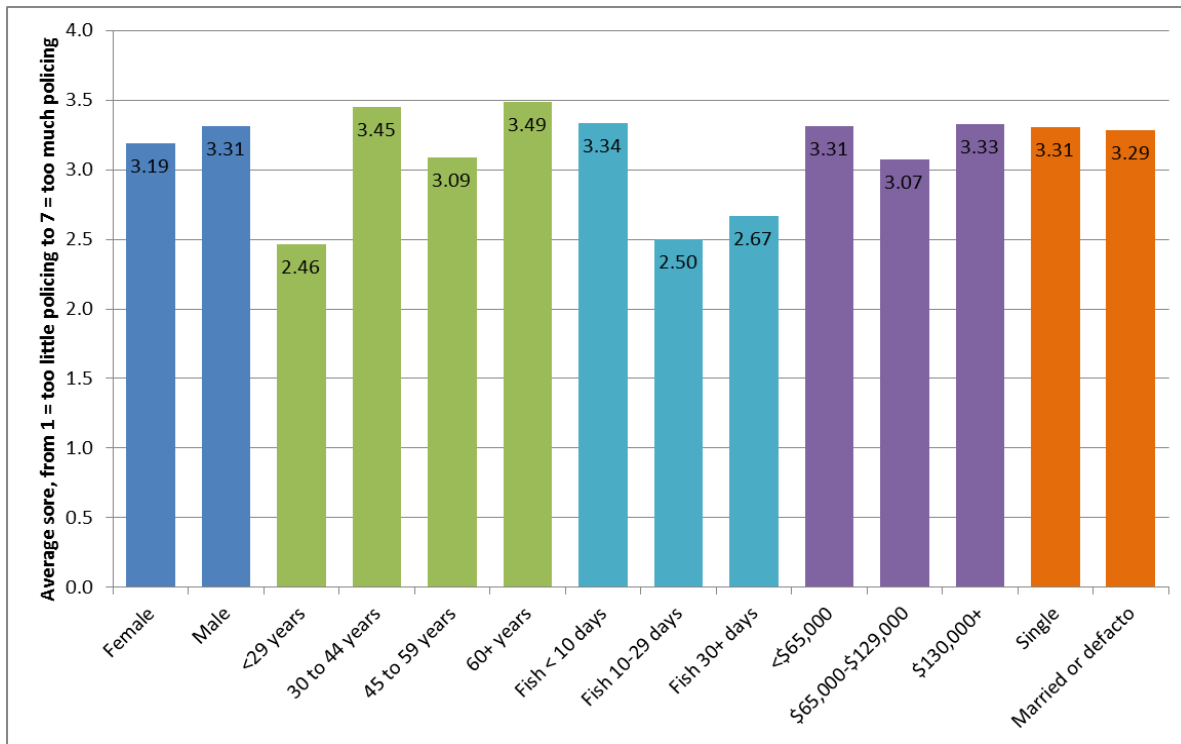
To better understand how fishers view policing of recreational fishing in South Australia, they were asked whether they had ever been approached by a fishing inspector, and whether they felt there was sufficient policing of recreational fishers. The majority, 60%, had never been approached by a fishing inspector while fishing (Figure 48). Nine per cent had been approached in the last 12 months, and 31% at some point more than 12 months prior to completing the survey. When asked if policing of recreational fishing was sufficient (Figure 49), 52% of fishers felt there was too little policing, and 37% that the amount of policing was about right. Only 12% felt there was too much policing of recreational fishing. These views did not vary substantially between different types of fishers (Figure 50), although younger and more avid fishers were more likely to feel there was inadequate policing of fishing than others.



**Figure 48 Past experiences of fisheries policing**



**Figure 49 Views about adequacy of policing of recreational fishing**



**Figure 50 Views about adequacy of policing of recreational fishing, by group**

## Contact with, and views about, recreational fisher representative organisations

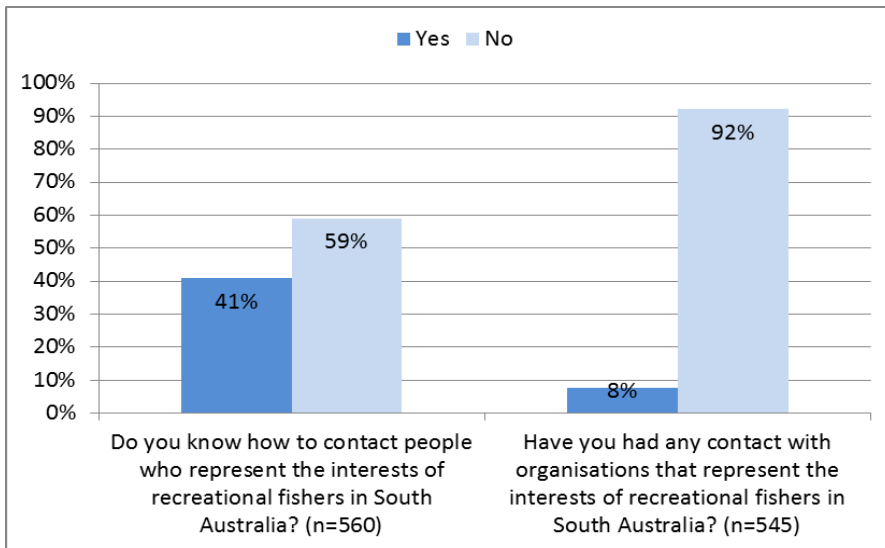
Recreational fishers are represented by a number of organisations in South Australia. Fishers were asked if they knew how to contact any of these representative organisations, and if they had interacted with any of these organisations. The majority of recreational fishers have little to no interaction with recreational fishing organisations: while 41% of fishers (a minority) reported knowing how to contact organisations, only 8% had done so (Figure 51). Younger and older fishers were least likely to feel they knew how to contact organisations (Figure 52). While women were more likely than men to know how to contact organisations, they were much less likely than men to have actually done so, with only 3% of women having contacted an organisation versus 10% of men (Figure 53). Fishers aged under 30 were also much less likely to have contacted an organisation, while those who were avid fishers were much more likely than any other group to have interacted with recreational fishing organisations.

Fishers were then asked how satisfied they were with recreational fishing organisations (Figure 54). Of those who answered this question, 44% said they didn't know how satisfied they were, reflecting the high proportion of fishers who have little to no knowledge of these organisations. A further 34% were neither satisfied or dissatisfied, an answer that often indicates a person has had little interaction with an organisation. In total, 15% were satisfied, and 7% were dissatisfied.

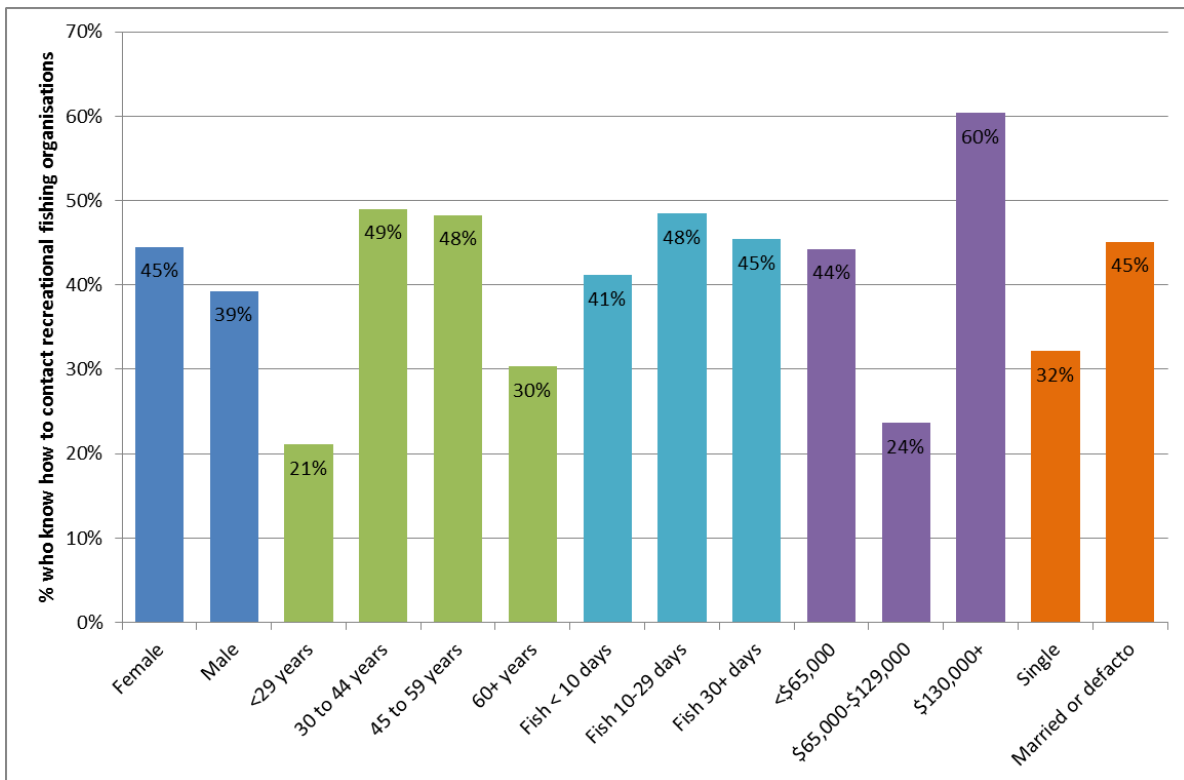
Survey participants were given the option of naming the organisations they were commenting on when responding to this question. Forty one respondents chose to do this, of whom 28 were dissatisfied with the organisations and 13 held neutral or positive views:

- 31 named RecFish SA, and of these, 23 were dissatisfied, three neutral and five satisfied
- Five named PIRSA, with three satisfied and two dissatisfied
- Five named other recreational fishing organisations, with two being dissatisfied and three satisfied.

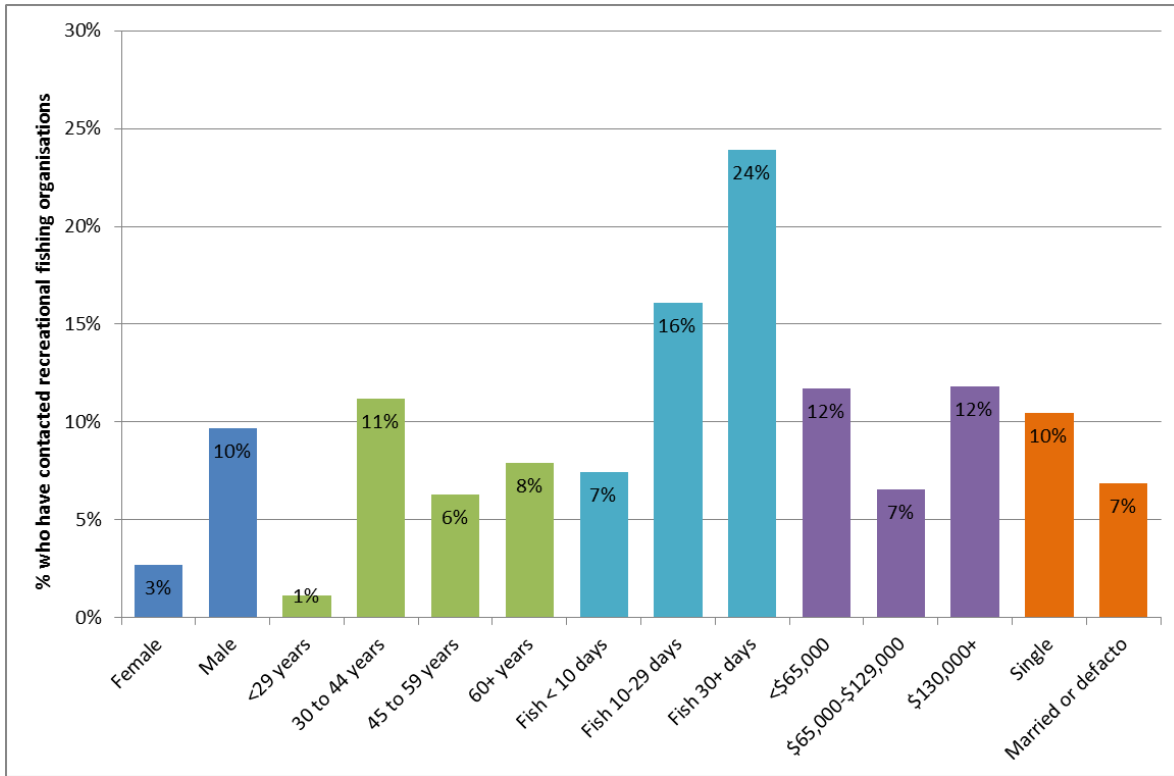
Fishers who were avid (fishing more than 30 days a year), and who earned more than \$130,000 per year, were more likely to report being dissatisfied with recreational fishing organisations than others, while younger fishers were more satisfied than others (Figure 55).



**Figure 51 Ability to contact recreational fishing representatives**



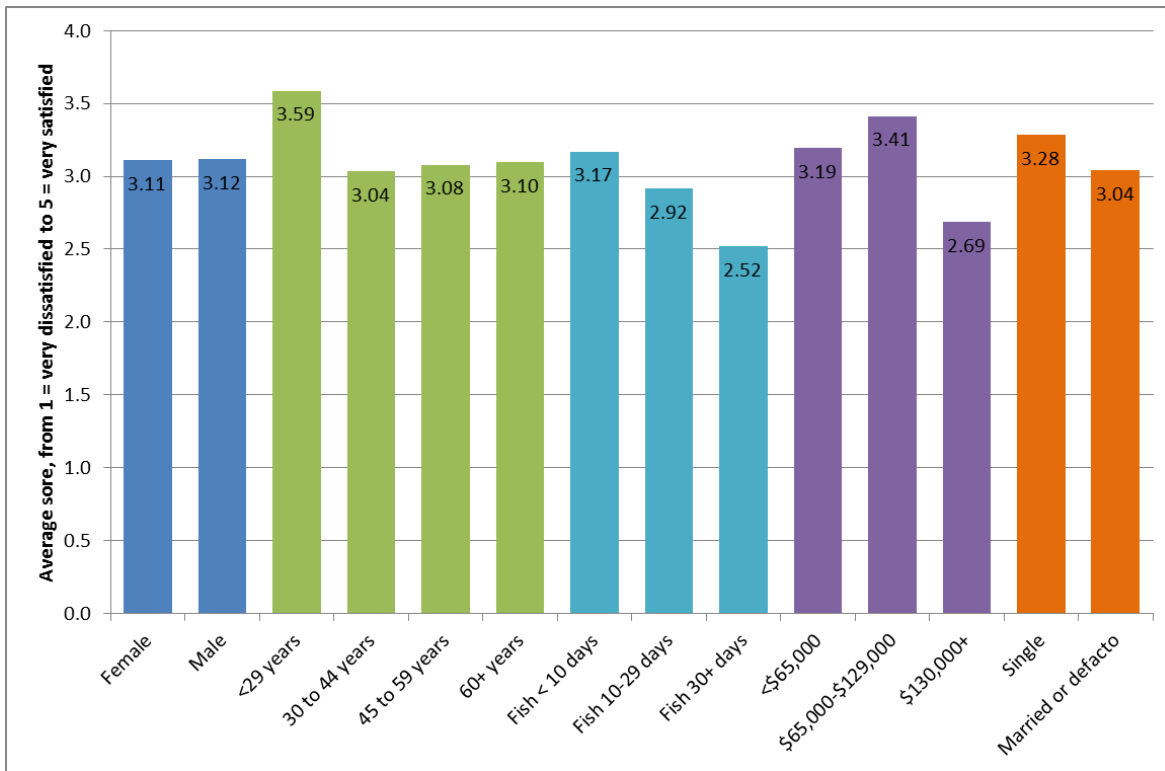
**Figure 52 Proportion of recreational fishers who know how to contact recreational fishing organisations, by group**



**Figure 53 Proportion of recreational fishers who have previously contacted recreational fishing organisations, by group**



**Figure 54 Satisfaction with organisations who represent the views of recreational fishers**



**Figure 55 Satisfaction with organisations who represent the views of recreational fishers, by group**

## Views about a recreational fishing licence

A recreational fishing licence is a mechanism commonly proposed to achieve greater investment into recreational fishing, and one which is used in some Australian states. Survey participants were asked whether they had ever purchased a recreational fishing licence or permit in the past, and their views about the acceptability of a recreational fishing licence.

These questions were designed principally based on consultation with fishers during the survey design process, as a search conducted in the academic literature found very little previous work examining views about the introduction of fishing licences, or evidence regarding how fishing behaviour changed if and when a licence was introduced. The studies that were identified principally examined how changes in the price of an existing licence would affect fishing behaviour, with none examining the effects of introducing a licence for the first time into a recreational fishery. These previous studies have suggested that increasing licence fees will reduce recreational fisher participation in fishing: for example, Sutton et al. (2001) estimated that increasing licence fees by \$2.70 in an American fishery would displace 11% of fishers from that fishery; much earlier, Fedler and Sweezy (1990, cited in Sutton et al. 2001) estimated that every dollar growth in an annual fishing licence led to a 4.7% decline in licence sales. Bilgic and Florkowski (2009), meanwhile, found that the presence of a requirement to purchase a recreational fishing licence was associated with lower participation in fishing, but argued that those fishers who bought licences would typically increase their participation as they value the sport more due to having to pay for it. Dabrowska et al. (2014) focused on identifying how fisheries managers could increase licence sales, and argued that licence sales could be increased by paying attention to improving the fishing experience, particularly improving stocking to provide better fishing opportunities, and increasing accessibility of fishing. These findings from previous studies suggest that rather than focusing solely on price, to understand the impacts of a licence it is critical to consider what the fees raised by that licence are used for: if they are used to improve fishing experiences, then the licence may maintain or grow participation in recreational fishing, whereas if they are not, participation in fishing may decline if a licence is introduced or the price of an existing licence is increased.

Asking people about a hypothetical future fishing licence is challenging, as views are likely to differ substantially depending on the conditions and price of that licence. To address this, when the survey was developed, examination of licences used in other states, as well as consultation with RecFish SA, was used to identify a set of potential conditions for a licence.

The following description was then given in the survey prior to asking questions about fishing licences:

All recreational pursuits need investment to grow and develop, and recreational fishing is no exception. The last page asked your views on what things are most important to invest in. In this part of the survey, we ask your views about paying to invest in improving the quality of recreational fishing. One of the most common ways recreational fishers are asked to contribute to recreational fishing investment is via a recreational fishing licence. While most states in Australia have a recreational fishing licence, South Australia does not (specific licences are required for a small number of recreational fishing activities, but not for most recreational fishing). To better understand your views about the importance of investing in recreational fishing, we ask you how much you would be willing to pay for a fishing licence in South Australia, assuming the funds raised from that licence were placed in a trust managed by an independently appointed board that includes recreational fishers, and ONLY used to invest in improving recreational fishing.

The next questions ask about your views on a recreational fishing licence which has the following conditions: (i) all funds to be placed in a trust managed by an independently appointed board that includes recreational fishers, (ii) all funds to be invested in improving recreational fishing in SA, and (iii) children under 18 and pensioners either exempt from the licence or asked to pay a substantially reduced fee.

Survey participants were asked to tick a box to indicate they had read the description of the conditions of the fishing licence, before being asked to answer questions about their views on this type of licence.

The following sections examine past experience with recreational fishing licences/permits, how acceptable fishers felt the introduction of a licence with the conditions specified above would be, and how much they felt their fishing behaviour would change if such as licence was introduced. Finally, fishers were asked how acceptable they found the proposed conditions, and if they would find a licence more acceptable with different conditions.

## Past experience with recreational fishing licences/permits

Twenty nine per cent of South Australian recreational fishers reported having previously purchased a fishing licence or permit, while the remainder either had not, or were unsure if they had (Figure 56). Men, older fishers, and more avid fishers, as well as those earning higher incomes, were more likely than others to have purchased a fishing licence or permit in the past (most likely because these are the people more likely to have fished in Australian states where licences are required). Female fishers, and fishers aged under 45, were least likely to have previously purchased a permit (Figure 57).

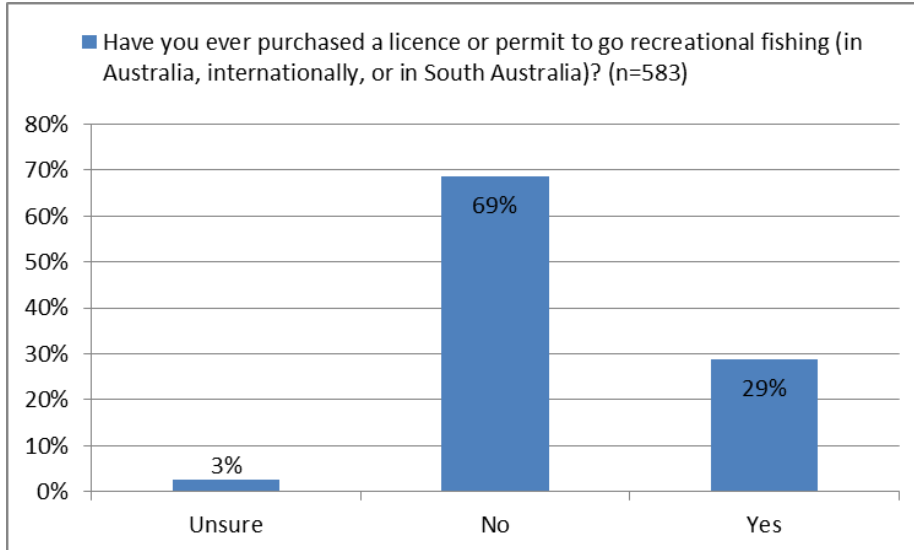


Figure 56 Past experience with purchasing fishing licences/permits

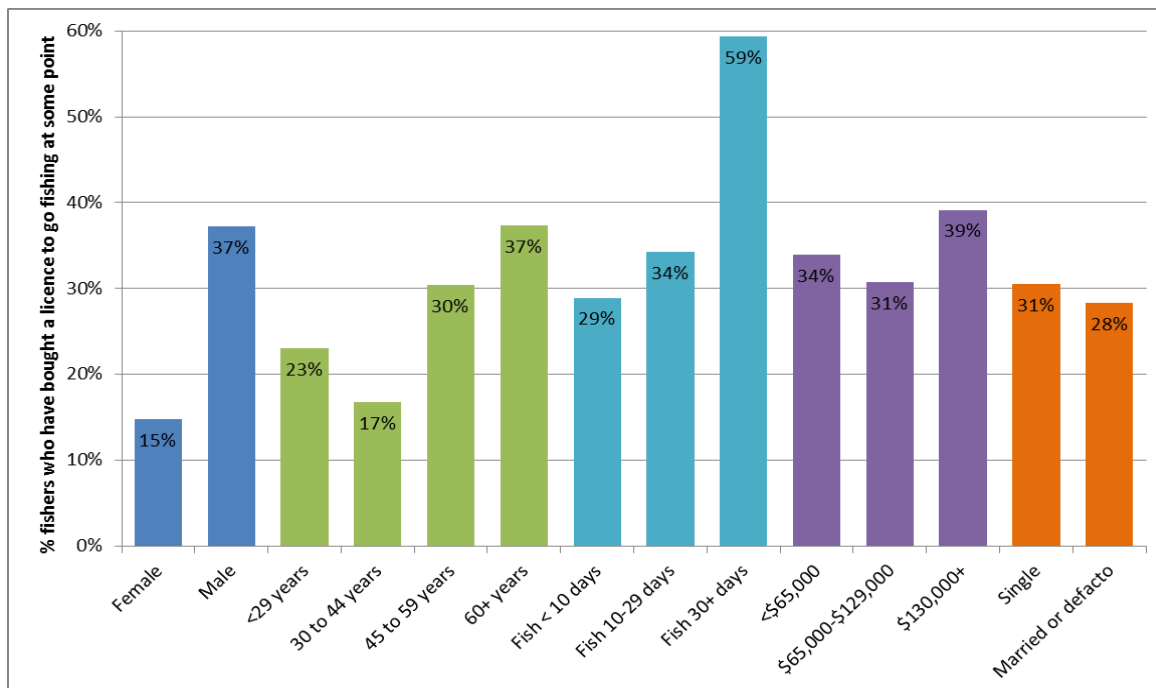


Figure 57 Past experience with purchasing fishing licences/permits, by group

## Social acceptability of fishing licence

Fishers were asked to read the licence conditions described earlier, and to then rate how acceptable or unacceptable they would find a licence with those conditions if it had an annual cost of \$30, \$40, or \$50. In total, 45% of fishers found a \$30 licence acceptable or very acceptable, while 50% found it unacceptable, and the remaining 6% found it neither acceptable or unacceptable (Figure 58). Acceptability was much

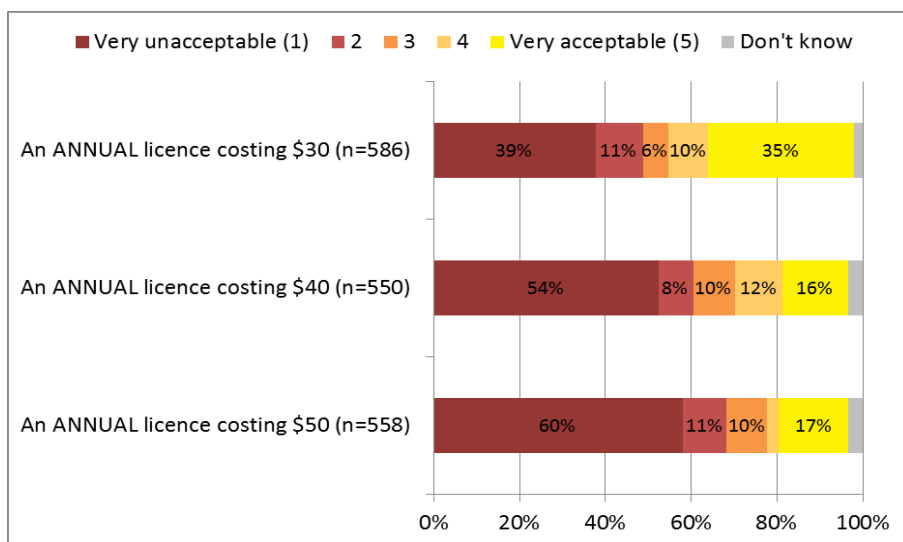
lower for the higher cost licences, with only 28% finding a \$40 licence acceptable, and only 19% finding a \$50 licence acceptable.

Views about the acceptability of a fishing licence varied substantially depending on the type of fisher (Figures 59 to 61). Licences were considered more acceptable by women, by younger fishers (with the exception of the youngest group), avid fishers, fishers earning a higher income, those who were married, and those with higher levels of formal educational attainment. Older men on low incomes who fished infrequently were the least likely to find a fishing licence acceptable.

Views varied somewhat depending on the region in which people fished (Figure 62). Those who fished in the far west, south east, and in freshwater areas other than reservoirs or the River Murray found a licence most acceptable, while those who fished in the Upper Spencer Gulf and the Copper Coast found a licence least acceptable.

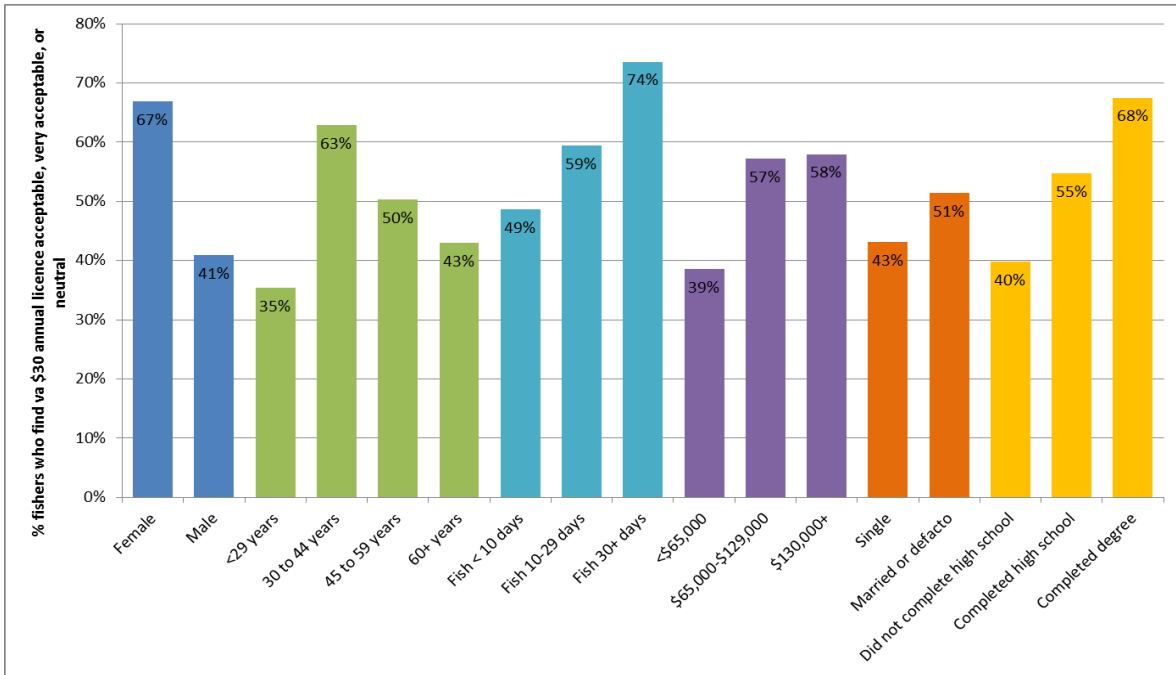
Those who had previously bought a fishing licence, and who had a history of contact with fishing organisations, were more likely to find a licence acceptable, while those who were dissatisfied with recreational fishing organisations, and those who didn't know how to contact fishing organisations, were least likely to find a fishing licence acceptable (Figure 63).

It is common for people to report high levels of concern about a proposed change, but to subsequently find that the change is more acceptable than expected when it is actually introduced (see for example Cao et al. 2009; Loxton et al. 2012). Previous experience of purchasing a licence is therefore likely to be a useful indicator of whether some of the concern reported about acceptability of a fishing licence is due to lack of familiarity with a licence system – meaning that views would likely change to greater acceptance if a well-designed licence was introduced. Figure 64 compares the views of those who had and had not previously purchased a fishing licence. Those who had previous experience with purchasing a fishing licence were more likely than those who did not to find a \$30 per annum fishing licence acceptable, with 53% finding it acceptable and 43% unacceptable. In contrast, only 41% of those with no previous experience of a fishing licence found the idea of one acceptable, and 49% found it unacceptable. This suggests that the views of many fishers, about the acceptability of a licence would increase once they had experience with a fishing licence system similar to that used in other Australian states.

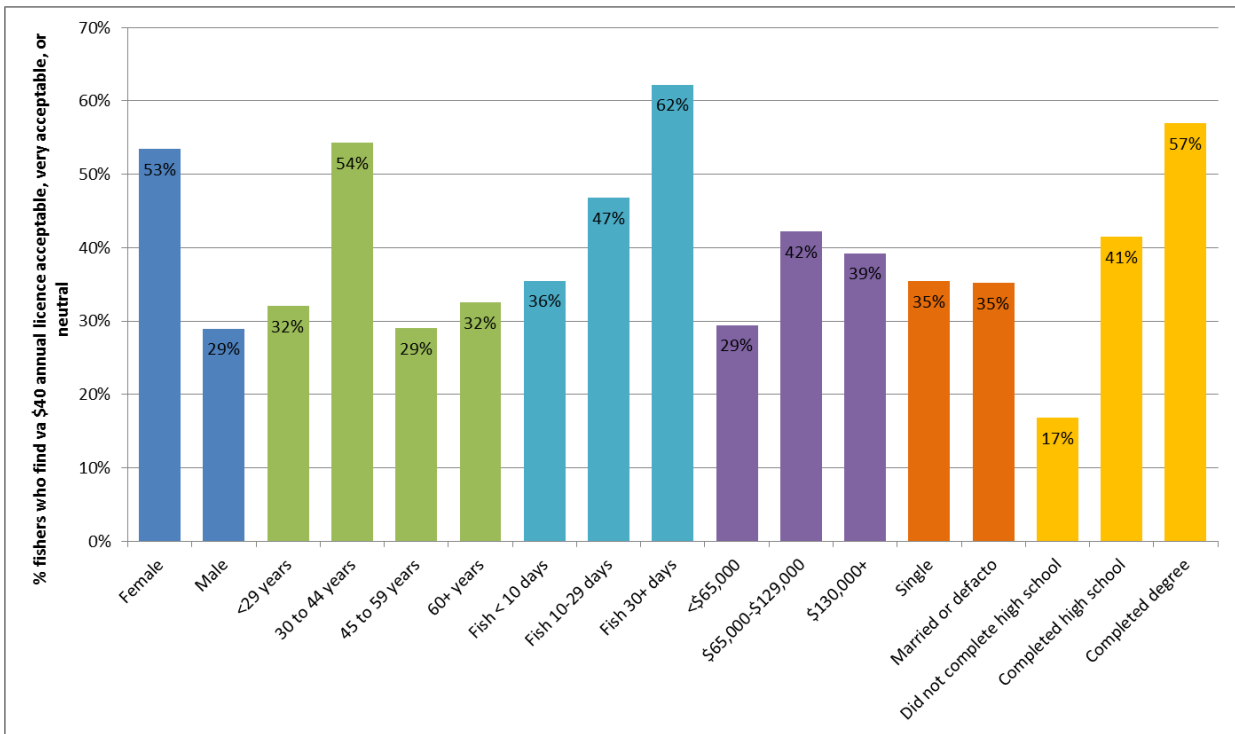


**Figure 58 Acceptability of introduction of a fishing licence of different costs**

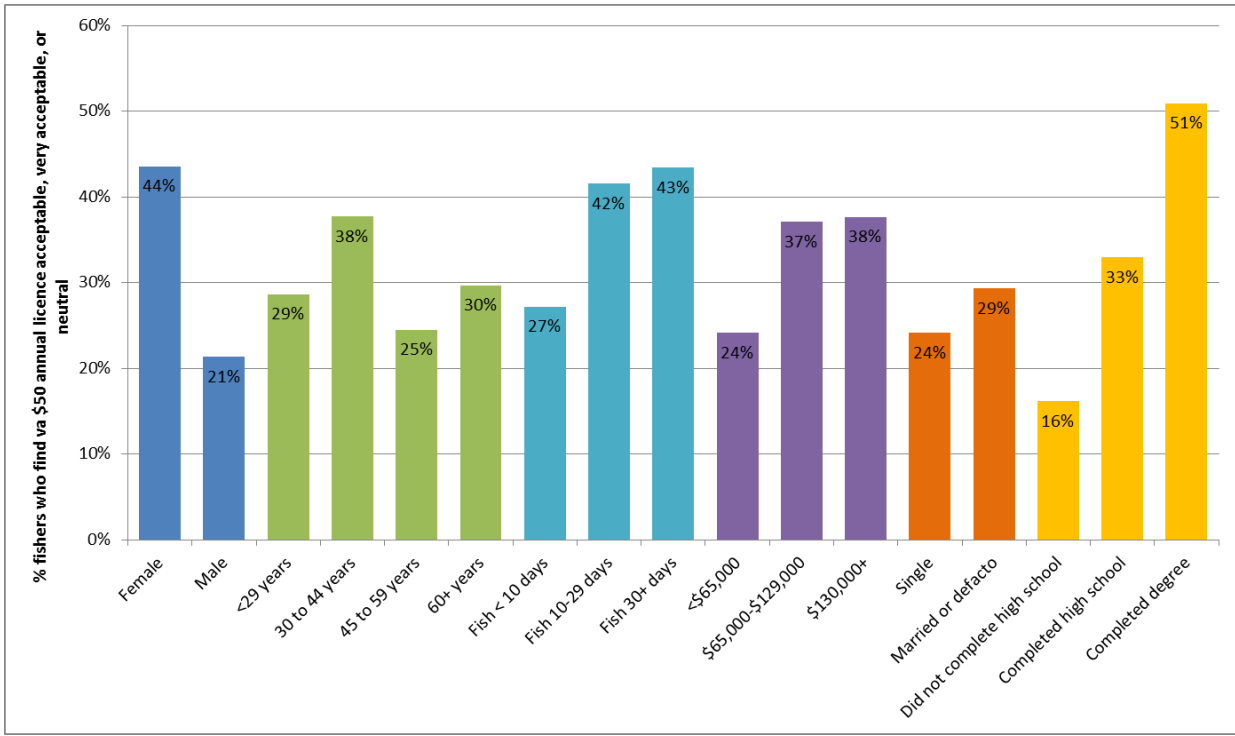




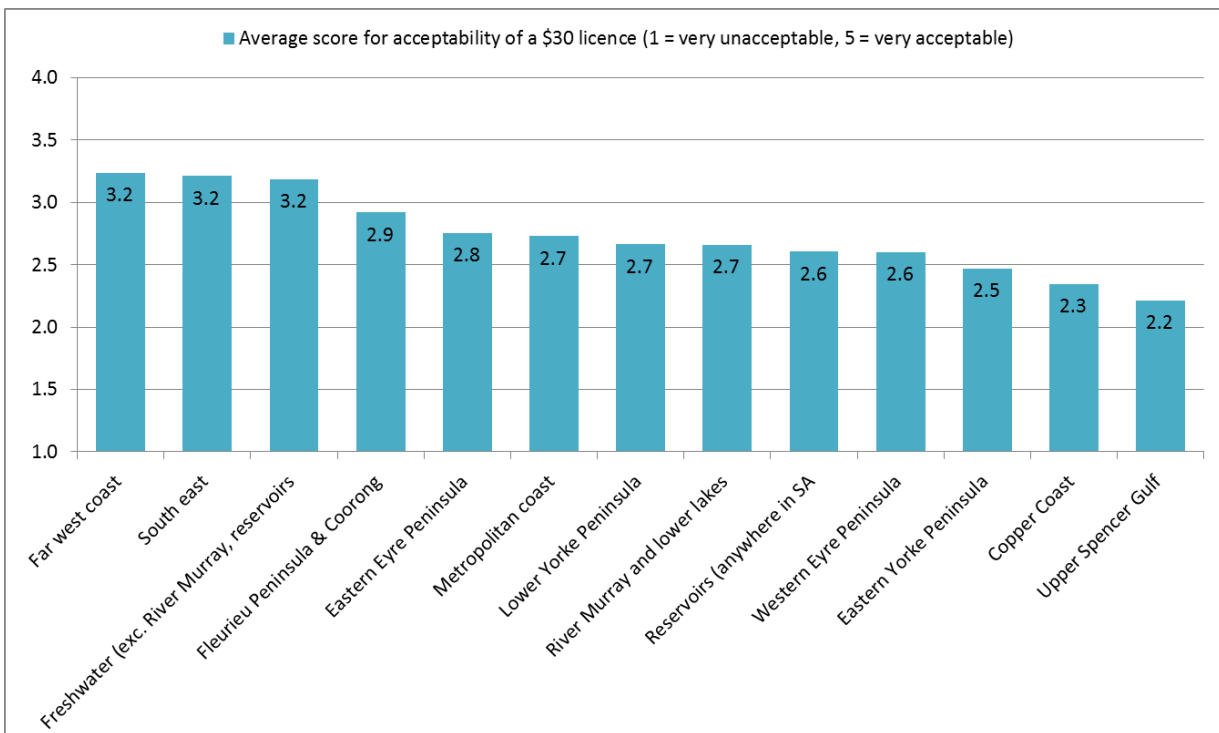
**Figure 59** Acceptability of introduction of a \$30 fishing licence, by group



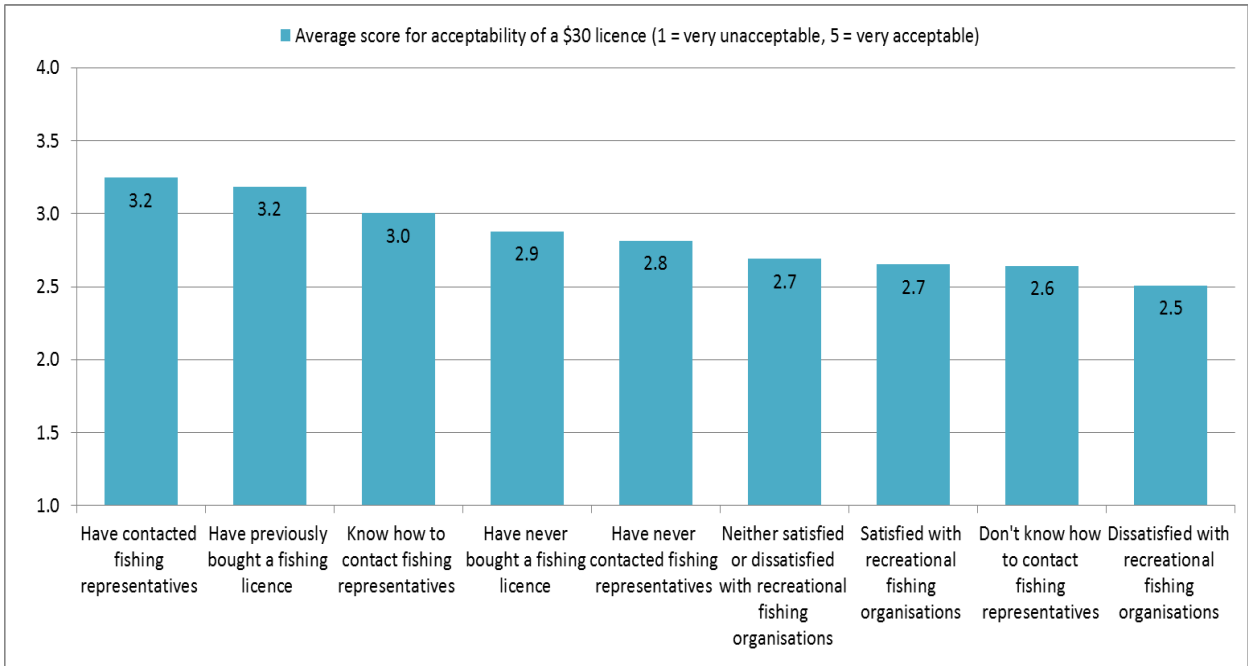
**Figure 60** Acceptability of introduction of a \$40 fishing licence, by group



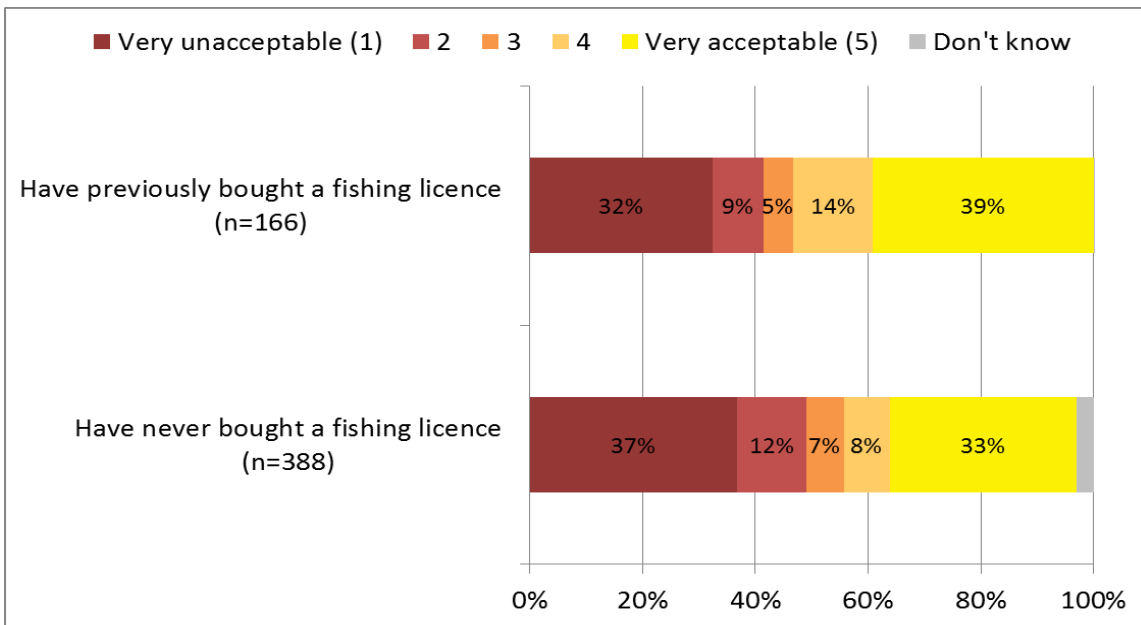
**Figure 61 Acceptability of introduction of a \$50 fishing licence, by group**



**Figure 62 Acceptability of introduction of a \$30 fishing licence, by location**



**Figure 63 Acceptability of introduction of a \$30 fishing licence, by previous experience with fishing licences and recreational fishing organisations**



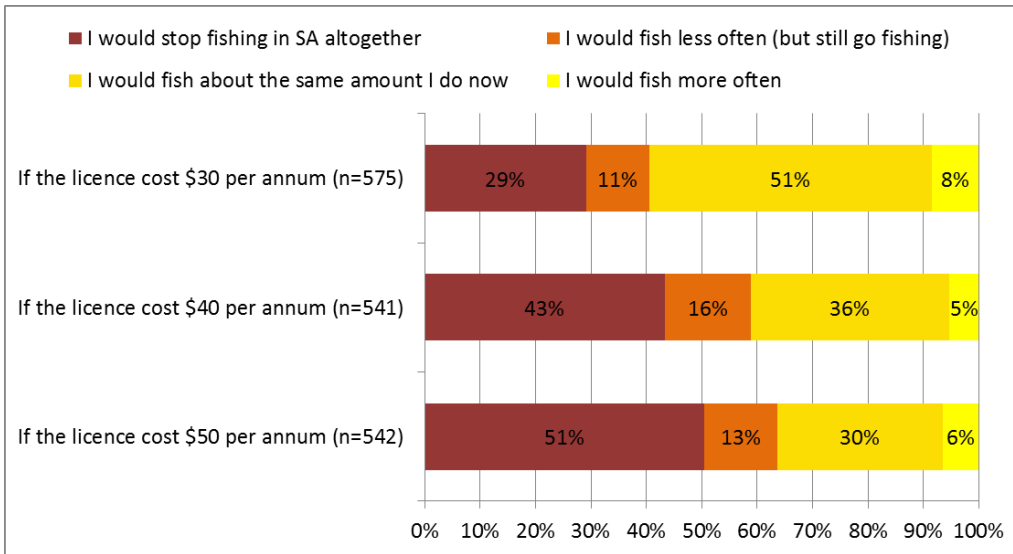
**Figure 64 Acceptability of introduction of a \$30 fishing licence, and previous experience purchasing a licence**

**Effects of licence introduction on fishing activity**

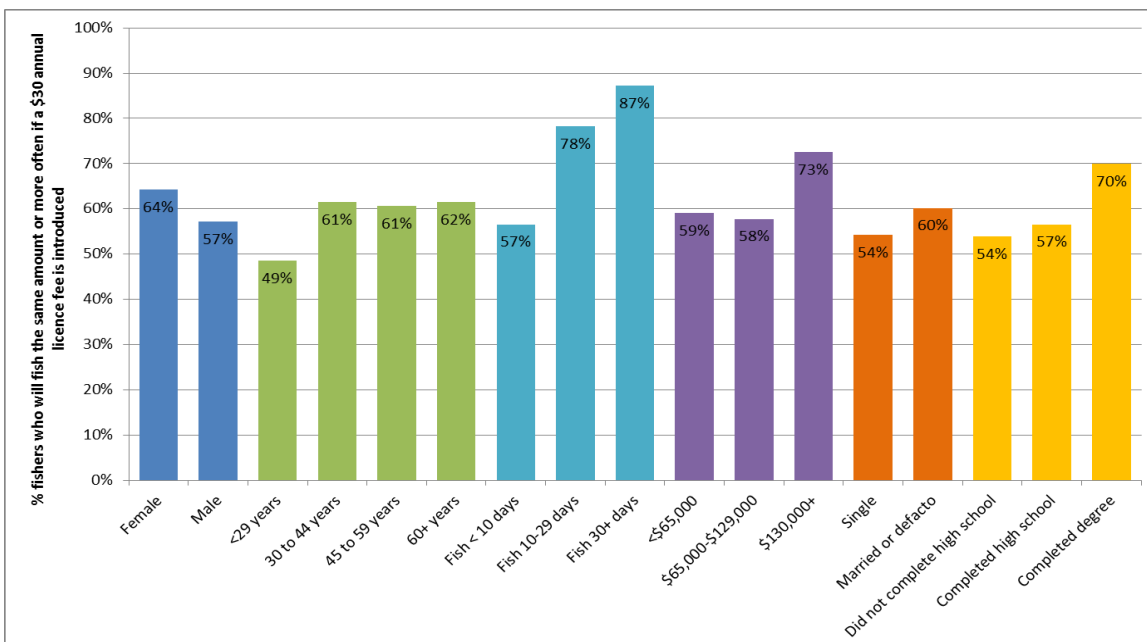
When a person is asked to rate the acceptability of introducing a fishing licence, their response reflects their personal, value-based response to it. However, feeling something is unacceptable does not necessarily mean it would result in a change in behaviour – in other words, in how often a person fishes. Survey participants were asked if they believed they would change how often they fished in SA if a fishing licence was introduced (Figure 65). Most (59%) felt they would fish the same amount or more if a \$30 annual licence was introduced, while 29% felt they would stop fishing in SA altogether, and 11% that they would fish less often. At \$40, 59% believed they would reduce or stop their fishing while 41% felt they would fish the same amount or more. At \$50 per annum, 64% felt they would reduce or stop fishing, while 36% believed they would maintain or increase their fishing. Those most likely to feel they would reduce or stop their fishing

were younger fishers, men, single fishers (who are often also young), less avid fishers, those on lower incomes, and those who did not complete high school. Those least likely to believe a licence would affect how often they fish were avid fishers, those earning high incomes, those who had completed a degree, and female fishers (Figure 66).

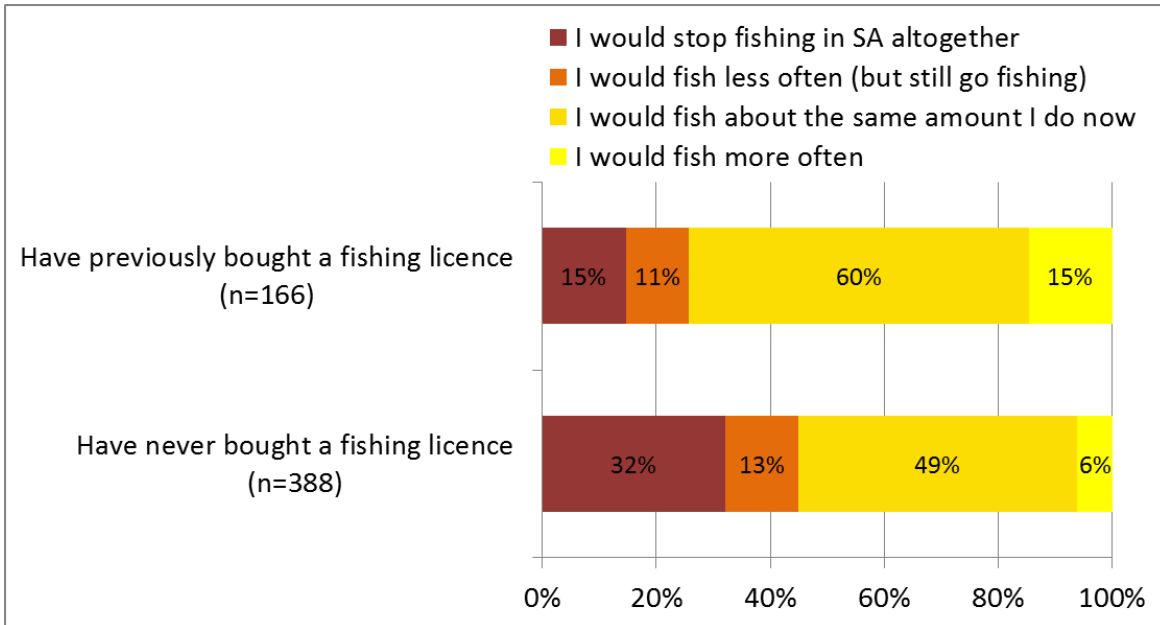
When those who had previous experience of purchasing a fishing licence were compared to those who had no previous experience, there were differences in their views (Figure 67). The large majority of those who had previous experience purchasing a fishing licence – 75% - reported that they would maintain or increase their fishing in SA if a licence was introduced, compared to 55% of those who had not previously had experience with a licence. This suggests that the actual proportion of fishers who change their fishing frequency is likely to be less than that suggested by the results shown in Figure 65. The higher level of confidence reported by those who have previous experience of a fishing licence suggests that, once familiar with a licence, relatively few fishers will change their frequency of fishing.



**Figure 65 Self-assessed change in fishing behaviour if annual fishing licence introduced**



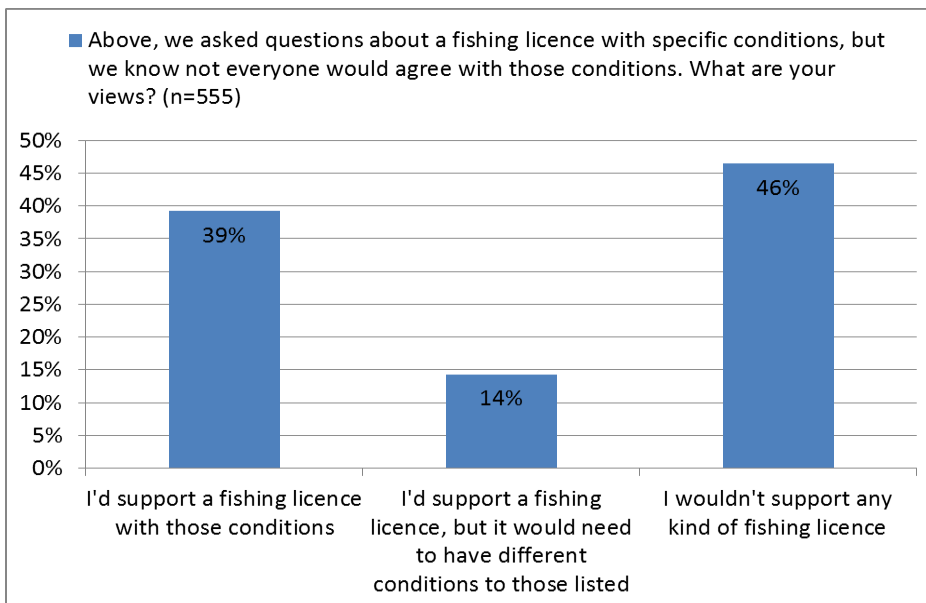
**Figure 66 Self-assessed change in fishing behaviour if an annual fishing licence was introduced, by group**



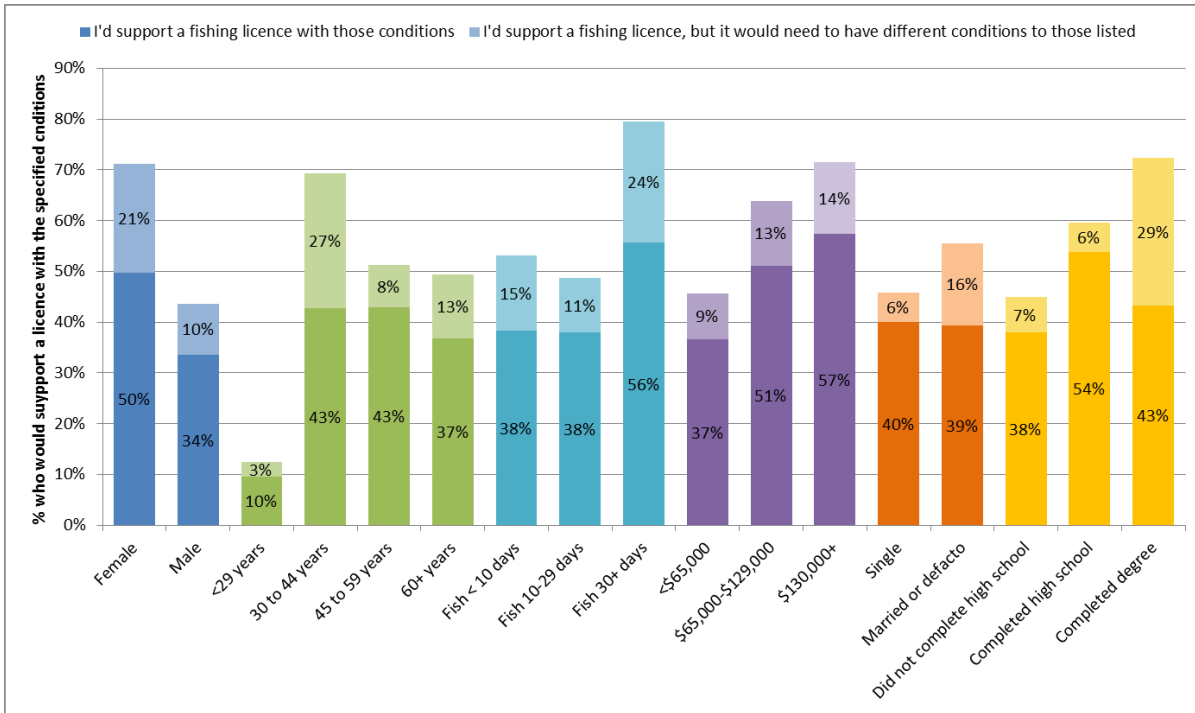
**Figure 67 Self-assessed change in fishing behaviour if an annual fishing licence was introduced, for those with and without previous experience of purchasing a fishing licence**

### Fishing licence conditions and social acceptability

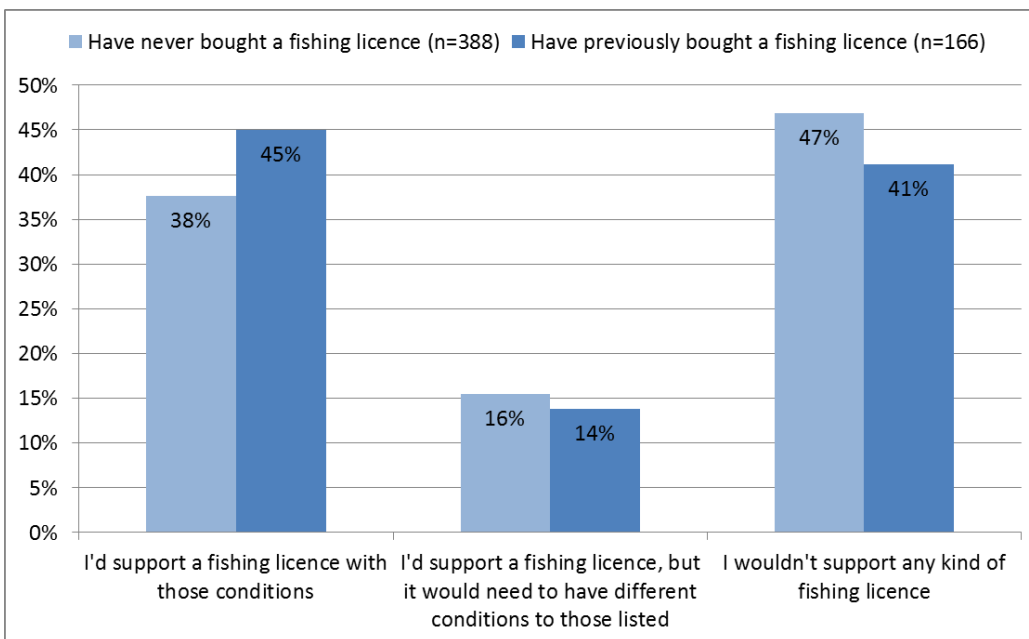
Fishers were asked whether they found the conditions specified in the survey for a licence appropriate. In total, 39% said they would support a licence with the specified conditions, 14% said a licence would need to have different conditions for them to find it acceptable, and 46% said they would not find a licence acceptable under any conditions (Figure 68). Patterns of support were almost identical to those seen for the licence overall, with women, those aged 30-44 years, more avid fishers, those with higher household incomes, and those who had completed a degree, most likely to support a fishing licence with the specified conditions or modified conditions (Figure 69). Previous experience purchasing a fishing licence also mattered: 48% of those who had previously bought a licence supported a licence with the specified conditions, compared to 38% of those who had not previously purchased a licence (Figure 70).



**Figure 68 Views about fishing licence conditions**



**Figure 69 Views about fishing licence conditions, by group**



**Figure 70 Views about fishing licence conditions, compared for people who did and did not have previous experience of purchasing a fishing licence**

Those who said they would need different conditions to support a licence were asked to list what these conditions would be. In total, 138 survey respondents specified one or more conditions. Their responses were analysed to identify common themes:

- Use of funds:** 33 respondents specified that they would only support a licence if the funds were guaranteed to be used to invest in recreational fishing, rather than going into general revenue. Despite this being a listed condition of the licence, there appeared to be a high level of concern that this would not happen, leading many to explicitly specify this as a condition of supporting a licence. A smaller number specified they felt the funds should be used to support specific aspects of recreational fishing, including freshwater stocking (eight respondents), improved representation of fishers by recreational fishing organisations (three respondents), a desire that funds not be used to buy out commercial licences

(three people), and a specification that the fees be used to fund fisheries management (one person) and that recreational fishers be consulted about the spending of licence fees (one person).

- **Governance:** The second most common suggestion regarding licence conditions was around governance. The specified licence conditions included a governance structure which was independent and included recreational fishers. Despite this, many people specified that a licence would need to have these conditions before they would support it, suggesting there is a lack of trust that these conditions would be achieved. In total, 15 people specified that they would need to be convinced the licence funds were governed independently in order to support a licence, 13 specifically stated that they felt governance of funds should not be undertaken by RecFish SA, and nine felt that governance should not be controlled by the South Australian government. Two felt that representatives of the general public and the government should be represented on any independent Board, rather than only fishers, and one felt no conservation groups should be represented on a Board appointed to manage use of licence fees.
- **Use other approaches instead:** Several fishers suggested either that existing fees, such as boat levies and National Park fees, already raise revenue and that this revenue should be used to invest in recreational fishing (14 people). Others suggested that instead of a licence, greater penalties for non-fishing compliance should be used to raise revenue, or that taxes paid on fishing equipment should be directed to investment in recreational fishing (13 people). Ten suggested integrating a licence with boat levy/licence fees or ramp fees, or reducing boat licence fees to compensate for costs of a recreational fishing licence.
- **Ensuring those who can't afford a licence are exempt:** Ten people specified they would need to see children exempted from paying for a licence, and another 12 that pensioners, health concession card holders and/or seniors would need to be exempt, for them to support a licence. While this was a stated condition of the licence in the survey, this is clearly an issue of significant concern for many people, given that many still specified it as a required condition before they could support a licence. Nine people suggested the licence would need to be cheaper for them to support it, for example \$10 or \$20 per annum or providing options for a family discount to reduce costs for families. Three felt those who fish only once or twice a year should be exempt. Three specified they felt that seniors should not be exempted.
- **Provide more flexible options:** Nine people suggested that there should be options to purchase a licence that would be valid for differing time periods, including a day, seven days, one month, six months or a year. The most common suggestion was for the ability to purchase a single day licence that cost less than an annual licence. Five wanted the licence to apply in all states, with most of these specifying they fished in multiple states. Two specified the licence should be readily available online and able to be purchased easily from sites that are frequented by fishers, such as caravan parks, entry to parks, and tackle shops, and that a licence should be readily renewable or able to be purchased for multiple years rather than only one.
- **Other views:** Five people reiterated a view they did not support any licence, while five specified a general support for a licence. A small number specified conditions such as having differing licences for saltwater and freshwater fishing (one person), or copying the Victorian licence system (four people). Three people felt that permits should be revoked if a person was found to breach fishing regulations, and one that fishers should have to pass a test to get a licence to fish.

# Discussion

This study gathered detailed data on how people are engaging in recreational fishing in SA, the benefits achieved from their fishing, and their preferences regarding investing in recreational fishing and the use of a licence as a mechanism for raising revenue for investment. Despite ensuring that non-fishers had opportunity to take part in the survey, very few chose to do so, and those that did rarely reported having specific views about recreational fishing. This suggests that it is most appropriate to focus on the views of those who engage in recreational fishing when considering the future development of recreational fishing in SA.

When examining areas for investment, some key priority areas emerged: most fishers have a strong preference for investing in increasing sustainability of fishing, and in maintaining and enhancing saltwater and freshwater fish habitat. Educating younger fishers and research are also considered high priorities. Beyond this, however, there was lower consensus, and the aspects of fishing that different people find important and benefit from varied substantially between groups. For example:

- Female fishers fish less often, in fewer places, using fewer methods, and are not as concerned as men about their future access to fishing areas and species. They are more likely than men to prioritise investing in education and training for adult fishers, and less likely to prioritise investment in increasing stocking and access to fishing locations.
- Older fishers are less likely to engage in catch and release, and more likely to value eating their catch, compared to than younger fishers. They less commonly use charter fishing, diving or spear fishing than younger fishers. For younger fishers, the experience of fishing is as important as eating their catch, whereas for older fishers, eating catch is more important. Younger fishers were more likely to consider it important to improve advocacy by fishing organisations, whereas older fishers were more likely to prioritise investing in improving sustainability and buying out commercial fishing licences.
- More avid fishers engage in all types of fishing more often than other fishers, and are more concerned than those who fish less regularly about Marine Parks and their levels of access to fishing areas and to the species they target. They are less satisfied with recreational fishing organisations than those who fish less regularly, and much more likely to actively engage with these organisations. Those who are less avid fishers are less satisfied with their fishing than avid fishers, but also less likely to report concerns about some aspects of their fishing.

Balancing these sometimes different views and priorities when investing in recreational fisheries can be challenging. The survey responses suggest that in many cases recreational fisheries organisations are hearing the views of avid, male fishers, and sometimes older fishers, more than others, as these fishers are more likely to actively contact fishing organisations. This could lead to challenges in prioritising investment unless a robust discussion is held that includes not just the views of those fishers who are avid, male and older – who currently dominate those who have contact with fishing organisations – but also women, younger fishers and the large body of fishers who only fish occasionally rather than regularly.

In order to ensure the areas that can most benefit less avid fishers – who make up the majority of fishers in SA – are also considered, it is important to consider how consultation processes can better reach all types of fishers, and ensure there is transparency in setting objectives and advocating for investment that can benefit all types of fishers.

A second challenge is that of identifying how to achieve some of the investments desired by fishers. For example, key infrastructure issues identified included a lack of access to toilets and fish cleaning benches. Provision of toilets at fishing spots is not typically a direct responsibility of fisheries managers: instead, achieving change would require working with local governments to advocate for improved provision of this type of infrastructure near fishing spots. Fishing organisations need to be able to work with a range of organisations within and outside the fishing sector in order to achieve changes that can improve the experience of fishing.



Identifying fisheries investment needs is simpler than identifying how these investments can be funded. The survey asked about one of the most common mechanisms used to raise funds for investing in recreational fishing: a recreational fishing licence. A fishing licence is perhaps the most common vehicle used worldwide for achieving a sustainable funding base to invest in recreational fisheries. However, its introduction when people have not previously used a licence system can be challenging. Our results suggest that while many fishers consider a licence unacceptable, those who have previous experience with a licence are much more positive in their views, suggesting that acceptability would increase if an appropriately designed licence was implemented and fishers became familiar with it. Key to this would be implementing a licence in a way that meets the conditions preferred by most fishers, and which is understood by fishers to do this.

One of the challenge in asking people to rate how acceptable they would find a change before they have had a chance to experience it is that 'fear of the unknown' can result in a negative bias to evaluation of the likely acceptability of the change. In other words, there is a psychological tendency to negatively evaluate unknown changes that people have fear of, even if the ultimate outcomes are more positive than anticipated. For this reason, the social impacts of a change have been shown to be most negative before the change occurs, when people are anticipating negative impacts; in many cases, the actual impacts once the change occurs are substantially less negative (see for example Cao et al. 2009; Loxton et al. 2012). In this study, those who had greater familiarity with fishing licences, through having purchased them in other states, were more likely to consider a fishing licence acceptable. This suggests that it is likely acceptance of a licence would in reality be higher than stated by survey respondents who are making a judgment about an uncertain future, and that fishing behaviour would not change as much as anticipated by many of the study participants. However, the lack of studies examining the impacts of introducing a licence on fishing participation, limit the extent to which this conclusion can be stated with certainty.

The acceptability of a recreational fishing licence depends in large part on how it is designed. Specifically, the results of the survey suggest that a fishing licence would only be accepted by a majority of fishers if five conditions were met. First, fishers need to trust that they can readily afford the licence, and a cost of \$30 annually was the maximum that appeared acceptable based on the survey results. Second, it was critical to ensure that those who had lower incomes were either exempted from the licence or paid a substantially reduced fee, specifically pensioners of all types and children. Many fishers would find the option of a day licence another way of potentially reducing costs. Third, it is essential that a licence be flexible and easy to purchase, with a licence ideally available both online and from multiple locations near fishing areas. Fourth, fishers need to feel confident that fees would be used to invest in improving recreational fishing and not for other purposes. This requires a process of discussion with fishers about a licence and how it would be governed, and clear policy or legislation that gives a guarantee regarding how funds will be disbursed, and who will oversee this disbursement. Fifth, a licence will only be accepted if there is confidence in the people appointed to oversee investment of funds from the licence. This requires ensuring that the people appointed to represent the views of recreational fishers are trusted by all recreational fishers to represent their interests. Fishers who were dissatisfied with recreational fishing organisations in SA were less likely to think a fishing licence governed by a board that included those organisations would be acceptable. Currently, lack of familiarity of many fishers with representative organisations creates a barrier to achieving trust in these organisations. Meeting these conditions would require a well thought through process for developing and launching any licence, including extensive consultation with fishers, and input from them on design and implementation.

## Conclusion

The results of this study suggest some clear priorities for investment in recreational fishing in South Australia. These range from the specific – for example, improving availability of fish cleaning benches and toilets near commonly used fishing locations – to the general, such as a widely held desire to invest more in improving fish habitat. Investment choices should focus on enabling recreational fishers to achieve the full range of benefits they desire from fishing, specifically the ability to relax and unwind, spend time with family and friends, and enjoy being outdoors, as well as to catch fish. However, there is a need to put in place ongoing consultation processes with recreational fishers that enable review of investment priorities on a regular basis. Currently, those who fish more often are much more likely to be engaging in discussions

with recreational fishing organisations than other fishers. This reflects the higher level of engagement and interests these avid fishers have in recreational fishing. However, the needs and priorities of avid fishers often differ to those of the large number of people who fish less regularly, and there is a need to ensure the views of less avid fishers are also considered when identifying priorities for the development of recreational fishing in SA.

The introduction of a fishing licence in SA would be controversial for many fishers, but is considered relatively acceptable by a majority those who have previously purchased a fishing licence, suggesting acceptability would grow if a licence was implemented. The use of a licence system has potential to be acceptable if a number of conditions are met, and fishers trust that they are met. The results of the survey suggest that a fishing licence would be accepted by a majority of fishers if (i) fishers felt it was affordable (annual cost of \$30 or lower); (ii) licences were flexible and easy to purchase (ideally, licences available both online and from multiple locations near fishing areas, and more than one licence option to improve affordability); (iii) those with lower ability to pay were exempted from paying for a licence or charged a substantially reduced fee (pensioners and children in particular); (iv) there was confidence that fees would be used to invest in improving recreational fishing and not for other purposes; and (v) there was confidence in the people appointed to oversee investment of funds from the licence.

# Implications

The results of this survey suggest some clear priorities for investment in recreational fishing in South Australia. These range from the specific – for example, there is a need to work with organisations such as local government to improve the availability of fish cleaning benches and toilets near commonly used fishing locations – to the general, such as a high level of consensus amongst fishers for prioritising investment in improving fish habitat in both saltwater and freshwater. Importantly, investments should focus on enabling fishers to achieve the full range of benefits from fishing, specifically the ability to relax and unwind, spend time with family and friends, and enjoy being outdoors. Investing in making the fishing experience safer and more accessible (for example, through improving infrastructure availability) can assist this, as can investing in ensuring long-term access to fish stocks through investing in fish habitat and sustainability initiatives.

The introduction of a fishing licence in SA would be controversial for many fishers, but has potential to be acceptable if a number of conditions are met, and fishers trust that they are met. The results of the survey suggest that a fishing licence would only be accepted by a majority of fishers if (i) fishers felt it was affordable (annual cost of \$30 or lower); (ii) licences were flexible and easy to purchase (ideally, licences available both online and from multiple locations near fishing areas, and more than one licence option to improve affordability); (iii) those with lower ability to pay were exempted from paying for a licence or paid a substantially reduced fee (pensioners and children in particular); (iv) there was confidence that fees would be used to invest in improving recreational fishing and not for other purposes; (v) there was confidence in the people appointed to oversee investment of funds from the licence. Unless these conditions are all met, a fishing licence is unlikely to be considered an acceptable way of raising funds to invest in improving recreational fishing in SA. A key issue is a lack of engagement in and trust of recreational fishing organisations by some fishers: avid fishers in particular are less likely to be satisfied with the representation of fishers by recreational fishing organisations, and although they are more likely to accept a fishing licence, will not do so unless they trust those overseeing distribution of funds from a licence.

# Recommendations

*Recommendation 1: Set clear objectives to guide development of recreational fishing in SA.* Future investment in recreational fishing in SA should be targeted to the needs of different fishers, but there is a need to first set clear objectives for investment that guide choices made. For example, while increasing access to education and training was not considered as high a priority as most other investment areas by most fishers, it was more important for women and less avid fishers. Whether or not this area should be prioritised for investment depends therefore on what the objectives are: to improve fishing experiences of women and less avid fishers, or to focus on the needs of more avid fishers who are more likely to rate investing in improving habitats and improving access to fishing locations as important.

*Recommendation 2: Ensure adequate consultation processes are used to guide investment.* Low levels of engagement with recreational fishing organisations mean that the views of many recreational fishers are not necessarily heard. Based on the results of this survey, recreational fishing organisations are most likely to hear the views of avid fishers, older fishers and male fishers. This means the large majority of fishers who fish less often, as well as views of younger and female fishers, will not be heard without investment in consultation processes that better incorporate their views.

*Recommendation 3: If introduction of a fishing licence is considered, ensure it is designed to address the issues that reduce acceptability, and there is adequate investment in consultation to build trust.* Specifically, any licence should cost \$30 per annum or less, have some flexibility in licence options, be easy to purchase both online and offline, exempt or cost substantially less for groups with less ability to pay. Funds should be used only to invest in recreational fishing, and an independent Board with wide representation across all types of recreational fishers (not only from current recreational fishing organisations), as well as representation from other relevant stakeholder groups, be appointed to oversee distribution of funds. There is a need for extensive consultation to build confidence amongst fishers, with many lacking trust in the likely use of licence funds or in likely oversight. This trust can only be built through extensive consultation and discussion with fishers.

## Further development

A number of gaps in current knowledge were identified during this project, which require further research. Two in particular are areas in which further development is needed:

- Little to no work is available identifying the benefits and values derived from fishing, and how these are changing over time. As a consequence, the results of this survey for SA fishers cannot be compared with nationwide surveys. A nationwide survey is needed to understand how benefits and values shift over time, and how best to target investment to achieve these changing desired benefits and values
- There is little available evidence regarding how perceived acceptability of a fishing licence varies before, during and after introduction of a fishing licence, or how much fishing activity changes when a licence is introduced. Examination of these issues would help inform interpretation of the data collected in this study, where it was not possible to identify the extent to which people's stated intentions to change fishing behaviour if a licence were introduced accurately reflect their actual behaviour after introduction of such a licence.

# Extension and Adoption

The results of this project will be communicated to end users through:

- Presentations to recreational fishing organisations, government, or other stakeholder on request, and
- Providing a link to this report to all those who completed the survey and indicated they wanted to access results of the research.

# Appendix 1: References

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