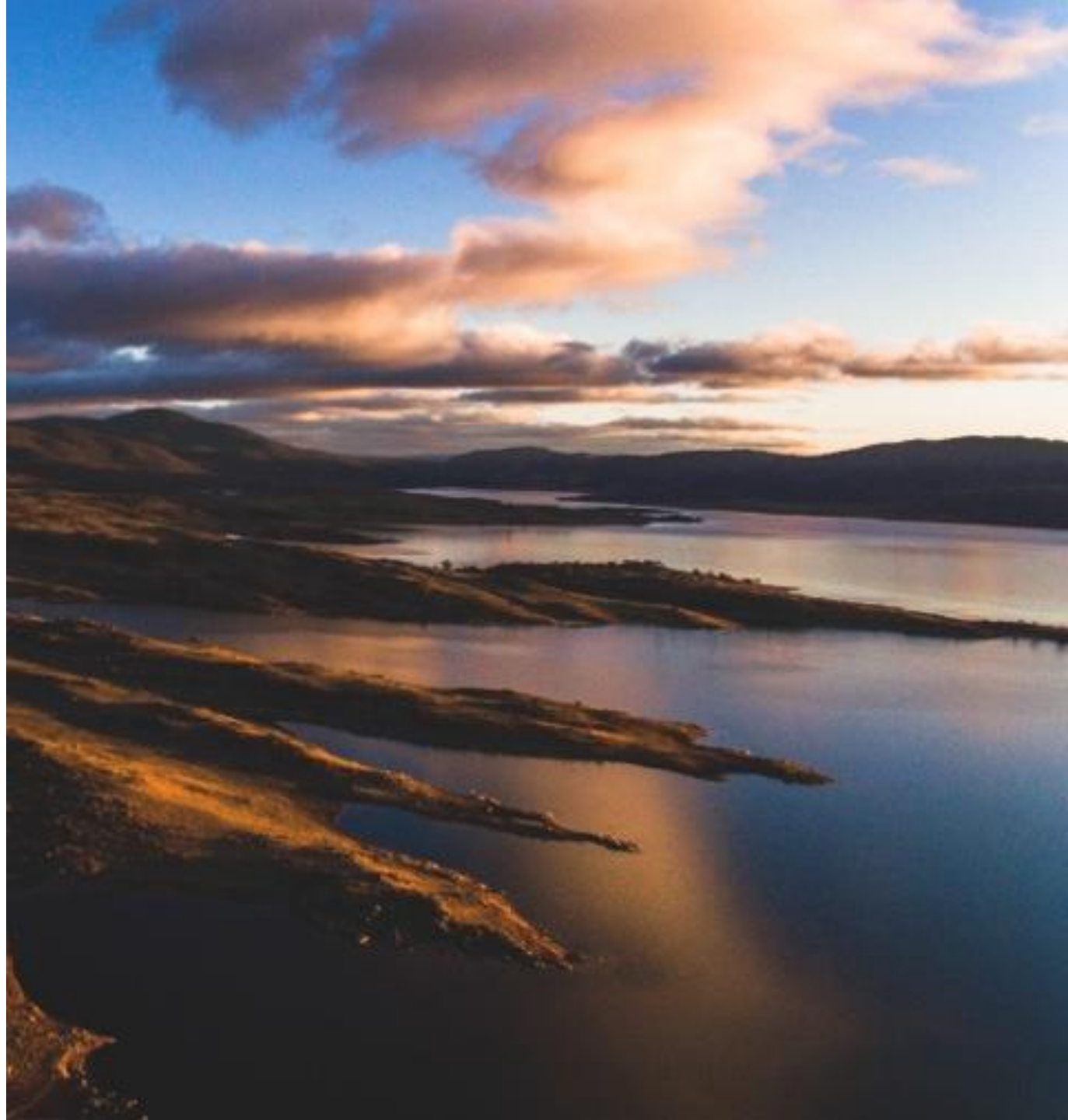


Recreational fishing in the Snowy Monaro region

An assessment of trends,
drivers and economic benefits

June 2019

A I T H E R



Executive summary

Summary of results

Fishing is an important recreational activity in the Snowy Monaro region, which has a long history of, and reputation for, quality trout fishing. The fishery attracts visitors from across NSW and adjacent states and territories as well as supporting local fishers.

The quality of the natural environment is a key drawcard for the region, along with the quality of fishing and opportunities to participate in other recreational activities. Fishing generates significant recreational benefits to fishers estimated at **\$2.5 million - \$4.8 million** per year, while expenditure by recreational fishers in the region increases local business profits by an estimated **\$12.2 million** per year.

The quality of fishing was unequivocally viewed as the biggest driver of visitation and usage, and over recent years there is a perception that the fishery has suffered and that the quality of fishing has declined.

This is generally viewed as a function of water levels and environmental factors, fisheries management and stocking, and climate change. However, it was also observed that there is limited empirical evidence or research from which to draw strong conclusions on how and to what extent these drivers are impacting the fishery.

Executive summary

Summary of results continued

Despite concerns regarding current fishing conditions, there was optimism that recreational fishing could be improved and a number of potential actions or activities that Snowy Monaro Regional Council might consider pursuing were identified and tested.

The option of improving accessibility and facilities for recreational fishing was viewed as beneficial and was estimated to increase visitation by 13 per cent. Improving information on recreational fishing in the region was also viewed as beneficial and estimated to increase visitation by 15 per cent – driven largely by new visitors.

Noting that Snowy Monaro Regional Council is not the fisheries manager, and is not the landowner or manager for the major fishing areas on and around Lake Eucumbene and Lake Jindabyne, it was repeatedly suggested by stakeholders that more needed to be done to improve understanding and management of the fishery.

This included:

- supporting research and development to better understand the current state of the fishery, and potential impacts from climate change and other drivers
- increasing resourcing for fisheries management (with the suggestion of a dedicated fisheries manager for Snowy Monaro)
- improving stocking and survival rates through a more informed stocking regime, and utilising better science and technology.

The implicit objective for all of these suggestions was to *improve the quality of fishing*, which when tested as an option in the survey was estimated to increase visitation by 38 per cent.

Executive summary

Final conclusions

Recreational fishing is an important recreational activity and contributor to the economy in the Snowy Monaro region. At the same time, there are a number of threats and risks (e.g. climate change) to recreational fishing and current conditions appear to be impacting visitation.

There is a case to improve recreational fishing in the Snowy Monaro, and the region will likely benefit from growing participation in a sustainable manner. The analysis and insights from this report can help shape how this is done.

Stakeholders were most concerned with improving the quality of fishing and protecting it for years to come. To achieve this outcome, improving research and development to better understand and manage the fishery, as well as better collaboration amongst all stakeholders (including Snowy Monaro Regional Council), were considered critical.

Additionally, there was general support for improving facilities, accessibility, and information provision. Survey results and consultations suggested this would help increase visitation, and would help attract new and younger demographics (particularly in the case of information provision).

Based on the above, there is an opportunity for Snowy Monaro Regional Council to play a role in enhancing recreational fishing in the Snowy Monaro region.

Recreational fishing in the Snowy Monaro region

Contents of this report

This report includes the following sections:

1. Project overview
2. Context
3. Findings on the current state of recreational fishing in the Snowy Monaro region
4. Economic evaluation of recreational fishing in the region
5. Future directions for recreational fishing in the region
6. Findings and conclusions

Project overview

Project overview, scope and methodology including:

1. Overview of the project
2. Scope of the project
3. Approach to surveys and consultations
4. Economic assessment methodology



Project overview

Project overview and scope

The Snowy Monaro region is renowned for having world-class fishing. Recreational fishing has historically been a big drawcard for tourism as well as an important activity for those living within the region.

However, recent trends suggest that the quality of fishing has declined, and is affecting the recreational fishing experience. This has the potential to lower both visitation and the benefits the fishery provides to local communities and fishers.

At the same time, Snowy Monaro Regional Council (SMRC) is looking to grow and diversify its tourism sector under the *Snowy Monaro Regional Economic Development Strategy 2018-2022* and recreational fishing is identified as one of several opportunities to support this objective.

To better understand the economic contribution and current status of recreational fishing, Aither was engaged by SMRC to undertake an economic impact evaluation of current recreational fishing habits in the Snowy Monaro region and to explore current trends and drivers.

Specifically, the project included:

- Profiling the current status and characteristics of anglers in, or visiting the region, including their preferences, practices and habits.
- Identifying the nature and role of different drivers that contribute to these practices, or impact on recreational fishing in the region.
- Outlining the nature and magnitude of current economic benefits in the region arising from recreational fishing activities.
- Assessing the economic benefits of the most prospective future options, to identify those that will deliver the most value to SMRC and the local community.
- Identifying strengths and weaknesses of recreational fishing, and possible opportunities to improve.

Project overview

Approach to surveys and consultations

Aither carried out surveys both in the field and online, as well as a round of consultations with selected individuals from the recreational fishing community.

The surveys included demographic, behavioural, and expenditure related questions that were designed to understand the preferences, habits and spending patterns of recreational fishers. The field survey was carried out over a 4-day period in the lead up to the Easter long weekend, with an additional day in early May. The areas visited included four different locations on Lake Eucumbene, the Thredbo valley, numerous locations around Lake Jindabyne, Dalgety, and Bombala. The online survey was distributed via the Snowy Monaro Regional Council's Facebook page, as well as through specific individuals who were contacted during the consultations. The field survey was undertaken by 37 fishers, whilst the online survey received over 470 responses. Overall the surveys collected data from over 500 participants.

The consultations consisted of 6 semi-structured interviews, with representatives from the NSW Department of Primary Industries, Snowy Hydro Ltd, the Monaro Acclimatisation Society, and several local business owners (dependent on recreational fishing). The interviews were conducted via telephone for up to 60 minutes, and questions largely focused around individuals' current perceptions of the fishery and avenues for improvement.

Consultations and surveys were supplemented with available evidence from the literature, noting there is relatively little by way of similar studies with the last economic assessment undertaken in 2001.

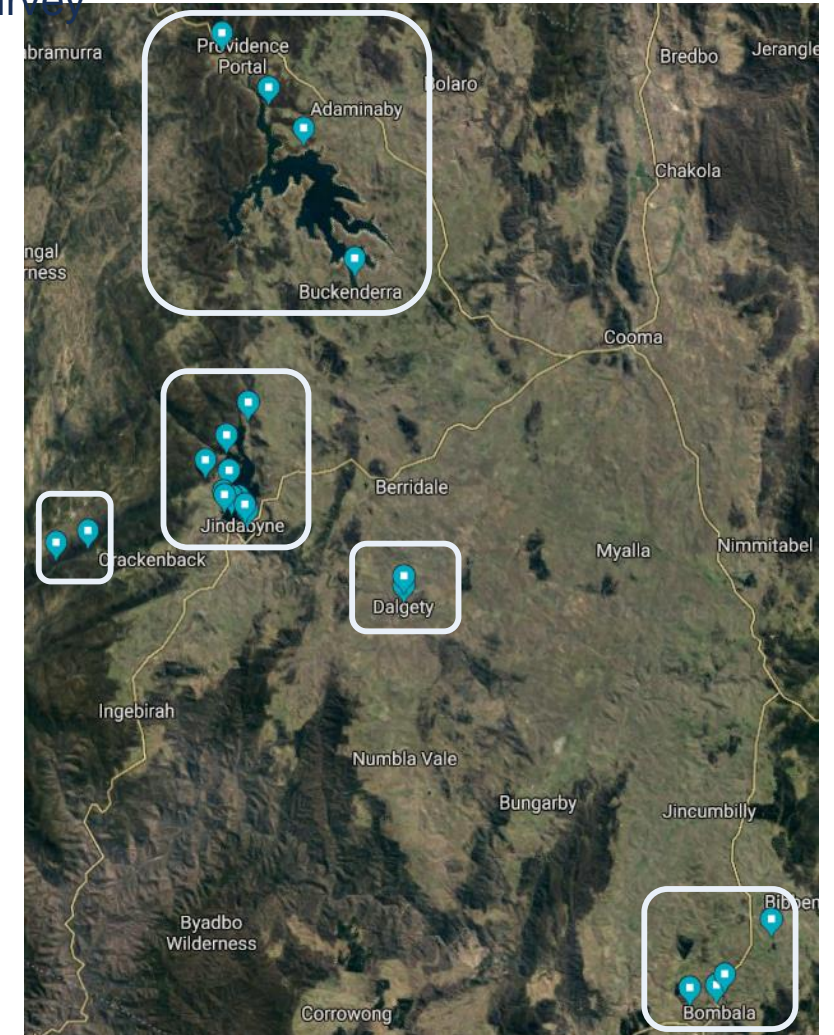
Project Overview

Survey locations

The field survey visited the following locations:

- **Lake Eucumbene:** Including Angler's Reach, Old Adaminaby, Denison's Campground, and Buckenderra
- **Lake Jindabyne and surrounds:** Including Jindabyne Boat Ramp, Claypits Boat Ramp, NRMA Jindabyne Holiday Park, Paddy's Corner, Gaden Trout Hatchery, Hatchery Bay, Thredbo River, and Kalkite
- **Thredbo Valley:** Including Ngarigo Campground and Thredbo Diggings Campground
- **Dalgety:** Including Snowy River Holiday Park, and a location north of Dalgety on the Snowy River
- **Bombala:** Bombala Caravan Park, Bombala Platypus Park, a location at the weir north of town, and Black Lake to the north.

Figure 1: Locations of recreational fishing field survey



Source: Aither

Project overview

Recreational fishing benefits

A key part of the project was to understand the economic benefits associated with recreational fishing in the Snowy Monaro region. The benefits to the region associated with recreational fishing are derived from:

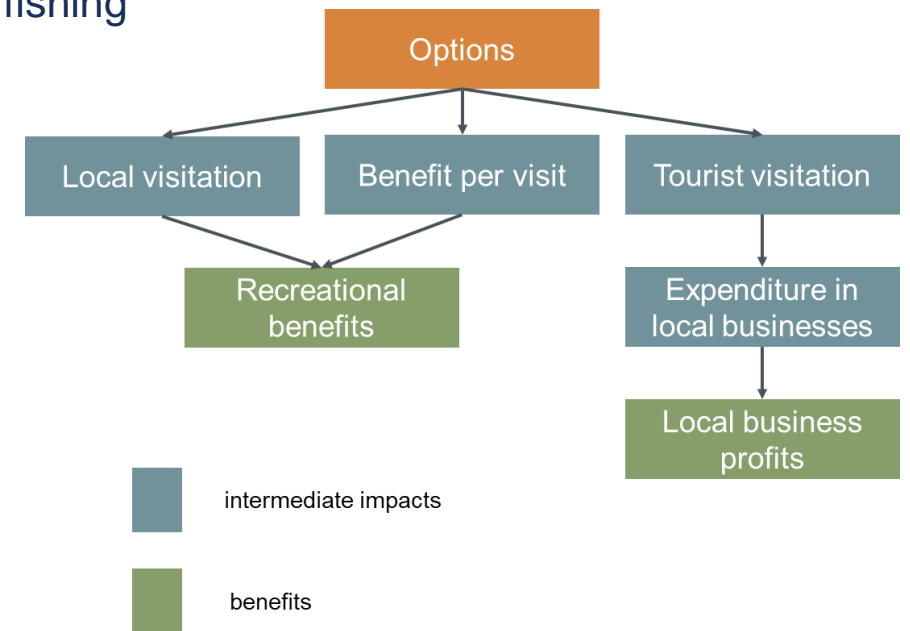
- **Recreational benefits:** use benefits from the enjoyment that people who live in the region receive from going recreational fishing
- **Local business profits:** benefits from visitors spending money with local businesses during visits.

There are also recreational benefits to those who do not live in the Snowy Monaro but who undertake fishing in the region, however these benefits do not accrue to the region itself.

Use benefits

Use values come from the actual use of a good or service. Use values can be categorised as either direct use values or indirect use values. Direct use values result from direct human use of a non-market good or service. Examples include consumptive uses such as recreational fishing or attendance at a performance, or non-consumptive uses such as recreational use of a parkland or spiritual/cultural uses of the environment.

Figure 2: Benefits associated with recreational fishing



Source: Aither

Note: The 'benefit per visit' is the recreational benefit per visit.

Project overview

Economic assessment methodology

Economists have developed several approaches to quantifying recreational benefits. All approaches have strengths and weaknesses. The weaknesses can be mitigated through a careful application of the approaches and through undertaking multiple approaches. If several approaches generate similar results, we can have greater confidence in drawing conclusions from our analysis. For this study, Aither applied two very different approaches:

- The Travel Cost Method: A relatively complex method where recreational benefits are estimated based on a statistical analysis of the relationship between the costs to recreational fishers associated with travel to the Snowy Monaro region and visitation rates.
- The Contingent Valuation Method: A straightforward method where recreational benefits are estimated based on survey responses to a question around willingness to pay to go fishing in the Snowy Monaro region.

These approaches are widely used to estimate recreational benefits both in Australia and internationally. Further information on these approaches is available at <https://www.pc.gov.au/research/supporting/non-market-valuation/non-market-valuation.pdf>.

To calculate local business profits, the surveys also collected data on expenditure whilst in the Snowy Monaro region. Expenditure per day of recreational fishing was then multiplied by the number of days of recreational fishing (for visitors) to estimate total expenditure per year.

In order to calculate the net benefit to the Snowy Monaro region it is necessary to exclude the costs of providing the goods and services purchased by recreational fishers. For example, the net benefit of someone purchasing petrol in the region is not the total expenditure on petrol but the profit above and beyond the costs to the retailer of buying the petrol wholesale and (any) additional labour to serve the customer. As an approximation, total expenditure per year was multiplied by average gross value added¹ per dollar of expenditure for the tourism industry in New South Wales (Destination NSW, 2018) to estimate local business profits per year from recreational fishing in the Snowy Monaro region.

¹ Gross Value Added (GVA) is total labour income and capital revenue by industry plus net taxes that government receives from production.

Project Overview

Survey limitations

Aither developed the research methodology based on well established survey and economic research methods, however it is impossible to limit all potential sources of bias and the following limitations should be considered in interpreting the results in this report:

- **Self-selection bias** – the survey may overrepresent the population of regular to passionate fishers in the results, compared with more occasional fishers. In the field survey this is more likely to occur because the field surveyor was more likely to encounter regular fishers than individuals who only fish occasionally. In the online survey this is also more likely to occur due to the higher likelihood of passionate fishers both seeing the survey and taking the time to fill it out.
- **Bias in type of fisher surveyed** – in the field survey, there may be a bias for different types of fishing practices. Although the field survey included visits to locations where fly fishing is undertaken it was often difficult to survey fly fishers who were dispersed across large areas. This is likely to have been less of an issue for the online survey.
- **Hypothetical bias** – it is possible that when asked for expenditure and willingness-to-pay values, fishers may either over or understate these values in the hypothetical context of the question (Ajzen, Brown, and Carvajal 2004). This may lead to imprecision in the estimation of the value of the industry in the region. The economic methodology undertaken therefore included an assessment of the value of recreational fishing based on observed behavior (travel distance) to support the value based on stated response to questions (see previous slide for further information on survey methods used).

Context

Background and context for recreational fishing in the Snowy Monaro region including:

1. The Snowy Monaro region
2. The region's tourism industry
3. Recreational fishing in the region
4. Effects of climate change in the region
5. Management of recreational fishing
6. Snowy Hydro Ltd



Context

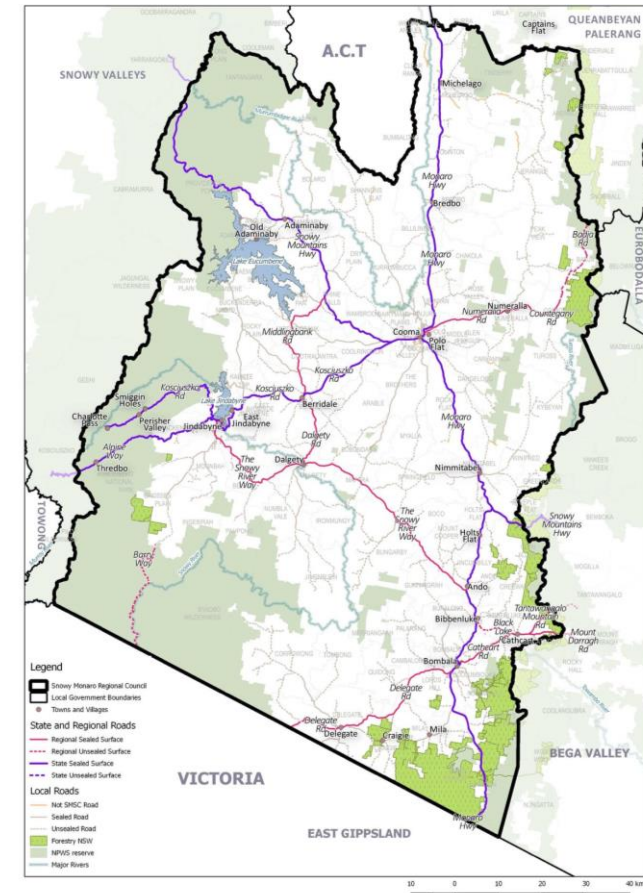
The Snowy Monaro region

The Snowy Monaro region is located in south-eastern New South Wales about 100km south of Canberra. The region covers 15,158 square kilometres and has a population of 20,713 as of 2019. The region consists of rolling plains and mountain ranges, with about a third of the region classified as National Parks and reserves.

Prior to 2016, the area was governed by the Bombala, Cooma-Monaro and Snowy River Shires, which have since merged to form the Snowy Monaro Regional Council. Agriculture, construction and tourism all make significant contributions to the regional economy (Economy ID 2019).

Recreational fishing occurs throughout the region but is concentrated around the major lakes in the north west (Lake Eucumbene, Lake Jindabyne and (to a lesser extent) Tantangara Dam), the major rivers (Eucumbene, Snowy, Murrumbidgee and Thredbo rivers), as well as fly-fishing in multiple smaller streams and tributaries.

Figure 3: Snowy Monaro region



Source: Snowy Monaro Regional Council

Context

Tourism industry in the region

The alpine climate and mountainous landscape of the Snowy Monaro region offers a range of tourism opportunities. Historically, snow sports such as skiing and snowboarding have attracted tourists to the region, with the major ski resorts bringing large numbers of visitors to the area. In addition, the region offers a number of other tourism activities, including walking, camping, watersports, horse-riding and cycling. Mountain biking tourism has also seen a dramatic rise in recent years, which has been aided by investment by both the ski resorts and Snowy Monaro Regional Council in private and public mountain biking trails.

An assessment by Economy ID (2019) suggested that tourism and hospitality services in the Snowy Monaro contributed \$209 million (20 per cent of the total) to the regional economy. Within this amount, food and accommodation services comprised \$110 million.

The tourism industry is an important sector of the economy in the Snowy Monaro, however it is facing two significant challenges:

- Firstly, the tourism industry in the region has traditionally been dependent on the highly seasonal snow sports industry, which leads to difficulties in balancing demand and supply throughout the year (for example hotels having very low occupancy rates during the off-season).
- Secondly, climate change may lead to negative impacts on the region, in particular for the snow sports industry and other outdoor recreational activities (see following slides).

Context

Recreational fishing in the region

Recreational fishing could play a role in addressing these challenges by helping to reduce the dependence of the regional economy on the snow sports industry and offsetting some of the consequences of declining snow cover.

Recreational fishing is a key tourist activity, and is recognised as an important sector in the *Snowy Monaro Regional Economic Development Strategy 2018-2022*. The Snowy Monaro region is one of the few places in Australia that offers high-quality trout fishing, alongside the Victorian alps and other localised areas in NSW.

The last survey of recreational fishing in the Snowy Monaro region was conducted in 2001 by Dominion Consulting. The survey results estimated that whilst anglers represented 1 to 4 per cent of total visitors to the region, they contributed approximately 14 per cent of all visitor expenditure in the region. The survey estimated that fishing contributed at least \$46.5 million in expenditure in the 12 months preceding the survey.

Over recent years the recreational fishing community has increasingly raised concerns regarding a decline in fishing in the Snowy Monaro – both in terms of the quality of the experience, and in the numbers visiting the region.

In addition to climate change (see next slide), several key risks to recreational fishing were identified through review of the literature and interviews with recreational fishers, which included:

- redfin perch and other invasive species further impacting the quality of fishing
- lack of coordinated management activities given the number of parties operating or managing parts of the region
- feral animals and invasive species damaging the natural environment that fishers come to enjoy, and that also affect the quality of rivers and lakes, and fish stocks
- overcrowding of popular sites and associated damage including litter and degradation of the natural environment.

Some of these risks can be actively managed, however some, such as climate change will need adaptive management techniques in order to minimise the effects.

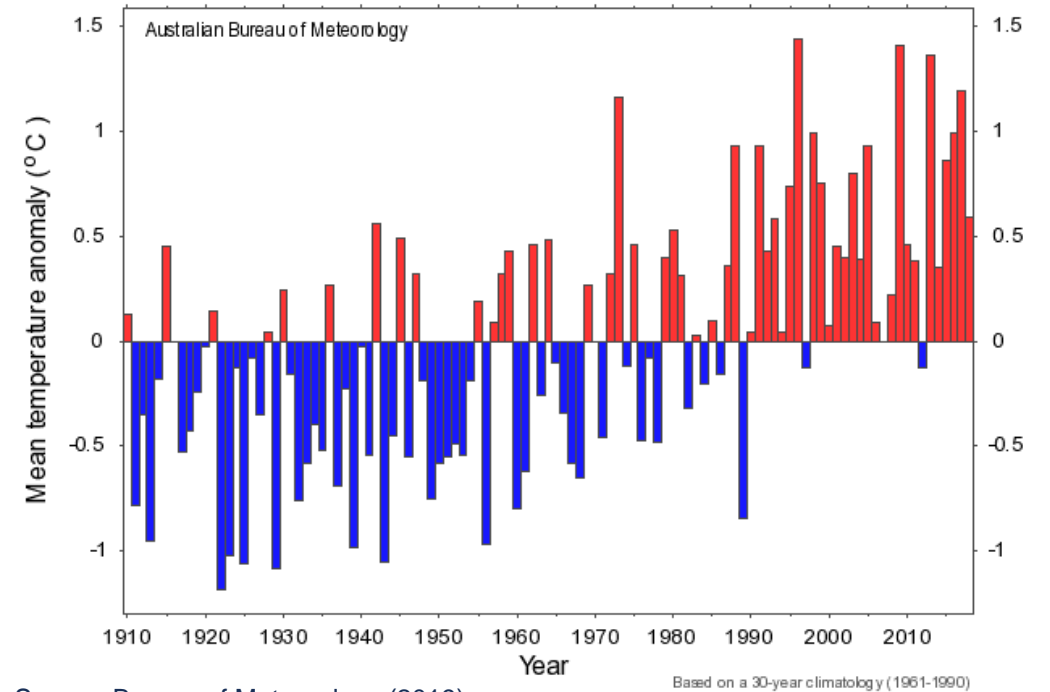
Context

Potential effects of climate change

As discussed, it is anticipated that climate change may have negative effects on the Snowy Monaro regional economy, principally through reduced snow coverage. Given a large part of the appeal of the alpine region and many of the tourism activities offered are dependent on substantial snow coverage, it is possible that climate change will have an impact on the tourism economy and community in the Snowy Monaro region. Already, natural snow coverage has decreased by approximately 30 per cent since 1954. Research by the CSIRO, BOM and the Department of the Environment (2015) has indicated that by 2050, the snow season may be shortened by anywhere between 20 to 80 days.

The environmental impacts of climate change may also affect the region's ability to provide the world-class fishing experience that is fundamental to the health of the fishing industry. Climate change could also lead to increased temperatures and reduced precipitation to the region, which would have direct impacts on the wider environment, waterways and species habitats. This may also have a negative impact on recreational fishing in the region, with risks to both the quality and quantity of fish stocks, and enjoyment of the natural environment. This may affect the potential of other outdoor tourism activities to bridge the gap left by any decrease in snow sports.

Figure 4: Winter mean temperature anomaly Australia (1910 to 2018)



Source: Bureau of Meteorology (2019)

Based on a 30-year climatology (1961-1990)

Context

Fisheries management and key stakeholders

The SMRC does not directly manage the fishery, with responsibility primarily resting with the NSW Department of Primary Industries. However there are a number of ways that the SMRC may be able to contribute to both increasing recreational fishing benefits, and managing the identified risks which are discussed in this report. There are a number of key stakeholders in the region who either manage, use or affect the regions fisheries:

- NSW Department of Primary Industries (DPI) is the state government department responsible for the management of fisheries. DPI requires recreational fishers to purchase a fishing licence, with the proceeds used to fund recreational fishing projects through Recreational Fishing Trusts. They regulate bag limits, catch sizes, and define the fishing seasons, as well as overseeing the Gaden Trout Hatchery which breeds trout for the stocking regime in the Snowy Monaro fisheries. DPI recently worked with a range of stakeholders to develop the *2018-2023 Snowy Lakes Trout Strategy* which steps out management objectives and a range of research projects and activities to improve the fishery.
- Snowy Hydro Ltd operates a series of water and energy related infrastructure, including several dams used extensively for recreational fishing, discussed in more detail on the following slide.
- The Monaro Acclimatisation Society (MAS) is a voluntary organisation dedicated to maintaining and developing the Snowy Monaro region's fisheries since 1937. They have a number of small branches distributed around the region, and seek to represent recreational fishers, partially through their membership in the NSW Council of Freshwater Anglers. MAS also works with the NSW Fisheries and the Gaden Trout Hatchery to both design and carry out the stocking regime throughout each year.
- NSW National Parks and Wildlife Services (NSW Parks) is the organisation responsible for managing the National Parks within NSW, which encompasses Kosciuszko National Park, where several of the waterways in the Snowy Monaro are located including certain access points for the lakes. As part of the park management, NSW Parks charges an access fee to users.
- Tourism Snowy Mountains is an independent not-for-profit organisation which has been recognised by both the SMRC and Destination NSW as the official Tourism Organisation for the Snowy Monaro region.
- Fishing shops and guiding services are common in the region, with most towns having at least one fishing shop.

Context

Snowy Hydro Ltd

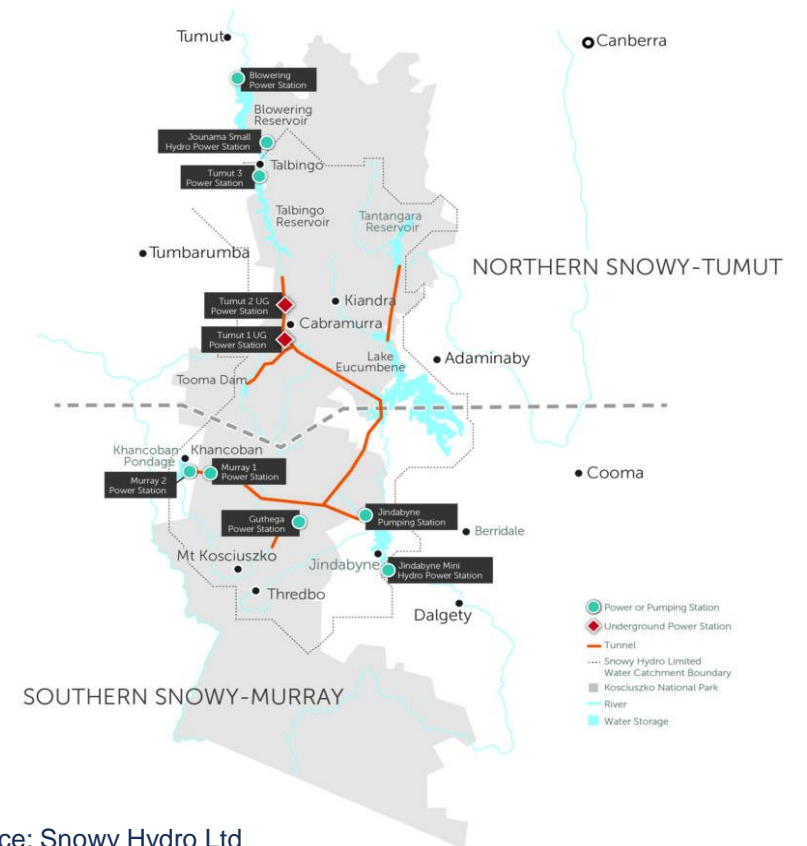
Snowy Hydro Ltd is an important stakeholder in the region, whose operations can directly affect recreational fishing activities. Snowy Hydro Ltd operates a series of water and energy related infrastructure, diverting water from rivers on the Eastern side of the Great Dividing Range, to waterways on the Western side including the Murray and Murrumbidgee rivers, for urban, agricultural, and environmental uses. In doing so, Snowy Hydro Ltd channels this water through a series of hydropower generation stations and generates substantial energy for the eastern connected grid.

Built in the 1950-70s, the Snowy Hydro scheme fundamentally changed areas of the Snowy Monaro landscape. The construction of hydropower dams created the lakes where key urban centres exist today, namely in Jindabyne and Adaminaby. These lakes are owned by Snowy Hydro Ltd, and are used extensively for recreational fishing.

The presence of the Snowy Hydro scheme leads to changes in the water levels in these lakes and rivers, driven by water and energy supply considerations. This can have a range of effects on the fishery, such as influencing the food supply available to the fish population, and is often cited by stakeholders as a key determinant of fish stock (often more so than climate factors).

Snowy Hydro 2.0 was announced in 2018 and would see the scheme expanded by connecting Talbingo Dam to Tantangara Dam. Many recreational fishers are concerned about the potential for redfin perch to be carried from Talbingo to Tantangara by the new connection with consequences for the trout population in Tantangara (and potentially downstream through the Providence Portal Tunnel into Lake Eucumbene). In light of this, Snowy Hydro are working with recreational fishing stakeholders to understand this risk and explore options for preventing the transfer of Redfin into the trout fishery (Snowy Hydro 2017).

Figure 5: Map of Snowy Hydro infrastructure



Source: Snowy Hydro Ltd

Profile of recreational fishing in the Snowy Monaro

Findings on the current state of recreational fishing in the Snowy Monaro region including:

1. How common is recreational fishing in the region
2. Who is fishing in the region
3. Where people visit from
4. Where people fish in the region
5. Why do people enjoy fishing in the region
6. What do people dislike about the fishing in the region
7. How do people rate fishing in the region overall
8. What has changed over the last 5-10 years



Profile of recreational fishing in the Snowy Monaro

How common is recreational fishing in the Snowy Monaro?

There is a significant amount of recreational fishing undertaken in the Snowy Monaro region, with fishers visiting from all over South East Australia throughout the fishing season.

The survey collected 500 responses from fishers across Australia, with 98 per cent having previously visited the Snowy Monaro region for recreational fishing. The results of the survey suggest that for those 500 respondents, 7,644 visits were undertaken to the Snowy Monaro region in the last 12 months, with a total of 19,340 fishing days. Survey data from DPI Fisheries for 2013/14 showed that a total of 88,376 fishing days occurred in the Snowy Monaro region from households in ACT and NSW.

The results of the survey showed that on average respondents from outside the Snowy Monaro region undertook 9 visits to the region per year, staying on average for 5 days and 5 nights. Those living in the region spend an average of 38 days fishing in the region per year.

Recreational fishing in the Snowy Monaro

Who is fishing in the Snowy Monaro?

Broadly, the demographic of fishers in the Snowy Monaro is male, above 35, and with many years experience in fishing.

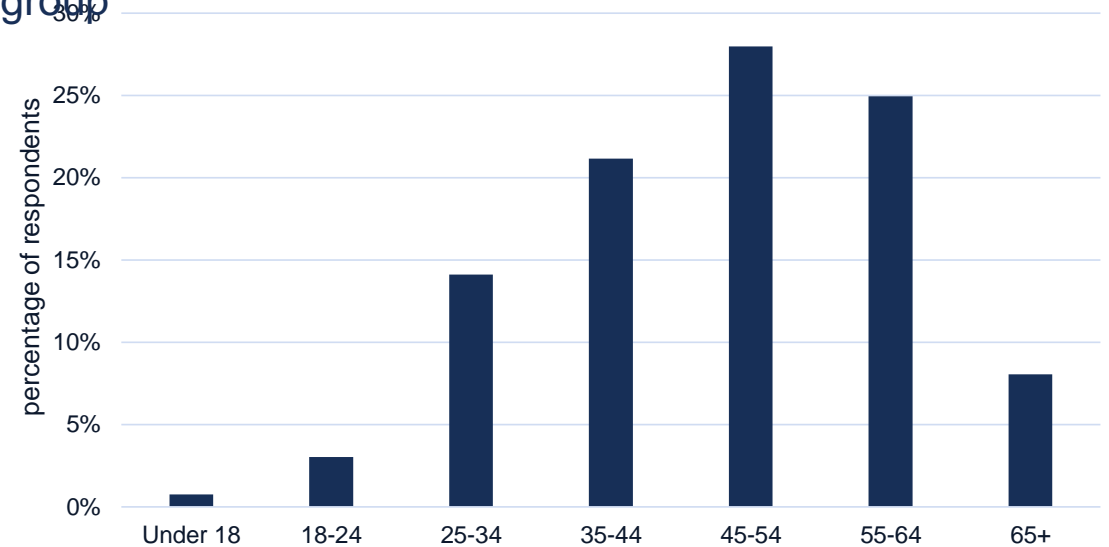
Based on the results of the survey:

- Most respondents were experienced fishers with 85 per cent describing themselves as either regular or avid fishers.
- On average, respondents had been fishing the Snowy Monaro for 23 years, with over 40 per cent of respondents fishing for more than 25 years in the Snowy Monaro.
- Over 60 per cent of respondents were over 45 years old, with less than 4 per cent younger than 25.

This trend is consistent with the feedback Aither received in consultations, in which multiple participants spoke about the challenges of engaging younger generations in recreational fishing activity.

Local business owners perceived engaging families and young people to be particularly important for local business, and essential to maintaining recreational fishing for future generations.

Figure 6: Proportion of fishers in the Snowy Monaro by age group



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Where do people visit from?

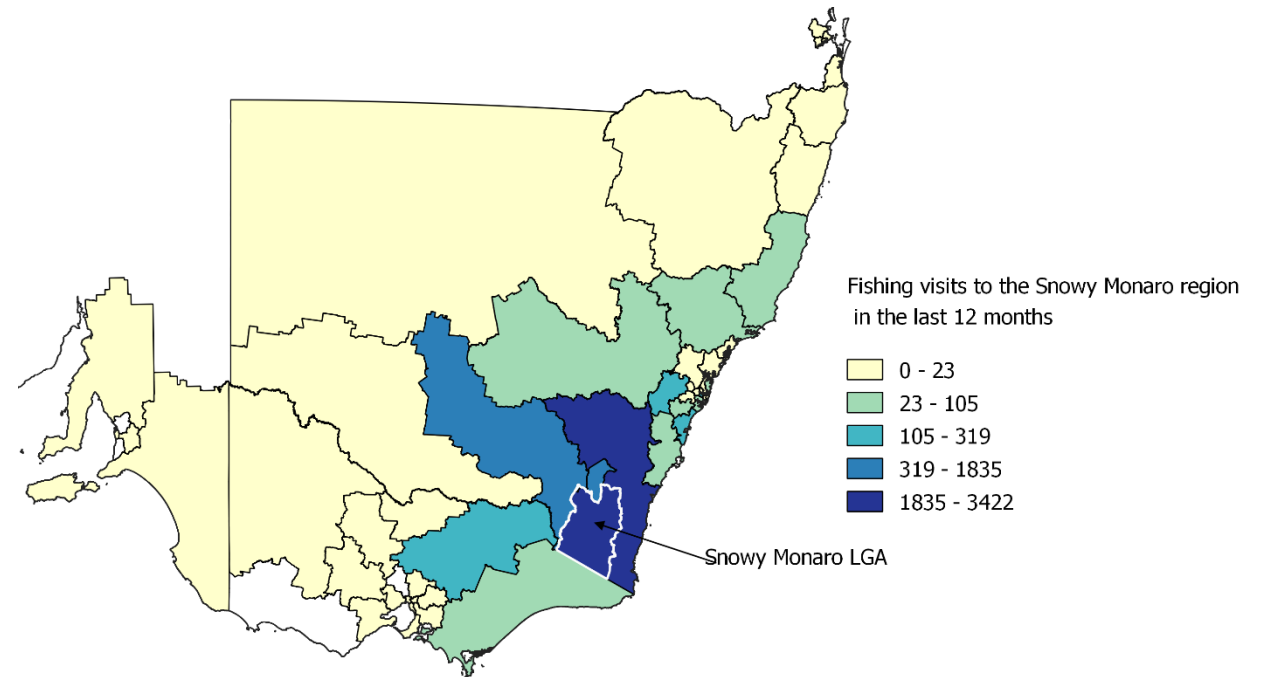
Recreational fishing in the Snowy Monaro region attracts visitors from all over South East Australia.

The survey captured visits from a relatively wide geographical area, including New South Wales, Australian Capital Territory, Victoria, South Australia and Queensland.

- The greatest number of visits were undertaken by residents from NSW (outside of the Snowy Monaro region) with 3,063 fishing trips to the Snowy Monaro region undertaken in the previous 12 months (57 per cent of all trips undertaken). Of this 2,267 trips were made by residents from regional NSW and 766 by residents from Sydney.
- ACT residents contributed to 34 per cent of trips.
- Victorian residents contributed to 7 per cent of trips.
- Residents from other states accounted for the remaining 1 per cent.

Local residents of the Snowy Monaro region undertook 2,320 fishing trips over the last 12 months. Whilst the survey did not register any international visitors to the region, it is likely that there are people visiting from outside Australia who are participating in recreational fishing.

Figure 7: Fishing visits to the Snowy Monaro region by area of residence



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Where are people fishing in the Snowy Monaro?

There is considerable variation in the popularity of fishing locations in the Snowy Monaro.

The most popular fishing area with survey respondents was Lake Eucumbene with 64 per cent of all respondents having fished there in the last 12 months.

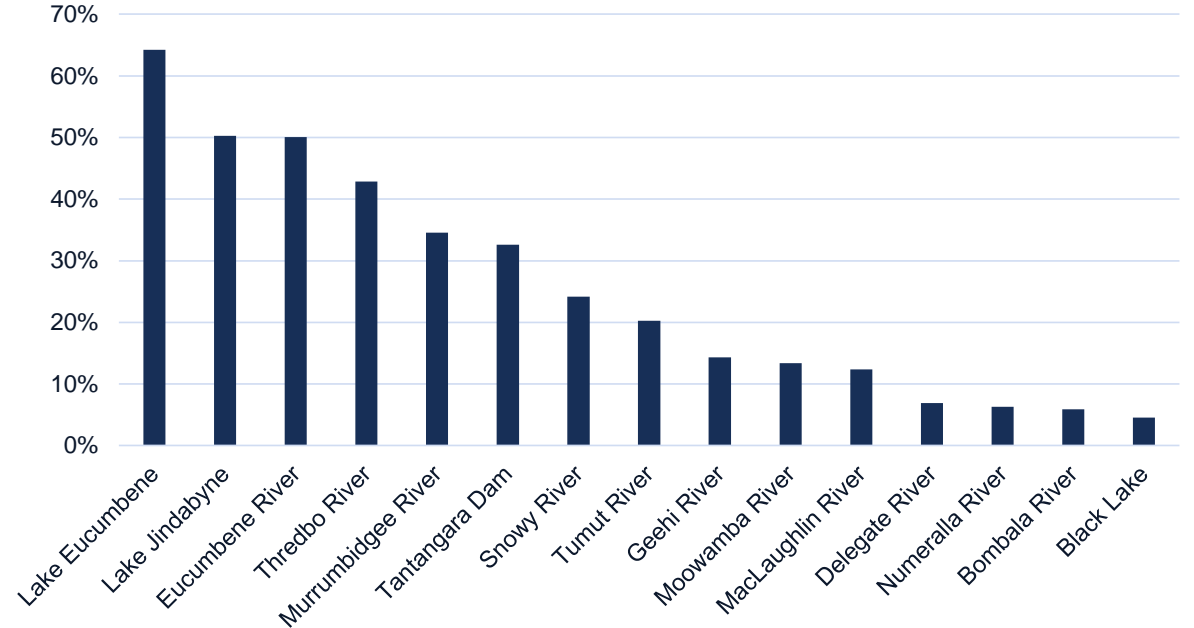
The reasons provided by fishers for why they had selected their locations varied, with some fishers citing quality of fishing, others citing proximity to their accommodation, and others choosing a location based on a existing history of going there.

Respondents also fished using a range of methods, with 81 per cent of respondents having fished from the bank/shore, 61 per cent from in stream and 47 per cent from a boat.

These results aligned with stakeholder interviews which noted that the main lakes were the major fishing spots and sustained the bulk of participation in recreational fishing. Those visiting the lakes were also considered more likely to travel in groups, stay overnight and spend more money within the region.

Areas further east towards Bombala were not found to be popular amongst fishers, with only 6 per cent of online respondents having fished there in the last 12 months. Furthermore, the field surveyor was unable to locate a single fisher in the Bombala and Black Lake area during a day of surveying (noting Black Lake was very dry at the time of the survey).

Figure 8: Locations fished by survey respondents in the last 12 months



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Why do people want to fish in the Snowy Monaro region?

When asked why people enjoyed fishing as an activity (i.e. regardless of whether they were fishing in the Snowy Monaro region) the biggest factor which attracted people to fishing generally was the natural environment, quantity of fish available and selection of fish species. When asked to describe their favourite aspects of fishing in the Snowy Monaro region specifically, three key trends emerged:

- Natural environment: Consistently, when asked about fishing in the Snowy Monaro region the natural environment was identified as a major influence on people fishing in the region, with 46 per cent of survey respondents identifying the natural environment as being their favourite aspect of fishing in the region.
- Presence and quality of trout fishing: A further 19 per cent of respondents identified the presence and quality of trout fishing as their favourite aspect with several mentioning that the Snowy Monaro was generally regarded as a world class trout fishing destination.
- Remoteness of the region and lack of other people: Another 19 per cent of respondents identified the remoteness of the region and lack of other people as their favourite aspect of fishing in the Snowy Monaro. This is likely to be of particular importance to those who go fishing outside of the main lakes and rivers and in the less developed areas of the region.

Stakeholder interviews generally confirmed these trends, and the quality of the natural environment is undeniably a key asset for the region. This aligns with the *Snowy Monaro Regional Economic Development Strategy 2018-2022* which links the region's natural endowments and the range of recreational activities it supports. Quality of fishing was also considered very important and the recent decline was viewed as a major threat to the recreational fishing experience.

Comments received
from the survey

In your view, what is
generally the **best**
aspect of your
fishing experience
in the Snowy
Monaro region?

“The isolation possible and the aesthetics of the angling environment”

“Relaxing in nature...freedom...the amount of fish caught doesn't matter to me. Clean fresh air and water”

“Fly fishing small creeks and tributaries. The environment has remained ok in spite of the fishing pressure, feral animals and blackberries.”

Recreational fishing in the Snowy Monaro

What do people dislike about fishing in the Snowy Monaro region?

When asked to describe what was their least favourite aspect of fishing in the region the issues tended to be more diverse, with some specific issues related to the different types of fishing or individual preferences.

Poor quality and quantity of fish

This was the most remarked issue, at 29 per cent of responses. Often, fishers were not uniform in their responses to poor quality fishing. Some said poor quality fishing would reduce their visitation substantially, whereas others said their visitation would remain constant regardless of the fish availability.

To an extent, this seemed to represent divergent views on the enjoyment of fishing, with the former group understanding fishing in a more transactional sense, and the latter group understanding fishing as a relaxing pastime, where the benefits were not only in the actual quantity of fish caught.

Lack of access or poor infrastructure

A further 25 per cent of respondents cited this as their biggest issue when fishing in the Snowy Monaro region. Some specific issues included:

- poorly maintained tracks and access to rivers
- insufficient boat ramps/access points with low water levels
- limited or poor parking near fishing spots
- limited or poor camping facilities near fishing spots.

Other issues identified

Other issues were relating to management and other users including:

- low water levels due to both drought and other water usage (15%)
- littering/damage from other users (12%)
- overcrowding (6%)
- damage from wild horses (2%).

Comments received
from the survey

In your view, what is
generally the **worst**
aspect of your
fishing experience
in the Snowy
Monaro region?

“Too many people at popular spots, especially camping on the Thredbo; rubbish left at isolated spots; huge reduction in fish numbers”

“This is hard to answer, everything can be improved. Days with no fish don't count. The challenge of shy fish in clear water in a hostile environment is why we are there. Keeping fish in the water and water in the streams will be the biggest challenge. Overall I find no really bad aspects of fishing the Monaro except bad weather, no fish, dubious companions, blizzards, wet wood, cold food, frozen fingers, sliding down the Thredbo river in waders full of freezing water. But, you would not be anywhere else. It is a drawstring on the heart.”

“Poor and limited number of all weather and all depths boat launching facilities at Eucumbene and Jindabyne.”

Recreational fishing in the Snowy Monaro

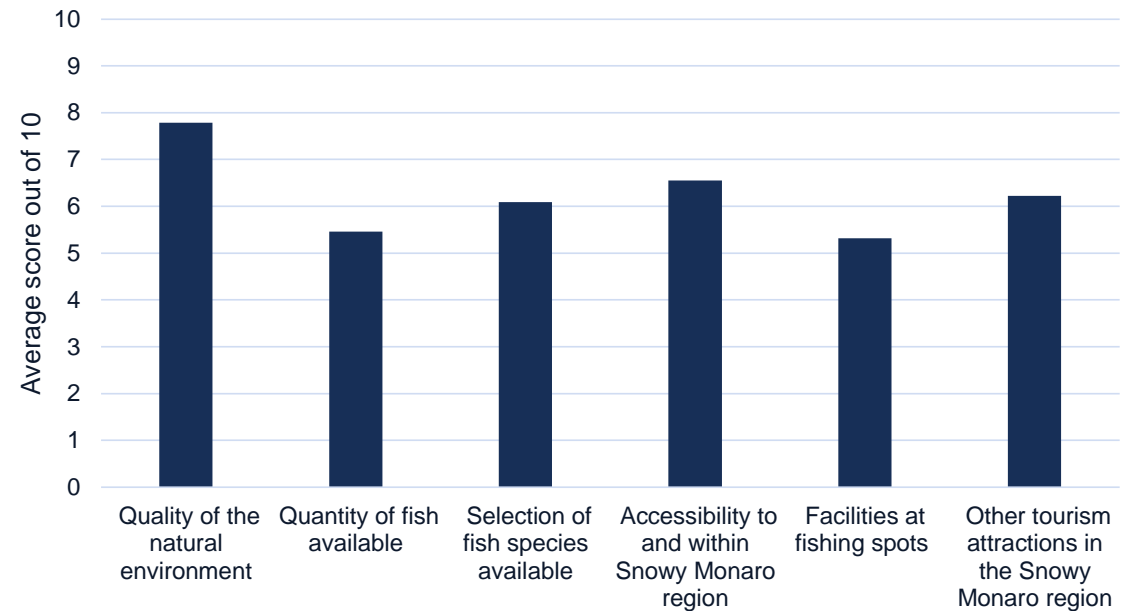
How do people rate fishing in the Snowy Monaro overall?

Overall, as discussed previously when asked to rate different aspects of recreational fishing in the Snowy Monaro, the quality of the natural environment was most highly rated, with an average of 7.8 out of 10 overall. This rating is still high despite some concerns being identified around littering and overcrowding of sites.

The quantity of fish available was seen as one of the worst aspects, with an overall rating of 5.5 out of 10, despite some citing the presence and quality of trout as a key drawcard for the area. This is likely to be due to the perception that whilst the Snowy Monaro region has the potential to provide quality trout fishing, there has been a recent decline in trout populations and fewer, smaller fish are being caught in recent years.

Facilities in the region were also rated poorly, however these were not identified as a key driver for fishing generally for those responding to the survey.

Figure 9: Ratings for aspects of the Snowy Monaro region (10 is very good, 1 is very poor)



Source: Aither 2019

Recreational fishing in the Snowy Monaro

What has changed about fishing in the Snowy Monaro region?

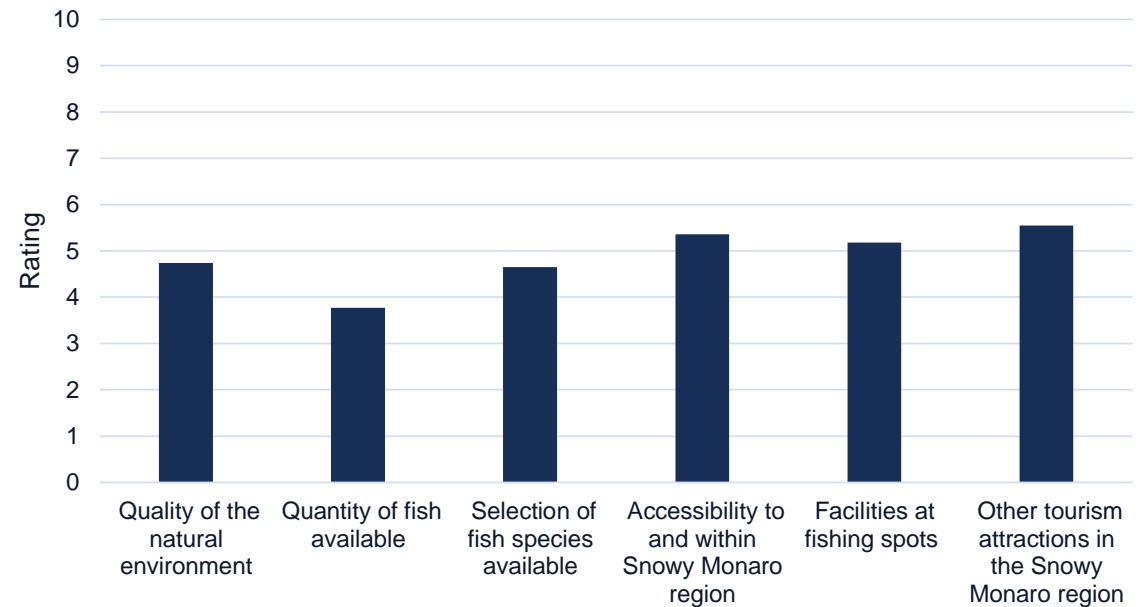
The previous slide shows people’s perceptions of current recreational fishing the Snowy Monaro. The survey also asked for perceptions of changes in their recreational fishing experience over time.

The survey showed that in general perceptions were that most attributes have remained fairly similar over the past 5 to 10 years.

The exception is the quantity of fish available, which has declined, with a score of 3.8, where a score of 10 indicates much better, 1 much worse and 5 about the same.

Respondents and stakeholders have attributed this to a variety of factors including changes in water levels affecting fish numbers, as well as overfishing, in particular during events and competitions. There is limited scientific evidence available to understand which, if any, of these factors are the most important.

Figure 10: Ratings for changes in the Snowy Monaro region over 5 to 10 years



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Stakeholder views on the fishing experience in the Snowy Monaro region

Stakeholder interviews pointed to similar strengths and weaknesses identified in the survey data, with the following key themes:

- The natural environment and ability to 'get away from it all' is a major attraction.
- There are many concentrated recreational fishing communities and holiday spots (e.g. Buckenderra or around Adaminaby) where groups and families have frequented for years. The communities that have developed around these locations are in themselves a contributing factor to the overall experience.
- The quality of fishing will always be an important determinant. There was often a view that experienced fishers could always find fish, however when the fishing is hard it tends to disenfranchise less experienced or avid fishers and can be a barrier to people returning (e.g. families with kids if they cannot catch any fish).
- While accessibility was not viewed as a major issue, boat access with low lake levels was often cited as a barrier for novices or less mobile fishers. It was also noted that lack of localised areas may lack infrastructure, and structures like fishing platforms and better access tracks could be considered.
- Accommodation (quality or availability) was seldom named as an issue or barrier, with the exception being the perception that the availability free-camping sites near fishing spots could be increased.

Economic evaluation of recreational fishing in the region

An assessment of the benefits of recreational fishing in the Snowy Monaro including:

1. Assessment of recreational benefits
2. Assessment of local business benefits



Recreational fishing in the Snowy Monaro

What are the recreational benefits?

People go recreational fishing for a variety of reasons, whether catching fish, enjoying the natural environment, or catching up with family and friends. To estimate the recreational benefits for the Snowy Monaro region, Aither collected information from survey respondents on their visitation and distances travelled to the region (for the travel cost method), and stated willingness to pay to go fishing (for the contingent valuation method). The methods were applied to estimate the average value per day of fishing for both locals and visitors. This was then multiplied by the total number of fishing days in the region based on data from DPI Fisheries *Recreational fishing survey* (2013/14).

The analysis shows that the recreational benefits from fishing in the Snowy Monaro region are significant, at between \$2.5 million and \$4.8 million per year, depending on the method. The benefits to locals are between \$0.5 million and \$1.1 million per year, with the remaining benefits being received by visitors.

Table 1: Recreational benefits in the Snowy Monaro

Recreational fishers	Value per day of fishing	Fishing days per year	Total value per year
Local	\$43 (CV) - \$103 (TC)	10,620	\$460,000 (CV) - \$1,110,000 (TC)
Visitors	\$18 (TC) - \$55 (CV)	77,756	\$1,400,000 (TC) - \$4,310,000 (CV)
Total	\$28 (TC) - \$54 (CV)	88,376	\$2,500,000 (TC) - \$4,770,000 (CV)

Source: Aither

Note: CV denotes the contingent valuation method, while TC denotes the travel cost method. In total, the contingent valuation method gives higher estimates, which is consistent with the literature.

Recreational fishing in the Snowy Monaro

Benefits from recreational fishing for local businesses and workers

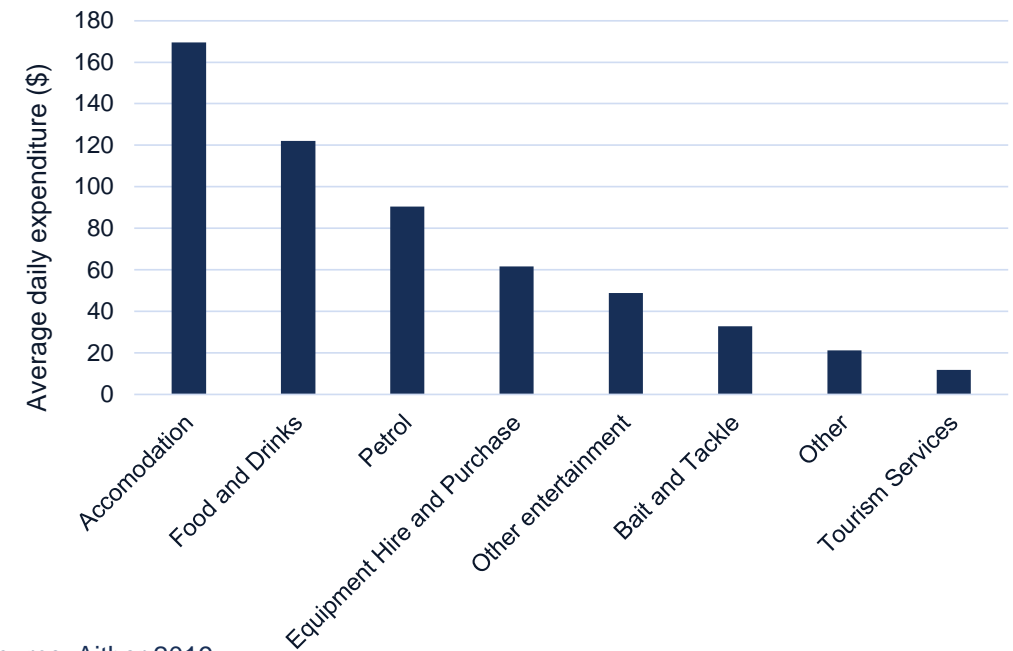
Based on average expenditure from the survey of \$400 per person per day¹, and 88,376 estimated fishing days per year, total annual expenditure in the Snowy Monaro region from recreational fishers is estimated to be \$31.3 million. This is estimated to increase local business profits by \$12.2 million per year, once the costs of providing goods and services are subtracted.

The average expenditure per day estimated from the survey is almost double the average expenditure across all domestic tourism of \$221 per night (TRA 2018). This may be due in part to the additional costs associated with equipment hire, bait and tackle and petrol.

Average expenditure is highest on accommodation (\$170), food and drinks (\$122), and petrol (\$90) as shown in Figure 11. Higher rates of expenditure by recreational fishers compared to other visitors was also observed in the 2001 survey of recreational fishing (Dominion Consulting 2001).

Total expenditure of \$31.3 million is lower than the 2001 survey estimate of \$46.5m, however making any direct comparisons is difficult. The variance could be due to differences in survey methods and approach, or reflect anecdotal suggestions that the sector has declined in recent years. Regardless, these figures confirm that recreational fishing is a significant sector for the Snowy Monaro region.

Figure 11: Average expenditure per person per day



Source: Aither 2019

¹ The average expenditure calculated excludes outliers and is therefore a conservative estimate of the total expenditure in the region.

Recreational fishing in the Snowy Monaro

Total benefits from recreational fishing

Overall, the total benefits from recreational fishing to the Snowy Monaro region are estimated to be about \$13 million per year, comprising:

- \$12.2 million in benefits to local businesses associated with expenditure in the region
- \$0.5 - \$1.1 million in benefits from the enjoyment that people who live in the region receive.

There are also benefits for those who live outside the region, which are estimated to be between \$1.4 - \$4.3 million per year. These benefits mainly accrue to residents of NSW and the ACT.

Future directions for recreational fishing in the Snowy Monaro

Options for increasing recreational fishing in the region including:

1. Future opportunities
2. Option A
3. Option B
4. Option C
5. Summary of results



Future opportunities

What actions can be undertaken?

As shown in the previous section, the value of recreational fishing in the Snowy Monaro region is significant. However there are a number of risks to the continued visitation, as well as opportunities to increase the value of recreational fishing in the future.

In order to understand the opportunities to improve visitation and therefore increase the value of recreational fishing, this project included an assessment of potential options that could be undertaken.

These options were developed through discussion with Snowy Monaro Regional Council and tested through both the online and recreational surveys.

The options are hypothetical and have not been costed. They are designed to provide an indication of the types of activities which may lead to an increase in recreational fishing in the region.

Before any activities relating to these options are implemented, a more detailed economic assessment should be undertaken to understand the full costs and benefits.

Options assessed

When all of the possible fishing locations and potential improvements are considered, there are hundreds of possible options for improving recreational fishing in the Snowy Monaro region. It was not feasible to cover all of these options in the survey. To provide an indication of the types of options that are likely to be most effective at increasing visitation in the Snowy Monaro region, we aggregated to three broad options. The options tested were:

- Option A: Better access (e.g. boat ramp, jetty, platform and walking trails) and better facilities (e.g. BBQs, shelters, fishing cleaning tables, toilets and drinking water).
- Option B: Increased provision of recreational fishing information for the region (e.g. listing fishing spots, public access routes and trails, fishing shops, guides and accommodation, and facilities in the area).
- Option C: Improved fish stocking resulting in (on average) doubling your current fish catch.

A longer list of options suggested by stakeholders can be found in Appendix A.

Recreational fishing in the Snowy Monaro

Response to Option A: Improved access and facilities

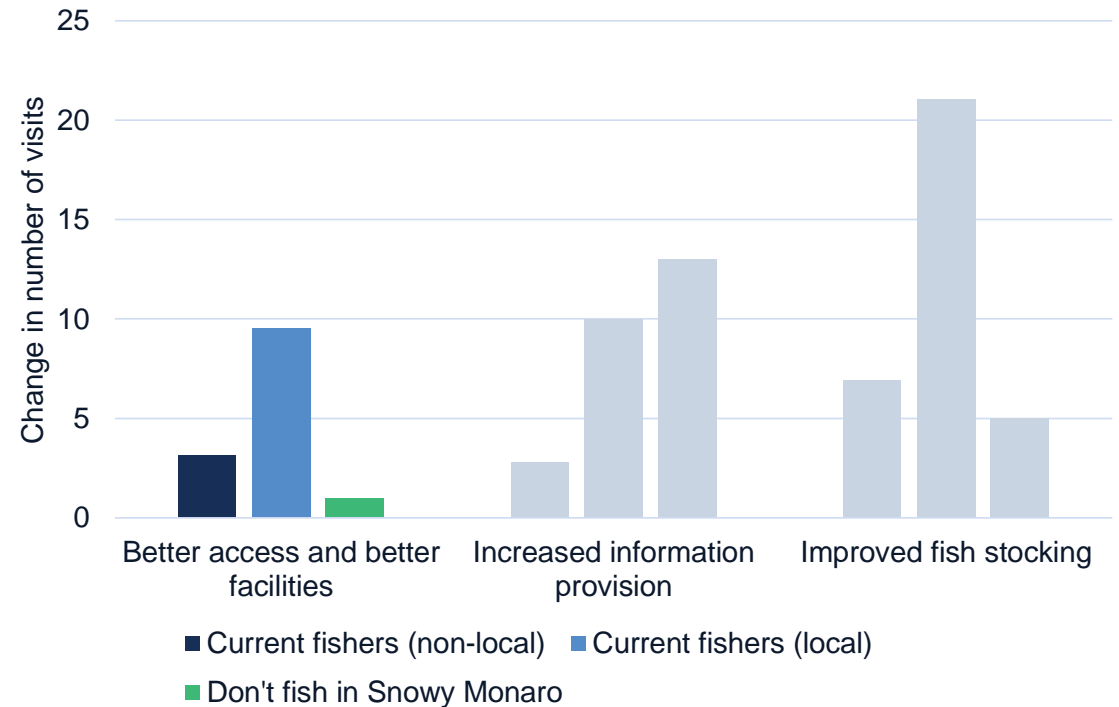
The expected increase in visitation due to improved access and facilities (Option A) includes:

- an average of 3 additional visits per year from those who currently fish in the region but don't live there
- an average of 10 additional trips per year from those who currently fish in the region and live there
- an average of 1 additional visit from those who don't fish or live in the Snowy Monaro region.

On average these numbers represent an increase of 13 per cent per year in recreational fishing in the Snowy Monaro region.

In general, the highest increases in visitation per person for this option were related to fishers who had been fishing in the region for between 20 to 40 years, who fished from boats or kayaks, and those who fished from the Numeralla, Bombala and Delegate rivers and Black Lake.

Figure 12: Average increased visitation per person per year by option



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Response to Option A: Improved access and facilities

Stakeholders made a variety of comments and suggestions regarding improving infrastructure and facilities, which might inform future investments. A more comprehensive list of suggestions related to accessibility can be found in Table 4 in Appendix A. Common or notable comments and suggestions are detailed below.

- Some stakeholders commented that free camping near fishing locations would boost accessibility, and argued that currently there was a scarcity of these areas, particularly around the lakes. Many people also noted this issue, highlighting that illegal camping is already a regular occurrence. However, many people acknowledged that developing free camping is difficult, at times citing perceptions of poor behaviour by fishers, and also noting the management complexities stemming from Snowy Hydro Ltd owning the land around the lakes.
- Fishers also discussed the difficulties created by the Kosciuszko National Park boundaries for recreational fishers in some areas where fishing spots sit marginally within park boundaries, citing experiences of fishers being regularly fined by park rangers. Furthermore, some fishers contended that access to fishing spots within the Kosciuszko National Park was unnecessarily difficult.
- Stakeholders raised the issue that accessibility varies across the Snowy Monaro region, with satisfactory access to the major lakes and western waterways, but access to waterways in the Monaro in particular often limited to those who can use private property to reach the waterway. In some cases, accessibility was also limited by a lack of clarity on whether land and tracks are private or public (this is more an issue of information than physical barriers). Stakeholders highlighting this point were furthermore concerned that the inaccessibility was impacting fishing tourism in the Monaro area.
- Improving car access to the water's edge (around the lakes when levels are low) was also suggested by several fishers and was viewed as important for allowing less mobile participants to access the water, and for improving boat access.
- Broadly, some stakeholders viewed accessibility and facilities as a marginal issue that would not influence their fishing habits. They instead argued that the quality and quantity of the fish themselves was a far more important determinant.
- Furthermore, there were a number of stakeholders who viewed substantial investment in infrastructure and facilities as contrary to the culture of the region, which they perceived as requiring a degree of self-sufficiency. In this respect this option was viewed as a potential threat.

While this scope of work has largely focused on the current state of recreational fishing, the prospect of opening Lake Wallace as a new fishing area was raised by several stakeholders. Local experts believe Lake Wallace and its surrounding waterways could support significant large brook trout (potentially up to 3kg which would be the biggest in Australia and be a major attraction for visitors). However, Lake Wallace also supports the Nimmitabel town water supply and there are concerns that stocking Lake Wallace and opening it to fishing would pose an intolerable risk to water quality. While there appears to be an opportunity to boost recreational fishing through opening Lake Wallace, this is ultimately a matter for SMRC to consider carefully given the potential threat to water quality.

Recreational fishing in the Snowy Monaro

Response to Option B: Improved information provision

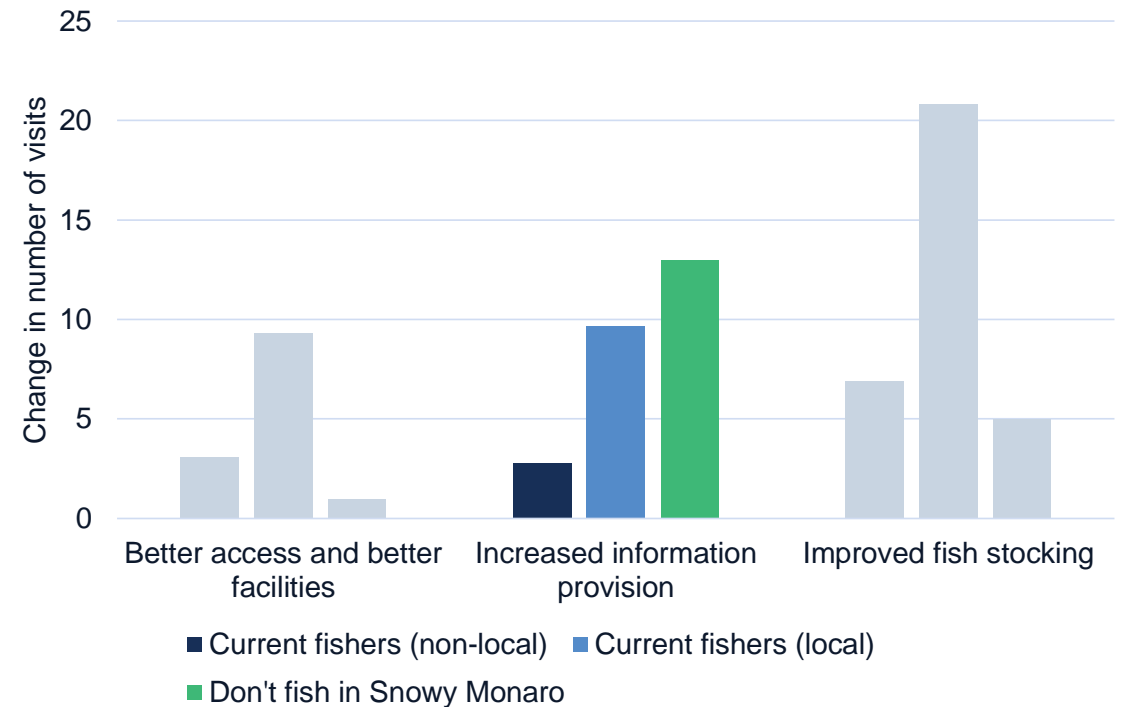
The expected increase in visitation due to improved information provision (Option B) includes:

- an average of 3 additional visits per year from those who currently fish in the region but don't live there
- an average of 10 additional trips per year from those who currently fish in the region and live there
- an average of 13 additional visits per year from those who don't fish or live in the Snowy Monaro region (this subsample was only for 8 people so is less reliable than the others).

On average these numbers represent an increase of 15 per cent per year in recreational fishing in the Snowy Monaro region.

The most significant preference for this option was from fishers who classified themselves as beginners, those aged under 25 and those who fished from kayaks. However it should be noted that these are all relatively small subsamples of the total number of survey respondents and may therefore be less reliable.

Figure 13: Average increased visitation per person per year by option



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Response to Option B: Information provision

When considering the benefits of increased information, stakeholder comments included the following (see Appendix A for a more comprehensive list including all suggestions related to information provision):

- Many thought there was sufficient information for day-to-day fishing requirements. However, one area where some stakeholders highlighted a specific absence of information was around accessibility and private land boundaries, particularly in the Monaro region.
- Some stakeholders believed there is potential for better communication around the management of the fishery, and several stakeholders regularly highlighted the level and type of communication that occurs in the Victorian fisheries as an example of where this is being done well (noting this is led by the Victorian equivalent of NSW DPI Fisheries, and not local councils).
- Similar to infrastructure and facilities investment, many stakeholders did not consider increased information to be overly consequential without a corresponding increase in the quality of the fishing. Some stakeholders highlighted that information provision is already done to a reasonable degree by the fishing community through social media, business, and other channels.
- Interestingly, the survey indicated that those who would benefit most from improved information were less experienced and younger. It is possible that the survey and consultations were largely undertaken by those who already have a strong interest in recreational fishing, good knowledge and therefore do not feel that more information would be of benefit, which could skew the results.
- There may be an opportunity to target new and younger demographics through improving information provision, and this corroborates with several local business owners who noted that this would likely help attract new visitors.

Recreational fishing in the Snowy Monaro

Response to Option C: Improved fish stocking

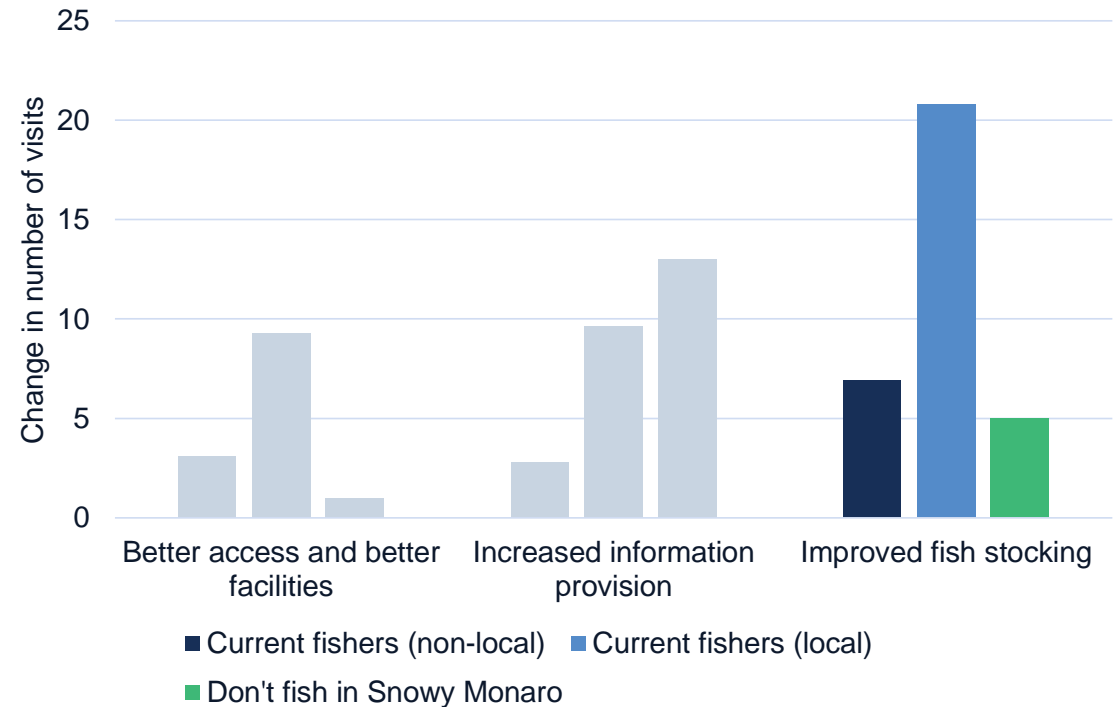
The expected increase in visitation due to improved fish stocking (Option C) includes:

- an average of 7 additional visits per year from those who currently fish in the region but don't live there
- an average of 21 additional trips per year from those who currently fish in the region and live there
- an average of 5 additional visits per year from those who don't fish or live in the Snowy Monaro region.

On average these numbers represent an increase of 38 per cent in recreational fishing in the Snowy Monaro region. This option is the most preferred option tested through the survey.

In general this was the preferred option across all cohorts tested through the survey.

Figure 14: Average increased visitation per person per year by option



Source: Aither 2019

Recreational fishing in the Snowy Monaro

Response to Option C: Improved fish stocking

Improving the quality of fishing was the major topic of discussion from most consultations and came through strongly in the survey and assessment of Option C. A comprehensive list of the suggestions regarding the stocking regime is included in Appendix A. There were a number of common or notable views amongst stakeholders on the potential solutions to improving fishing, which included:

- Improving the effectiveness of stocking by Gaden Trout Hatchery was often raised as a solution. More specifically, it was suggested that more fingerlings, more mature fingerlings, or optimising the timing of release would boost fish stocks. However, there was no specific evidence to suggest this would be more effective (or is not being considered already)¹ and many stakeholders were also supportive of the current stocking regime (citing other factors as the reason for declining fishing). The ratio of rainbow trout (stocked) to brown trout (self-sustained population) was often used to suggest the ineffectiveness of stocking with ratios changing from mostly catching rainbow trout to mostly catching brown trout (in the major lakes).
- Additionally, some stakeholders perceived Gaden Trout Hatchery's current resourcing to be a limiting factor in improving the efficacy of the stocking regime, particularly regarding their ability to maintain temperature controlled environments in which the fish stocks could develop.
- Lake levels and their relationship to food sources were also viewed as critical for supporting fish stocks and size of fish. This included issues with low lake levels moving the lake boundary away from food sources or killing off food sources and habitat (e.g. yabbies and reed beds), while raising levels was considered as a way to boost food sources (through inundating vegetated areas).
- Water temperatures were also cited as a key factor in the quality of fishing, including driving fish deeper to cooler water.
- Better enforcement of regulations, such as through bans and catch limits.

It is clear that there is immense amount of local knowledge across the recreational fishing community across Snowy Monaro and a number of ideas on how fishing could be improved. However, even the most knowledgeable stakeholders were quick to note that there is a general lack of empirical evidence and research available to know with certainty the current state of fishing and how it might be improved. Given the interest in this option, the following slide summarises factors perceived as impacting the quality of fishing.

¹Aither tried on multiple occasions to make contact with Gaden Trout Hatchery for consultation but was unsuccessful.

Recreational fishing in the Snowy Monaro

Response to Option C – factors impacting quality of fishing in the Snowy Monaro

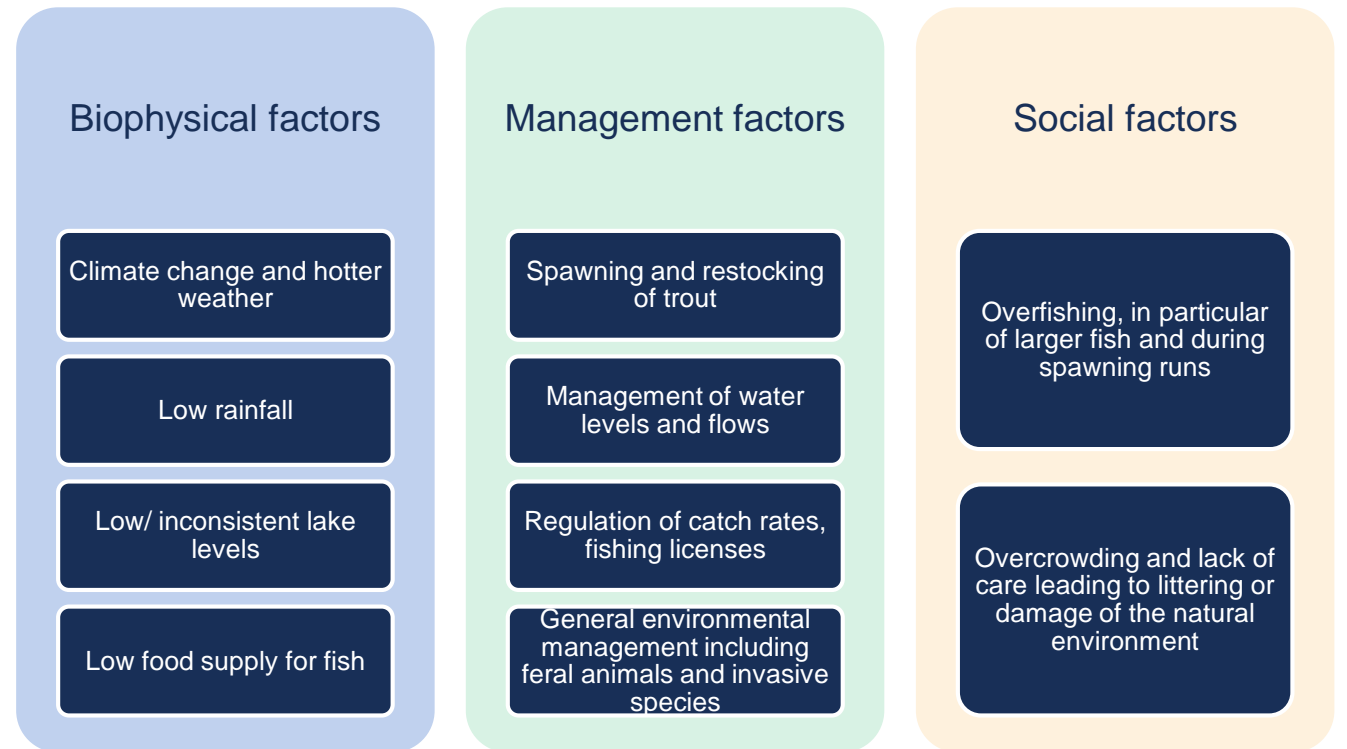
It was a consistent theme across consultations, the surveys, and in the analysis of options that the current quality of the fishery is relatively poor, and that improvements in quality would drive increased visitation.

There were a diverse range of explanations for this, with the most common explanations shown in Figure 15.

While most of these explanations are largely anecdotal, they are useful for understanding the concerns of fishers and could be the basis for further activities to better understand and manage the fishery.

They also align with many of the issues previously identified in the research program for the Snowy Lakes Trout Strategy 2018-2023.

Figure 15: Factors affecting fishing quality in the Snowy Monaro



Summary of results

Results of the options assessment

The results show that the potential benefits of addressing these issues **at all fishing locations across the Snowy Monaro region**, would be in the order of millions of dollars per year.

The preferred option, in terms of highest benefits likely to be achieved is to improve fish stocking and increase fish catch. It also appears to be the case that this option (C) might be the most difficult to act on, and in many respects is beyond the control of SMRC.

Table 2: Results of the options assessment

Option	Change in visitation	Total benefits to the Snowy Monaro region
Option A: Better access (e.g boat ramp, jetty, platform and walking trails) and better facilities (e.g. BBQs, shelters, fishing cleaning tables, toilets and drinking water)	+13 %	~\$1.7 million per year
Option B: Information for the region listing fishing spots, public access routes and trails, fishing shops, guides and accommodation, and facilities in the area	+15 %	~\$2.0 million per year
Option C: Improved fish stocking resulting in (on average) doubling current fish catch	+38 %	~\$4.9 million per year

Comments received from the survey

What improvements could be made in the Snowy Monaro region to increase the number of fishing visits you would make to the region?

“Disability access to more parts of the river that are normally locked off. Rivers should [be] catch and release only and patrolled more to stop bait fishing and illegal activities in the rivers. ”

“Better information of access to river fishing. More Bush camping areas for car camping. Lots of people I know like mountain biking so including areas with bike trails, fishing and camping in one spot could entice people to come. Having native fish if possible in some lakes or rivers would be very enticing to me.”

“A fishery that was managed properly and held accountable for the continued long term benefits to the area and the resource.”

Findings and conclusions

Summary of results, findings and conclusions:

1. Summary of results and findings
2. Conclusions



Findings and conclusions

Summary of results

Fishing is an important recreational activity in the Snowy Monaro region, which has a long history of, and reputation for, quality trout fishing. The fishery attracts visitors from across NSW and adjacent states and territories as well as supporting local fishers.

The quality of the natural environment is a key drawcard for the region, along with the quality of fishing and opportunities to participate in other recreational activities. Fishing generates significant recreational benefits to fishers estimated at **\$2.5 million - \$4.8 million** per year, while expenditure by recreational fishers in the region increases local business profits by an estimated **\$12.2 million** per year.

The quality of fishing was unequivocally viewed as the biggest driver of visitation and usage, and over recent years there is a perception that the fishery has suffered and that the quality of fishing has declined.

This is generally viewed as a function of water levels and environmental factors, fisheries management and stocking, and climate change. However, it was also observed that there is minimal information or research from which to draw strong conclusions on how and to what extent these drivers are impacting the fishery.

Findings and conclusions

Summary of results continued

Despite concerns regarding current fishing conditions, there was optimism that recreational fishing could be improved and a number of potential actions or activities that Snowy Monaro Regional Council might consider pursuing were identified and tested.

The option of improving accessibility and facilities for recreational fishing was viewed as beneficial and was estimated to increase visitation by 13 per cent. Improving information on recreational fishing in the region was also viewed as beneficial and estimated to increase fishing by 15 per cent – driven largely by new visitors.

Noting that Snowy Monaro Regional Council is not the fisheries manager, and is not the landowner or manager for the major fishing areas on and around Lake Eucumbene and Lake Jindabyne, it was repeatedly suggested by stakeholders that more needed to be done to improve understanding and management of the fishery.

This included:

- supporting research and development to better understand the current state of the fishery, and potential impacts from climate change and other drivers
- increasing resourcing for fisheries management (with the suggestion of a dedicated fisheries manager for Snowy Monaro)
- improving stocking and survival rates through a more informed stocking regime, and utilising better science and technology.

The implicit objective for all of these suggestions was to *improve the quality of fishing*, which when tested as an option in the survey was estimated to increase visitation by 38 per cent.

Findings and conclusions

Final conclusions

Recreational fishing is an important recreational activity and contributor to the economy in the Snowy Monaro region. At the same time, there are a number of threats and risks (e.g. climate change) to recreational fishing and current conditions appear to be impacting visitation.

There is a case to improve recreational fishing in the Snowy Monaro, and likely benefits from growing participation in a sustainable manner. The analysis and insights from this report that can help shape how this is done.

Stakeholders were most concerned with improving the quality of fishing and protecting it for years to come. To achieve this outcome, improving research and development to better understand and manage the fishery, as well as working better with a range of stakeholders (including Snowy Monaro Regional Council), were considered critical.

Additionally, there was general support for improving facilities, accessibility, and information provision. Survey results and consultations suggested this would help increase visitation, and would help attract new and younger demographics (particularly in the case of information provision).

Based on the above, there is an opportunity for Snowy Monaro Regional Council to play a role in enhancing recreational fishing in the Snowy Monaro region.

Comments received from the survey

Do you have any
other comments or
suggestions on
recreational fishing
in the Snowy
Monaro region?

“I really hope you focus on improving the fishery through habitat enhancement, limiting catch and take, eschewing hatchery stocking, making areas artificial only or fly only. We fish to get out into a wild environment and encounter wild fish, keep it that way please. ”

“This is one of the world’s great recreational fishing destinations. It is both challenging and rewarding, the natural environment is awe inspiring and pristine. Marketing this treasure in a sustainable way will ensure it's future.”

“Encourage people to look after the natural environment, keep impact of their visit to a minimum, don't leave rubbish, respect the wildlife.”

“Working with landowners for access similar to New Zealand ... access to more rivers and better campgrounds in backcountry fishing for hiking in with cleared areas and toilets.”

“It's a magical and special place. The area should be respected and cared for by all.”

References and appendices

1. References
2. Appendix A
3. Acknowledgements



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Appendix A

Options suggested by stakeholders and survey participants

During interviews and throughout the survey, stakeholders identified numerous potential options and initiatives for improving recreational fishing. The range of options are listed in Table 3 and Table 4. These options are not necessarily directed at SMRC (or within SMRC's remit), however they provide a useful catalogue of potential priorities and areas of importance for stakeholders. Further consideration and testing would be needed before pursuing any of the options below.

Table 3: Infrastructure and management options suggested by stakeholders and survey

Type	Options suggested
Infrastructure	<ul style="list-style-type: none">• Improve boat launching facilities at Kalkite• Improve boat launching facilities at Buckenderra• Provide an all-weather, all lake-levels boat ramp at Anglers Reach• Improve design for boat ramps in general, including diagonally angled parking• Improve accessibility to foreshore under low lake level conditions• Increase prevalence of overtaking points on Monaro Highway• Make towns in the Snowy Monaro 'RV friendly'
Management	<ul style="list-style-type: none">• Increase cooperation between SMRC, NSW Fisheries, and MAS• Target invasive species such as deer and brumbies• Limit catch and take fishing• Improve empirical evidence and knowledge in order to enhance the understanding of fishery environment and its biophysical and ecological dynamics, including the effect of water levels, climatic temperatures, rainfall, food availability, and different stocking regimes• Increase recognition of fishing as a viable, beneficial, and historically important recreational activity by management actors, including SMRC, NSW Parks, and Tourism Snowy Mountains• Employ a full-time, scientifically trained, fishery manager for the Snowy Monaro region, in order to develop better body of empirical evidence for fishery management and cultivate better management practices• Review and enhance the stocking regime run by Gaden Trout Hatchery• Increase monitoring and compliance of fish take• Increase education about littering as well as catch and release fishing• Improve level and quality of communication between fishery managers and recreational fishing community• Seek to replicate elements of the management and communication approaches in New Zealand and Victoria

Appendix A

Options suggested by stakeholders and survey participants

Table 4: Facilities, accessibility and other options suggested by stakeholders and survey participants

Type	Options suggested
Facilities	<ul style="list-style-type: none">• Increase free camping availability near fishing spots• Build fishing platforms and jetties in suitable areas• Increase the availability of fish cleaning stations• Improve facilities at accommodations, including toilets and showers and general use areas
Accessibility	<ul style="list-style-type: none">• Cooperate with land owners to allow fishing access (particularly in upper Murrumbidgee)• Improve quality of the Bobeyan Road• Allow access to waterways via 4WD tracks using permit system• Open Lake Wallace for recreational fishing• Improve signage and maps for public and private access to fishing spots• Develop access trails in suitable areas• Improve availability of free camping near to fishing spots
Other	<ul style="list-style-type: none">• Support / sponsor for fishing events and open days, including events targeted at younger generations and trout conferences similar to what occurs in Victoria• Developing and improving marketing and advertising to attract fishers• Develop online platform for information on fishing in the region (e.g. webpage, app or social media channel on fishing, events etc.)• Increased engagement by SMRC with local fishing stakeholders, and greater consideration of recreational fishing in council decision-making.

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