

FINAL REPORT

Murray River Fishing Socio-Economic Study 2021 NSW Department of Primary Industries February 2022





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February 2022

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1. EXECUTIVE SUMMARY



The Murray River Fishing Socio-Economic Study 2021 comprised surveys of local residents, businesses and fishers, as well as focus groups with fishers and businesses, and in-depth interviews with relevant stakeholders. Among the key results:

Perceptions of Fishing Ban

Awareness of the Ban

Awareness of the three-month fishing ban depended on proximity to the ban zone. Awareness was high among residents (74%), businesses (70%), and fishers that had fished in the ban zone in the past year (75%).

Awareness of the months the ban started and ended was lower among these groups. Most fishers (78%) were aware of the catch and keep limit for Trout Cod (i.e. zero), but fewer (51%) were aware of the catch and keep limit for Murray Cod (two). Only 1% of fishers believed they could catch and keep more than two Murray Cod per day.

Reasons for the Ban

The most common reason for the three-month ban cited by residents was to protect or allow the recovery of fish stocks (79%).

Participants in the fishers focus group recognised the ban period as the breeding season and acknowledged the benefit of the ban on the populations of the species.

Participants in the business focus group, all keen fishers, also acknowledged the benefit of the ban on the populations of both cod species, but believed fishers should be able to fish for other species during the ban period.

Attitudes Towards the Ban

The most common view among residents (68%), businesses (51%) and fishers (48%) was that the three-month ban should remain unchanged. Businesses were the group most likely to believe the ban should be abolished (13%). In total, 17% of fishers believed the ban should be reduced (7%) or abolished (10%). The South-West Anglers Association has also been lobbying to have the ban overturned.

Social Impact

The social impact of the three-month ban was measured through the impact on the health, social life and local area of residents, and through the changes fishers make to their fishing behaviour due to the ban.

Social Impact on Residents

Results of the Residents Survey showed:

- 96% of residents stated the three-month fishing ban made little difference to their health while 92% stated it made little difference to their overall life
- 4% of residents stated the three-month ban made their life somewhat better, while 3% stated it made their life somewhat worse
- 92% stated the three-month fishing ban made little difference to their friendships and social life. 5% stated it made these aspects somewhat worse.
- 81% of residents stated the fishing ban made little difference to life in their local area, while 10% state it made local life somewhat worse

1. EXECUTIVE SUMMARY

Social Impact on Fishers

Among all fishers, there was a positive relationship between potential reductions in the ban period and potential additional fishing trips made to the ban zone.

This relationship was more pronounced among fishers that had fished in the ban zone when open to fishing in the past year.

However, within the fisher focus group, some appreciated the "forced" opportunity to explore other fishing locations during the ban period.

Economic Impact

The economic impact of the three-month fishing ban was measured through the impact on businesses and residents, and the impact of fishers through trips taken elsewhere and lost spending.

Economic Impact on Businesses

Of the businesses aware of the ban, most (77%) reported the ban made no impact on revenue during the ban period. Sixteen percent (16%) stated it caused a marginal reduction while 6% stated it caused a significant reduction. For most of these businesses this reduction was up to 20% percent, while others could not quantify the impact.

The three-month fishing ban was found to have no effect on increasing overdraft or borrowings, trading hours, recruiting and retaining staff, and accessing goods and services for the vast majority of businesses surveyed.

Nine percent (9%) of businesses stated they would need to take on additional staff during the period of September to November if the ban was lifted.

Seventy-seven percent (77%) of residents believed the three-month fishing ban did not have any effects on local businesses. Thirteen percent (13%) believed it caused some businesses to branch out into different lines of business while 9% stated it led to lost skills due to skilled workers leaving the area.

Economic Impact on Residents

Almost all (97%) residents stated the threemonth fishing ban had no effect on their household income. In comparison, the COVID-19 pandemic and drought had bigger impacts on the household income of residents.

Most residents reported a small (less than 10%) impact on their household income from the COVID-19 pandemic (58%) and from drought (57%). In total, 17% of residents reported a larger impact from COVID-19 while 22% reported a larger impact from drought.

Economic Impact of Fishers

Fishers that had fished in the ban zone when open to fishing in the past year were more likely to have had to fish somewhere outside of the ban zone due to the ban (54%). This result was lower among all fishers (26%).

Of those that fished somewhere else due to the ban, almost half (47%) did not spend any nights away. Sixteen percent (16%) spent two nights away on these trips while 13% spent four to five nights away. The size of the party on these trips was typically two people (37%), and mostly ranged from one to four people.

Most fishers that had fished in the ban zone when open to fishing in the past year brought their own food (61%), while 31% bought something locally. The typical amount spent on food was \$100 (22%) or less.

Within the stakeholder interviews, there was little evidence of economic disadvantage specifically attributable to the ban.

2. BACKGROUND



The New South Wales Department of Primary Industries (NSW DPI) commissioned IRIS Research, part of Taverner Research Group, to conduct the Murray River Fishing Socio-Economic Study 2021 to examine the social and economic implications of the three-month ban on fishing in the Murray River between Yarrawonga Weir and the Tocumwal Road Bridge during September to November each year.

NSW DPI commissioned this research due to concerns from local fishing groups that the three-month ban on fishing was no longer necessary, based on the perception that the populations of Murray Cod and Trout Cod had rebounded and the ban was having undue negative impacts on local residents and businesses.

The Murray River Fishing Socio-Economic Study 2021 comprised surveys of residents, businesses and fishers, as well as focus groups for businesses and fishers, and in-depth interviews with key stakeholders.

The objectives of the research were to:

- Analyse and measure the social impact of the three-month fishing ban on the area surrounding the ban zone
- Analyse and measure the economic impact of the three-month fishing ban on the area surrounding the ban zone
- Examine awareness of and attitudes towards the three-month fishing ban among stakeholder groups including residents, businesses and fishers

3. RESEARCH DESIGN

The Murray River Fishing Socio-Economic Study 2021 comprised quantitative and qualitative research of local residents, businesses and Murray River fishers.

3.1. QUANTITATIVE RESEARCH

Quantitative research involved telephone surveys of residents and businesses, as well as an online survey of fishers.

Residents Survey

The Residents Survey aimed to collect 250 completed responses from a random sample of residents from the area surrounding the Murray River three-month fishing ban location including Barooga, Tocumwal and Mulwala. A telephone-based (CATI) survey was used to secure a response from 250 residents. A telephone survey was selected due to the random nature of telephone sampling. The reported results have a margin of error of +/- 6.1% at the 95% confidence level. This means that if we repeated the survey 100 times, in 95 times the results will be within 6.1% of the true population value.

Interviews were conducted over the period 7 July to 12 July 2021. The survey population was permanent residents aged 18 years or over from Barooga, Tocumwal, Mulwala, or between or near one of these towns, within 100 kilometres of the Murray River. Sixteen interviewers conducted interviews over the course of the data collection period. The survey was implemented according to ISO 20252 standards. Continuous interviewer monitoring was used to monitor for quality control.

The sample profile for the Residents Survey is reported in Appendix 1 – Sample Profile.

Table 1 Residents Survey – Telephony Sample

TELEPHONY	%	#
Landlines	38%	96
Mobiles	62%	154
TOTAL		250

Survey Weighting

The collected data often cannot mirror the exact age/sex distribution of a region. To allow for this, the collected data set is weighted to bring it back to the ideal age/sex distribution based on the survey population. **Table 2** (over page) reports the weighting factors for the sample.

3. RESEARCH DESIGN

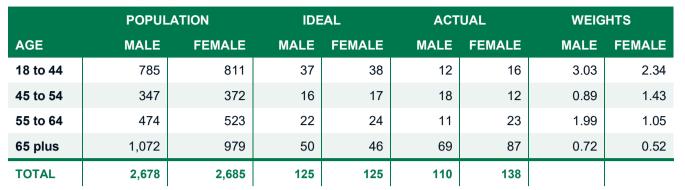


Table 2 Survey Weighting

Business Survey

The Business Survey aimed to collect maximum responses from available numbers for businesses within and between the towns of Barooga, Tocumwal, and Mulwala. A telephone survey was used to secure a response from 100 local businesses.

Interviews were conducted over the period 11 August to 20 August 2021. The survey unit was businesses in Barooga, Tocumwal, Mulwala or within 20 kilometres of the ban zone. Sixteen interviewers conducted interviews over the course of the data collection period. The survey was implemented according to ISO 20252 standards. Continuous interviewer monitoring was used to monitor for quality control.

The sample profile for the Business Survey is reported in Appendix 1 – Sample Profile.

Fishers Survey

The Fishers Survey aimed to collect maximum responses from contacts provided by NSW DPI. An online survey was used to collect 475 completed responses.

Surveys were collected over the period 17 August to 2 September 2021. Fishers had to live in NSW or Victoria, within 200 kilometres of the Murray River.

The sample profile for the Fishers Survey is reported in Appendix 1 – Sample Profile.

3. RESEARCH DESIGN



3.2. QUALITATIVE RESEARCH

Qualitative research involved two focus groups with fishers and business owners, as well as in-depth interviews with relevant stakeholders. The purpose of this qualitative research is to explore key issues of the three-month fishing ban and the proposition it impacts negatively the socio-economic wellbeing of the region. The feedback can variously support or deny the proposition and the reporting here should be considered in comparison with the quantitative research.

Focus Groups

The focus group for fishers was conducted on 20 September 2021. The group was held through an online video call and included five fishers that had registered their interest in the online survey. The objectives of the fishers focus group were to understand the typical fishing experience, explore awareness of and attitudes to the three-month fishing ban, and changes to fishing behaviour during the ban.

The focus group for businesses was conducted on 6 October 2021. The group was held via an online video call and included five local businesspeople who registered their interest in the Business Survey. The objectives of the business focus group were to get an overview of current business and tourism conditions, explore awareness of and attitudes to the three-month fishing ban, and discuss efforts to overturn the ban.

All participants were provided an incentive of \$60 per person for participation.

In-Depth Interviews

Five in-depth interviews were conducted with various stakeholders including local government, businesses chambers, fishing organisations and ecological groups. Interviews were conducted over the period 15 September to 30 September 2021. Results are contained within Section 7 of this report.



An objective of the Murray River Fishing Socio-Economic Study 2021 was to understand and measure the perceptions of stakeholders such as residents, fishers, and local businesses regarding the yearly three-month ban on fishing in part of the Murray River.

This section reports on perceptions of the yearly ban on fishing in the Murray River between Yarrawonga Weir and Tocumwal Road Bridge from 1 September to 30 November. This includes awareness of the ban among stakeholders, attitudes towards the ban and perceptions of reasons for the ban.

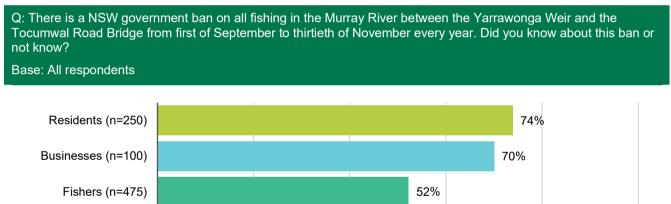
4.1. AWARENESS OF THE THREE-MONTH FISHING BAN

Residents of the area surrounding the ban zone had the highest awareness of the three-month fishing ban (74%) of any stakeholder group. Awareness of the fishing ban among businesses was 70%.

Fishers recorded the lowest awareness at 52%. However, among fishers that were residents of Barooga, Mulwala and Tocumwal, awareness was in-line with other groups at 70%. Furthermore, among residents that had fished in the ban zone when open to fishing (from 1 December to 31 August) in the past year awareness was 75%.

Figure 1 Awareness of three-month ban on fishing in the Murray River

20%



0%

Awareness of start and end months

Businesses and fishers were asked which month the ban on fishing started and which month the ban ended. With the end date of 30 November, respondents were split between stating the end month was November or December.

40%

60%

80%

- 21% of businesses correctly identified the start month of the ban as September. Over half (56%) knew there was a ban period but were unaware of the month it started.
- 23% of businesses correctly identified the end month of the ban as November. A further 17% believed it was December while almost half (46%) did not know the end month.
- Over half of fishers (57%) correctly identified the start month as September. One third (34%) knew there was a ban but did not know the month it started.
- 22% of fishers correctly identified the end month as November. Thirty-six percent (36%) recalled it as December while 31% did not know the end month.

100%

Catching and keeping Murray Cod and Trout Cod

Fishers were asked how many Murray Cod it was legal to catch and keep per day where fishing was allowed. Over half (51%) correctly answered two Murray Cod, but this result was lower among fishers that had fished in the ban zone in the past year (44%). Only 1% of fishers believed you could catch and keep more than two Murray Cod while 17% did not know the limit.

Fishers were also asked how many Trout Cod it was legal to catch and keep per day. Seventy-eight percent (78%) of fishers correctly answered none, with this result slightly higher among those that had fished in the ban zone when open to fishing in the past year (80%). In total, 8% of fishers believed you could catch and keep a Trout Cod while 14% did not know the limit.

Table 3 Catching and keeping Murray Cod and Trout Cod

	MURRAY COD	TROUT COD
None	2%	78%
One	29%	4%
Тwo	51%	3%
More than two	1%	1%
Don't know	17%	14%

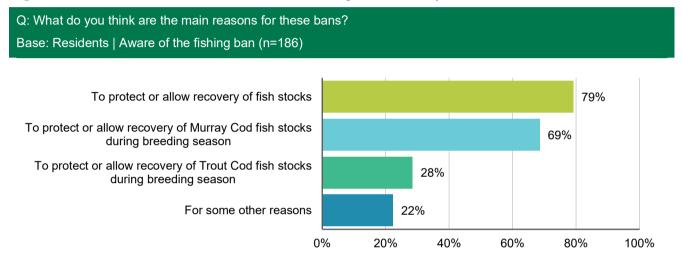
4.2. REASONS FOR THE FISHING BAN

Residents

Residents were asked what they thought were the main reasons for the three-month ban on fishing in the Murray River. They were able to select multiple reasons.

The most common reason was to protect or allow the recovery of fish stocks (79%). This was followed by protecting or allowing the recovery of Murray Cod fish stocks specifically during breeding season (69%), while 28% believed it was to protect or allow the recovery of Trout Cod.

Figure 2 Reasons for the three-month ban on fishing in the Murray River



Businesses

Participants of the business focus groups, all of whom were keen fishers, were all aware of the reasons for the three-month fishing ban. Among this group, there were attitudes that rules surrounding the Trout Cod and Murray Cod should remain, but fishers should be able to fish for other species during the ban period. The business focus group had higher perceptions of the compliance of fishers with fishing rules compared to the fishers focus group.

Fishers

Fishers that participated in the focus group all recognised the ban period as the breeding season and acknowledged the reasons for the ban as a period to allow the populations of the Murray Cod and Trout Cod to replenish. There was a strong view among the group that the population of the Trout Cod had rebounded to the point where the rules on catching and keeping the species could be aligned with rules for the Murray Cod.



4.3. ATTITUDES TOWARDS THE FISHING BAN

All respondents were asked whether the three-month ban on fishing in the Murray River between the Yarrawonga Weir and the Tocumwal Road Bridge should be extended, kept unchanged, reduced, or abolished. Among all three stakeholder groups the highest proportion believed the ban should be kept unchanged (see **Figure 3** over page).

Residents

Residents were the group most likely to believe the ban should be kept unchanged (68%). In total, 11% believed it should be either reduced (5%) or abolished (6%).

Businesses

More than half of businesses surveyed (51%) and 48% of fishers believed the ban should be kept unchanged. A further 26% were unsure. Businesses surveyed in the quantitative phase of research were the group most likely to believe the ban should be abolished (13%).

Participants in the business focus group felt that allowing fishing for other species during the ban period would help support businesses that provide fishing-related services during the ban period, particularly given other challenges such as blue-green algae.

Fishers

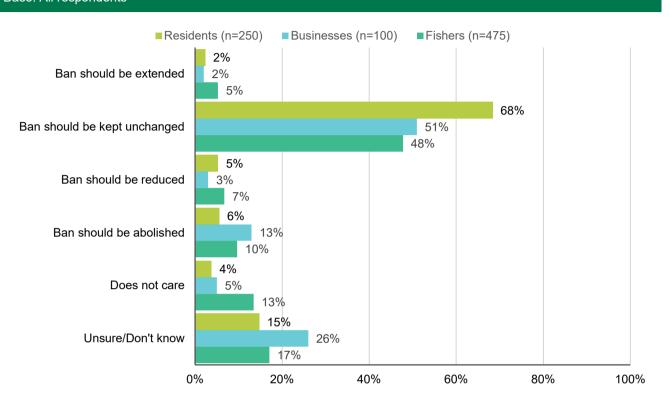
Fishers were the group least likely to believe the ban should be unchanged (48%). Seven percent (7%) believed it should be reduced while 10% believed it should be abolished. Sentiment towards changing the fishing ban was higher among fishers that had fished in the ban zone when open to fishing in the past year, with 17% believing it should be reduced, while 21% believed it should be abolished.

Participants in the fishers focus group acknowledged the benefits of the ban period on populations of Murray Cod and Trout Cod. These fishers felt that the rules between the two species could now be aligned, while maintaining the overall three-month ban on fishing during the breeding season.



Figure 3 Attitude towards the Murray River three-month fishing ban

Q: Do you believe... The existing three-month ban on fishing in part of the Murray River should be extended, should be kept unchanged, should be reduced, or should be abolished? Base: All respondents



4.4. AFFILIATIONS

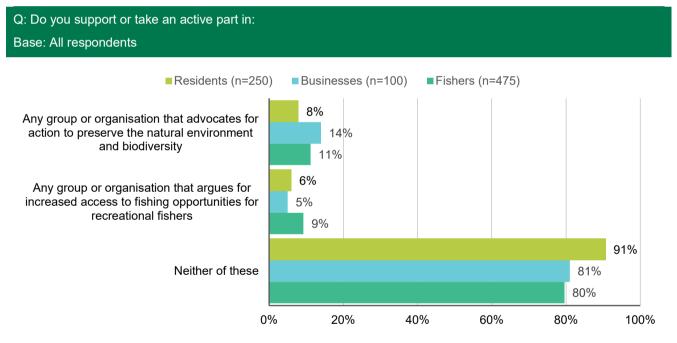
All respondents were asked whether they supported or took an active part in groups or organisations that advocate for environmental protection and preservation, or for increased access to fishing opportunities.

Among all groups most respondents had no affiliation with any such group. This was most common among residents (91%).

Fourteen percent (14%) of businesses supported or took an active party in groups advocating for action to preserve the natural environment and biodiversity. Eight percent (8%) of residents and 11% of fishers declared affiliation with these groups.

Nine percent (9%) of fishers supported or advocated for increased accessed to fishing opportunities for recreational fishers. Six percent (6%) of residents and 5% of businesses were involved in these groups.

Figure 4 Affiliations





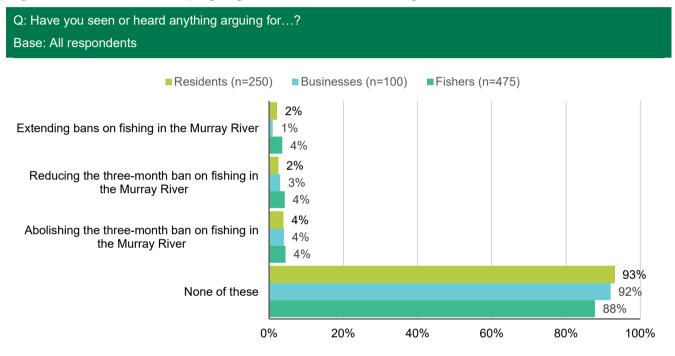
4.5. AWARENESS OF CAMPAIGNING

Respondents across all surveys were asked whether they had seen or heard anything or anyone arguing for changes to the three-month ban on fishing in the Murray River.

Across all stakeholder groups, most respondents had not seen or heard any campaigning around the fishing ban.

Among those aware of campaigning for changes to the three-month fishing ban, it was most common for them to hear arguments to abolish the ban on fishing.

Figure 5 Awareness of campaigning on the three-month fishing ban





An objective of the Murray River Fishing Socio-Economic Study 2021 was to understand and measure the social impact of the three-month ban on fishing in the Murray River on residents of surrounding areas and the fishers that use the river. For residents, this was measured through impacts on their health, social life, and community. For fishers, this was measured through the changes they make to their fishing behaviour due to the ban.

5.1. SOCIAL IMPACT ON RESIDENTS

The Residents Survey found that the three-month fishing ban on the Murray River does not have a significant social impact on the lives of residents personally. However, there was a view among a small contingent of residents that it makes life in the local area somewhat worse.

Residents aware of the three-month fishing ban were asked whether the fishing ban makes their own health and overall life better, worse, or makes little difference.

The Murray River three-month fishing ban impacts the health and overall life of very few residents from around the ban zone. Ninety-six percent (96%) of residents stated the fishing ban made little difference to their health while 92% stated it made little difference to their life.

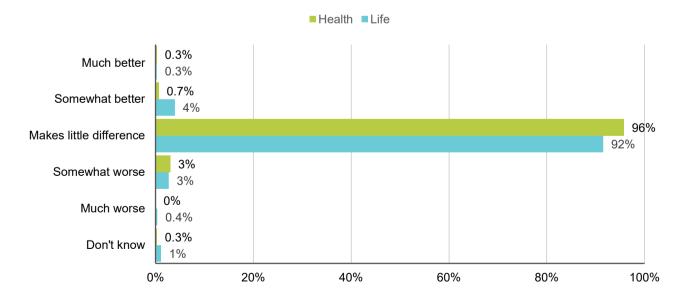
Four percent (4%) of residents stated the three-month fishing ban made their life somewhat better overall. Three percent (3%) of residents stated it made their health somewhat worse while 3% stated it made their life somewhat worse.

Figure 6 Impact of three-month fishing ban on residents' health and overall life

Q: Would you say the fishing ban from September to November makes your own health better, worse or makes little difference?

Q: Would you say the fishing ban from September to November makes how you feel about your own life better, worse or makes little difference?

Base: Residents | Aware of the fishing ban (n=186)





Residents aware of the three-month fishing ban were asked whether the fishing ban makes their friendships, social life, and life in their local area better, worse, or makes little difference.

Again, the Murray River three-month fishing ban impacts the friends and social life of very few residents. Only 5% of residents stated the ban makes their friendships and social life somewhat worse.

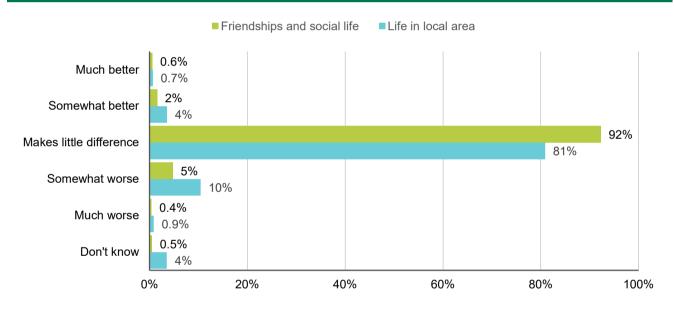
Looking at life in the local area, the proportion that stated the three-month fishing ban made little difference was lower at 81%. One in ten residents (10%) said the ban made life in the local area somewhat worse, while 4% stated it made life somewhat better.

Figure 7 Impact of three-month fishing ban on residents' social life and local area

Q: Would you say the fishing ban from September to November makes your friendships and social life better, worse or makes little difference?

Q: Would you say the fishing ban from September to November makes life in your local area better, worse or makes little difference?

Base: Residents | Aware of the fishing ban (n=186)



Residents were asked how the three-month fishing ban impacts a number of aspects of community wellbeing including social gatherings, involvement in local events, connection with others, and maintenance and development of local amenities.

Five percent (5%) of residents stated their household gatherings at places like pubs and clubs to decrease a bit. The same number (5%) stated the fishing ban caused household involvement in local sports and community events to decrease a bit.

In total, 12% of residents stated the three-month fishing ban caused the maintenance and development of local amenities to increase.

Table 4 Impact of three	ee-month fishing ban o	on community wellbeing
	so monar norning barre	sh oonning wonsonig

	HOW MUCH YOU AND YOUR HOUSEHOLD GATHER AT PUBS AND CLUBS	HOW INVOLVED YOU AND YOUR HOUSEHOLD ARE IN LOCAL SPORTS AND COMMUNITY EVENTS	HOW WELL YOU AND YOUR HOUSEHOLD CONNECT WITH OTHER PEOPLE	THE MAINTENANCE AND DEVELOPMENT OF LOCAL AMENITIES
Increased a lot	0.5%	-	-	2%
Increased a bit	2%	2%	0.7%	10%
Not changed	93%	92%	94%	85%
Decreased a bit	5%	5%	4%	2%
Decreased a lot	0.6%	1%	2%	1%





5.2. SOCIAL IMPACT ON FISHERS

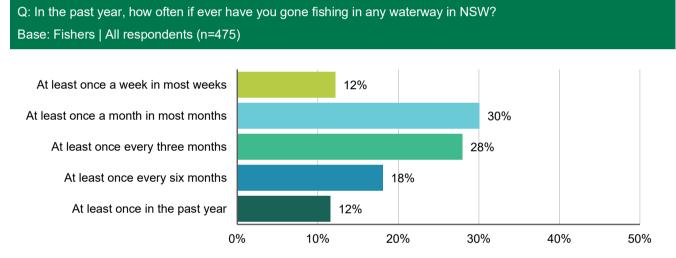
The Fishers Survey asked several questions about how fishers currently participate in recreational fishing on the Murray River and other areas of NSW to understand the impact of hypothetical changes to the fishing ban period.

The survey found that fishers would take additional fishing trips to the ban zone if the ban was lifted, and this effect was more prominent among those that had fished in the ban zone when open to fishing in the past year.

Current Fishing Behaviour

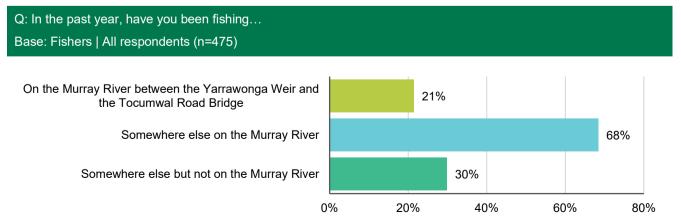
The fishers surveyed tended to go fishing at least once a month (30%) or at least once every three months (28%). Twelve percent (12%) fished more regularly, at least once a week in most weeks.

Figure 8 Frequency of fishing in NSW in the past year



Twenty-one percent (21%) of fishers had been fishing in the ban zone on the Murray River between the Yarrawonga Weir and the Tocumwal Road Bridge when open to fishing in the past year. Sixty-eight percent (68%) had been fishing on the Murray River outside of the ban zone while 30% had fished elsewhere but not on the Murray River.

Figure 9 Fishing locations in the past year



Almost one third (31%) of fishers indicated they nearly always fish on the water by boat. A further 15% fish on the water more often. Nineteen percent (19%) fish nearly always from the shore while 14% fish from the shore more often. Twenty-one percent (21%) of fishers fish equally on the water by boat and from the shore.

Figure 10 Usual fishing spots

Q: When you go fishing, do you usually fish ... Base: Fishers | All respondents (n=475) Nearly always on the water More often on the water About equally on the water and from the shore More often from the shore More often from the shore Nearly always from the shore 14%

Fishers that have fished in the ban zone in the past year were asked how frequently they fished in the area over several periods of time since March 2020.

10%

20%

30%

40%

0%

Fishers most frequently fished in the ban zone in the period December 2020 to February 2021, after the ban period had ended. One in five (20%) of these fishers fished in the banned area more than ten times. Even during the (complete fishing) ban period, from September to November 2020, 40% of fishers said they fished in the banned area at least once.

	MAR-MAY 2020	JUN-AUG 2020	SEPT-NOV 2020	DEC-FEB 2021	JUNE-AUG 2021
Once	19%	21%	12%	12%	12%
Twice	12%	12%	5%	11%	14%
Three or four times	16%	17%	11%	17%	16%
Five or six times	11%	10%	8%	7%	8%
Seven to ten times	4%	3%	2%	9%	3%
More than ten times	10%	5%	3%	20%	5%
Did not go fishing	29%	33%	60%	25%	43%

Table 5 Times fished in ban zone in the past year

Among fishers that had fished in other parts of the Murray River in the past year, the highest proportion (30%) fished in these areas three or four times.

Among those that had fishers in areas other than the Murray River in the past year, the frequency of fishing in these areas was disparate, with 24% fishing once, 21% fishing three or four times, and 20% fishing more than ten times.

Table 6 Times fished in other areas

	OTHER PARTS OF MURRAY RIVER (JUL '20 TO AUG '21)	OTHER AREAS (JUL '20 TO AUG '21)
Once	21%	24%
Twice	18%	12%
Three or four times	30%	21%
Five or six times	13%	15%
Seven to ten times	6%	8%
More than ten times	12%	20%



Future Fishing Behaviour

Fishers were asked how many additional fishing trips they would make to the ban zone if the ban period was reduced to two months, reduced to one month or was abolished completely.

Table 7 reports these results for all fishers as well as the results for fishers that had fished in the ban zone in the past year. Among all fishers, reducing the ban period had a positive relationship with additional fishing trips. Twelve percent (12%) would make five or more trips if the ban was abolished.

Among fishers that had fished in the ban zone in the past year, the positive relationship between reducing the ban period and additional fishing trips was more pronounced. If the ban period was abolished, 36% of these fishers would make five or more fishing trips to the ban zone.

Table 7 Extra fishing trips if ban period was changed

	BAN REDUCED TO TWO MONTHS	BAN REDUCED TO ONE MONTH	BAN WAS ABOLISHED
ALL FISHERS			
None	53%	52%	42%
One	11%	10%	12%
Three	10%	11%	12%
Four	3%	4%	3%
Five or more	3%	7%	12%
Unsure	20%	16%	19%
FISHED IN BAN ZONE IN PAST YEAR			
None	25%	24%	22%
One	15%	11%	10%
Three	23%	16%	13%
Four	10%	12%	4%
Five or more	11%	24%	36%
Unsure	18%	15%	16%

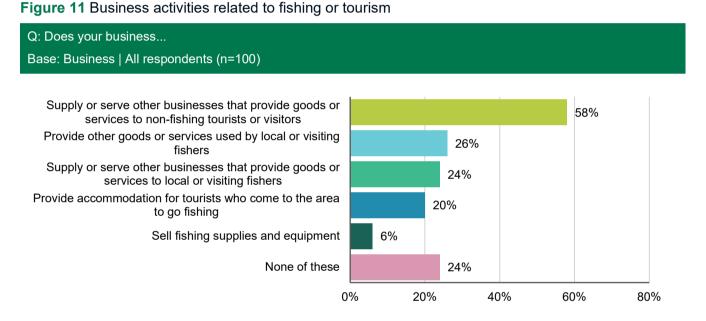


An objective of the Murray River Fishing Socio-Economic Study 2021 was to understand and measure the economic impact of the three-month ban on fishing in the Murray River on businesses, residents and fishers.

6.1. ECONOMIC IMPACT ON BUSINESSES

Six percent (6%) of businesses surveyed sold fishing supplies or equipment. One in five (20%) provide accommodation services for fishing tourists, while 26% provide other goods or services for local or visiting fishers. Twenty-four percent (24%) supplied or serviced other businesses that provide goods or services to local fishers or fishing tourists.

Over half (58%) of businesses supply or serve other businesses that provide goods or services to non-fishing tourists or visitors.



Participants in the business focus group stated the business conditions were more difficult due to the COVID-19 pandemic and the differing rules between NSW and Victoria compared to the three-month fishing ban. These businesses acknowledged that the three-month fishing ban has been instituted for so long that businesses have learned to operate around the period. Businesses therefore found it difficult to quantify the actual losses directly caused by the three-month fishing ban.

These businesses therefore saw the three-month ban period as an opportunity cost, or potential opportunity to make additional revenue, particularly given the similarity in weather to other times of the year such as the Easter long weekend.

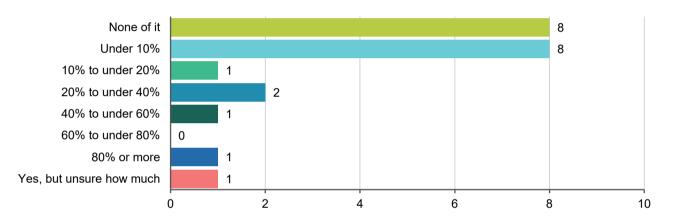
Businesses that provide goods or services to local or visiting fishers were asked how much of their business turnover came directly or indirectly from the level of recreational fishing activity and fishing tourism in the area (see **Figure 12**, below).

Of the 22 businesses that responded to this question, eight businesses reported none, while another eight reported this was under 10%. The remaining responses were spread across higher proportions of turnover.

Figure 12 Business turnover from recreational fishing or fishing-related tourism

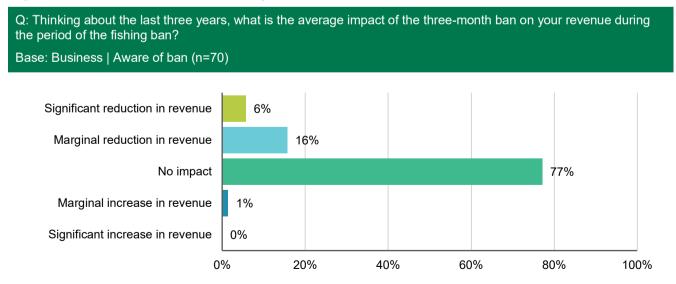
Q: Does any of your business turnover come directly or indirectly from the level of recreational fishing activity and fishing related tourism in your area?

Base: Business | Provide goods/services to local/visiting fishers (n=22) [N reported due to low sample size]



Businesses that were aware of the three-month fishing ban were asked about the average impact of the three-month fishing ban on revenue over the last three years. Three in four (77%) businesses reported no impact on revenue. Sixteen percent (16%) reported a marginal reduction in revenue while 6% reported a significant reduction in revenue.

Figure 13 Impact of three-month fishing ban on revenue



Fifteen businesses that reported a reduction in revenue were asked to estimate the reduction. Six of these businesses could not estimate any effect.

Four businesses reported a reduction in revenue of up to 10% less while four businesses reported a reduction up to 20% less. One business reported a reduction in revenue up to 50% less.

Figure 14 Reduction in revenue from three-month fishing ban

 Q: Again, thinking about the last three years, in percentage terms, can you estimate the reduction in your total annual revenue due to the three-month fishing ban?

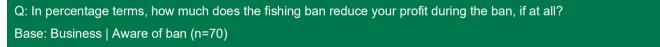
 Base: Business | Fishing ban caused reduction in revenue (n=15) [N reported due to low sample size]

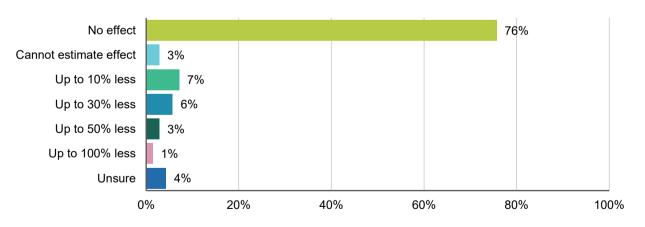
 Cannot estimate effect
 6



Businesses aware of the ban were then asked to indicate how much the three-month fishing ban reduces their profit. Three in four businesses (76%) stated the three-month fishing ban caused no effect on profit. Of the remaining businesses, the most common response was a reduction in profit up to 10% less.

Figure 15 Impact of three-month fishing ban on profit





Of the businesses aware of the three-month fishing ban, 96% indicated that they did not need to increase their overdraft or borrow additional funds to carry them through this period.

Figure 16 Impact of three-month fishing ban on increasing overdraft/borrowings

Q: And do you have to increase your overdraft or borrow additional funds to carry you through that period? IF YES In percentage terms how much does that reduce your profit or increase your loss for the period?

Base: Business | Aware of ban (n=70)



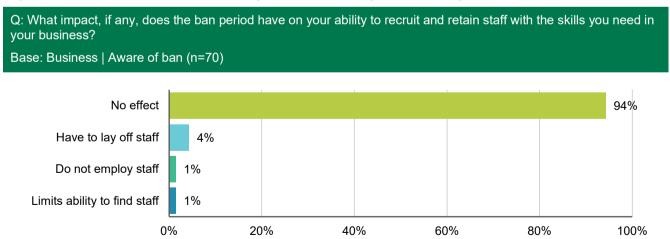
Of the businesses aware of the fishing ban, 97% stated that the three-month fishing ban did not cause a change to their trading hours.





Of the businesses aware of the fishing ban, 94% stated that the three-month fishing ban did not have any effect on their ability to recruit and retain staff.

Figure 18 Impact of three-month fishing ban on recruiting and retaining staff



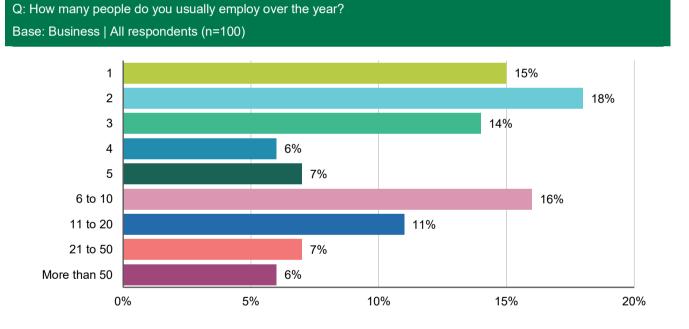
Of businesses aware of the three-month fishing ban, 97% stated it made no difference in terms of accessing the goods and services needed to run their business.

Figure 19 Impact of three-month fishing ban on accessing goods and services

Q: Does the fishing ban period make it more difficult for you to get the goods and services you need to run your business, makes no difference, or make it easier to get the goods and services you need? Base: Business | Aware of ban (n=70) Makes no difference Makes it more difficult to get required goods and services 0% 20% 40% 60% 80% 100%

The businesses surveyed varied in size in terms of number of people employed. The majority of businesses employed five or fewer people. In total, 24% employed more than 10 people, with 6% of businesses employing more than 50 people.

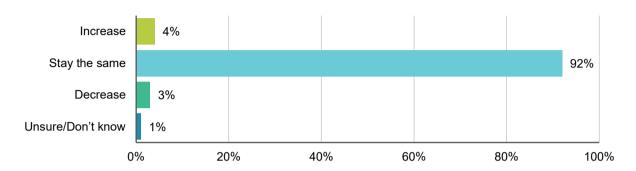
Figure 20 Number of people employed over the year



Ninety-two percent (92%) of businesses surveyed stated the number of people employed stays the same during the ban period from September to November. Four percent (4%) stated they take more workers on while 3% stated their employment decreases.

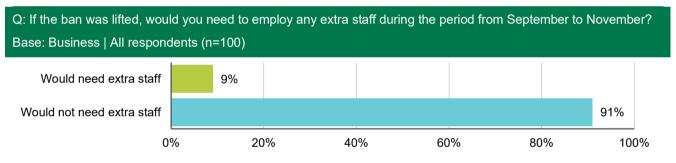
Figure 21 Impact of three-month fishing ban on employment

Q: Does this number increase, decrease or stay the same during the ban period from September to November? Base: Business | All respondents (n=100)



Businesses were then asked how employment would change if the three-month fishing ban was lifted. Nine percent (9%) of businesses stated they would need extra staff. These nine businesses varied in size in terms of number employed.

Figure 22 Impact on employment if three-month fishing ban was lifted



Resident perceptions of impact on local businesses

Residents were asked about their perceptions of the impact of the three-month fishing ban on local businesses.

Thirteen percent (13%) of residents believed the three-month fishing ban caused some businesses to branch out into different lines of business. Nine percent (9%) believed it caused them to lose skills due to skilled people leaving the local area, while only 5% believed it led to some businesses closing.

Seventy-seven percent (77%) of residents believed the three-month fishing ban did not have any of these effects on local businesses.

Figure 23 Resident perceptions of impact of three-month fishing ban on local businesses

Q: From what you have seen and heard, has the three-month fishing ban on the Murray River had any of the following effects on local businesses?

Base: Residents | Aware of ban (n=186)

Caused some businesses to branch out 13% into different lines of business Lost skills due to skilled people leaving the 9% local area to find work elsewhere Caused some businesses to close 5% Not had any of these effects 77% 100% 0% 20% 40% 60% 80%

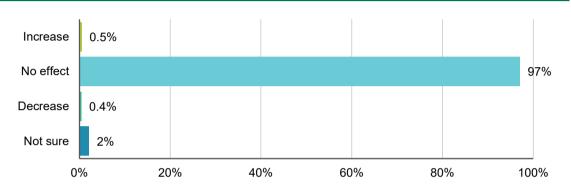


6.2. ECONOMIC IMPACT ON RESIDENTS

Residents aware of the three-month fishing ban were asked how it impacted the income of their family during the ban period. Ninety-seven percent (97%) of residents stated the three-month fishing ban did not impact their household income.

Figure 24 Impact of three-month fishing ban on household income

Q: Does the fishing ban that applies from September to November each year usually increase, decrease or have no effect on your household's income during the ban period (i.e. September to November)? Base: Residents | Aware of ban (n=186)



To compare with the impact of the three-month fishing ban, residents were asked to quantify the negative impact of the COVID-19 pandemic control measures and the impact of drought over the few years prior to the pandemic (see **Figure 25** over page). COVID-19 and drought had bigger economic impacts on residents compared to the three-month fishing ban.

Over half of residents described the negative impact of both COVID-19 and drought as small (less than 10%). Thirteen percent (13%) described the impact of COVID-19 on household income as big (between 10% and 30%) while 4% describe the reduction as very big (more than 30%). Fourteen percent (14%) described the impact of drought as big while 8% described the reduction as very big.

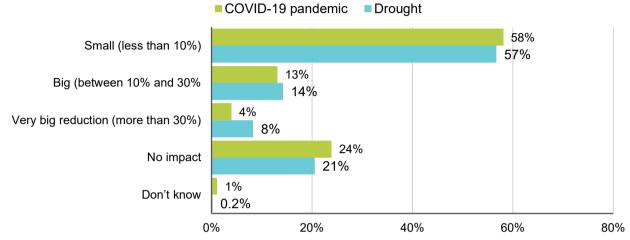
One in four (24%) residents experienced no impact on household income due to COVID-19 while 21% experienced no impact due to drought.



Figure 25 Impact of COVID-19 and drought on household income

Q: Over the duration of the COVID-19 pandemic, has the negative impact of the pandemic control measures on your household income been small (under 10%), big (10% up to 30%) or very big (more than 30%)? Q: And for the few years prior to the COVID-19 pandemic, was the negative impact on your household income from drought been small (under 10%), big (10% up to 30%) or very big (more than 30%)?

Base: Residents | All respondents (n=250)





6.3. ECONOMIC IMPACT OF FISHERS

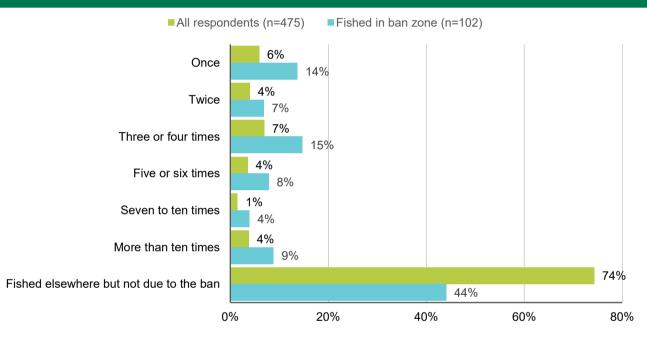
The economic impact of the three-month fishing ban was measured through the impact of fishing trips taken in other regions, and lost spending from fishers in the affected area.

Fishers that had fished in the ban zone in the past year were more likely to have gone fishing somewhere outside the zone because of the ban on fishing. Across all fishers, three in four (74%) indicated that they had fished elsewhere during the year but not due to the ban. This result was lower among fishers that had fished in the ban zone during the past year (44%).

Figure 26 Times fished outside the ban zone due to the three-month fishing ban

Q: In the past year, how often have you gone fishing somewhere outside that zone because of the ban on fishing in that Murray River zone?

Base: Fishers | All respondents (n=475)



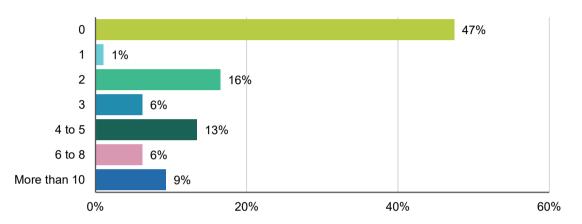
6. ECONOMIC IMPACT

These trips outside of the ban zone were mostly day trips, with almost half (47%) of these fishers indicating they spent 0 nights away. Sixteen percent (16%) of these fishers spent two nights away, while 13% spent four to five nights away.

Figure 27 Nights spent away on fishing trips due to the three-month fishing ban

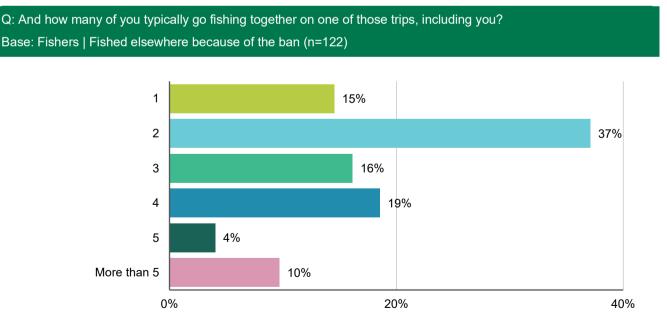
Q: How many nights, if any, did you spend away on fishing trips you took because of the ban on fishing in the Murray River?

Base: Fishers | Fished elsewhere because of the ban (n=122)



Of the fishers that fished elsewhere due to the ban, 37% usually went fishing in a group of two people. The next most common size of party was four people (19%). One in ten (10%) typically would go on these trips with more than five people.

Figure 28 Size of party on fishing trips away due to the three-month fishing ban



6. ECONOMIC IMPACT

Fishers that had fished in the ban zone in the past year were asked to indicate the smallest, largest and most usual size of the party when fishing.

Almost half (43%) of fishers that had fished in the ban zone in the past year usually fished in a group of two people. One in four (26%) usually fished alone.

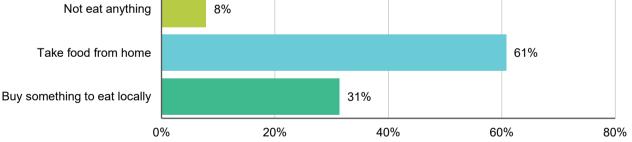
Table 8: Size of party when fishing in the ban zone

	SMALLEST NUMBER	LARGEST NUMBER	USUAL NUMBER
Only one - fished alone	37%	25%	26%
Тwo	49%	25%	43%
Three	6%	17%	15%
Four or five	6%	15%	15%
Six or seven	1%	8%	1%
Eight to ten	1%	3%	0%
More than ten	0%	7%	0%

More than half (61%) of fishers that had fished in the ban zone in the past year took usually took food from home when fishing. One in three (31%) bought something to eat locally.

Figure 29 Eating when fishing in the ban zone



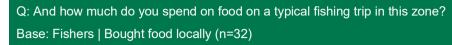


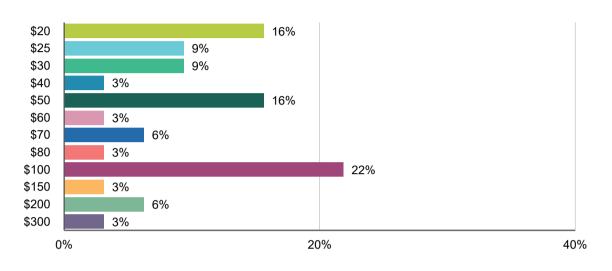
6. ECONOMIC IMPACT



Fishers that bought food locally typically spent \$100 or less on food during a typical fishing trip. Twenty-two percent (22%) of these fishers spent \$100, while 16% spent \$50 and 16% spent \$20.

Figure 30 Amount spent on food during fishing trip in the ban zone







In addition to the surveys and focus groups, Taverner Research conducted five in-depth interviews with local fishing, environmental, business and economic stakeholders. These comprised:

- 1. A senior representative of Berrigan Shire Council (BSC) with responsibility for economic development
- 2. A member of Recreational Fishing NSW (RFNSW)
- 3. A representative of the Murray-Riverina Chamber of Commerce (MRCC)
- 4. A representative of the South-West Anglers Association (SWAA)
- 5. A representative of the Nature Conservation Council (NCC)

Discussion with each group centred around four common themes:

- 1. The importance of, and plans for the local fishing/fishing tourism economy and community
- 2. The importance of sustainable economic development to the region/LGA/organisation
- 3. The impact of the annual three-month cod/trout fishing ban on the local and regional economy and community; and
- 4. Any advocacy (the stakeholder group had undertaken (or will undertake) with the NSW government in relation to the ban

This summary will outline the key discussion points for each theme.

Theme 1: The importance of, and plans for the local fishing/fishing tourism economy and community

All agreed that tourism is critical to the local economy – according to the BSC representative it is the second largest economic activity (after agriculture), worth \$98m to that shire's economy in 2019/20 – and there was similar consensus that fishing is an important contributor to tourism activity.

"Recreational fishing is very important to the local economy and (Council) supports sustainable fishing tourism by focusing on infrastructure development...We are happy to promote fishing and it is in our plans to build fishing stations." (BSC rep)

"(Fishers') direct spend includes tackle, fuel for boats. Fishers are particular about their gear. They would generally buy their boats and big expenditures items closer to home where they can be more conveniently serviced. But they like to visit the local tackle shops to buy items for their trip...Flow on to regional tourism is huge from accommodation to associated tourism ventures." (RFNSW rep)

"(Fishing) certainly forms part of the overall (tourism) offering in the region, along with boating and water skiing, especially at Yarrawonga Weir." (MRCC rep)

However, one stakeholder believed that the majority of the economic activity is currently serviced from the Victorian side of the border (e.g. Cobram).

The MRCC representative claimed that the COVID-related border closure has cost the local tourism sector \$2.5 billion, mostly from the loss of Victorian visitors. And obviously he was keen to see further steps to encourage renewed tourism growth in the area.

However, he was unaware of the fishing ban issue prior to being contacted for this research, and said he has never received advocacy from members, other affected businesses, community groups or anglers for the three-month ban to be lifted.

The SWAA claims local businesses are quiet earlier in the year (due to low river levels, blue-green algae outbreaks, black water events, etc which are not attractive to visitors), but are then disadvantaged once spring arrives because of the ban.

"They get through the winter event and entering spring there is a total close to all forms of fishing. Caravan parks are fully booked downstream, but local businesses are quiet." (SWAA rep)

However, the SWAA has not conducted any research of its own to quantify the impact.

Over recent years it has become difficult to separate the impacts of the fishing ban (if any) with that of COVID-19 and related travel restrictions. The BMC representative said that COVD-related impacts has had a massive impact on local tourism, and hence to the community as a whole. This has manifested itself with issues such as:

- Sourcing agricultural works for harvest time
- Impact on local business revenue with tourism affected by lockdown decisions in Victoria (which he claims represent 80% of visitations)
- The absence of Jobkeeper and other business supports in 2021
- Visitor stays limited to one night.
- Council beginning to experience requests for rates payment deferments.

In addition to COVD-19 impacts, the RFNSW representative pointed to the impact of drought on fish stocks, tourism and (hence) the economy.

"Drought has stymied fishing growth. (I am) looking forward to some benefits of water reform within the Murray Darling basin with things like fish passage programs, screening, increased stocking, native fish strategies. We've been looking to capitalise on a significant period of growth in recreational fishing and anticipated growth in local tourism demand post the COVID-19 lockdown." (RFNSW rep)



Theme 2: The importance of sustainable economic development to the region/LGA/organisation

No-one we spoke to disagreed that sustainable economic development was critical, and that healthy fish stocks were an important component of this. And there was also consensus that the three-month ban had been beneficial to fish stocks.

"A sustainable economy and society are a priority to Council and as such it would take a long-term view in relation to the health of the river and its fish stocks." (BSC rep)

"The closure has been necessary and beneficial ecologically and socio-economically." (RFNSW rep)

"We were quite in favour of the recovery program. We just feel that maybe this has gone on for a little too long." (SWAA rep)

"The state of the rivers has deteriorated significantly in my lifetime. In no small way (this is due) to river management...We had a hypoxic black water event recently which saw large cod to go belly-up." (NCC rep)

However, views diverged sharply on whether the three-month ban was still required. Some stakeholders felt the ban should be maintained for environmental reasons.

"The ban during the breeding cycle is vital as the behaviour of these fish changes. Fish will protect their babies and attack anything dangled in-front of them and they are getting stressed...They respond to spawning cues, but if they are impeded by locks and weirs this affects their breeding health." (NCC rep)

"The 2018 Menindee fish kill showed the fish were around 30-40 years old. This ban has been in place 16 years - that is half a life of a massive Murray Cod. So have we seen enough change in half a life cycle? We really don't yet have the next generation to be able to say categorically that this has or hasn't worked..." (NCC rep)

Others felt that the ban had served its purpose and was now redundant.

"The ban has achieved its job...fishers act in the interest of sustainable fishing and the ban should be lifted to allow fishing all year around (except trout cod) which will boost economic activity and social amenity in the area....We are in favour of the trout cod ban, but not the total closure of the reach to fishing." (SWAA rep)

The NCC representative supported the continuation of the ban, believing it would have a positive (longer-term) impact on sustaining fish stocks and hence tourism.

"We don't want to punish anglers or pit anglers against each other. OzFish Unlimited is all for the ban. Their anglers understand the breeding cycle of fish. The need for protecting and conserving stocks when they are in that delicate breeding process. And I think most recreational fishers understand you can fish a species to extinction."



Theme 3: The impact of the annual three-month cod/trout fishing ban on the local and regional economy and community

The SWAA representative said he had anecdotal information from local business, some of whom are members and committee members of SWAA, supporting its claim of the negative socio-economic impact of the ban.

"The tackle shops and tourism guys were complaining loud and hard."

They also believe that:

"The ban closes the Victorian school holiday period and represents a significant lost opportunity to other regions along the river." (SWAA rep.)

Others saw economic benefit from the closure. BSC promotes the annual Cod Opening Classic held in Mulwala which (they said) draws thousands of fishers and tourists each year and is a positive, major boost to the local economy.

"The town does very, very well (from this event)." (BSC rep)

The RFNSW representative was broadly supportive of the current ban:

"It covers...a reasonably small reach of the Murray River. While it is undoubtedly inconvenient for local fishers, they still have many alternative fishing options nearby on river and its tributaries."

They also felt that the net impact of the three-month ban was likely to be positive:

"The closure has had an undoubted benefit. I think it has been a benefit to all fishes and has seen that reach of the river become an iconic, destination fishery. So while it's fully closed for the closure zone, I think the economic benefit (for the rest of the year) is significant." (RFNSW rep)

And they felt the long-term indicators are likely to be better still:

"The improvement in the fisheries through that reach through bag and size limits, slot limits, through the trout cod closure...(has been) a massive improvement. I can see the immense benefits of the closure. I see that there is much science and monitoring still to do on trout cod...I think there is still a fair bit to do before any relaxation of the closure zone. But, certainly we are seeing trout cod push down into Torrumbarry Wier pool. I've seen some captures as far down as Swan Hill. That can only be a good thing, when fish populations are building to a point they are moving away from their area."

"It's conceivable that with higher water flows we will see fish back into the Edwards River – the potential is there to disperse the population into perfect trout habitats. There is a good few years to go to see where the trout cod end up." (RFNSW rep)

The Council representative was not aware of any negative impact to the LGAs economy from the fishing ban and said they had not received any formal expressions of concern from local businesses or other organisations in relation to this.

"I don't think we've ever been lobbied by any local business in regards (sic) to cod season."

Theme 4: Any advocacy (the stakeholder group had undertaken (or will undertake) with the NSW government in relation to the ban.

The SWAA has been advocating for the three-month ban to be lifted.

"Prior to the last review we canvassed a lot of people, we had a petition with around 650 signatures on it which we submitted to Government."

"We just felt the closure has had such an impact on local communities that this was worthy of being considered." (SWAA rep)

The SWAA does not agree with the proposition that the closure creates an abundance of aquatic life for the rest of the year that balances-out low demand during the annual ban period.

"We are in favour of the trout cod ban, but not the total closure of the reach to fishing...You take 25% out of the year, it will impact on the economy and community."

"Local tackle shops, bait shops, caravan parks are the ones that have approached us (mostly from Cobram, Shepparton and Mulwala) about their concerns. I spoke to individuals in the area but haven't a lot of feedback from them." (SWAA rep).

Council has not lobbied the State Government in relation to the fishing closure, nor has any polices or plans in place to do so at this stage. Should Council be lobbied by the community about this issue, it says it would consider the matter closely at that stage and act accordingly.

As noted previously, the MRCC representative said they had not received any advocacy from members, but that this may change in future. The Chamber views the river economy around water security rather than strictly recreation usage.

"The Chamber developed a water security position during the drought due to the impact on downstream communities. This is where our focus is for the local economy and communities."

"I think the general trend in the community is to recognise that (development) is a longterm plan and that sustainability piece is very important."



"Water allocations is much more front and centre than this particular issue. The impacts may be localised to that part of the river, and...I can see how this would have an impact and there would be concern."

"In relation to the ban, (MRCC) recognises and supports sustainable approaches to natural resource management in general and in this context the fishing ban appears sensible to it to sustain levels of healthy fish populations and the related economic and recreational wellbeing of locals and visitors."

Meanwhile the RFNSW representative says they would prefer to see the closure maintained for now. However, they would like NSW DPI to give a definitive timeline for a fundamental analysis of the threatened species and fisheries from both a scientific and market research perspective.

The NCC representative likewise noted that the science, government, industry and community needed to work together to resolve these matters.

8. APPENDIX 1 – SAMPLE PROFILE

RESIDENTS SURVEY

Table 8 Residents Survey – Sample Profile

GENDER	%	N
Male	50%	124
Female	50%	124
Other	0.4%	1
Prefer not to say	0.4%	1
AGE	%	Ν
18 to 34 years	11%	28
35 to 44 years	19%	46
45 to 54 years	14%	34
55 to 64 years	18%	46
65+ years	38%	96
LOCATION	%	N
Tocumwal	39%	98
Barooga	32%	79
Mulwala	25%	61
Between or near one of these towns, within 100kms of the river	4%	11
LENGTH OF TIME LIVED IN THE LOCAL AREA	%	N
Up to one year	0.9%	2
More than one up to three years	4%	11
More than three up to five years	6%	14
More than five up to ten years	11%	27
More than ten up to 20 years	27%	66
More than 20 years	52%	129
EMPLOYMENT STATUS	%	N
Full time	42%	105
Part time/Casual	15%	38
Don't do paid work (e.g. retired, home duties)	43%	107

8. 0BAPPENDIX 1 – SAMPLE PROFILE

BUSINESS SURVEY

Table 9 Business Survey – Sample Profile

LOCATION	%	Ν
Finley	38%	38
Tocumwal	26%	26
Barooga	17%	17
Mulwala	14%	14
Savernake	2%	2
Boomanoomana	1%	1
Deniliquin	1%	1
Yarrawonga	1%	1

8. 0BAPPENDIX 1 – SAMPLE PROFILE

FISHERS SURVEY

 Table 10 Fishers Survey – Sample Profile

GENDER	%	Ν
Male	83%	393
Female	16%	74
Other	0.2%	1
Prefer not to say	1%	7
AGE	%	N
18 to 24 years	7%	31
25 to 34 years	14%	66
35 to 44 years	20%	95
45 to 54 years	24%	116
55 to 64 years	27%	126
65 plus years	8%	36
Prefer not to say	1%	5
LOCATION	%	Ν
Mulwala	7%	31
Barooga	3%	13
Tocumwal	3%	12
Between or near one of these towns, within 100kms of the river	88%	419
STATE	%	Ν
NSW	56%	267
Victoria	44%	208
EMPLOYMENT STATUS	%	Ν
Full time	69%	330
Part time/Casual	14%	67
Don't do paid work (e.g. retired, home duties)	12%	57
Prefer not to say	4%	21

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