



Exploring changes in recreational fishing participation and catch due to COVID-19 – a WA case study

In the initial stages of Western Australia's COVID-19 outbreak (February to August 2020), there were shifts in how people visited different regions and engaged in fishing. This could have led to increased fishing activity in regional fishing locations and greater economic benefits for regional towns.

A two-year project is underway to investigate any changes in recreational fishing participation and catch during COVID-19 in Western Australia. This project is supported by funding from the Australian Government through the Fisheries Research and Development Corporation.

The project uses data from five statewide surveys across four marine bioregions in Western Australia.

There are four themes within this project:

- Collate social and economic indicators to improve understanding of changes in recreational fisheries
- Investigate economic indicators to provide insights from Economic Contribution and Consumer Surplus modelling
- Investigate recreational fisher indicators to provide insights on changes in participation and catch associated with recreational fishing tourism, and
- Investigate community indicators to provide insights on changes in Recreational Fishing Licences and internet searches associated with recreational fishing.

Social and Economic Indicators

Improving understanding of changes in recreational fisheries

Background

Recreational fishing is a popular pastime in Western Australia, providing both important social and economic benefits for the state.

Future fisheries assessments require information on recreational harvest, as well as social and economic data and information related to the recreational fishing experience.

The integration of social and economic indicators is highly anticipated for future fisheries management.

This project focuses on the use of indicators relevant to recreational fishing to measure the impact of travel restrictions, and social and physical distancing measures associated with COVID-19.

Snapshot

Table 1: *Participation in recreational fishing in Western Australia in 2020/21 (DPIRD 2023).*

Indicator	Western Australia
Participation rate	25%
Number of people who participated in recreational fishing at least once in the previous 12-month period	633,000 (95% CI [552 000, 713 000])

Approach

This research component collates social, economic and community indicators that measure the socio-economic impacts of COVID-19 on recreational fishing. These indicators can be related to recreational fishers (e.g., participation, catch and harvest), recreational fishing linked businesses (e.g., economic benefit from supply and other business activity), and community (e.g., stewardship and economic contribution to recreational fishing tourism). Indicators are assessed in terms of the type of benefit (or beneficial outcome) measured, whether they reflect direct or indirect change, and data availability.

Next steps

A list of potential social and economic indicators for recreational fishing will be developed.

A stakeholder survey will be used to engage with stakeholders and understand opinions on a range of social and economic indicators related to recreational fisheries.

Economic Modelling

Insights from Economic Contribution and Consumer Surplus modelling

Background

Recreational fishing, like many other recreational activities, contributes to economic activity in Australia. This is because recreational fishing activity is supported by the spending of fishers, which leads to production and employment in the economy.

Recreational fishers also derive benefits from their fishing experience. This is referred to as the 'value of the experience' and is related to the consumer surplus fishers derive from fishing.

Snapshot

Table 2: Economic contribution of recreational fishing in 2018/19 (Moore et al. 2023).

Economic indicator	Australia	Western Australia
Gross Domestic Product (GPD)	\$11.5b	\$1.18b
Full-time equivalent jobs	100,000+	9,000+

Approach

This research component will estimate both economic contribution and consumer surplus.

Economic contribution of recreational fishing to the WA economy will be measured at state and residential region levels. This includes: 1) Indicators (Employment, Gross State Product (GSP/GRP) and Household income), 2) Components (direct, flow-on and total), and 3) Region (9 Regional Development Commissions and the Perth Metropolitan area).

Consumer surplus value of recreational fishing to recreational fishers in WA will be measured at state and fishing region levels. The travel cost method will be used to estimate consumer surplus, such as relating to the value of time spent travelling, trip costs, and inclusion of fixed costs. The results will estimate the net benefits recreational fishers derive from fishing, or the 'value of the experience'.

Next steps

Approaches developed for economic modelling at state and regional levels will be used for economic modelling at state and regional levels in the future.

The results will deliver several of the economic indicators explored in the Social and Economic Indicators component of the project.

Regional Fishing Activity

Insights from the statewide surveys on changes in participation and catch associated with recreational fishing tourism

Background

Five statewide surveys have been completed in Western Australia providing information from recreational fishers in 10 residential regions (9 Regional Development Commissions and the Perth Metropolitan) and their fishing activity at statewide, bioregion and zone levels.

Most recreational fishing in Western Australia occurs in the West Coast bioregion by residents from the Perth Metropolitan area, but how much fishing occurs in regional locations, and how much fishing activity in each region is from local and non-local fishers? This project explores changes in local and non-local recreational fishing in regional Western Australia from 2011/12 to 2020/21.

Snapshot

Table 3: Proportion of statewide effort and catch across four marine bioregions in Western Australia in 2020/21 (Ryan et al. 2022).

Bioregion	Effort	Catch
North Coast	8%	6%
Gascoyne Coast	13%	9%
West Coast	73%	78%
South Coast	6%	7%

Approach

This research component will compare effort and catch from local and non-local recreational fishing at the fishing region level (four marine bioregions and eight fishing zones) in 2020/21 with previous statewide surveys. This will highlight any changes in fishing effort to assess changes in visitation to regional locations over time and in relation to COVID-19, and any changes in fishing catch in regional fishing locations to assess impacts associated with increased visitation and effort.

Next steps

Investigate impacts linked to increased visitation from local and non-local recreational fishers, and any subsequent impacts of increased fishing at localised areas.

The results will demonstrate applications of several of the recreational fisher indicators explored in the Social and Economic Indicators component of the project.

Culturomics

Insights from licences and internet searches associated with recreational fishing

Background

An international study published earlier this year investigated changes in recreational fisheries during 'pre-pandemic' (up to and including 2019); 'acute pandemic' (2020) and 'COVID-acclimated' (2021) periods. Recreational fishing licence sales increased in some jurisdictions during 2020, including Western Australia. Internet search volumes associated with recreational fishing increased substantially during 2020.

Snapshot

Table 4: *Western Australian recreational fishing licensed activities (DPIRD 2023).*

Year	Recreational Boat Fishing	Rock Lobster
2017/18	135,384	55,368
2018/19	124,260	51,474
2019/20	122,559	50,210
2020/21	132,508	56,362
2021/22	133,815	56,397

Approach

This research component will assess temporal changes in administrative and digital information associated with recreational fishing.

Administrative information includes the number of recreational fishing licences issued for 6 licence categories – Abalone, Freshwater Angling, Marron, Net Fishing, Recreational Boat Fishing, and Rock Lobster.

Digital information includes the volume of internet searches using Google Trends categories related to recreational fishing tourism, regions, and cities.

Temporal changes will be assessed by comparing licences issued and internet searches over pre-pandemic (2016–2019), acute pandemic (2020) and COVID-acclimated (2021–2022) periods.

Next steps

Investigate the potential of administrative and digital data to identify temporal and spatial patterns in human behaviour associated with recreational fishing tourism.

The results will demonstrate applications of several of community indicators explored in the Social and Economic Indicators component of the project.

Further information

Britton *et al.* 2023. Global responses to the COVID-19 pandemic by recreational anglers: considerations for developing more resilient and sustainable fisheries. *Reviews in Fish Biology and Fisheries* May 1–17. <https://doi.org/10.1007/s11160-023-09784-5>

DPIRD 2023. Annual Report 2021/22.

<https://www.wa.gov.au/government/publications/annual-report-2022-department-of-primary-industries-and-regional-development>

DPIRD 2023. Statewide Recreational Fishing Survey.

<https://www.fish.wa.gov.au/statewide-recfishing>

Moore *et al.* 2023. National Social and Economic Survey of Recreational Fishers 2018-2021. FRDC Project No 2018-161. 253 pp. <https://www.frdc.com.au/project/2018-161>

Ryan *et al.* 2021. Initial insights on the impact of COVID-19 on boat-based recreational fishing in Western Australia. *Marine Policy* 132, 104646.

<https://doi.org/10.1016/j.marpol.2021.104646>

Ryan, Lai & Smallwood 2022. Boat-based recreational fishing in Western Australia 2020/21. Fisheries Research Report No. 327. <https://www.fish.wa.gov.au/statewide-recfishing>

Project partners



Department of
Primary Industries and
Regional Development



UNIVERSITY OF
TASMANIA



Institute for Marine and Antarctic Studies



FRDC
FISHERIES RESEARCH AND
DEVELOPMENT CORPORATION

Acknowledgment of Country

The Department of Primary Industries and Regional Development (DPIRD) acknowledges the Traditional Custodians of Country, the Aboriginal people of the many lands that we work on and their language groups throughout Western Australia and recognises their continuing connection to the land and waters. DPIRD respects the continuing culture of Aboriginal people and the contribution they make to the life of our regions, and we pay our respects to Elders past, present and emerging.

Funding

FRDC Project 2022-001 “Exploring changes in recreational fishing participation and catch due to COVID-19 – A WA case study” is supported by funding from the Fisheries Research and Development Corporation on behalf of the Australian Government.

Important Disclaimer

The Chief Executive Officer of the Department of Primary Industries and Regional Development and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

Copyright © State of Western Australia (Department of Primary Industries and Regional Development), 2023.