

Survey of recreational fishing in NSW, 2023/24 – Key Results

Taylor, M. D., Ochwada-Doyle, F.A., van der Meulen, D.E., Hughes, J.M., Hunt, A., West, L.D., Morris, S.G., Miles, N.G., Fowler, A.M., and Murphy, J.J.

July 2025



Published by the Department of Primary Industries and Regional Development

Title: Survey of recreational fishing in NSW, 2023/24 – Key Results

First published: September 2025

Department reference number: D25/133044

ISBN: 978-1-76058-978-3 (Online)

More information

Dr. Matt Taylor, Port Stephens Fisheries Institute, Locked Bag 1, Nelson Bay, NSW 2315, Australia

Funding acknowledgement

Funding for this project was provided by the New South Wales (NSW) Recreational Fishing Trusts and NSW Department of Primary Industries and Regional Development (NSW DPIRD).



© State of New South Wales through Department of Primary Industries and Regional Development, 2025. You may copy, distribute, display, download and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Primary Industries and Regional Development as the owner. However, you must obtain permission if you wish to charge others for access to the publication (other than at cost); include the publication in advertising or a product for sale; modify the publication; or republish the publication on a website. You may freely link to the publication on a departmental website.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2025) and may not be accurate, current or complete. The State of New South Wales (including the NSW Department of Primary Industries and Regional Development), the author and the publisher take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.

Contents

<i>Acknowledgements</i>	5
<i>Survey of recreational fishing in NSW, 2023/24 - Key Results</i>	6
Program Principal Investigators:	6
Program Co-Investigators (Consultants):	6
<i>Non-technical summary</i>	7
Objectives	7
Key words	7
Fishing participation and effort	7
Catch	7
Comparison with previous surveys	8
Summary	9
<i>Introduction</i>	10
Structure of this report	10
<i>Background and Methodology</i>	11
Why do we monitor recreational fishing within NSW?	11
The Recreational Fisheries Monitoring Program	11
Who is included in the survey?	12
Overview of survey approach	12
Screening Survey	13
Diary Survey	15
Non-intending Fisher Follow-up Survey	15
What data are reported during the Diary Survey?	15
How are the survey data analysed?	16
Reporting categories and definitions	17
<i>Summary of High-level Results</i>	20
NSW Recreational Fishing Fee Receipt sales	20
Broad RFMP Telephone-Diary Survey statistics	21
Participation	22
Fishing effort	25
Catch	29
<i>Report cards for key species</i>	37
Bream (species complex)	37
Dusky Flathead (<i>Platycephalus fuscus</i>)	38
Sand Flathead (species complex)	39
Snapper (<i>Chrysophrys auratus</i>)	40
Sand Whiting (<i>Sillago ciliata</i>)	41
Tailor (<i>Pomatomus saltatrix</i>)	42
Yellowtail Kingfish (<i>Seriola lalandi</i>)	43
Luderick (<i>Girella tricuspidata</i>)	44
Australian Salmon (<i>Arripis trutta</i>)	45
Leatherjacket (species complex)	46
Silver Trevally (<i>Pseudocaranx georgianus</i>)	47
Grey Morwong (<i>Nemadactylus douglasii</i>)	48
Mulloway (<i>Argyrosomus japonicus</i>)	49
Murray Cod (<i>Maccullochella peeli</i>)	50
Australian Bass (species complex)	51

Golden Perch (<i>Macquaria ambigua</i>)	52
Brown Trout (<i>Salmo trutta</i>)	53
Rainbow Trout (<i>Oncorhynchus mykiss</i>).....	54
Blue Swimmer Crab (<i>Portunus armatus</i>).....	55
Yabbies (species complex)	56
<i>Discussion</i>	57
Participation and effort.....	57
Catch.....	57
Summary	57
<i>References</i>	59
<i>Appendices</i>	61

Acknowledgements

This report would not have been possible without significant contributions from many people.

Firstly, we thank the many recreational fishers who voluntarily participated in the survey, particularly for their continued co-operation over the 12-month Diary Survey period.

We thank the Recreational Fishing NSW Advisory Council (RFNSW) and NSW Recreational Fishing Trust Expenditure Committees for supporting and funding this project.

The staff from Kewagama Research were vital to the success of the project. We thank the dedicated and professional team of highly-experienced interviewers, including Janette and Colin Buchanan, Bel Dobson, Sue and Renae Collins, and Robyn and Terry Parry. All interviewers develop excellent rapport with fishers during the Diary Survey, and this is integral to the success of the project and the high retention rates for fishers who contributed data to the survey over the 12-month period. Also, thanks to the specialist data entry and editing staff whose attention to detail and accuracy are always very much appreciated: Alicia Trinder, Joanne Berridge and Tony Ho. Cheryl Munro, Assistant Survey Manager, aided in the management of all interviewing and office staff, along with database development and data editing.

Many NSW Department of Primary Industries and Regional Development – Fisheries (DPIRD-Fisheries) staff assisted the project, including Sarah Doran of the Recreational Fisheries Licensing group who provided access and training in the NSW Recreational Fishing Licence Database system, and Nick Meadows who greatly assisted in the standardisation and refinement of location data in the survey.

We also thank Emily Thompson, Pamela Gallagher, Bryan van der Walt, Ben Doolan, Emma Simpson, Michael Lowry, Thor Saunders, and Rowan Chick, for their administrative, technical or scientific input throughout this survey.

Survey of recreational fishing in NSW, 2023/24 - Key Results

Program Principal Investigators:

NSW DPIRD-Fisheries Departmental Staff (Recreational Fisheries Research Program):

Matthew D. Taylor, Jeff J. Murphy, Faith A. Ochwada-Doyle, Julian M. Hughes, Dylan E. van der Meulen, Andrew Hunt, Stephen G. Morris, Nathan G. Miles, and Ashley M. Fowler

c/o Port Stephens Fisheries Institute

Locked Bag 1

NELSON BAY NSW 2315

Phone: (02) 4982 1232

Program Co-Investigators (Consultants):

Kewagama Research – Laurie D. West (Managing Director)

PO Box 1333, Noosaville, QLD 4566

Phone: 0411 696 177

Non-technical summary

Objectives

To provide detailed information on recreational fishing in NSW waters, including annual catch and effort information for long-term (1 or 3-year duration) NSW recreational fishing licence holders (RFL holders) and other members of their households (RFL household fishers) – by fishing method, platform (boat or shore), waterbody type (ocean waters, estuaries, rivers and lakes/dams) and for six defined fishing zones during the period November 2023 to October 2024.

Key words

Recreational fishing, telephone-diary survey

Fishing participation and effort

The 2023/24 survey estimated that 359,902 residents of RFL households aged five years and older fished at least once in NSW waters during the twelve months from November 2023 to October 2024 across a variety of freshwater and saltwater environments. This equated to a total estimated fishing effort of 2,111,314 fisher-days.

Overall, saltwater fishing represented 73% of the total fishing effort while fishing in freshwater accounted for the remaining 27%. The majority of saltwater fishing (66% of saltwater effort) occurred within estuaries with the remainder (34%) in ocean waters. For freshwater fishing, the majority of effort (72%) occurred in rivers, with the remainder occurring in lakes and dams (28%).

Shore-based fishing accounted for 59% of all effort and line fishing (with bait or lures) was the dominant fishing method at 91% of the total effort.

Regionally, three coastal saltwater fishing zones accounted for the vast majority (73%) of all state-wide effort, and the Central and North coastal regions (30% and 28% respectively) had the highest activity levels among these coastal regions. Within the three freshwater zones, the majority of state-wide freshwater effort (75%) occurred within the Murray-Darling region.

Catch

Survey participants recorded the capture of a diverse range of finfish, elasmobranchs (sharks and rays), crustaceans, molluscs, and other taxa, with 144 species and species groupings caught during 2023/24.

Overall, the total state-wide recreational catch of RFL households was estimated to be 9,437,467 individual organisms, with 4,912,922 being kept (52% of total catch) and the remaining 4,524,545 released (48% of total catch).

In terms of saltwater fish, Bream was the most common species/group caught (an estimated 1,265,260 individuals), followed by Dusky Flathead (892,908), Snapper (517,486) Sand Whiting (297,480) and Sand Flathead (mainly Eastern Bluespotted Flathead; 270,304). Among freshwater fish, European Carp (519,622) was the most common species caught, followed by Murray Cod (325,457), and Rainbow Trout (130,493).

The smaller crustacean species dominated the remainder of the total catch, including saltwater nippers (859,952), followed by saltwater prawns (236,610) and freshwater shrimp (101,828).

Freshwater yabbies (126,011) accounted for the majority of the larger crustaceans, followed by Mud Crab (139,034), Blue Swimmer Crab (117,936), Murray Crayfish (15,813), and Rock Lobster (13,499).

Overall, 48% of all individuals caught were released (or discarded), and release rates for the two most common finfish species/groups, Bream and Dusky Flathead, were 76% and 63% respectively. The highest rates of release among saltwater species were observed for Toadfish/Pufferfish, and shark species, and the species/groups with the lowest release rates included 'bait species' and prawns. For key freshwater finfish species/groups the highest rates of release included Trout Cod, Silver Perch, Freshwater Catfish (which are all threatened species), as well as Australian Bass, and Murray Cod.

In terms of reasons for release, 'undersize' was the primary release reason for over two-thirds of all species groups and especially for sought after edible species/groups, such as Bream, Dusky and Sand Flathead, Sand Whiting, whereas 'catch and release' fishing was the key reason for release for key freshwater finfish such as Murray Cod and Trout species.

Comparison with previous surveys

Survey statistics

When comparing trends in the recreational fishery over time, it is important to note that sample sizes were similar among the five surveys completed so far. Net sample size for the current survey (2,043 RFL households) was similar to the previous four surveys (average of 1,950 from 2013/14 to 2021/22).

Response rate for the 2023/24 survey was lower than previous years, with ~73.7% of households that were successfully contacted, responding to the initial Screening Survey. The response rate in 2013/14 was 89.6%, 82.6% in 2017/18, 80.8% in 2019/20 and 82.0% in 2021/22. The proportions of eligible RFL households that completed the 2023/24 survey remained high at 95.6%, compared to an average of ~92.1% over the 2013/14 to 2021/22 surveys.

This consistency in response and completion rates among surveys allows for robust comparisons to be made. However, the issue of inter-annual variability among survey timepoints is a critical factor when interpreting any differences. These include environmental influences, natural changes in abundance, and socio-economic differences among survey years. Other factors that may also influence patterns include changes to fishing practices (e.g., increased usage of lures, increased preference for catch and release), targeting preferences, technology (e.g., GPS availability, improvements to sounders), and regulations (e.g., size and bag/possession limits), among other things.

License sales and participation

Licence sales and renewal figures declined between 2011 and 2020, with a sharp drop in 2021/22. Sales of long-term (1 and 3 year) licenses increased from 2022-2024, whereas sales of short-term (3 day and 1 month) licenses declined slightly. Overall, total license sales have been steadily increasing since 2021/22.

The 2023/24 survey showed an increase in recreational fishing participation (number of persons in RFL households who fished) to 359,902 persons, which was greater than the number of persons estimated for the 2019/20 and 2021/22 surveys. This increase was similar across total participation (all persons), RFL holders, others within RFL households, and total households.

Fishing effort and catch

The 2023/24 survey showed an increase in fishing effort to 2,111,314 fisher-days, which was greater than the previous two survey years (2019/20 and 2021/22) and roughly matched the effort estimated in 2017/18.

The relative composition of key finfish and invertebrate species caught has been comparatively stable through the survey time-series, although there was some variation in catch at the species level. Similarly to effort, the total catch (kept plus released) for all species in 2023/24 increased to 9,437,467 individuals, and exceeded the total catch for survey years 2017/18 to 2021/22.

The most common species reported in the survey — Bream and Dusky Flathead — both increased in 2023/24, with Dusky Flathead catch increasing substantially. Catch of Sand Flathead also increased relative to 2021/22, but remained well below the historical average from 2013/14 to 2019/20. The catch of Snapper in 2023/24 increased substantially compared with 2021/22, whilst the catch of Sand Whiting was similar. Of the common freshwater species, Yabbies, and several trout species showed lower catches in 2023/24. Catch of Blue Swimmer Crab showed a substantial increase in 2023/24, which was similar to observations of commercial catch across NSW.

Summary

Despite continued environmental challenges facing both freshwater and saltwater ecosystems in NSW, including major coastal flooding across different parts of the state in November-December 2023, and April-June 2024, indices of recreational fishing participation and performance generally increased in 2023/24. This included increased catch across many of the most important recreational species, as well as the highest catches yet recorded for certain species.

The data collected provides a robust insight into the changes in the NSW recreational fishery through time, and the potential influences of extrinsic factors on recreational fishing activity. The time-series collected by the RFMP continues to aid government and industry in understanding the potential consequences of major environmental (e.g., droughts, floods, bushfires) and social events (e.g., Covid), and manage their impacts. The patterns presented in this report again highlight the importance of a consistent, on-going time-series of recreational fishing surveys.

Introduction

This study represents the fifth comprehensive assessment of recreational fishing in New South Wales (NSW) undertaken as part of the NSW-DPIRD Fisheries' Recreational Fisheries Monitoring Program (RFMP).

This report provides a snapshot of participation, fishing effort and catch, for the 2023/24 survey year and builds on four previous surveys completed in 2013/14 (West *et al.* 2015), 2017/18 (Murphy *et al.* 2020), 2019/20 (Murphy *et al.* 2022), and 2021/22 (Murphy *et al.* 2024). The continually developing time-series of data collected by the RFMP allows for an examination of trends in recreational fishing through time, that will assist in the management and assessment of fisheries in NSW. These surveys give a 'big picture' perspective of recreational catch and effort throughout NSW, and provide robust state-wide indices of catch for the more common fishing activities and species caught.

Structure of this report

The first section of the report provides the background and need for the research, and summarises the survey design, methodology and the analysis approach. The results presented include survey statistics, estimates of participation (number of persons, specific to the survey frame), fishing effort (fisher-days) and catch (numbers kept and released). Results are presented for the whole fishery, as well as within sub-groups including by waterbody, platform, method and region. Catch results are also examined in detail for 20 key species of interest. The report is intentionally compiled as a data report, and thus commentary on the findings is intentionally brief. Appendices provide tabulations of key results presented graphically in the report body, and these data are available by clicking the links in the Appendix section of the report. In addition to this report, a substantial database has been established in anticipation of requests for further detailed data summaries and analyses. The RFMP telephone-diary survey does not collect any information on fish sizes (length or weights), and estimates of harvest weights are not included in this report. Readers interested in converted harvest weights are encouraged to consult published annual/biennial Stock Assessment and Stock Status Summary reports, which are available at <https://www.dpi.nsw.gov.au/fishing/fisheries-research/fisheries-resource-assessment/stock-assessment>, and the Status of Australian Fish Stocks (www.fish.gov.au).

Background and Methodology

Why do we monitor recreational fishing within NSW?

The fisheries resources of NSW are shared among recreational fishers, commercial fishers, charter operators, and cultural fishers. Fisheries management seeks to ensure that use and exploitation of resources among sectors and stakeholders are ecologically sustainable, at the same time as servicing socio-economic objectives of recreational fishing. The non-fishing public also value science- and data-based management, and recognise the importance of this for ensuring healthy aquatic ecosystems more broadly.

Recreational fishing also supports substantial social outcomes for the community (Hyder *et al.* 2020), with primary motivations to go fishing including ‘to relax and unwind’, ‘to spend time with family’, ‘to fish for sport’ and ‘to be outdoors’ (Fowler *et al.* 2022). The interaction with the natural environment that comes with recreational fishing not only provides demonstrated health benefits, but also fosters environmental stewardship among resource users and encourages the public to take an active interest in the health of our environmental assets (McPhee 2017).

Effective fisheries management requires robust indices of effort and catch across space and time, for all sectors. Data collection in fisheries has historically focussed on the commercial sector, but contemporary fisheries are usually characterised by strong participation by recreational fishers, to the point where harvest for certain species by the recreational sector may exceed harvest by commercial fishers (Cooke and Cowx 2006; Ihde *et al.* 2011; Ryan *et al.* 2016). Thus, data series that capture trends in recreational fishing through time are essential for characterising exploitation levels for many species. Furthermore, with diverse social outcomes, the collection of data on fishing quality and fisher experience in the context of motivational characteristics and objectives is important for tracking satisfaction through time, particularly where fisheries are managed within a harvest strategy framework.

NSW DPIRD-Fisheries and the NSW Recreational Fishing Trust have committed to ongoing collection of information on recreational fishing within NSW, through the RFMP. These surveys provide data that is essential for meeting management and reporting requirements for several State and Federal agencies. In addition, ongoing data on recreational fisheries are particularly important for NSW as fisheries management continues to be guided by cross-sectoral harvest strategies, supported by biennial stock assessments, Total Allowable Fishing (TAF) allocation (for some species), and stock status reporting (see www.fish.gov.au).

The Recreational Fisheries Monitoring Program

The RFMP encompasses two components: 1) off-site fisher telephone-diary (TD) surveys; and 2) targeted on-site survey activity. Both components run on a biennial basis and, during each survey year, engage with thousands of recreational fishers who voluntarily provide information on their fishing activities within a robust scientific framework. The primary objective of the RFMP off-site fisher TD surveys is to collect data from which statewide indices of participation, effort, and catch can be derived.

The RFMP provides the only source of quantitative data on the activities of recreational fishers in NSW. This information is used in a number of different ways to assess the status of the resources that recreational fishers exploit. For example, data from the RFMP are used to ensure sustainable

exploitation and management of these stocks and provide indicators of performance for this important industry. The information generated through the RFMP is the primary means by which the recreational sector can demonstrate its role as a significant user and custodian of wild fisheries resources. This in turn ensures that the interests of recreational fishers remain central in broader dialogue regarding resource management and that the needs of the recreational sector are therefore formally recognised and reflected in management arrangements and harvest strategies.

This report encompasses results from the off-site fisher TD survey component of the RFMP, with a focus on data collected during the 2023/24 TD survey (but also includes comparison with the results of previous surveys, where appropriate). A full background to recreational fishing surveys, fisher TD surveys, sampling frames, and a full description of the RFMP fisher TD survey methodology are provided in (Murphy *et al.* 2020). However, important details are summarised below, so that readers of this report can interpret the results that are presented.

Who is included in the survey?

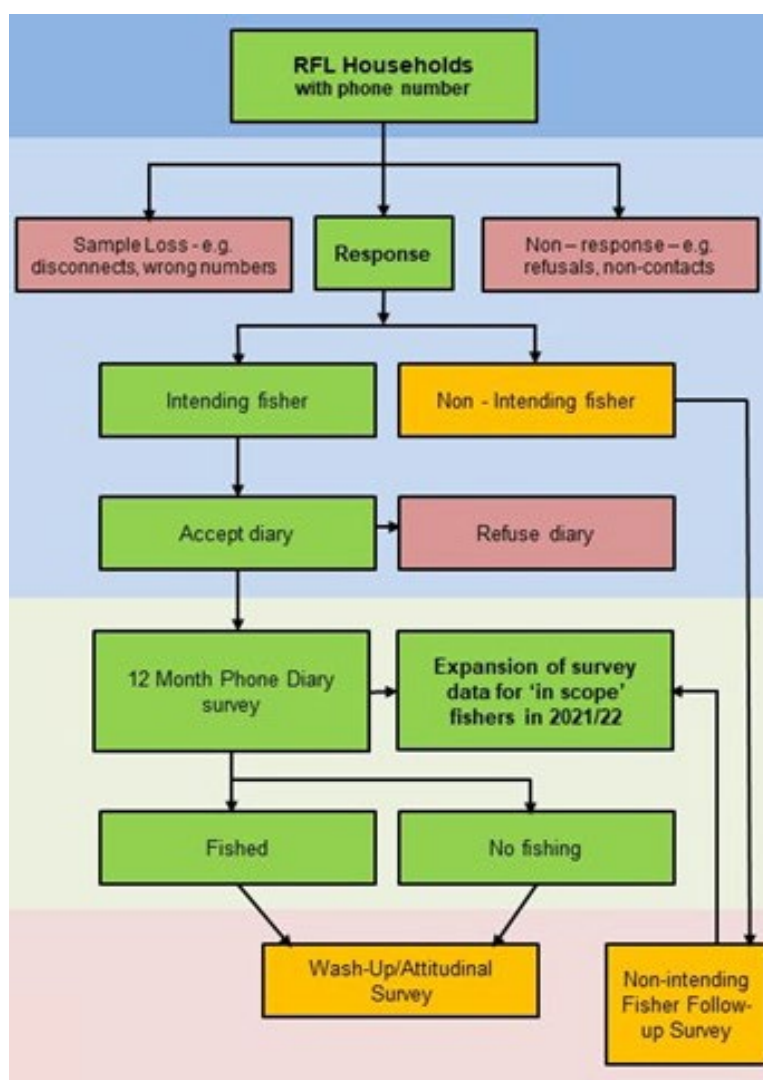
The biennial RFMP fisher TD survey targets Recreational Fishing Licence (RFL) households, which are defined as households that include at least one resident who possesses a long-term (i.e., of 1 or 3 years duration) NSW recreational fishing licence (otherwise known as a NSW Recreational Fishing Fee Receipt [RFFR] – see NSW [Recreational Fishing Fee](#)). As the survey engages with the entire ‘household’, the data collected includes other household members (aged 5 years and older) who may be exempt from holding an RFFR as well as any other long-term and short-term licence holders and non-fishers that reside within the household. A majority of fishing effort within NSW is attributable to RFL households resident within NSW and the ACT, Victoria and Queensland (Henry and Lyle 2003; West *et al.* 2015; Murphy *et al.* 2020). Thus, RFL households across these jurisdictions are included in the survey. Small numbers of RFL households from other states (e.g., Tasmania) and international RFL holders, are excluded from the survey frame.

Overview of survey approach

The TD survey methodology involves a multi-phase design, the principal components being an initial screening phase (referred to as the Screening Survey) to gather profiling information from a large sample of RFL households and a subsequent, longitudinal phase (referred to as the Diary Survey), in which respondents provide detailed catch and effort information over a 12-month period (for the 2023/24 survey, this ran from 1st November 2023 to 31st October 2024). Two additional phases follow on from the Diary Survey. Firstly, a sample of fishers from the Screening Survey who indicated that they did not intend to fish during the Diary Survey period, are contacted to verify whether they did actually fish during that period. This is called the Non-intending Fisher Follow-up Survey and identifies ‘unexpected fishing’ that may have occurred during the 12-month diary period, allowing for expanded estimates to be adjusted accordingly. Secondly, a Wash-up/Attitudinal Survey has been conducted in 2013/14, 2017/18, 2019/20 and 2021/22, which collected information as opinions, levels of satisfaction, and issues of importance to recreational fishers. The Wash-up/Attitudinal Survey is subject to separate analysis and reporting and is not captured within this report.

Further details on the Screening Survey, Diary Survey, and Non-intending Fisher Follow-up Survey, are summarised in the figure below.

RFMP TD Survey design



Screening Survey

The Screening Survey is administered as a structured telephone interview on a stratified random sample of individual long-term RFL holders. Recreational Fishing Fee Receipts are assigned to an individual, which meant that the initial sampling frame was person-based. However, as noted above, the survey collects information for all household members (aged 5 years and older).

Survey respondents are asked for information on past fishing activity, any intention to fish in the coming 12 months, among other general profiling information (such as age and sex), for both themselves, and as well as for other members of the household. All eligible households (i.e., those intending to fish sometime over the next 12 months) are subsequently invited to participate in the Diary Survey.

The Screening Survey is stratified across 12 geographic areas defined by ABS Statistical Area classification, Level 4 (SA4), and at least 15 calls are made to each active telephone number to maximise the proportion of the sample that is contacted. Disconnected numbers, wrong numbers etc. are treated as sample loss and not replaced. For the 2023/24 TD Survey, the Screening Survey occurred between 1st August and 31st October 2023.

Diary Survey

Long-term RFL households from the Screening Survey that accept the invitation to participate in the Diary Survey are issued with a diary kit (containing a diary card, a coloured fish identification booklet and a covering letter providing further details about the survey), and fishing activity of all household members aged 5 years and older is monitored over 12 months. The approach taken in this survey differs to conventional fisher TD surveys in that the diary card is employed more as a 'memory jogger' than a logbook, and responsibility for data collection rests with the survey interviewers and not the diarists. Data collection is undertaken by several brief telephone interviews, in which trained interviewers record details of any fishing that had occurred since the last contact. The level of fishing activity determines the frequency of contact, but respondents are called at least once a month, even if no fishing was planned. All fishing activity is recorded by the interviewer, including fishing event duration, location, method, gear quantities, as well as any kept or released catch (detailed by species), and reasons for release.

Non-intending Fisher Follow-up Survey

A random sample is drawn from all long-term RFL households (identified during the Screening Survey) that indicated no intention to go fishing during the diary period (and hence not eligible for the Diary Survey) and these households are re-contacted shortly after the conclusion of the Diary Survey. Respondents are asked during a brief telephone interview whether any fishing had occurred during the diary period, and any changes in household members during that period are assessed. Further details are collected from any households in which (unexpected) fishing was reported, including which individual household members had fished and the number of days fished during the 12 months of the diary period.

What data are reported during the Diary Survey?

Fishing participation and effort

The number of fishers, fishing events, and hours fished per event are recorded by diarists and reported to interviewers. Fishing information is collected on an 'event' basis, where an event is defined as a discrete fishing episode and the actual household member(s) involved in the event are recorded. Separate fishing events within a day are defined by a change in fishing region or waterbody type, a change in target species and/or fishing method. As a result, a day's fishing trip could comprise several events, which are reported separately, such as gathering nippers for bait, and then using them for fishing later in the day; or deploying crab traps and leaving them set while line fishing. In this report, fishing effort is presented in terms of the estimated number of fishers who fished during the survey (or participation in fishing) and also is expressed as fisher-days (i.e., separate days on which some form of fishing was undertaken by each fisher).

Catch

The diary kit includes a colour-printed species identification guide to support accurate species identification. While best efforts are made by diarists to accurately identify species, species-based catch reporting is subject to some limitations, particularly for different species which are morphologically similar. In these cases, species complexes are used for reporting (e.g., 'Bream' and 'Leatherjackets'). Where diarists could not identify a species with any confidence, or for obscure or

rare species for which there were few records, these were pooled into broader taxonomic categories for analysis (e.g., 'scalefish, other/unidentified', and 'sharks and rays').

Catches are **reported as numbers of individuals kept or harvested**, and numbers released or discarded, by species, for each fishing event.

The harvested (or kept) portion of a catch may be used for a variety of purposes including consumption or bait, whereas fish may be released because of regulation (e.g., size and/or bag limits), ethical reasons and undesirability of the species (among other reasons). To better understand fisher motivations in relation to releasing or discarding species, respondents identify their reason(s) for release. The following release categories were identified and reported by diarists: 'too small' – implying that the fish was too small to be retained (not necessarily due to size limit regulations); 'undersized' – implying some knowledge and adherence to size limit regulations; 'catch and release' – implying a voluntary release ethic associated with either sport fishing or conservation (no inference about fish size); and 'too many' – implying a catch number in excess of personal needs, as opposed to legal bag limits. Other reasons for release included 'poor eating qualities', 'did not want', 'damaged or poor quality', 'berried female' (illegal for some crustacean species) and 'prohibited species'.

How are the survey data analysed?

Analysis and expansion of survey data

Detailed descriptions of the TD design philosophy and methodology employed by the RFMP and expansion approaches employed with this type of survey data are provided in Lyle *et al.* (2002), Henry and Lyle (2003) and Lyle *et al.* (2010). All analysis and expansion of survey data are undertaken using the statistical computing package R (R Core Team 2023) principally through functions contained within the 'survey' package (Lumley 2004; Lumley 2011) which follows the algorithms outlined in Lyle *et al.* (2010). The analytical approach employed emulates that which has been applied to other state-wide recreational fishing surveys within Australia (Lyle *et al.* 2002; Lyle *et al.* 2014; Ryan *et al.* 2015; Lyle *et al.* 2019; Ryan *et al.* 2019).

Measures of precision and accuracy

Measures of precision and accuracy are important to consider alongside the estimates of effort (numbers of days fished) or catch (numbers of fish) themselves. Standard error (SE) is provided for all estimates derived from RFMP fisher TD surveys, which provides a measure of statistical accuracy (the smaller the SE, the more accurate the estimate). When the SE is large, it becomes less likely that a given estimate may be an accurate representation of the true value. The size of the SE depends on factors such as the size of the sample, the design of the survey, and variability within the population being sampled. Increasing the size of the sample generally decreases the sampling error (NOAA 2020) such that catch estimates for commonly caught species often have a smaller SE than catch estimates for rarely caught species. Standard error is displayed on charts in this report as bars above and below the estimated value (with each bar representing 1 SE).

Relative standard error (RSE) is also presented for some survey estimates. The RSE is simply the SE for an estimate expressed as a percentage of the estimate. As for SEs, large RSEs indicate low accuracy, while small RSEs indicate more accurate estimates. RSE allows for the comparison of the relative precision and accuracy between different estimates. As a general rule, estimates with RSEs of 30% or greater may be regarded as less robust. In addition, estimates derived from records with a

sample size of fewer than 20 RFL households should be considered with caution, since they may be particularly influenced by the activities of very few fishers (these estimates are presented in italics). These characteristics of estimate quality follow similar conventions used for recreational fishing surveys in other jurisdictions (Lyle *et al.* 2019; Ryan *et al.* 2019; NOAA 2020).

When comparing results from the five RFL household TD surveys undertaken to date (2013/14, 2017/18, 2019/20, 2021/22 and 2023/24), in order to identify any changes or developments that occurred in the recreational fishery over the intervening periods, the SEs provided with the point estimates must be taken into consideration. The degree of overlap between error bars on the survey point estimates provides an indication of statistical significance. Overlapping error bars suggest that the differences between the point estimates for the surveys are unlikely to be significant. Where there is no overlap of error bars between groups, the difference may be significant (and statistical testing should be applied to obtain a valid conclusion). It is important to note, however, that despite the robust nature and fundamental comparability of the studies, the comparison of just five points in time and the issue of inter-annual variability is a critical factor here – especially in terms of variation in the natural availability of certain species and therefore the catch levels in a given year, as well as other chance events that may impact fishing among years (i.e., environmental events, pandemics etc).

Reporting categories and definitions

Data from previous surveys

Some catch, effort and participation data within this report are presented alongside survey statistics from the four previous TD surveys conducted between 2013 and 2022. These include aggregated estimates (i.e., aggregated on a state-wide basis) for survey statistics (sample sizes, response rates), fishing effort (participation and fisher-days), catch estimates (by number - for all species combined), as well as taxa-specific data for 20 key species/groups of interest. When considering these data, it is important to note that Queensland (QLD) residents were not included in the 2013/14 RFL household survey (mainly due to sampling and cost constraints at the time), but the subsequent surveys included QLD resident fishers. Therefore, results presented in this report for 2013/14 may be an underestimate of RFL household fishing effort and catch for that year. Whenever results data for the 2013/14 year are presented in this report they are noted by an asterisk (*) highlighting the absence of QLD fisher data.

Sales of new RFFRs and renewals of existing ones for the period 2009 to 2024 are also presented as a supplementary indicator of trends in the NSW recreational fishery through time. Sales and renewal data may provide a measure of the eligible licenced population who intended to go fishing during a particular year. Sales of both short-term (three days and 1 month) and long-term (1 year and 3 years) licence categories are summarised.

Readers should note that an assumption regarding RFFR renewal patterns was altered for data analysis from the 2021/22 TD survey onwards, which led to a minor increase in the size of the population used in the expansion (see footnote [^] to table *Summary of RFMP Telephone-Diary Survey statistics through time* for more details). This may have a minor impact (5-6% increase) on the catch numbers for survey years post-2021, as the expansion population is slightly larger.

More granular reporting categories (introduced below) are used to summarise certain estimates of effort and catch for the current TD Survey. For information on results at these levels of reporting, see the more detailed reports of West *et al.* (2015) and Murphy *et al.* (2020).

Waterbody

The TD Survey is confined to fishing within NSW waters, which are defined as all waters within the borders of NSW and the Australian Capital Territory (ACT) and includes both State marine waters (out to 3 nm from the coast) and water further offshore to the 200 nm Exclusive Economic Zone (EEZ). Diarists report spatial information for fishing events (e.g., the estuary, river or dam which was fished, and the nearest town), and these are aggregated into the following waterbody categories: (1) Ocean waters (from the coastline to the edge of the EEZ); (2) Estuarine waters (including bays and inlets); (3) Freshwater rivers; and, (4) Freshwater lakes/dams (including public or private dams).

Platform

Effort and catch details by fishing platform (Boat or Shore) are presented on a state-wide basis and are also displayed by the waterbody reporting category for this report (e.g., Boat or Shore fishing within estuaries).

Method

A variety of fishing/harvesting methods were identified by diarists but for the purposes of analysis, the following reporting categories have been defined: (1) line fishing using bait; (2) line fishing using lures (and/or jig/fly); (3) pot/trap (baited, passive use); (4) net (including scoop and drag/seine nets); (5) dive collection (underwater spearfishing and hand collection by snorkel, scuba or hookah); and, (6) other methods (e.g., other hand collection and the use of pumps and spades).

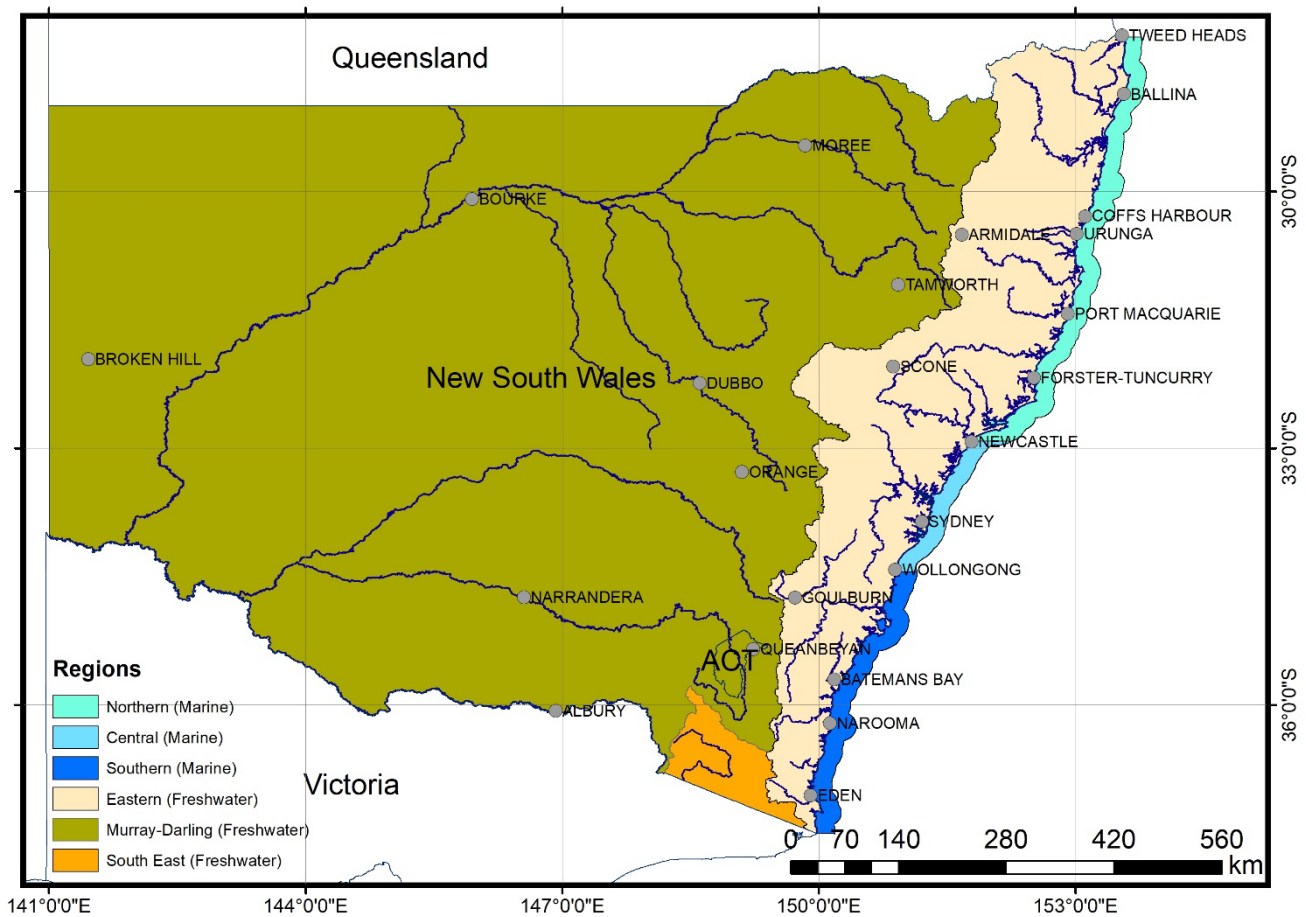
Region

For reporting of data collected by the TD Survey, specific location details recorded by diarists were categorised into six fishing regions, reflecting the three major drainage basins of NSW for freshwater systems (Argent 2016), and the three major coastal regions which align with bioregional classifications employed in the management of the NSW Marine Estate (as outlined below).

Freshwater drainage basins include: (1) **Eastern** – East of the Great Dividing Range; (2) **Murray-Darling** – West of the Great Dividing Range and includes the waters of the Murray-Darling Basin and waterbodies within the ACT; and (3) **South East** – includes the majority of the Snowy Mountains region.

Saltwater coastal regions include all estuarine, coastal (e.g. headlands and beaches) and marine habitats in and adjacent to: (4) **Northern** – Queensland border to Stockton Beach (just north of Newcastle), which incorporates the Manning Shelf Bioregion and the NSW section of the Tweed-Moreton Bioregion; (5) **Central** – Stockton to Shellharbour (just south of Wollongong), which incorporates the waters of the Hawkesbury Shelf Bioregion; and (6) **Southern** – Shellharbour to the Victorian Border, which incorporates the waters of the Batemans Shelf Bioregion and the NSW section of the Twofold Shelf Bioregion.

Reporting regions for the Recreational Fisheries Monitoring Program



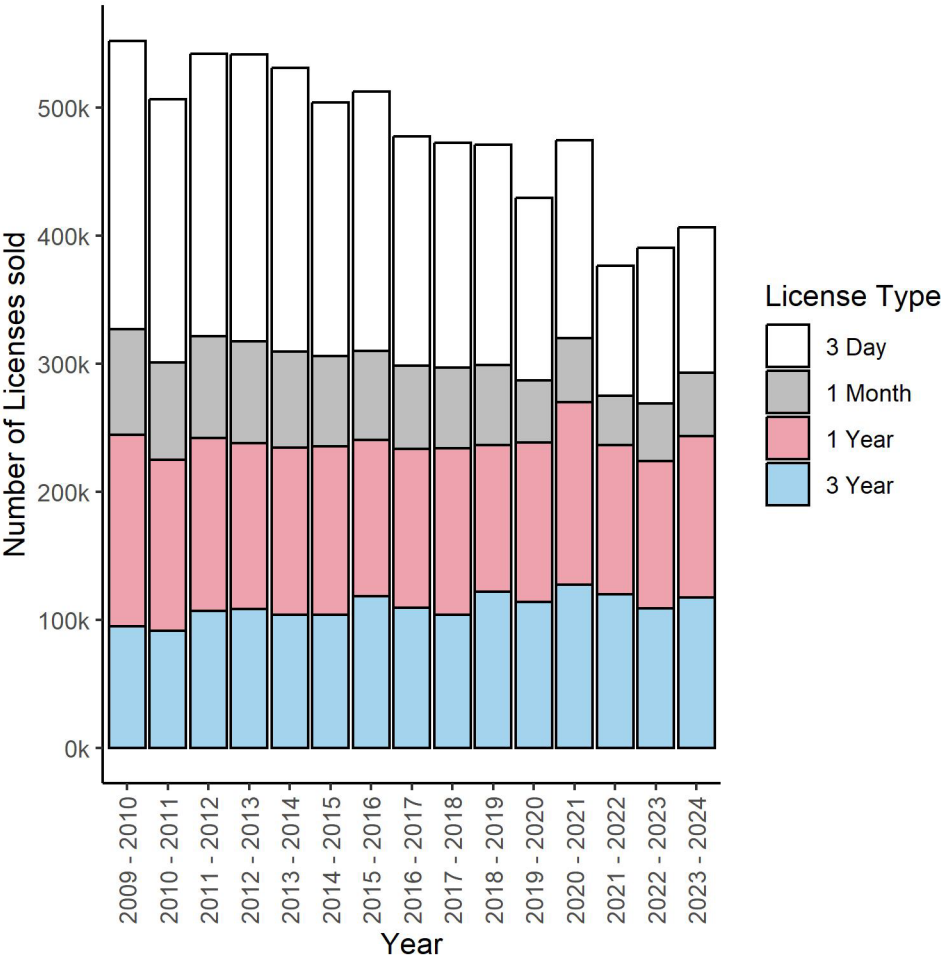
Catch – numbers of fish and invertebrates

Estimates of catch recorded during 2023/24 are aggregated on a state-wide basis and displayed for all species combined, and by major finfish and invertebrate categories. Also, 20 key species have been individually assessed in Report Cards. These report cards present graphical summaries of the numbers kept and released across the five surveys on a state-wide basis; and for the current TD Survey by waterbody, platform, method and region. These 'report card' results are presented on a single page for the convenience of the reader.

Summary of High-level Results

NSW Recreational Fishing Fee Receipt sales

Summary of NSW Recreational Fishing Fee Receipt sales 2009-2024



Broad RFMP Telephone-Diary Survey statistics

Summary of RFMP Telephone-Diary Survey statistics through time

Survey details					
No. active long-term licence holders in NSW (at the time the RFL sample was drawn)	392,194*	432,218	430,223	460,436 [^]	457,103
Screening Survey					
No. of RFL households contacted (net sample)	1,882	1,960	1,990	1,967	2,043
No. of responses (rate in brackets)	1,686 (89.6%)	1,618 (82.6%)	1,608 (80.8%)	1,612 (82.0%)	1,505 (73.7%)
No. RFL household residents (≥ 5 yrs old) profiled	4,656	4,335	4,291	4,023	3,711
No. of RFL households eligible for Diary Survey	1,521	1,413	1,451	1,382	1,190
Diary Survey					
No. RFL households that commenced survey	1,445	1,312	1,319	1,159	1,054
No. of RFL households that completed survey	1,329	1,257	1,226	1,017	1,008
Total no. of residents (≥ 5 yrs old) surveyed	3,727	3,442	3,385	2,620	2,890
Total no. of person-based fishing events reported	14,458	10,951	7,396	6,421	8,266

[^] A review of the RFMP was undertaken during the analysis phase of the 2021/22 survey that led to revision of an assumption related to expansion of the data collected during the TD Survey to the long-term RFL (and their household) population. For previous surveys, it was assumed that Recreational Fishing Fee Receipts that expired between the 31st March (when the RFL sample was drawn) and the beginning of July WOULD NOT be renewed. For the TD Surveys post-2021, it was assumed that licenses falling into this category WOULD be renewed, and were thus considered active. The values presented after 2021 reflect this assumption, and this change in assumption may also have a minor impact (~5% increase) on the catch numbers estimated after 2021, as the expansion population is larger.

Participation

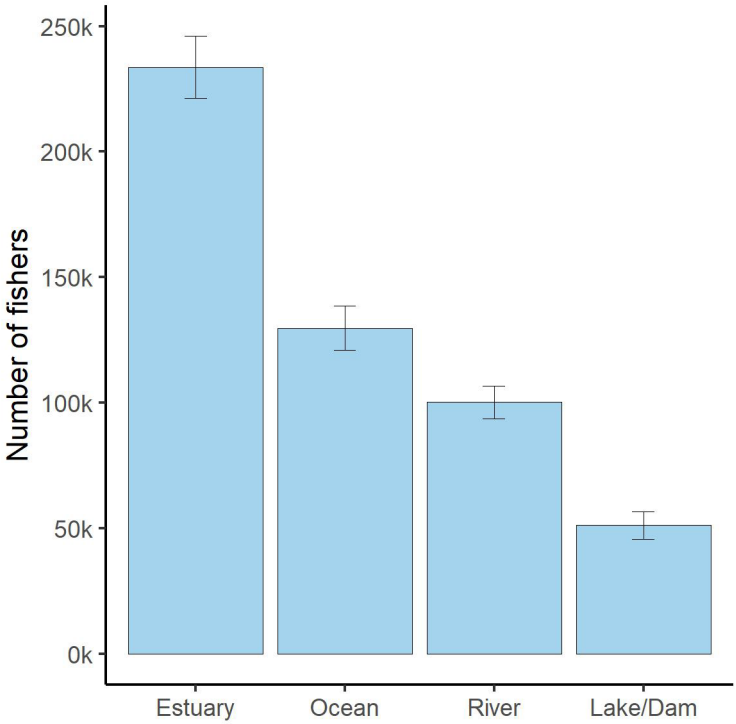
Participation by RFL household residents who fished within NSW through time[^]

	2013/14*		2017/18		2019/20		2021/22 [^]		2023/24	
	Number	RSE (%)	Number	RSE (%)	Number	RSE (%)	Number	RSE (%)	Number	RSE (%)
FRESHWATER										
Total Persons	193,215	6	145,373	6	98,481	7	101,078	7	124,834	6
Total Households	117,088	5	90,331	5	63,090	6	64,052	6	79,602	4
SALTWATER										
Total Persons	334,372	4	304,434	5	255,674	4	273,875	5	282,254	4
Total Households	207,699	3	183,030	4	155,518	4	165,952	4	175,859	4
TOTAL**										
Total Persons	442,797	3	392,484	4	321,115	4	339,333	4	359,902	4
Total Households	262,485	2	231,985	3	193,916	3	203,828	3	219,298	3

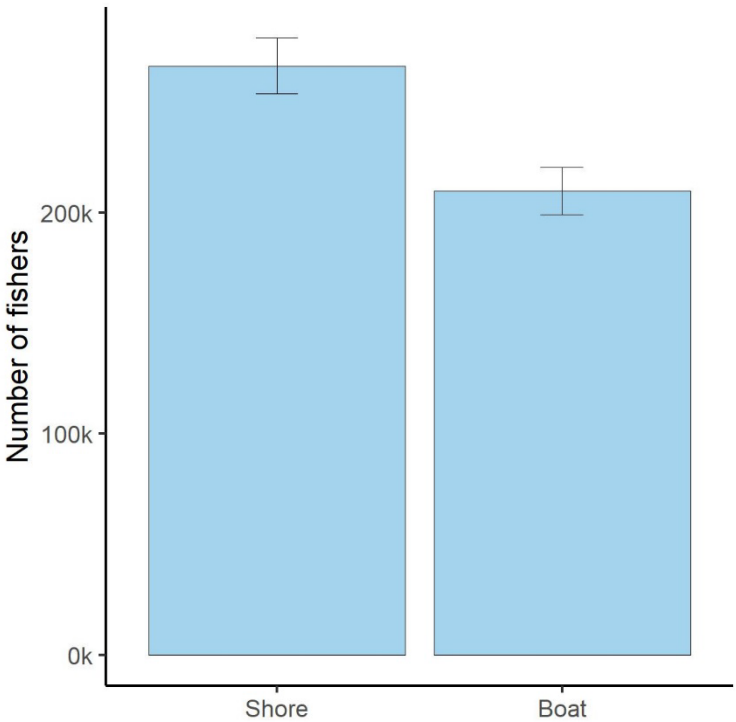
[^] This does not reflect total statewide participation, only participation within the TD Survey sample frame, and may thus differ from published estimates of total participation from other surveys

** Note: The numbers of fishers or households who fished in freshwater and saltwater are not directly additive, as some fished both.

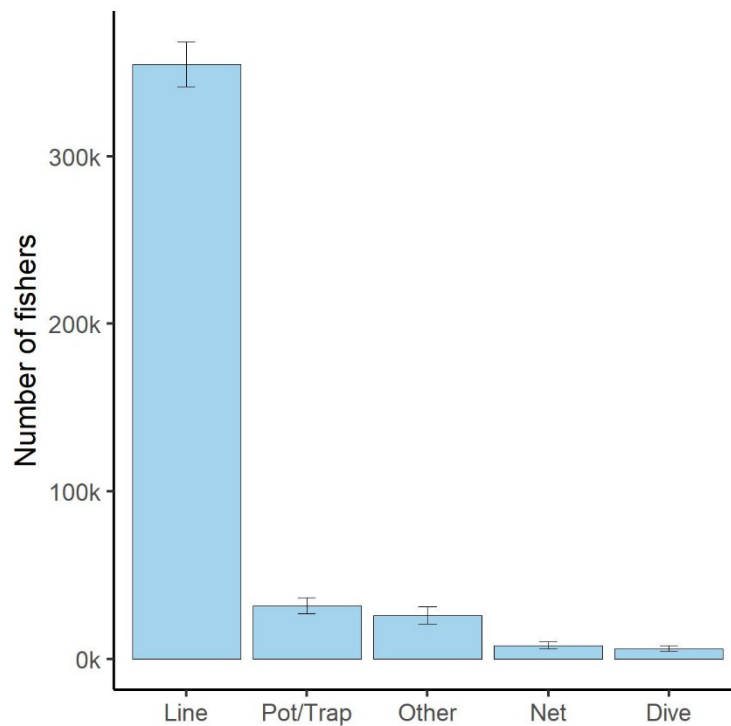
Participation by Waterbody for RFL households during 2023/24



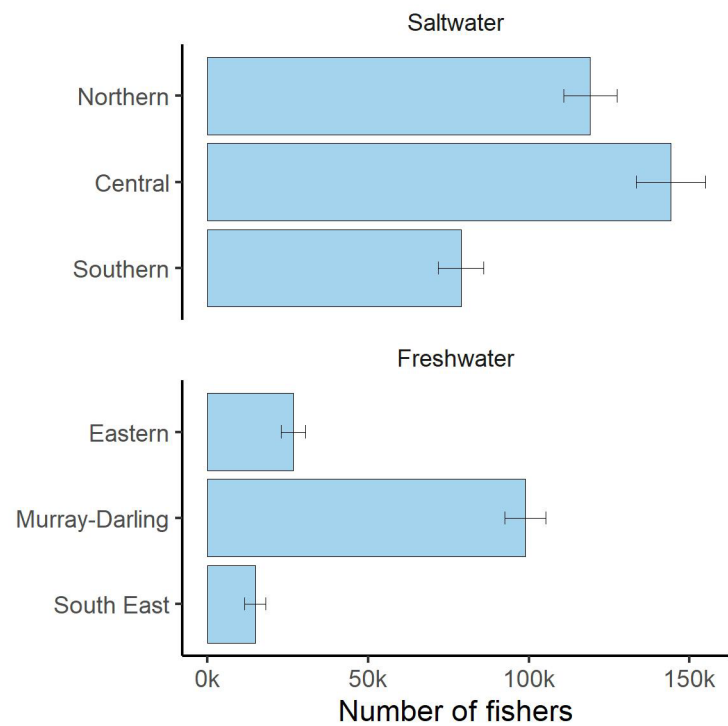
Participation by Platform for RFL households during 2023/24



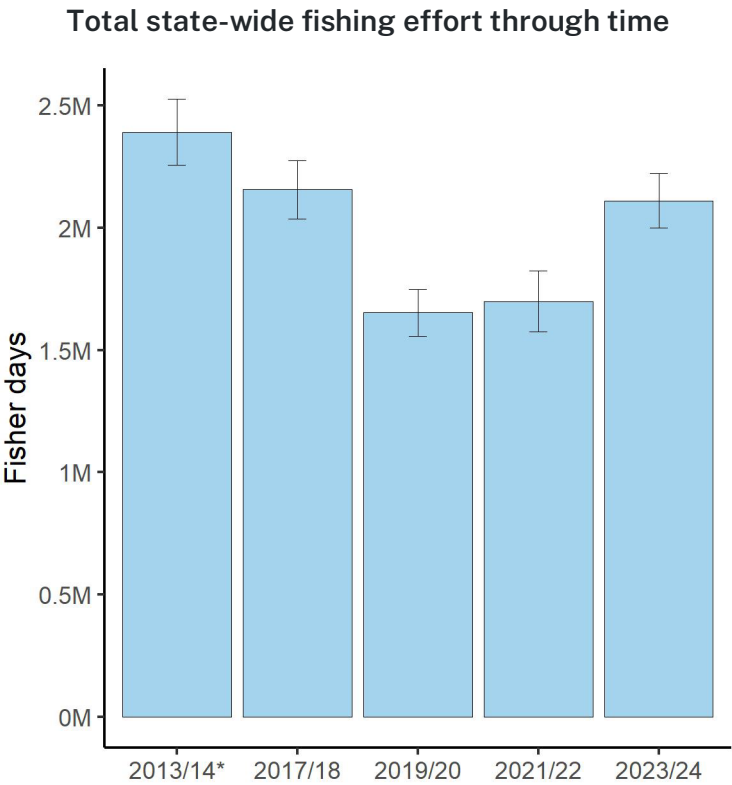
Participation by Method for RFL households during 2023/24



Participation by Region for RFL households during 2023/24



Fishing effort

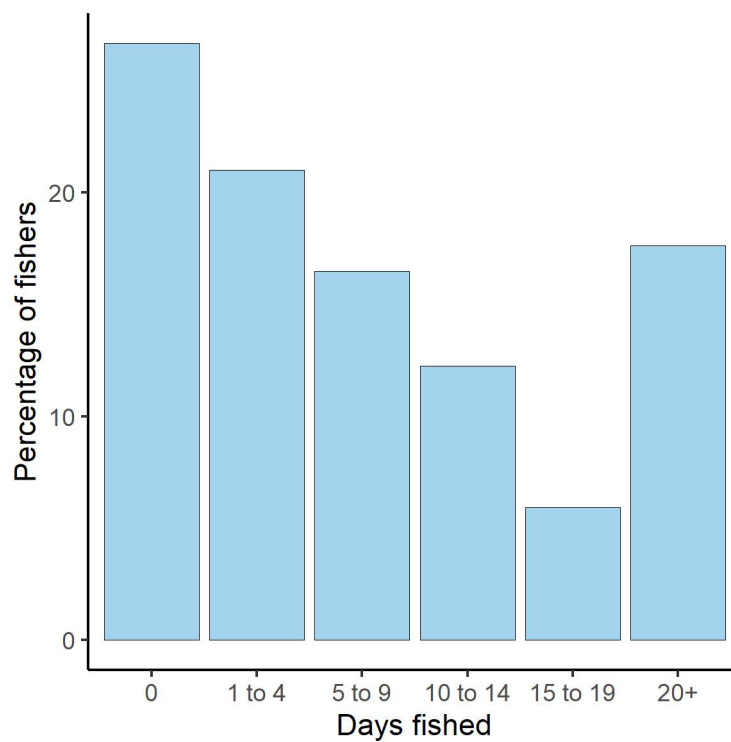


Fishing effort by RFL household residents who fished in NSW within freshwater and saltwater during 2023/24

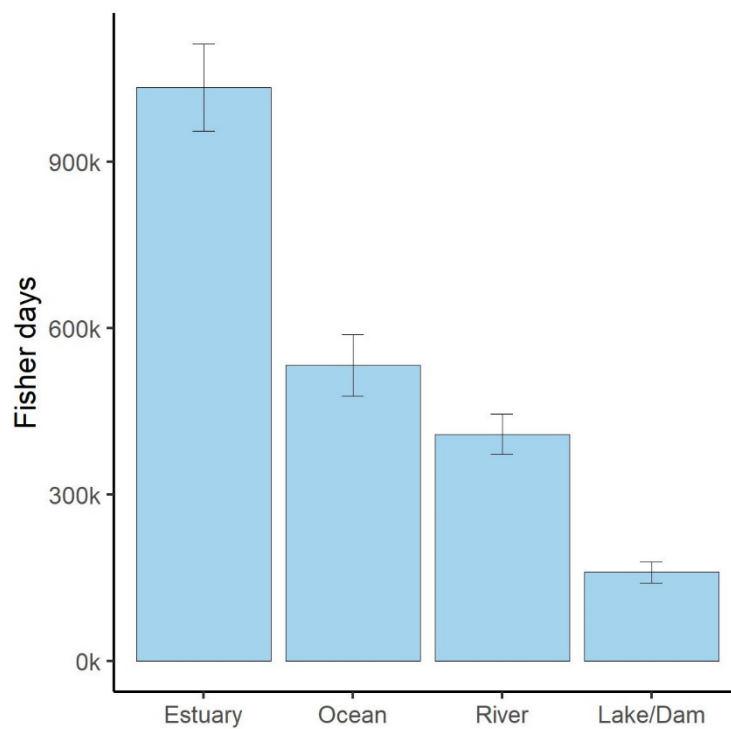
	Freshwater		Saltwater		Total**	
	Number	RSE (%)	Number	RSE (%)	Number	RSE (%)
Effort (Fisher-days)	565,597	7.7	1,546,569	6.5	2,111,314	5.3

**Note: The numbers of fisher days expended in freshwater and saltwater are not directly additive as some fishers fished both.

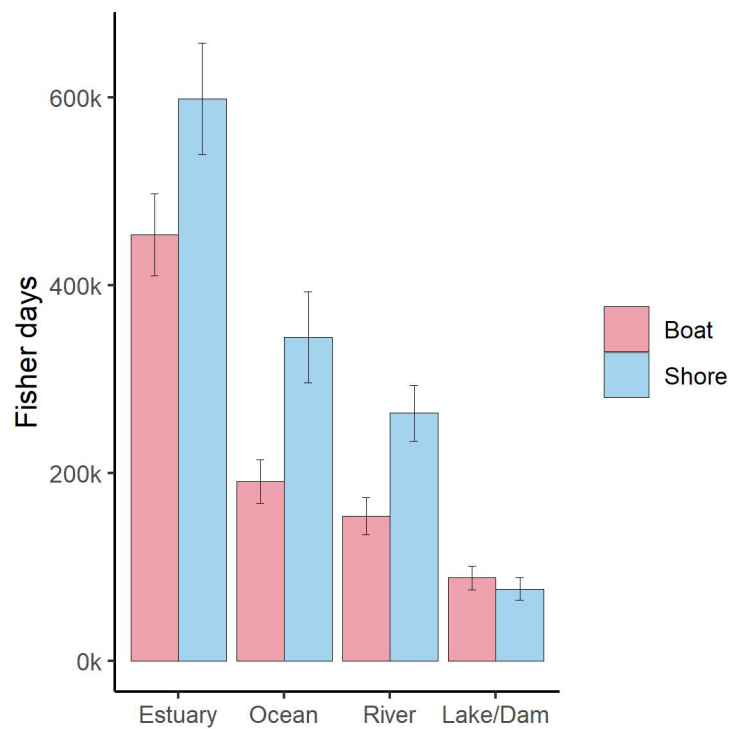
Percentage of fishers in each avidity class for RFL households during 2023/24



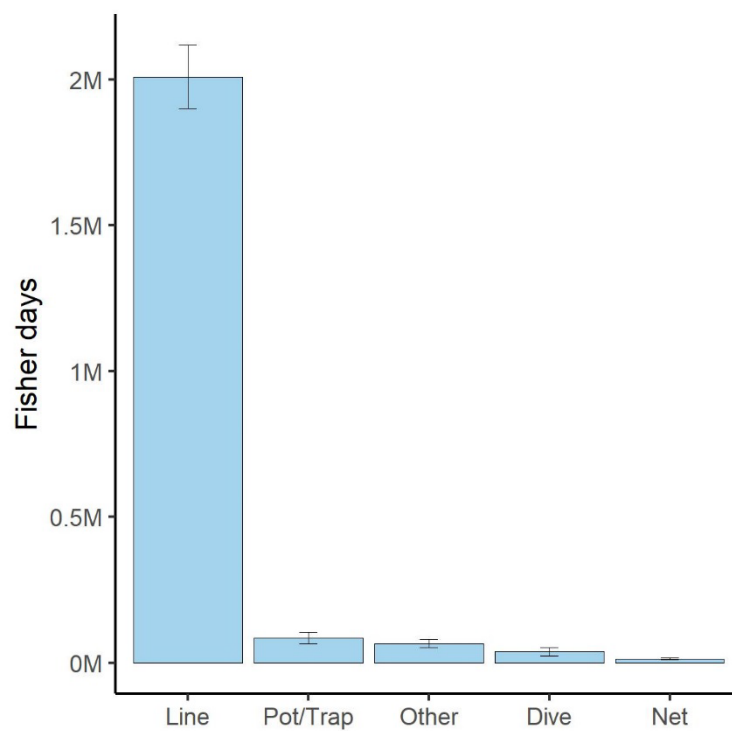
Fishing Effort by Waterbody for RFL households during 2023/24



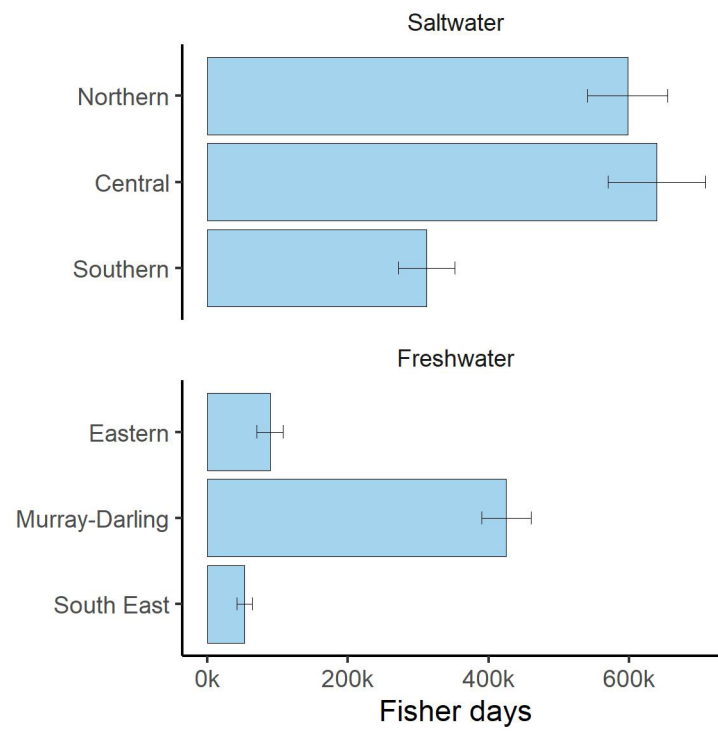
Fishing Effort by Platform and Waterbody for RFL households during 2023/24



Fishing Effort by Method for RFL households during 2023/24



Fishing Effort by Region for RFL households during 2023/24

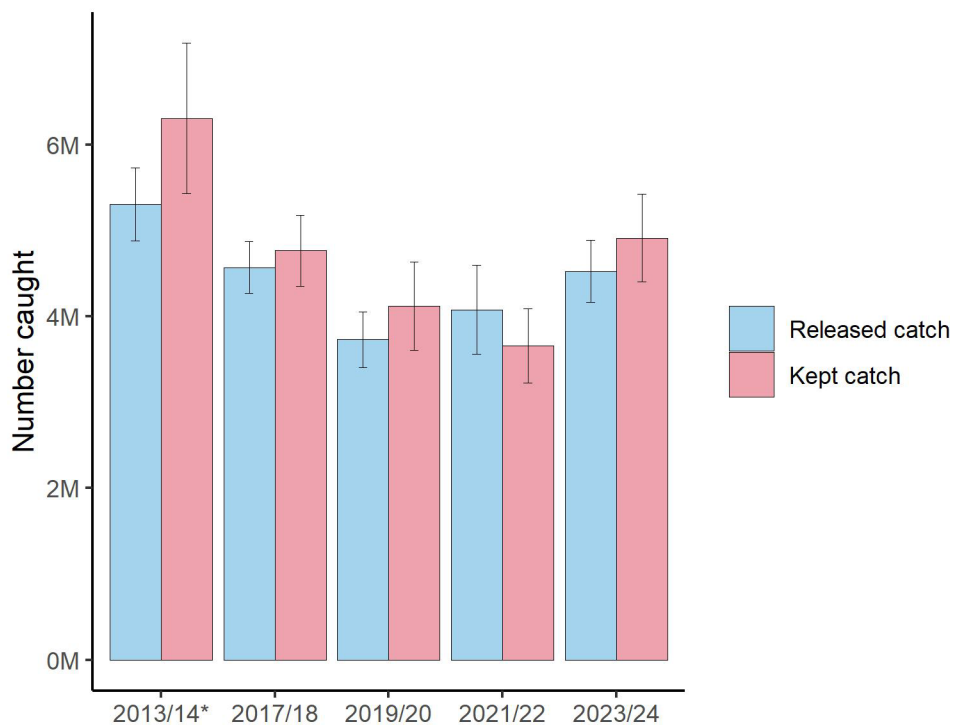


Catch

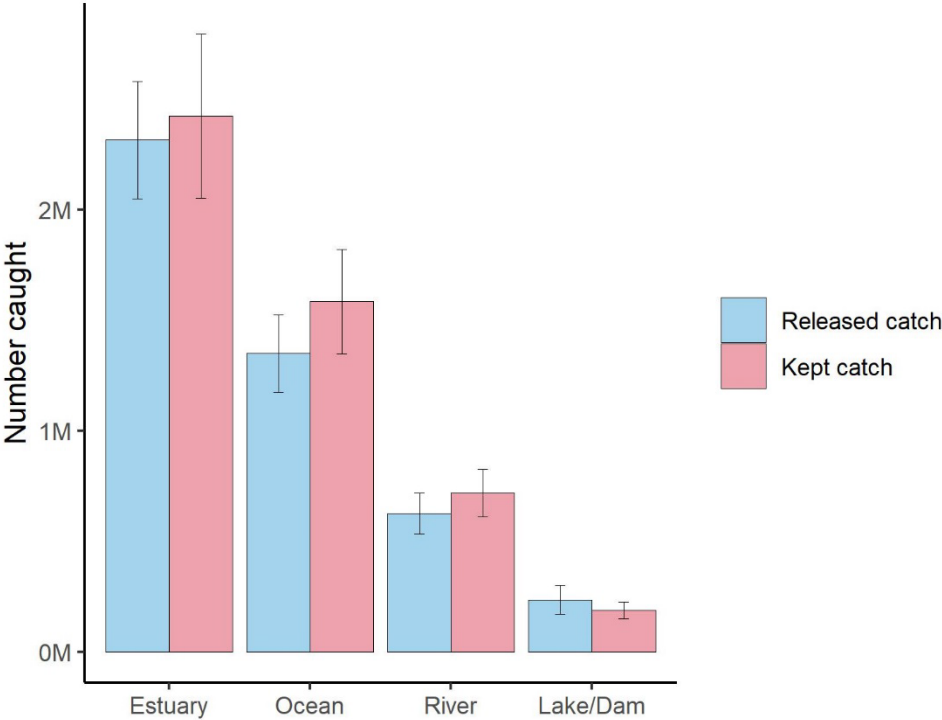
Recreational fishers in NSW caught a diverse range of finfish, elasmobranchs (sharks and rays), crustaceans, molluscs, and other taxa, with 144 species and species groupings caught during the 2023/24 TD Survey.

Overall, the total state-wide recreational catch of RFL households was estimated to be 9,437,467 (RSE 8.0%) individual organisms, with 4,912,922 being kept (52% of total catch) and the remaining 4,524,545 released (48% of total catch).

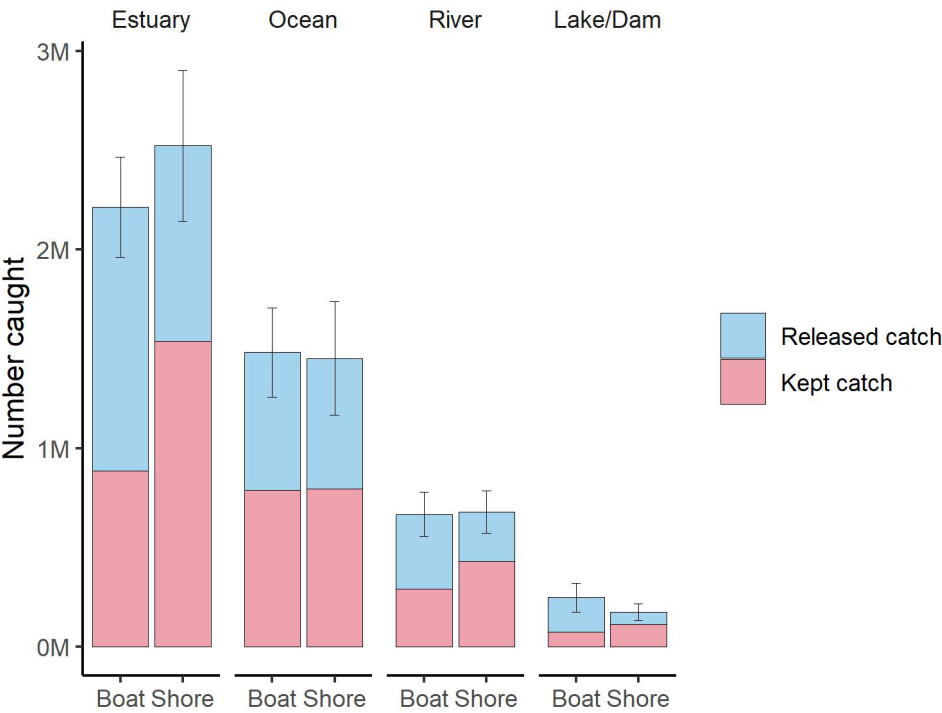
Total state-wide catch for RFL households through time (all species combined)



Total state-wide catch by Waterbody for RFL households during 2023/24 (all species combined)



Total state-wide catch by Platform and Waterbody for RFL households during 2023/24 (all species combined)



Total state-wide catch of top finfish and invertebrate species/groups by Waterbody (saltwater) for RFL households during 2023/24

Estuary

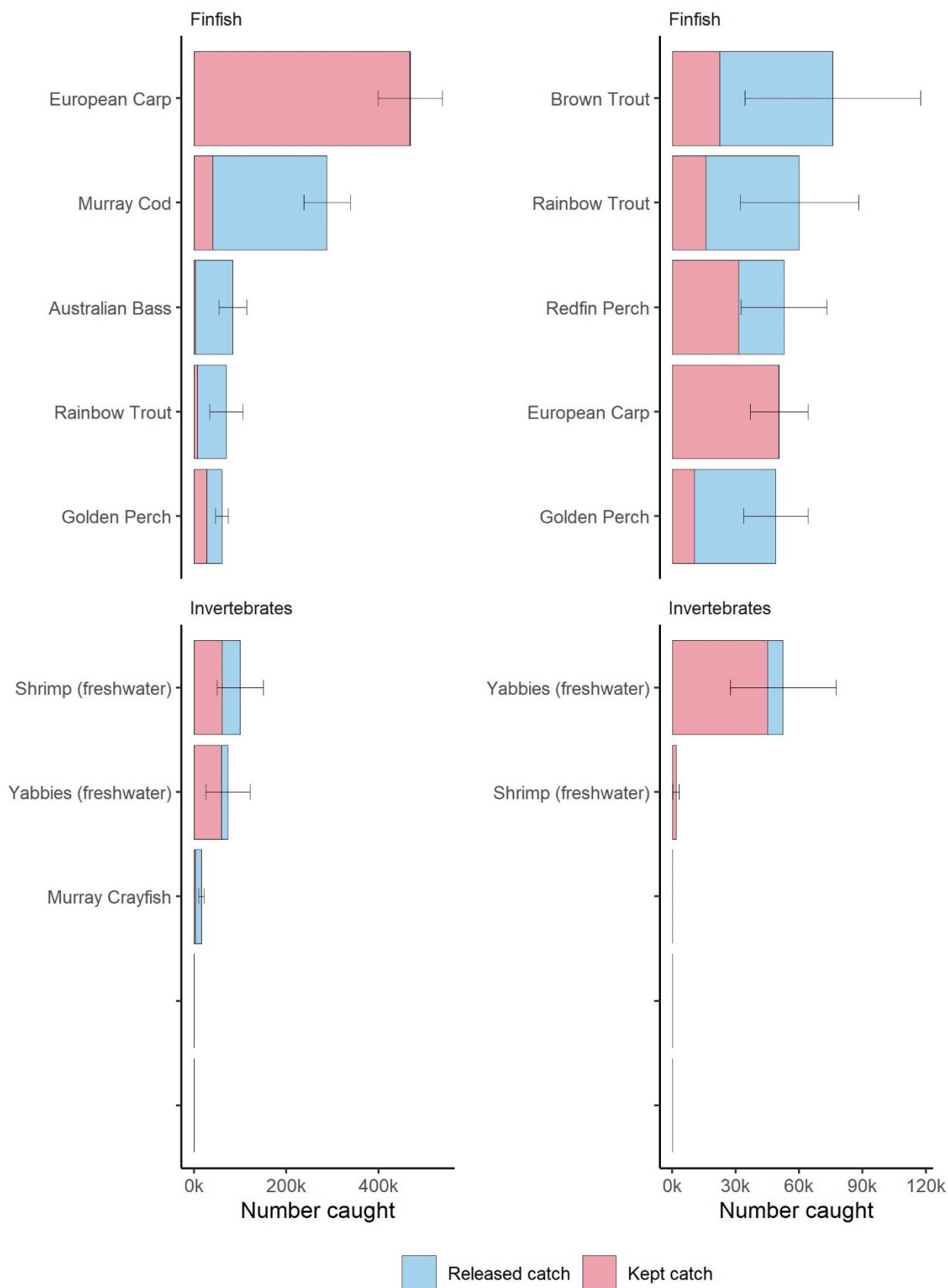
Ocean



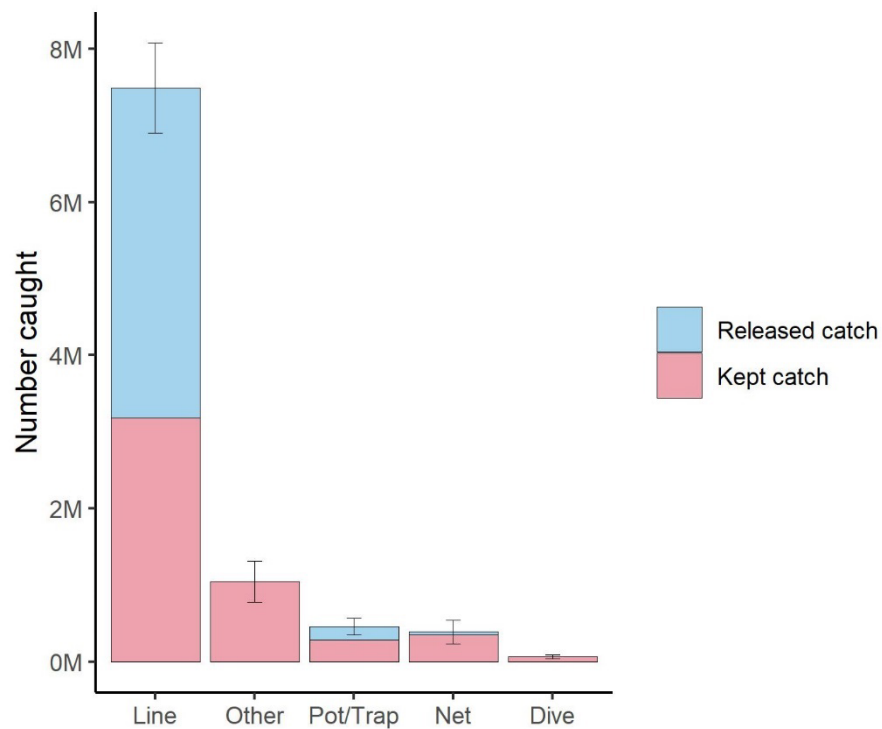
Total state-wide catch of top finfish and invertebrate species/groups by Waterbody (freshwater)
for RFL households during 2023/24

River

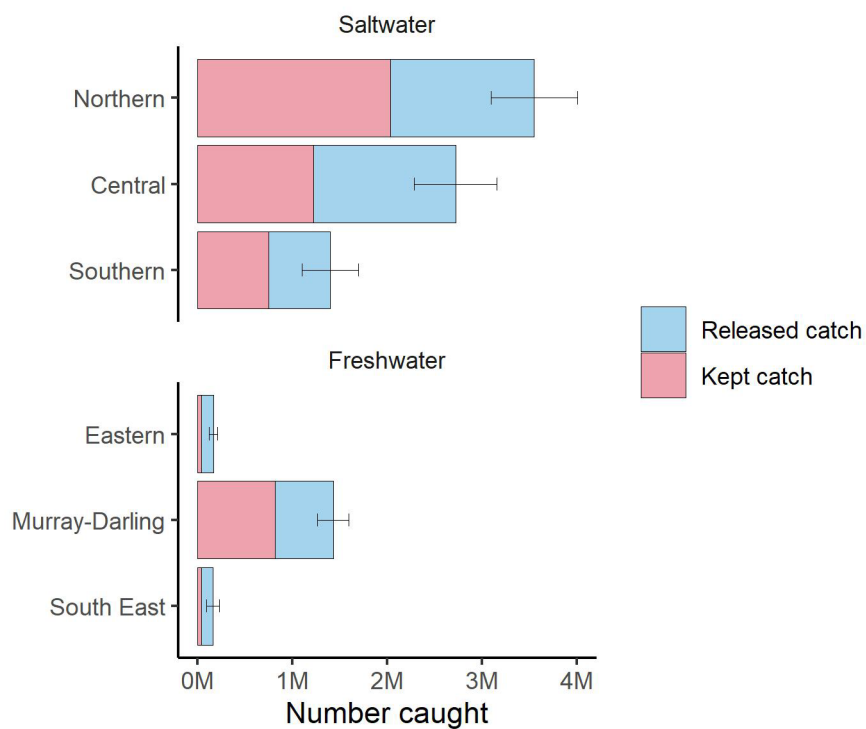
Lake/Dam



Total state-wide catch by Method for RFL households during 2023/24 (all species combined)

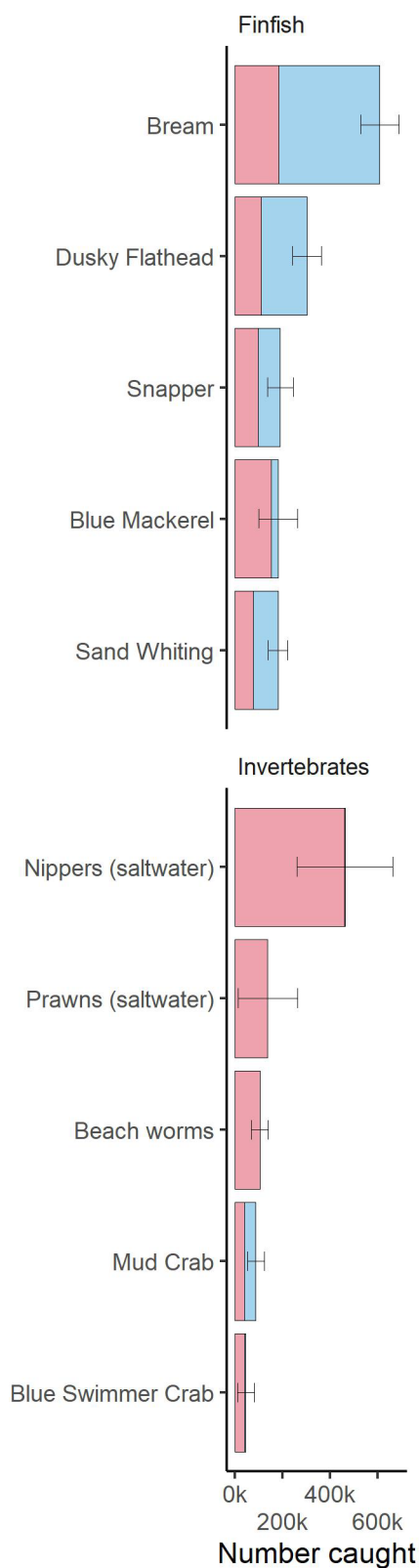


Total catch by Region for RFL households during 2023/24 (all species combined)

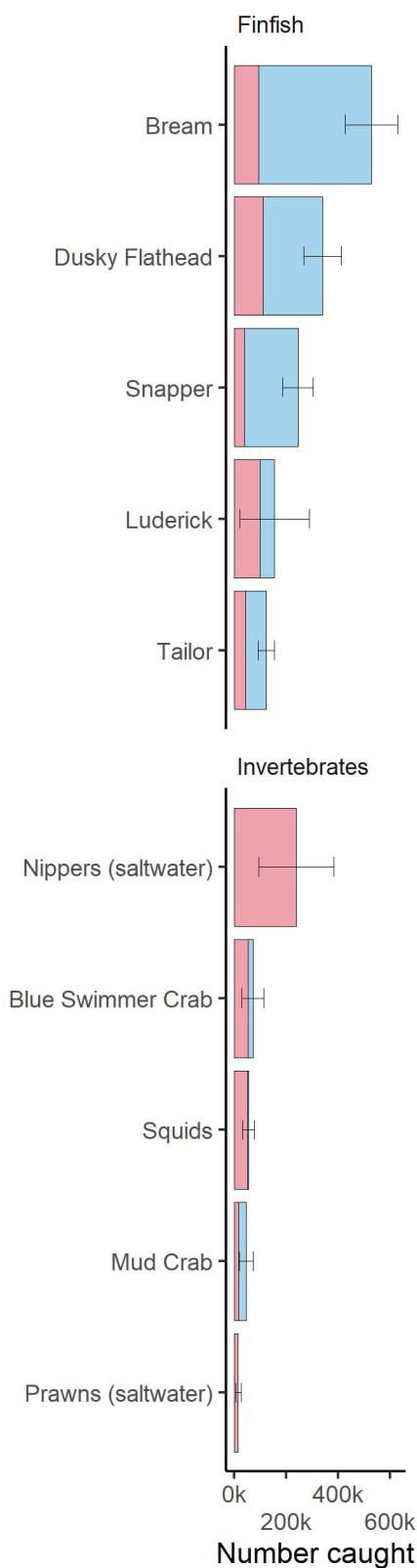


Total catch of top finfish and invertebrate species/groups by Region (saltwater) for RFL households during 2023/24

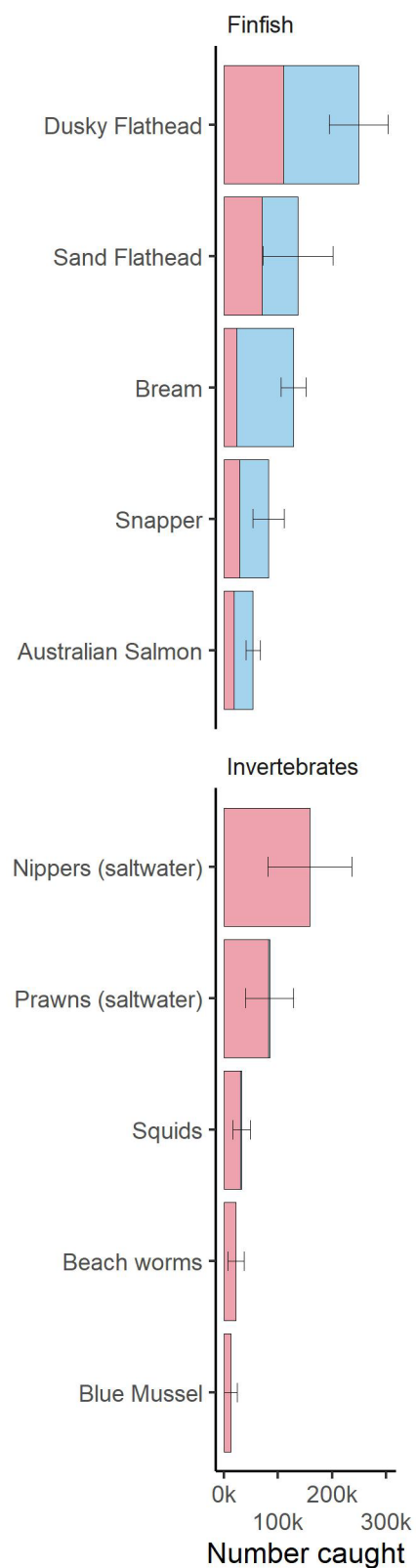
Northern



Central

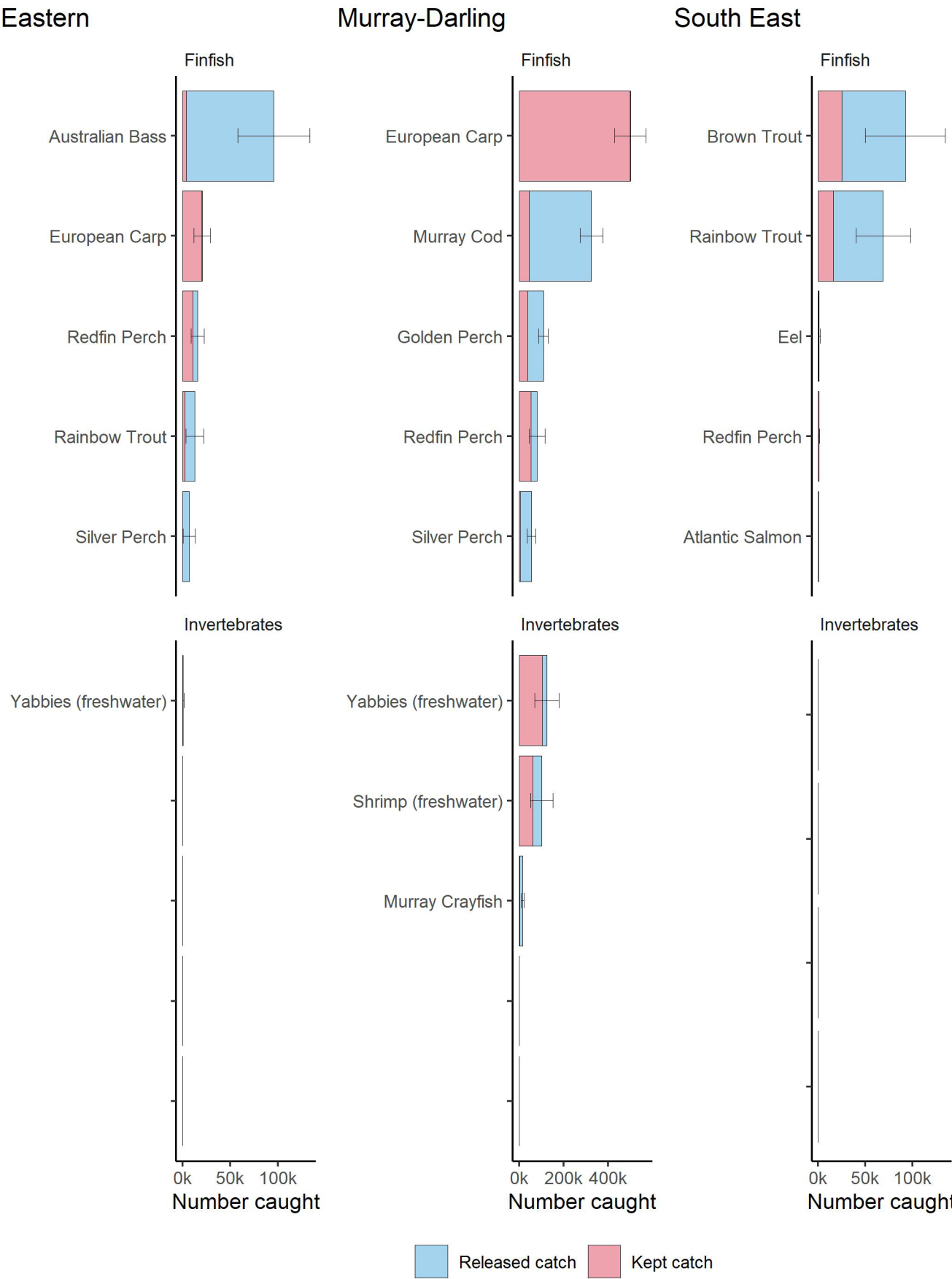


Southern

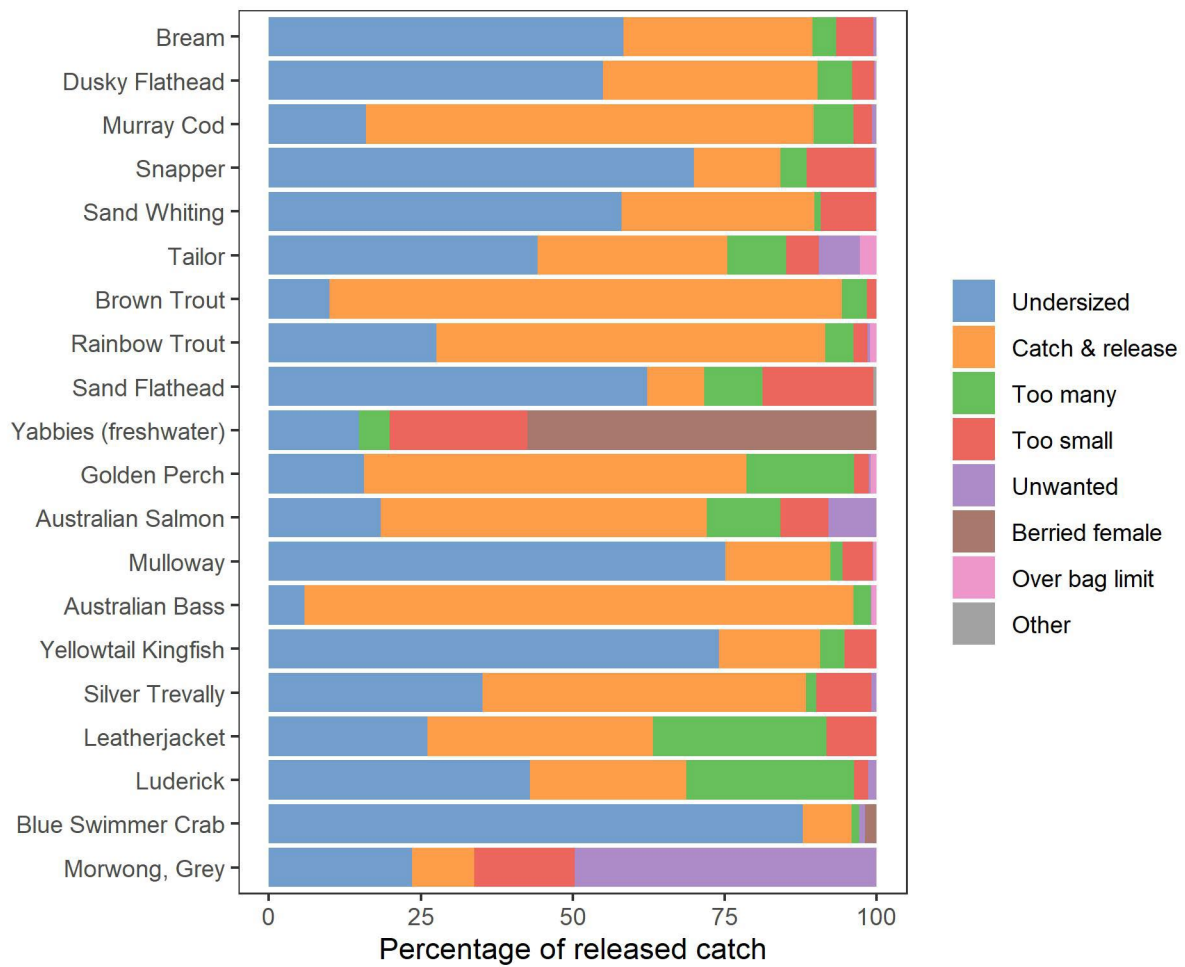


Released catch Kept catch

Total catch of top finfish and invertebrate species/groups by Region (freshwater) for RFL households during 2023/24



Reasons for release for key species released by RFL households during 2023/24

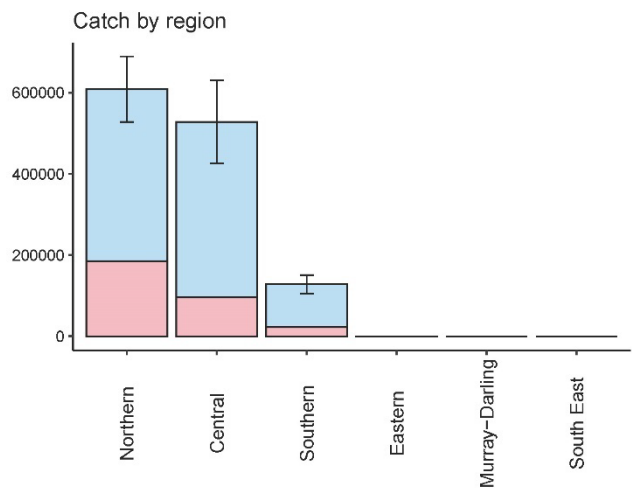
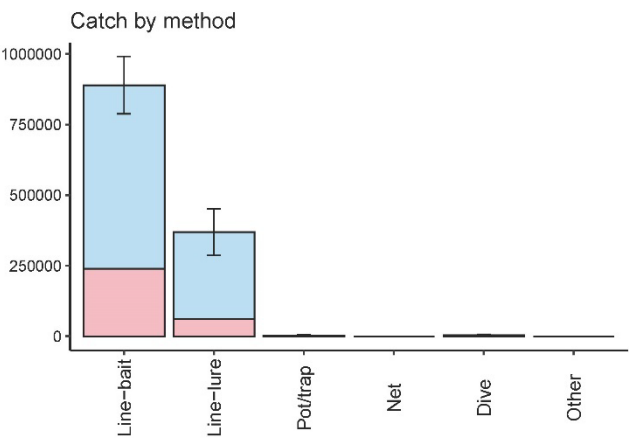
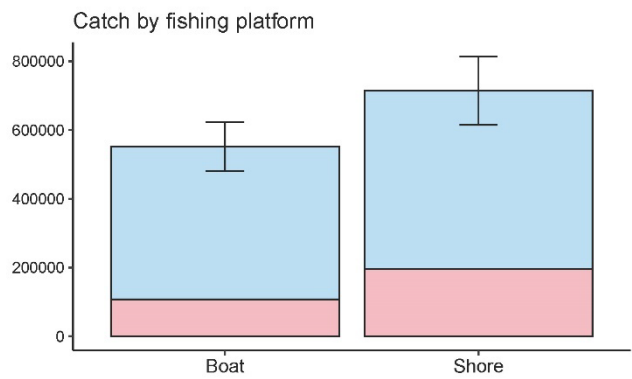
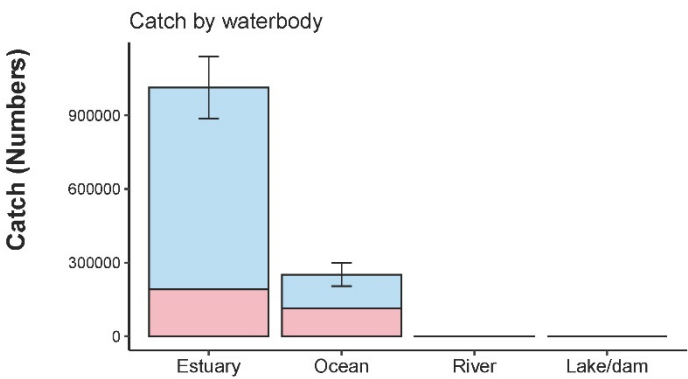
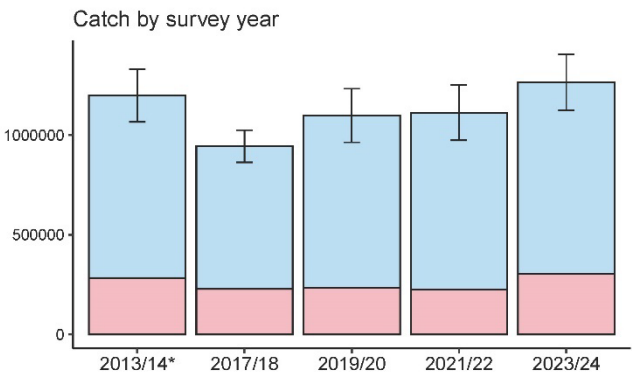


Report cards for key species

Bream (species complex)

Bream

- ‘Bream’ is a species complex of Yellowfin Bream, Black Bream and their hybrids, with Yellowfin Bream dominating the state-wide catch for this group.
- Total state-wide catch was 1,265,260 (RSE = 11 %), with 24 % being kept and 76 % released during 2023/24.

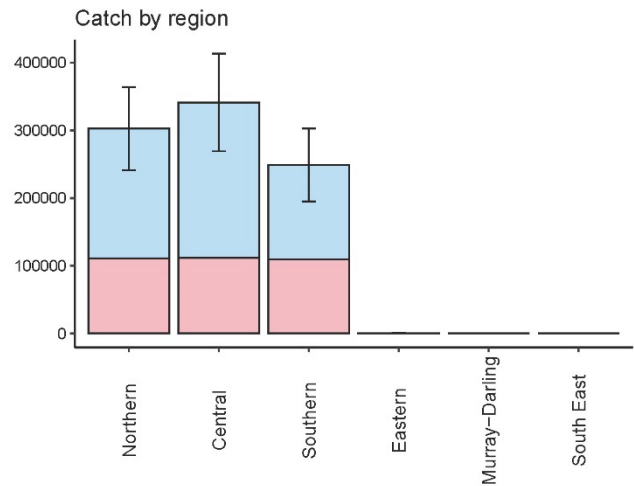
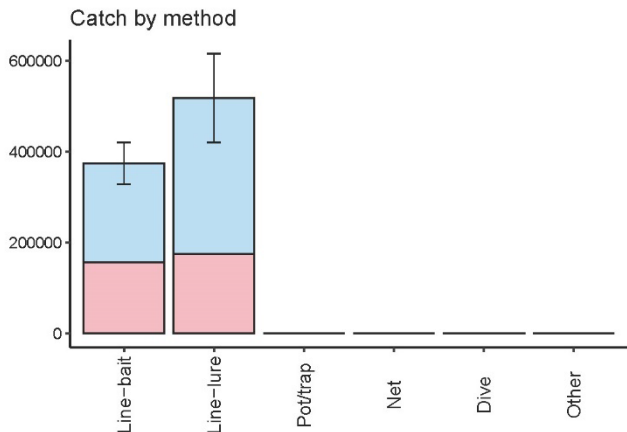
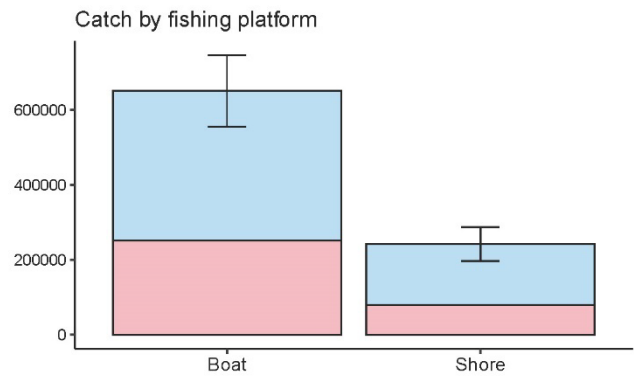
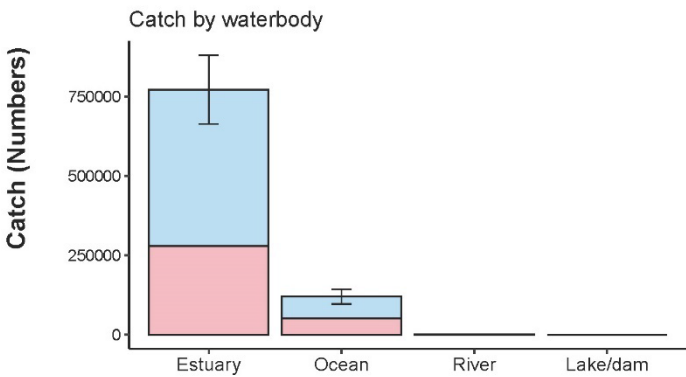
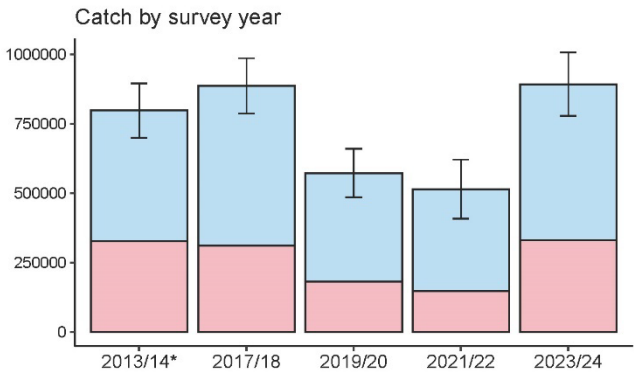


Kept Catch Released Catch

Dusky Flathead (*Platycephalus fuscus*)

Dusky Flathead

- Total state-wide catch was 892,908 (RSE = 13 %), with 37 % being kept and 63 % released during 2023/24.

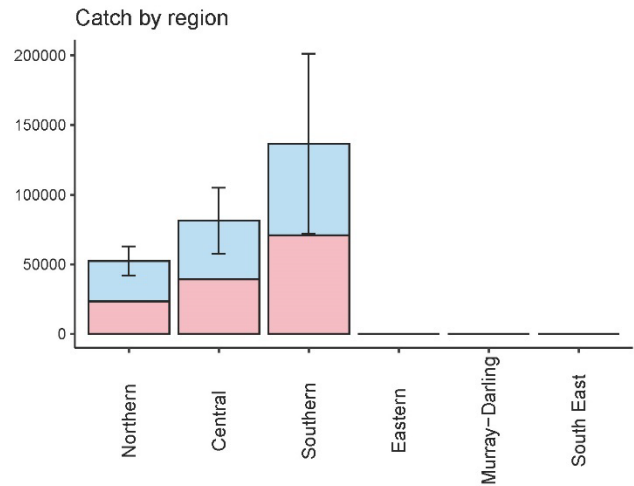
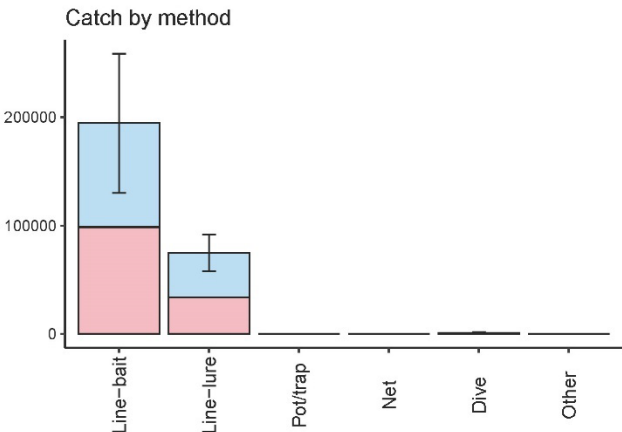
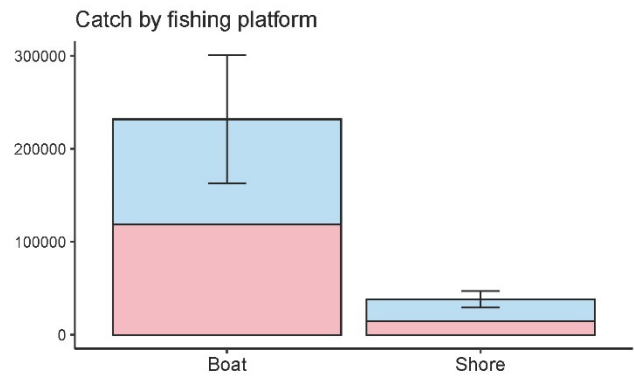
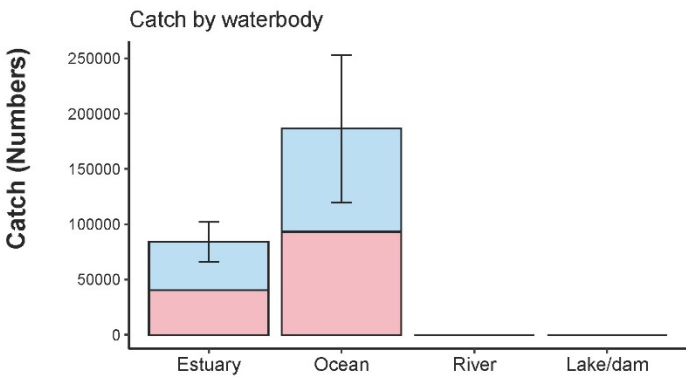
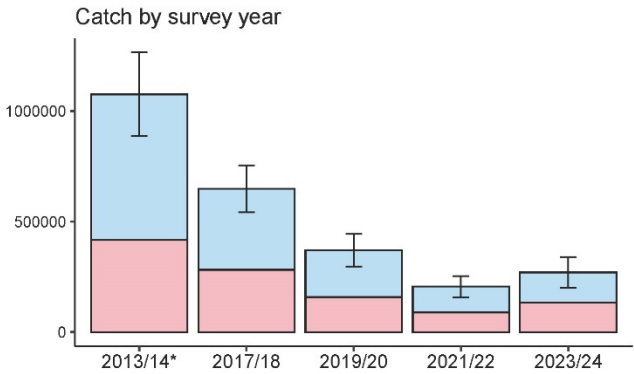


Kept Catch Released Catch

Sand Flathead (species complex)

Sand Flathead

- ‘Sand flathead’ is a species complex of several Platycephalidae species, with Bluespotted Flathead dominating the state-wide catch for this group.
- Total state-wide catch was 270,304 (RSE = 26 %), with 49 % being kept and 51 % released during 2023/24.

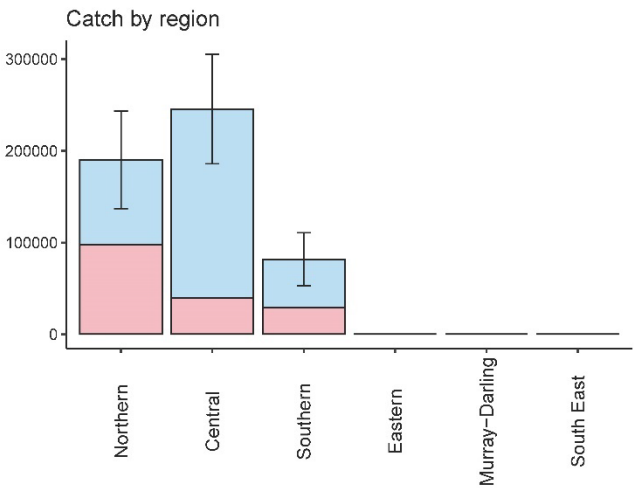
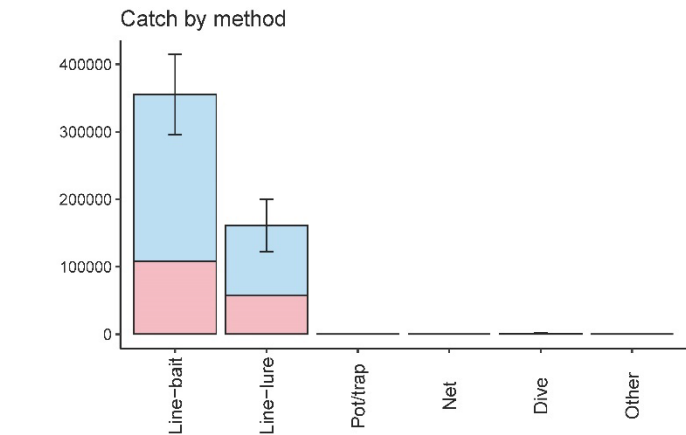
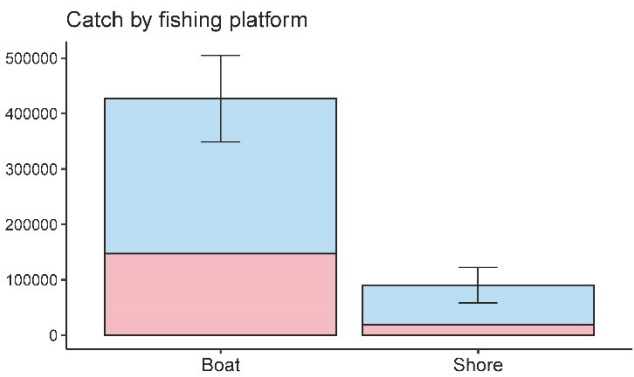
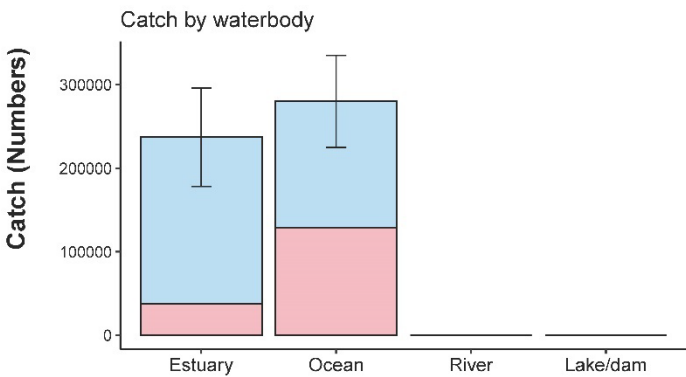
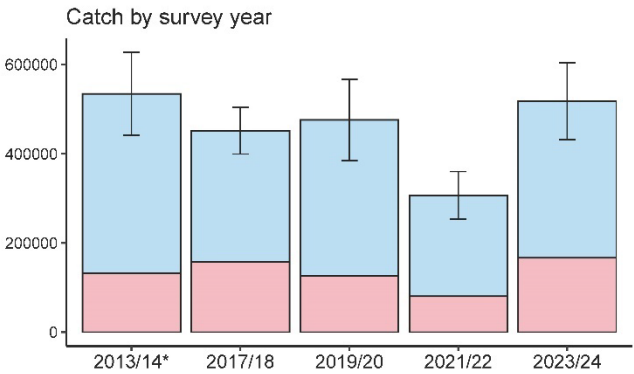


Kept Catch Released Catch

Snapper (*Chrysophrys auratus*)

Snapper

- Total state-wide catch was 517,486 (RSE = 17 %), with 32 % being kept and 68 % released during 2023/24.



Kept Catch Released Catch

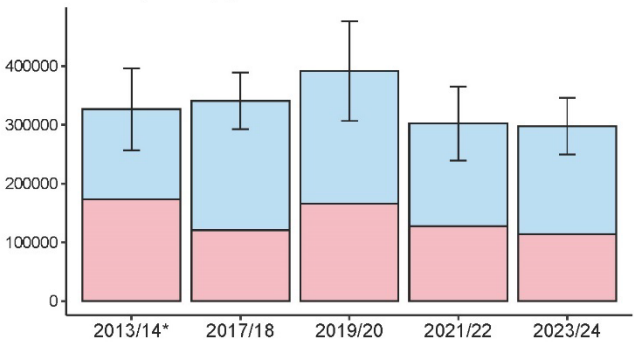
Sand Whiting (*Sillago ciliata*)

Sand Whiting

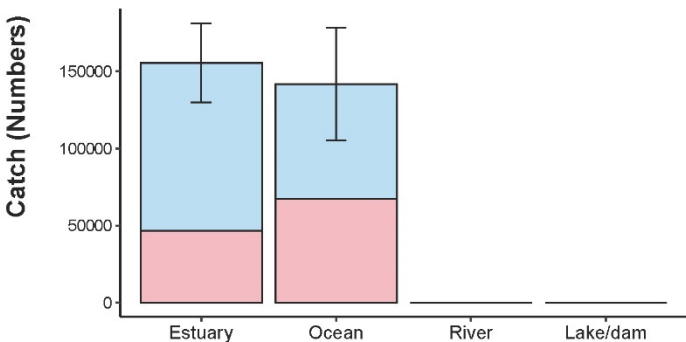
• Total state-wide catch was 297,480 (RSE = 16 %), with 38 % being kept and 62 % released during 2023/24.



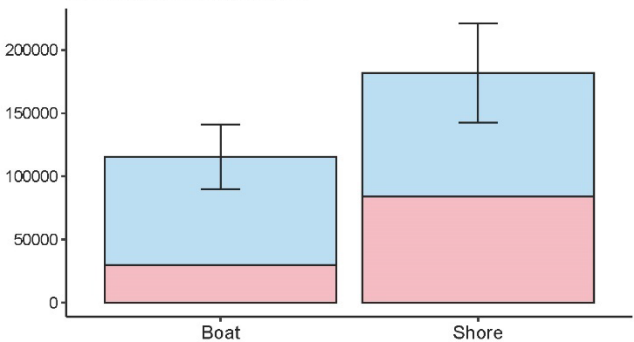
Catch by survey year



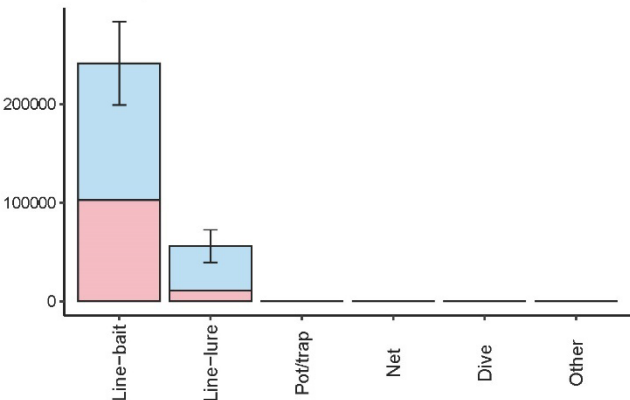
Catch by waterbody



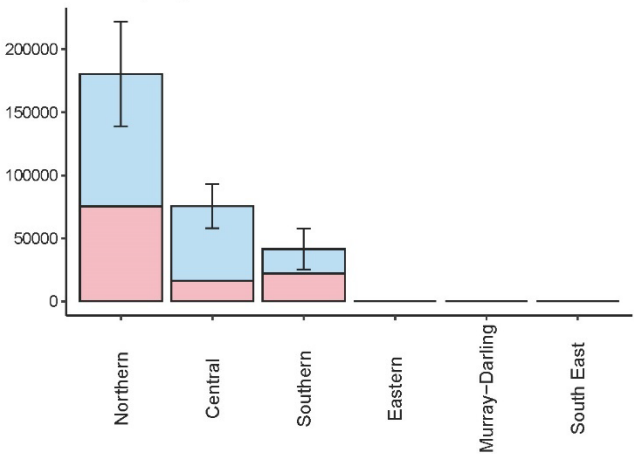
Catch by fishing platform



Catch by method



Catch by region



Kept Catch Released Catch

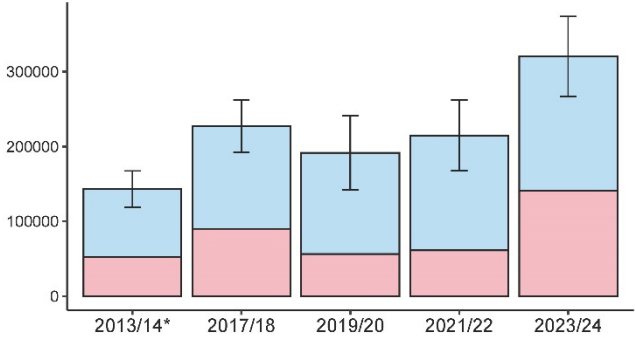
Tailor (*Pomatomus saltatrix*)

Tailor

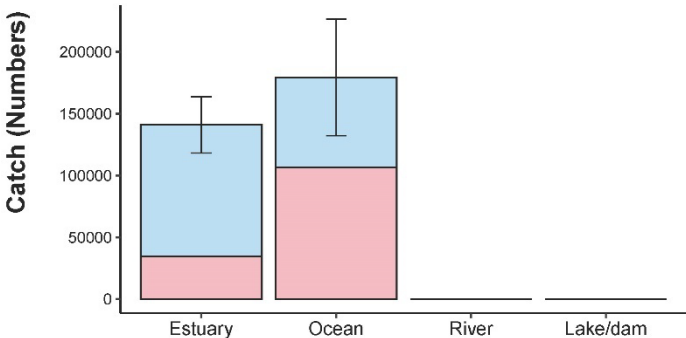
- Total state-wide catch was 320,226 (RSE = 17 %), with 44 % being kept and 56 % released during 2023/24.



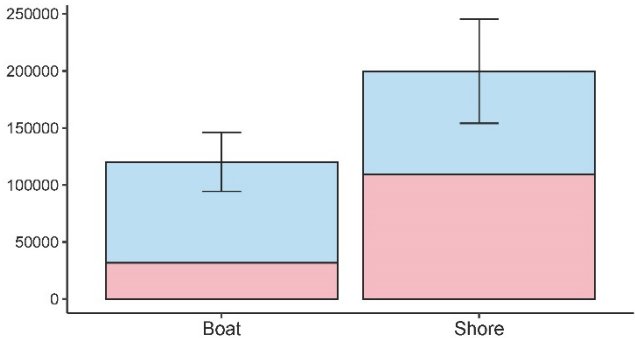
Catch by survey year



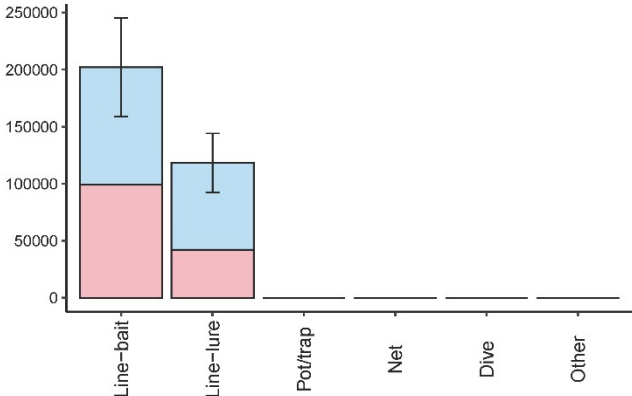
Catch by waterbody



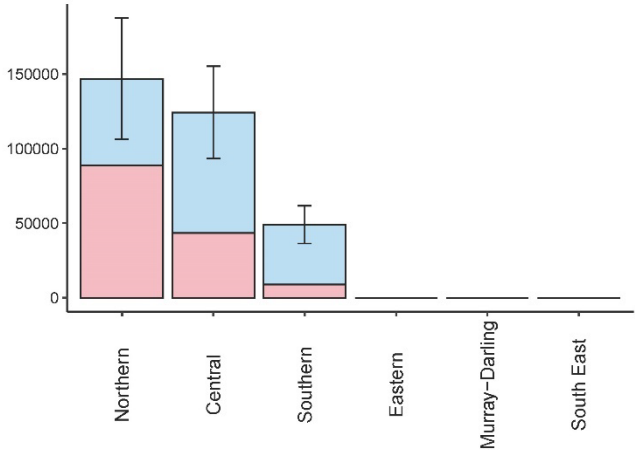
Catch by fishing platform



Catch by method



Catch by region

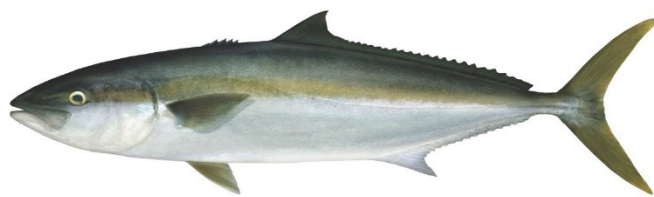


Kept Catch Released Catch

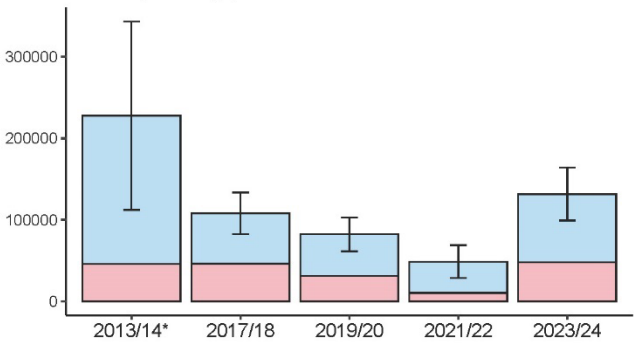
Yellowtail Kingfish (*Seriola lalandi*)

Yellowtail Kingfish

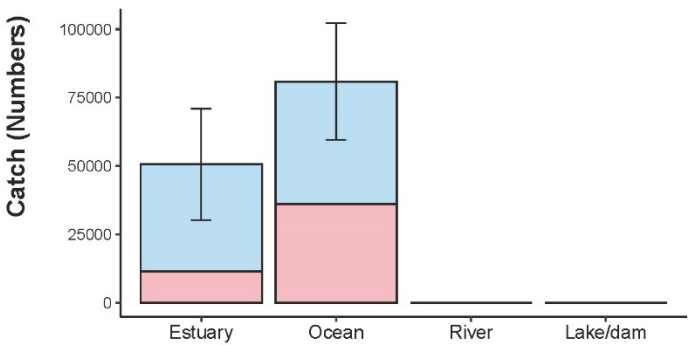
- Total state-wide catch was 131,485 (RSE = 25 %), with 36 % being kept and 64 % released during 2023/24.



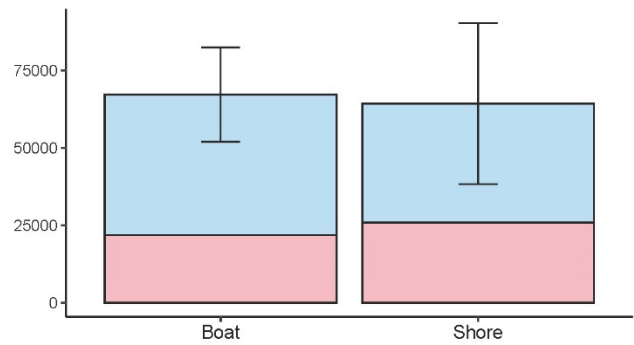
Catch by survey year



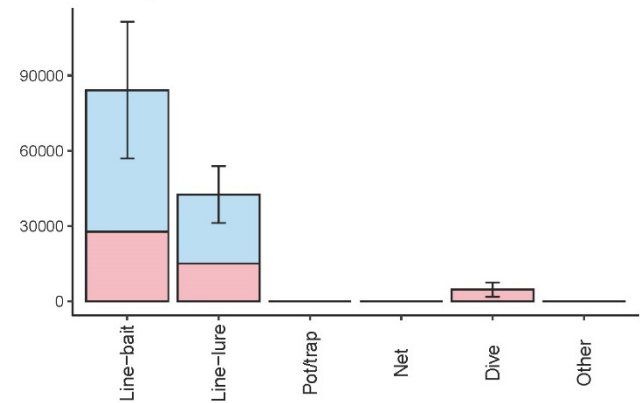
Catch by waterbody



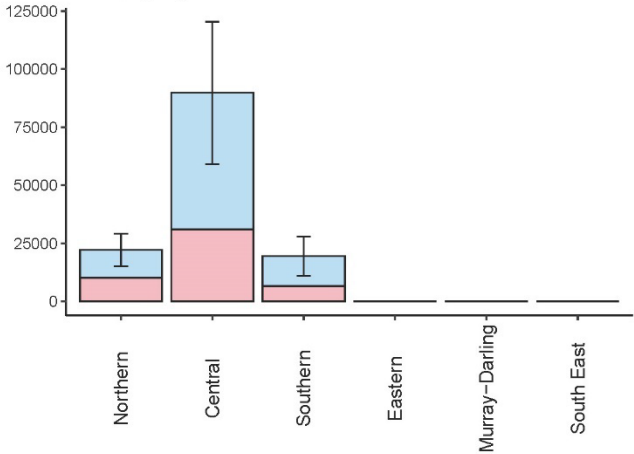
Catch by fishing platform



Catch by method



Catch by region

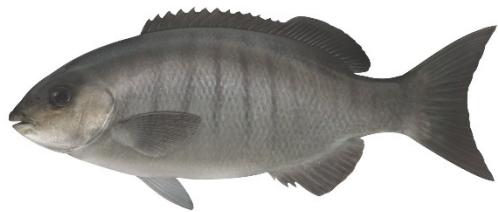


Kept Catch Released Catch

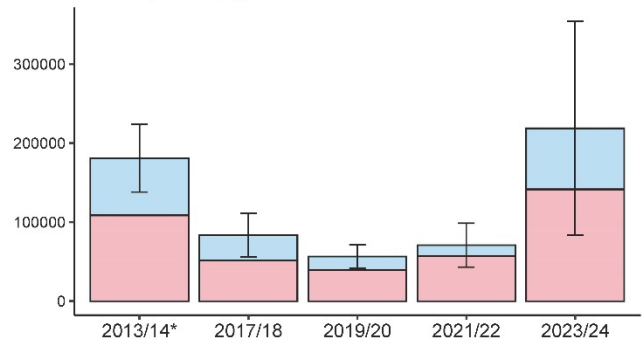
Luderick (*Girella tricuspidata*)

Luderick

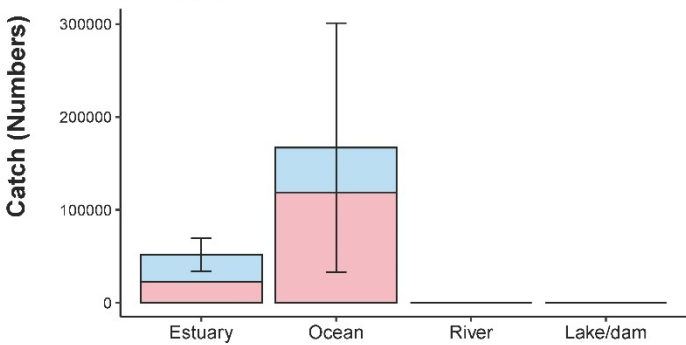
- Total state-wide catch was 218,770 (RSE = 62 %), with 65 % being kept and 35 % released during 2023/24.



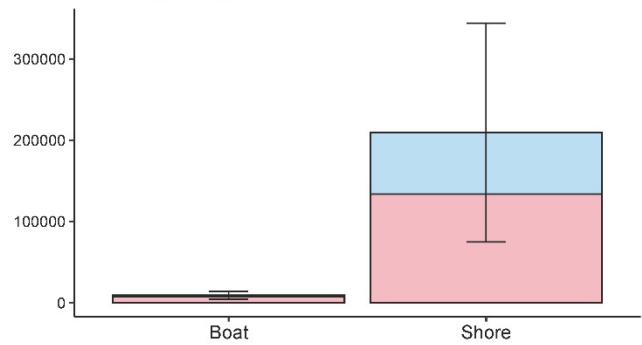
Catch by survey year



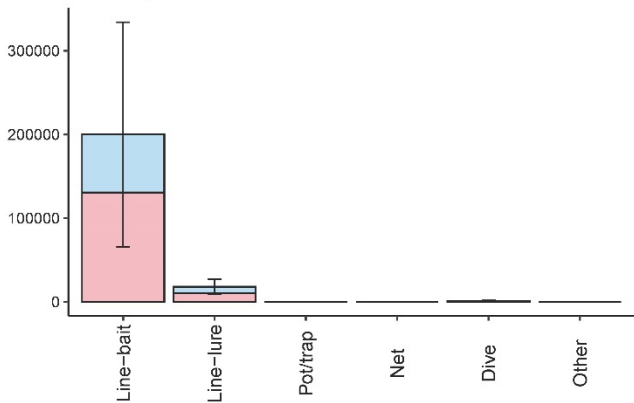
Catch by waterbody



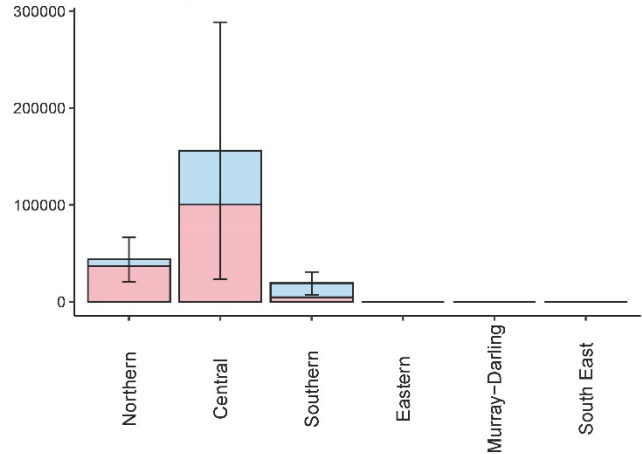
Catch by fishing platform



Catch by method



Catch by region



Kept Catch Released Catch

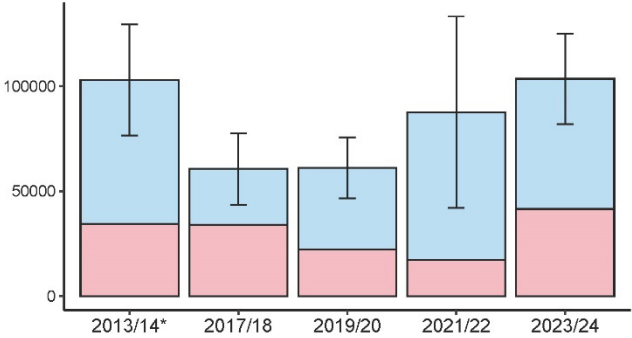
Australian Salmon (*Arripis trutta*)

Australian Salmon

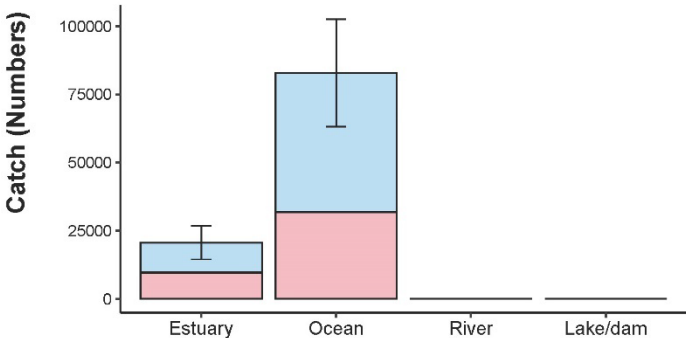
- Total state-wide catch was 103,452 (RSE = 21 %), with 40 % being kept and 60 % released during 2023/24.



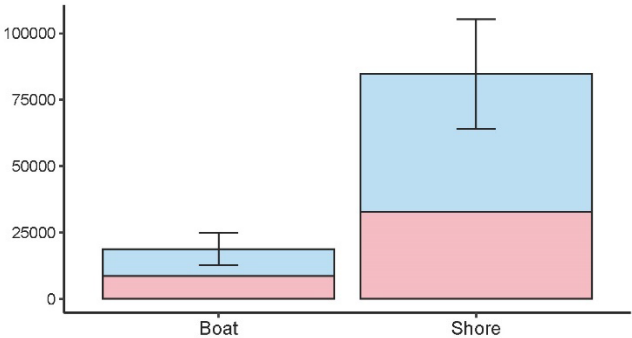
Catch by survey year



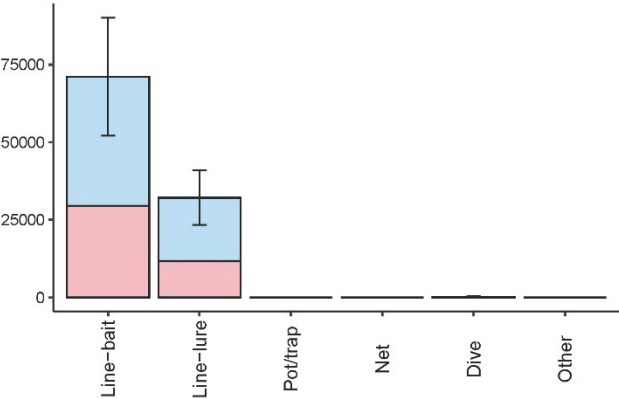
Catch by waterbody



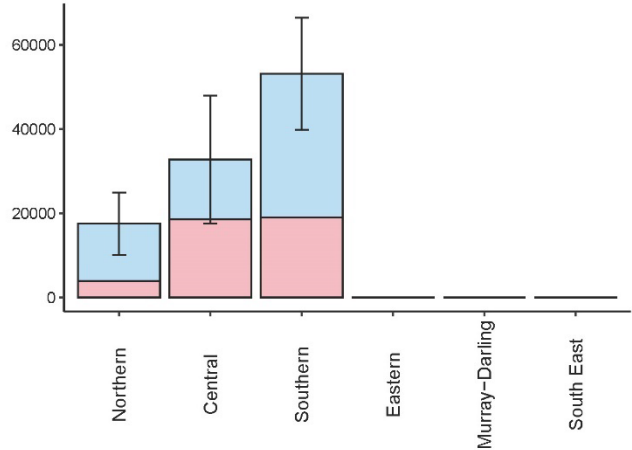
Catch by fishing platform



Catch by method



Catch by region

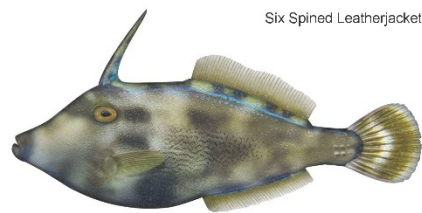


Kept Catch Released Catch

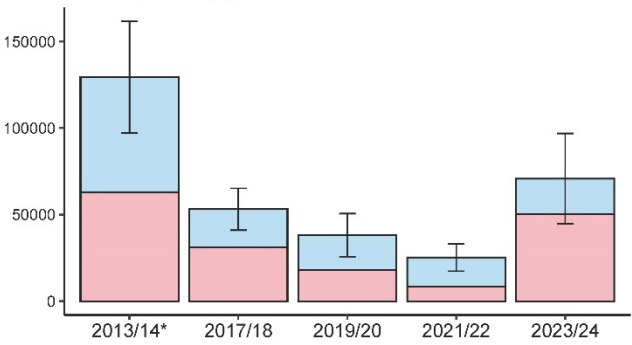
Leatherjacket (species complex)

Leatherjacket

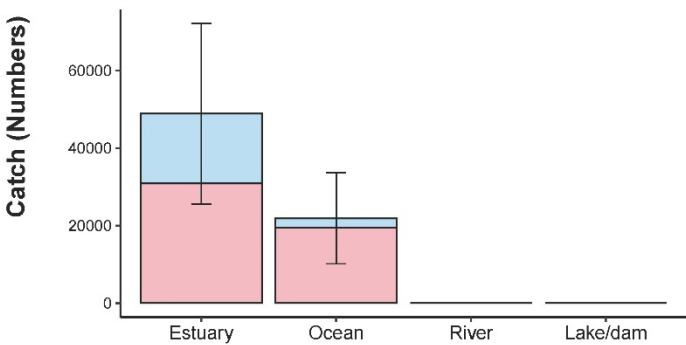
- 'Leatherjacket' is a species complex of several Balistidae and Monacanthidae species.
- Total state-wide catch was 70,730 (RSE = 37 %), with 71 % being kept and 29 % released during 2023/24.



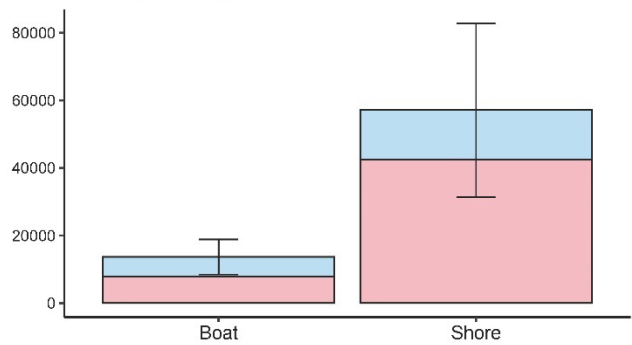
Catch by survey year



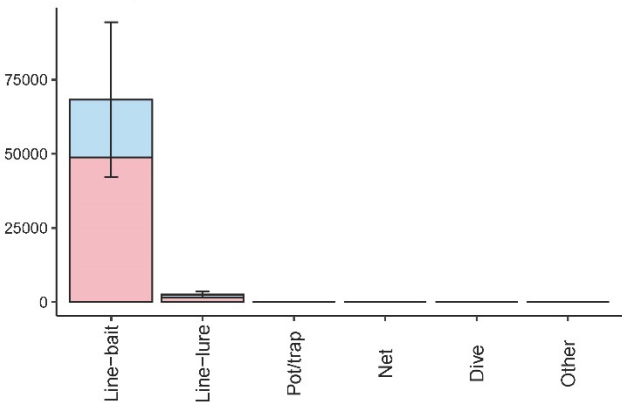
Catch by waterbody



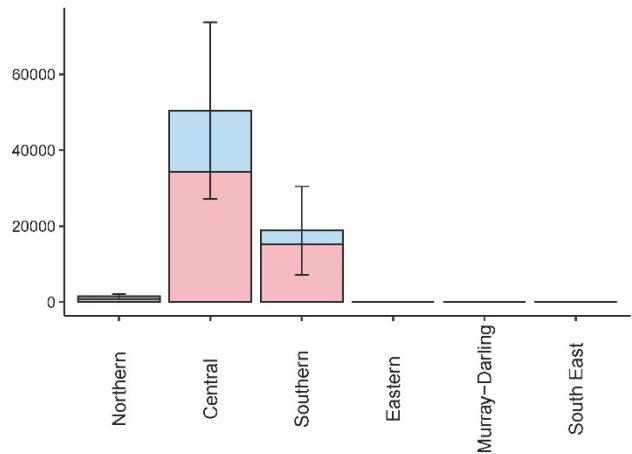
Catch by fishing platform



Catch by method



Catch by region

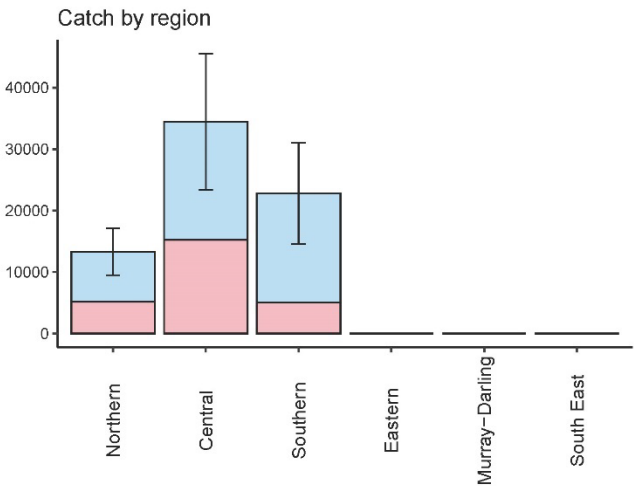
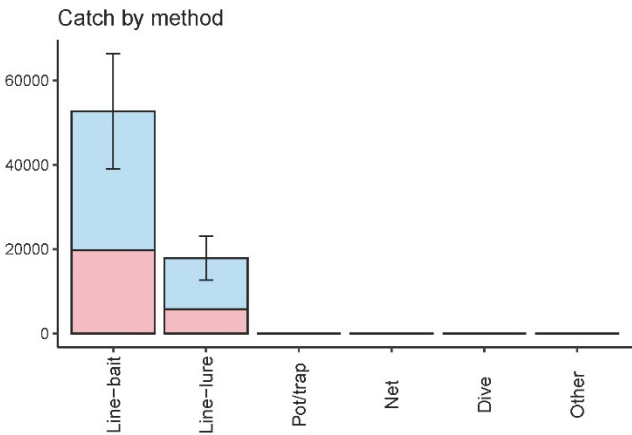
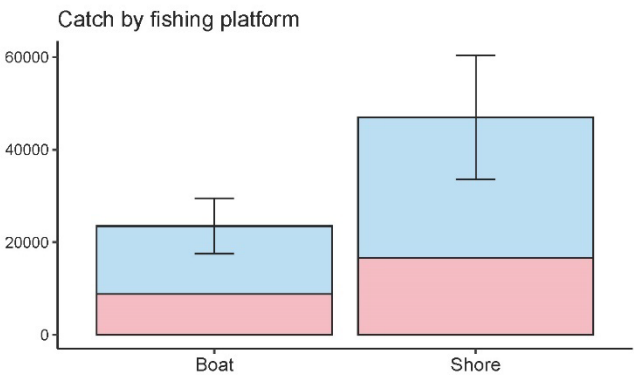
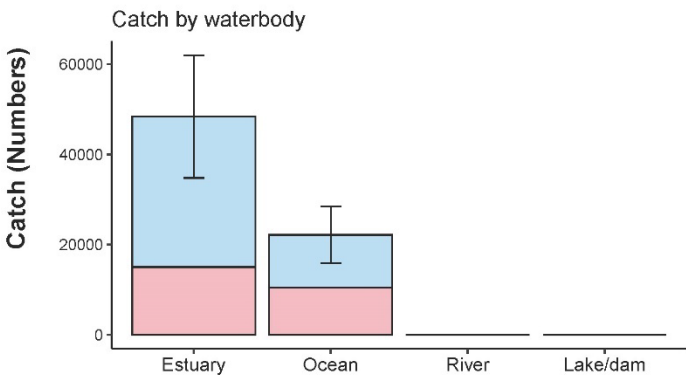
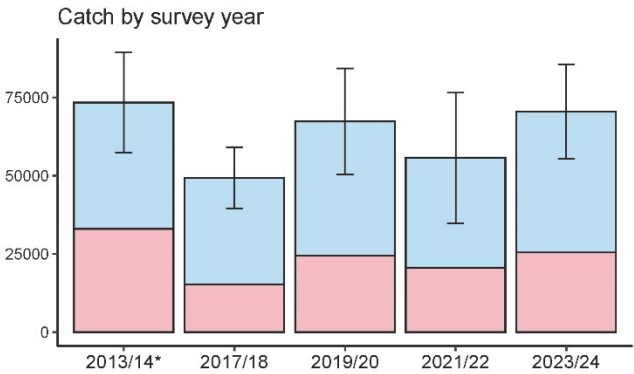
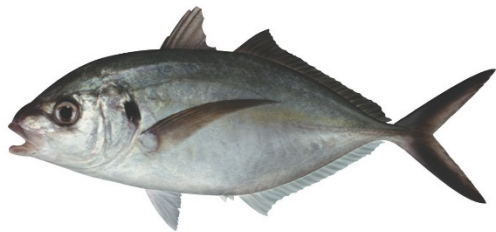


Kept Catch Released Catch

Silver Trevally (*Pseudocaranx georgianus*)

Silver Trevally

• Total state-wide catch was 70,537 (RSE = 21 %), with 36 % being kept and 64 % released during 2023/24.

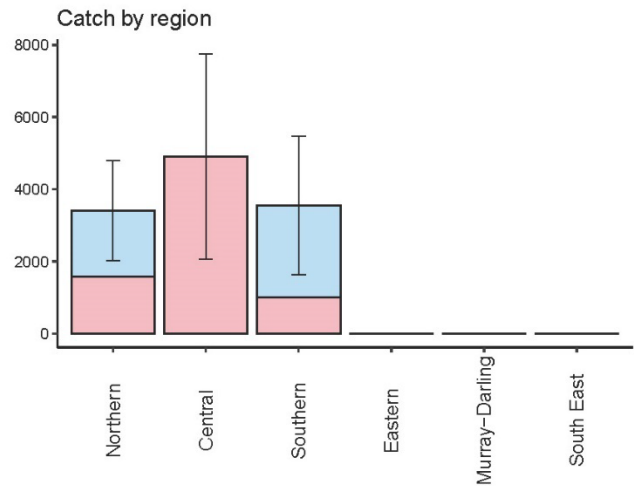
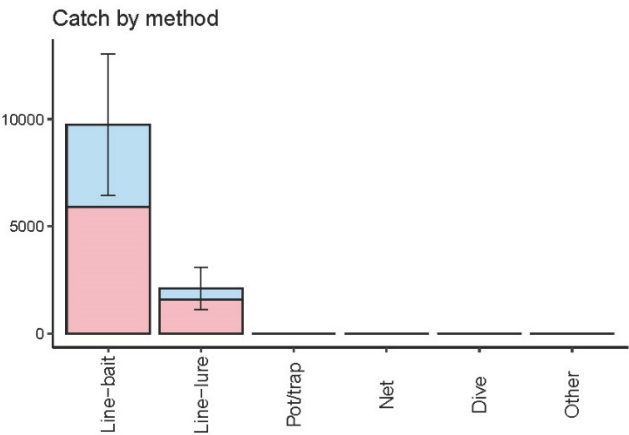
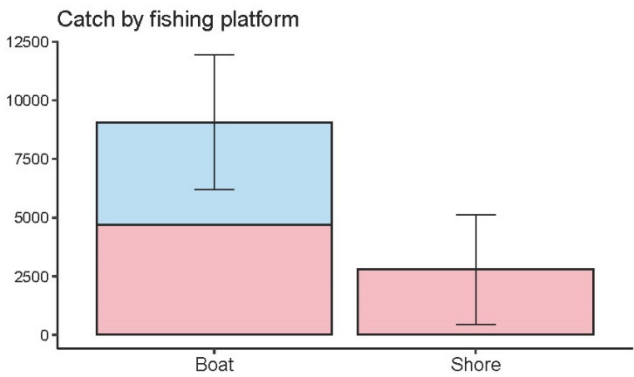
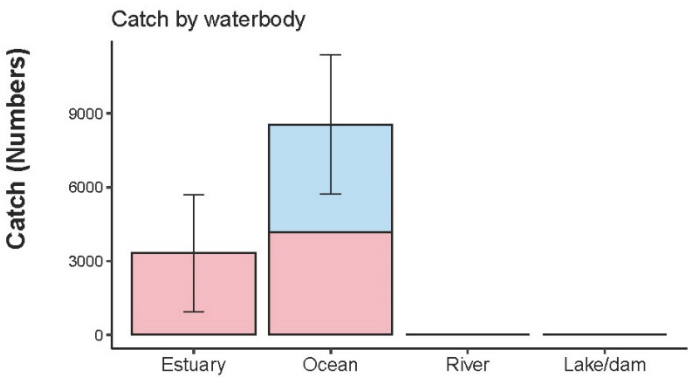
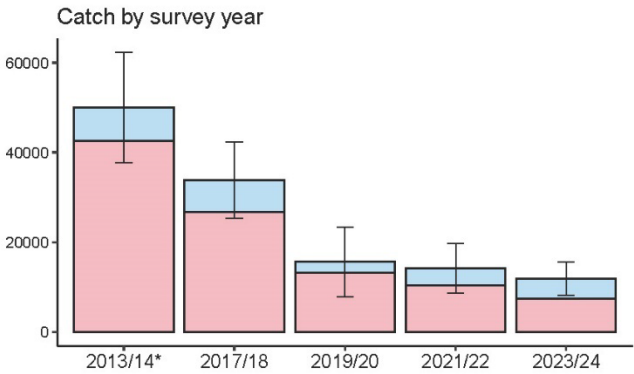


Kept Catch Released Catch

Grey Morwong (*Nemadactylus douglasii*)

Grey Morwong

- Total state-wide catch was 11,857 (RSE = 31 %), with 63 % being kept and 37 % released during 2023/24.

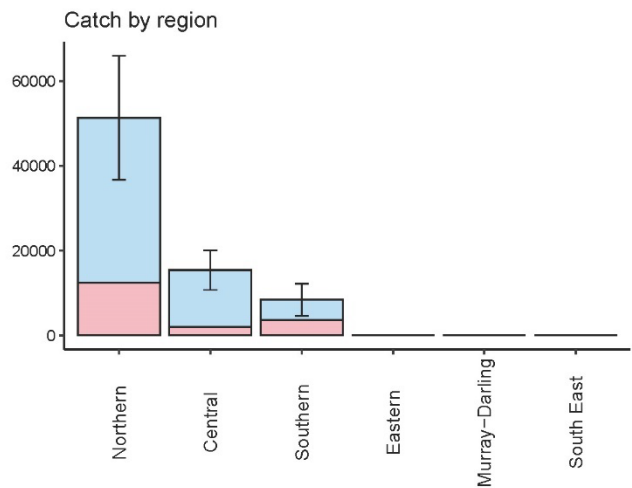
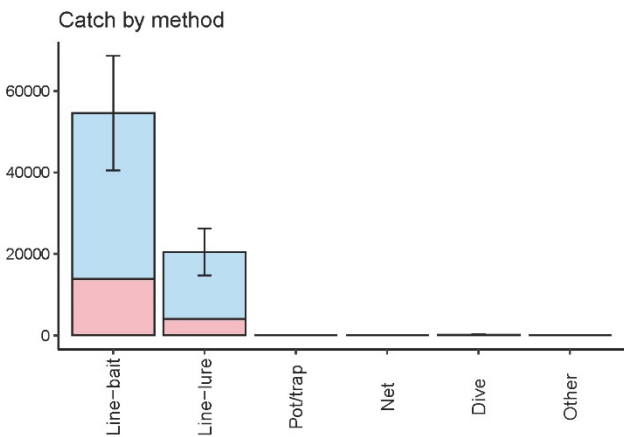
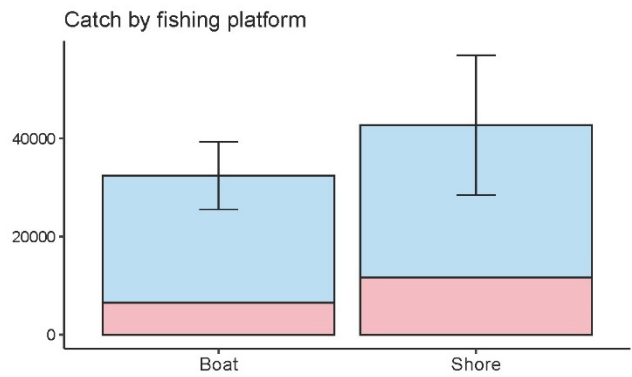
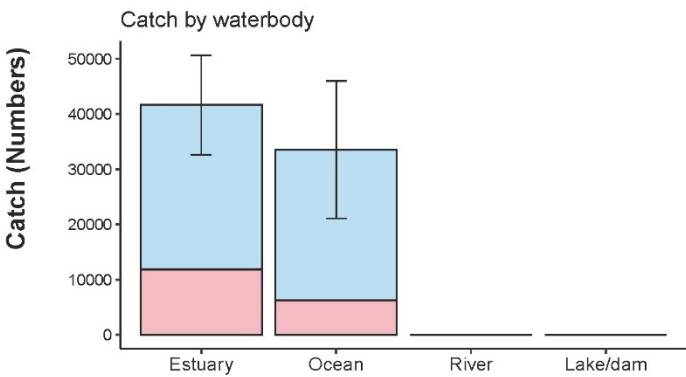
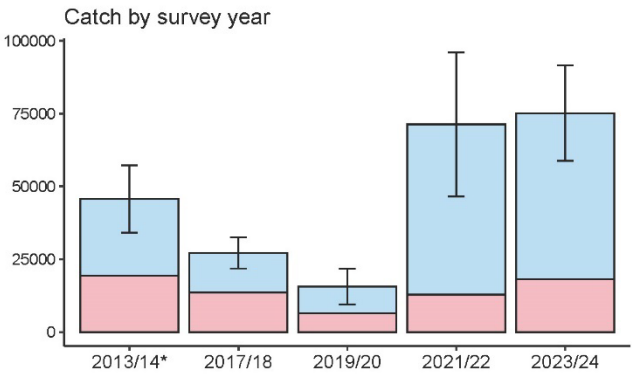


Kept Catch Released Catch

Mulloway (*Argyrosomus japonicus*)

Mulloway

- Total state-wide catch was 75,168 (RSE = 22 %), with 24 % being kept and 76 % released during 2023/24.

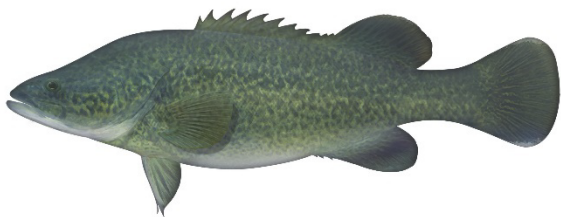


Kept Catch Released Catch

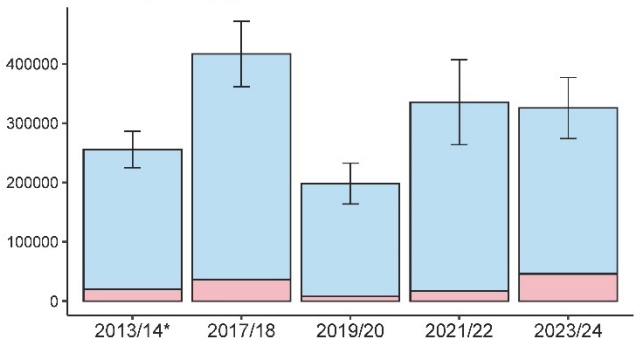
Murray Cod (*Maccullochella peeli*)

Murray Cod

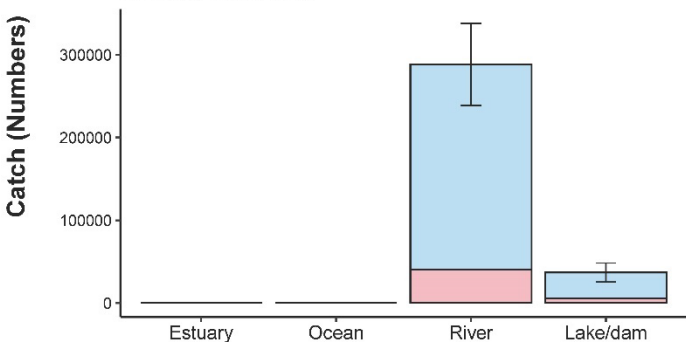
- Total state-wide catch was 325,457 (RSE = 16 %), with 14 % being kept and 86 % released during 2023/24.



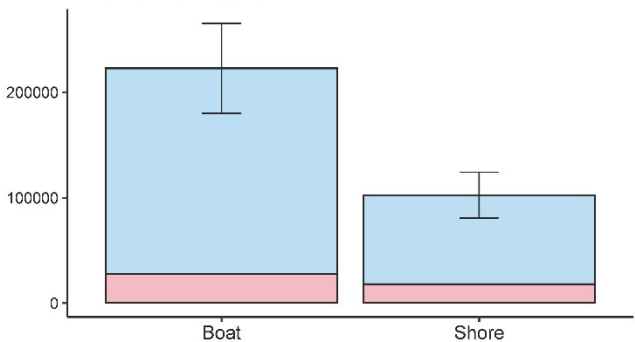
Catch by survey year



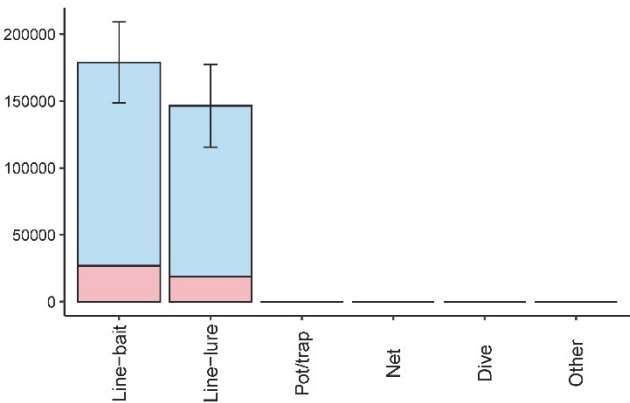
Catch by waterbody



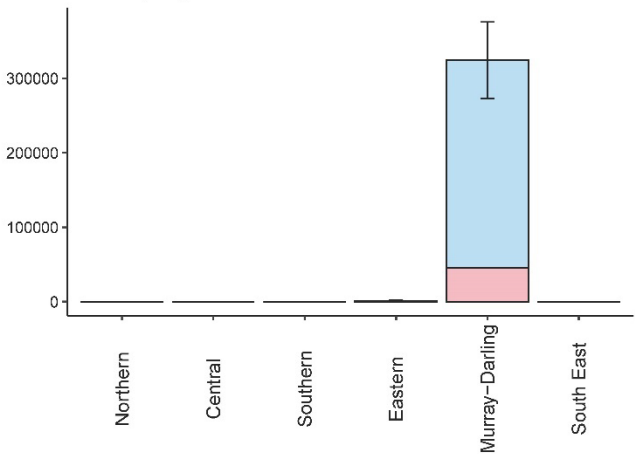
Catch by fishing platform



Catch by method



Catch by region



Kept Catch Released Catch

Australian Bass (species complex)

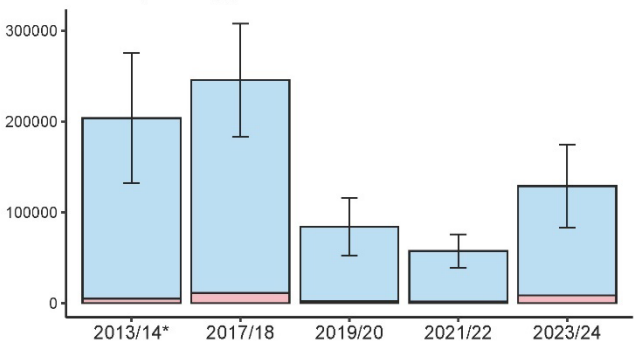
Australian Bass

- 'Australian Bass' is a complex of two species, Australian Bass and Estuary Perch with the former dominating the state-wide catch for this group
- Total state-wide catch was 128,779 (RSE = 36 %), with 7 % being kept and 93 % released during 2023/24.

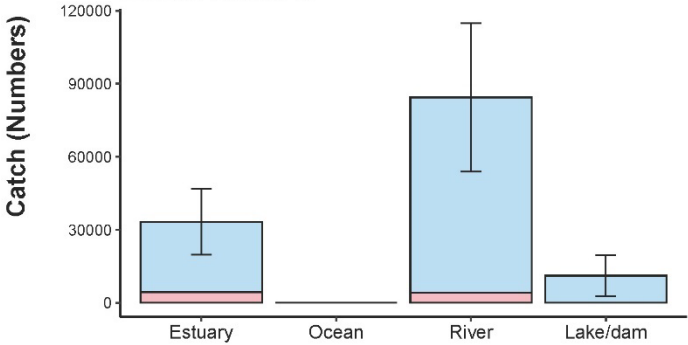


Australian Bass

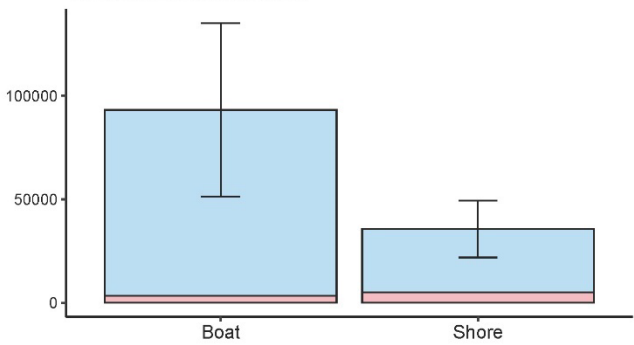
Catch by survey year



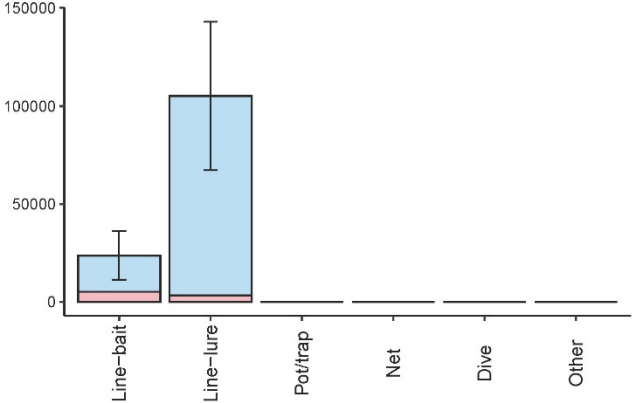
Catch by waterbody



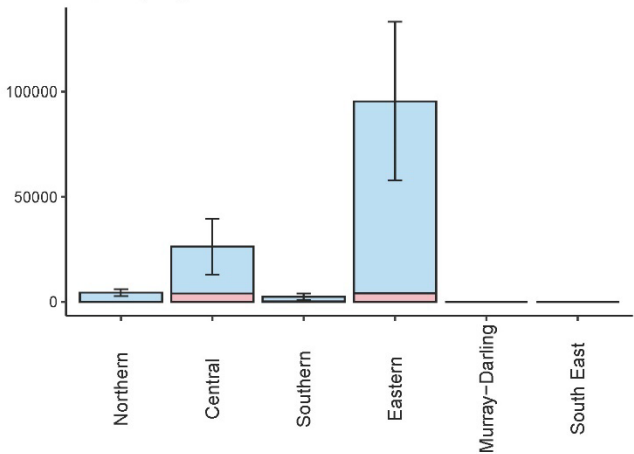
Catch by fishing platform



Catch by method



Catch by region

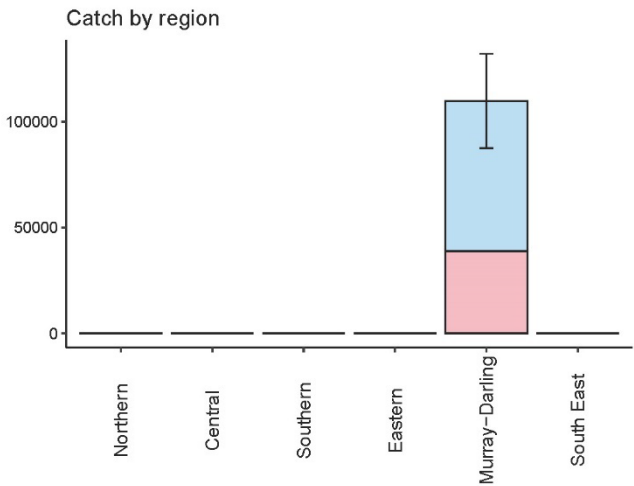
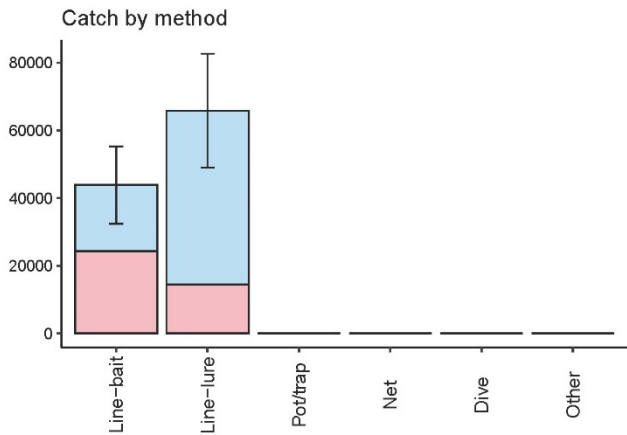
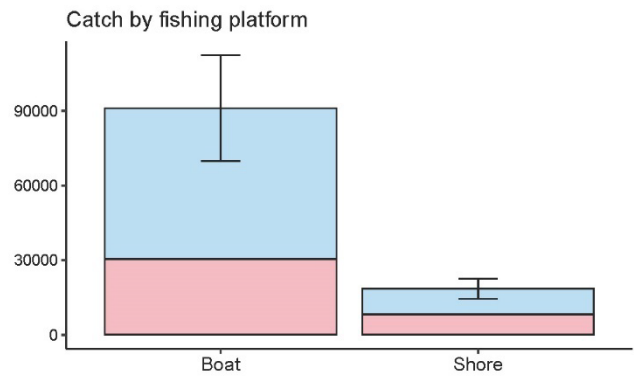
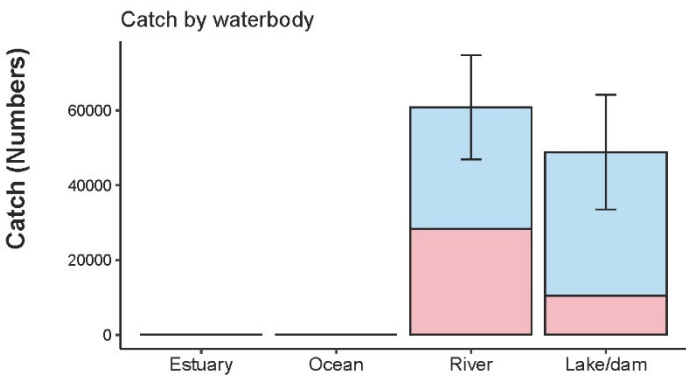
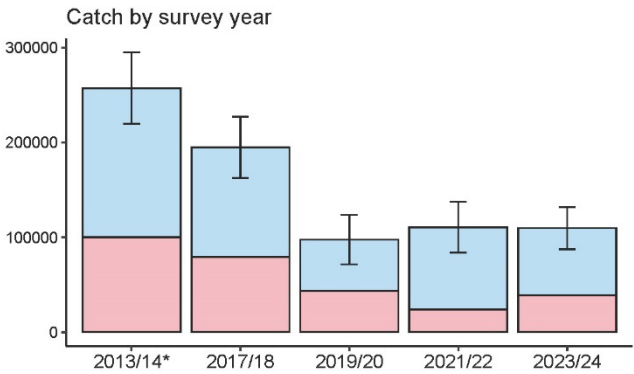
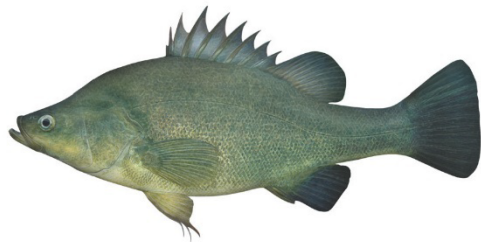


Kept Catch Released Catch

Golden Perch (*Macquaria ambigua*)

Golden Perch

- Total state-wide catch was 109,694 (RSE = 20 %), with 35 % being kept and 65 % released during 2023/24.



Kept Catch Released Catch

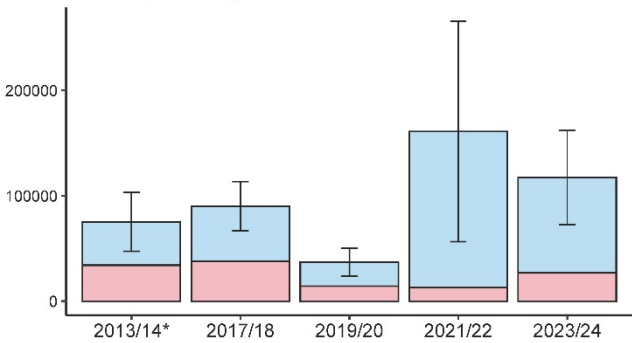
Brown Trout (*Salmo trutta*)

Brown Trout

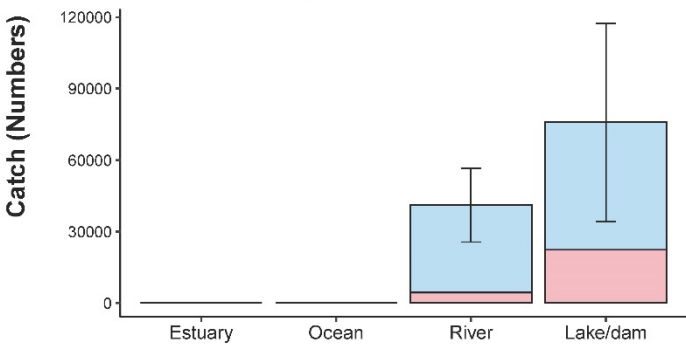
- Total state-wide catch was 117,051 (RSE = 38 %), with 23 % being kept and 77 % released during 2023/24.



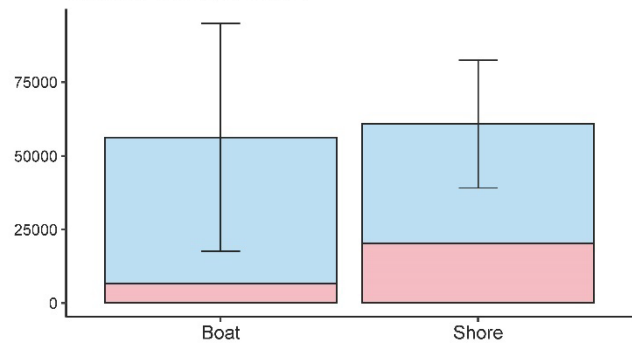
Catch by survey year



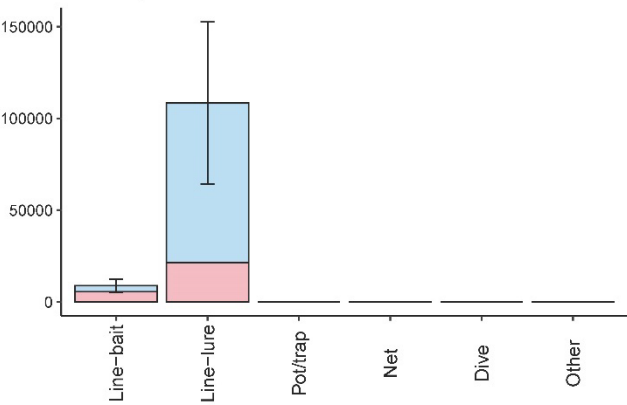
Catch by waterbody



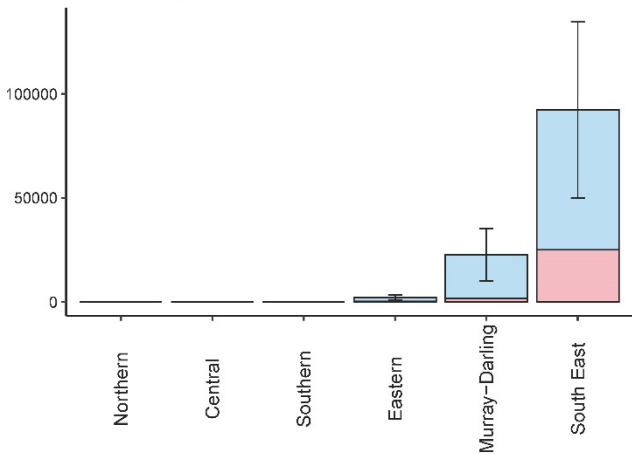
Catch by fishing platform



Catch by method



Catch by region



Kept Catch Released Catch

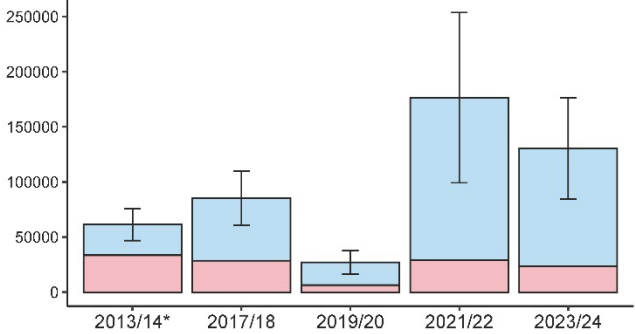
Rainbow Trout (*Oncorhynchus mykiss*)

Rainbow Trout

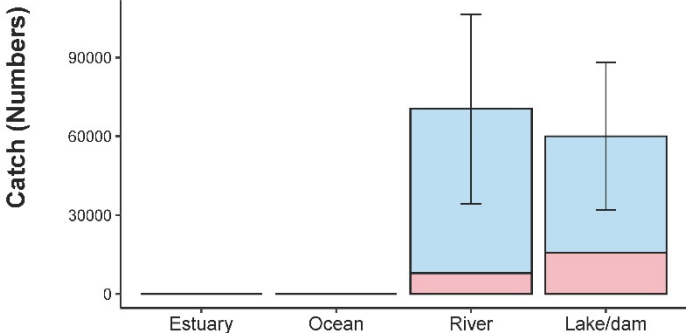
- Total state-wide catch was 130,493 (RSE = 35 %), with 18 % being kept and 82 % released during 2023/24.



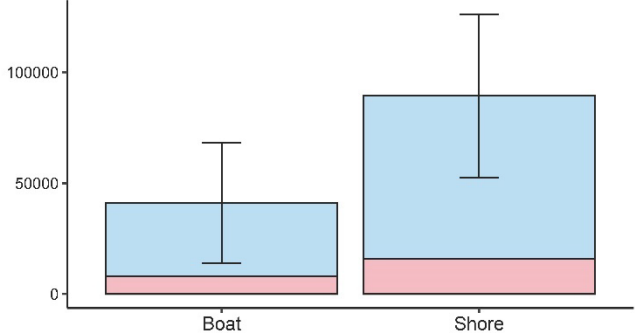
Catch by survey year



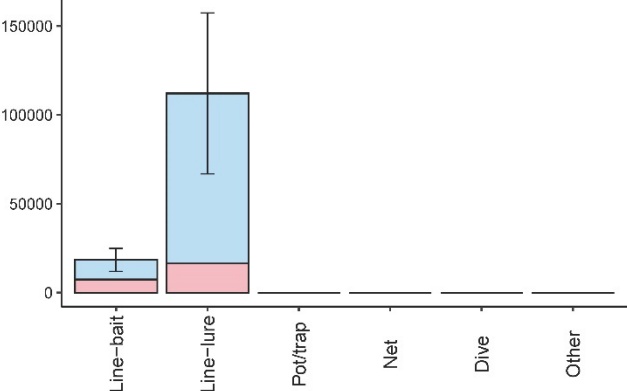
Catch by waterbody



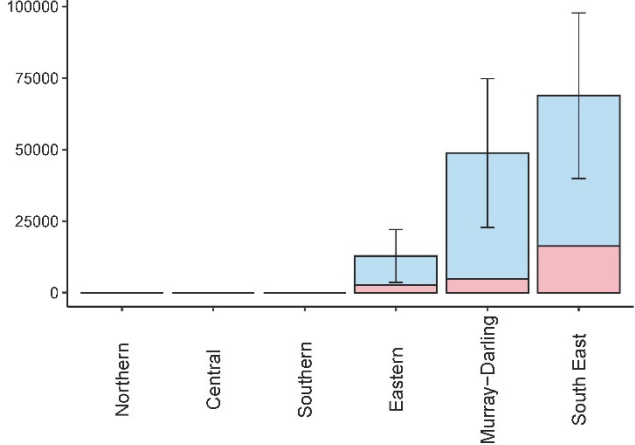
Catch by fishing platform



Catch by method



Catch by region



Kept Catch Released Catch

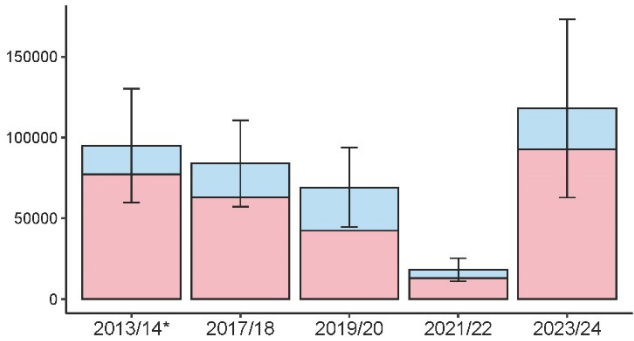
Blue Swimmer Crab (*Portunus armatus*)

Blue Swimmer crab

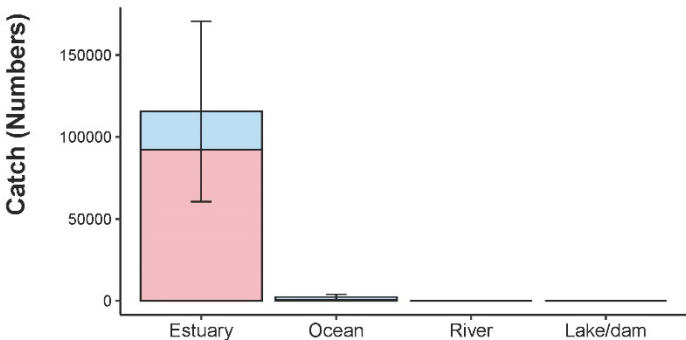
- Total state-wide catch was 117,936 (RSE = 47 %), with 79 % being kept and 21 % released during 2023/24.



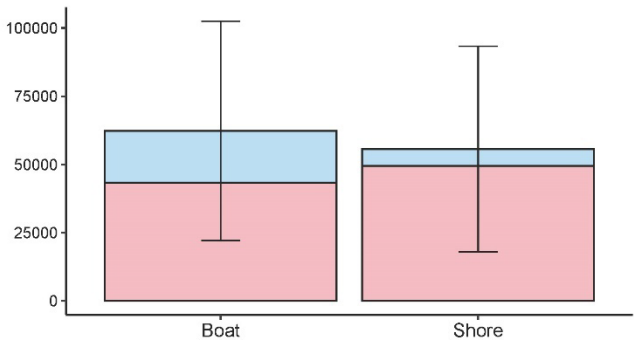
Catch by survey year



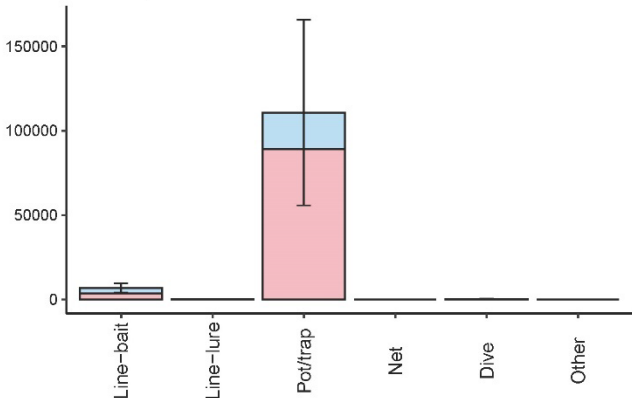
Catch by waterbody



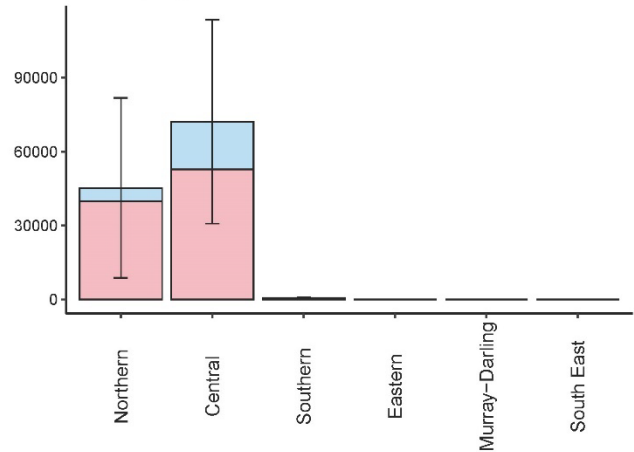
Catch by fishing platform



Catch by method



Catch by region

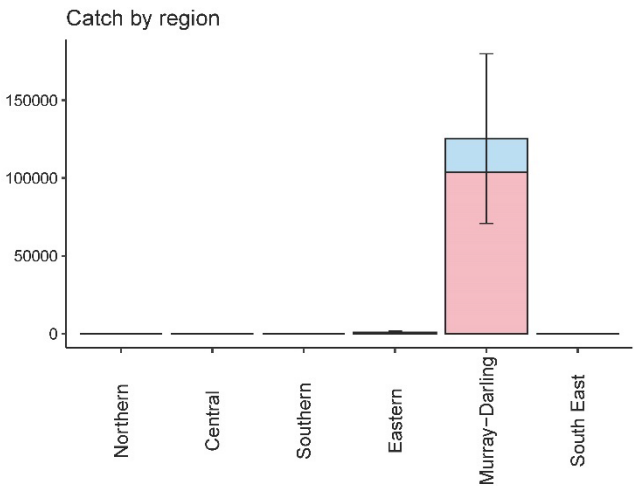
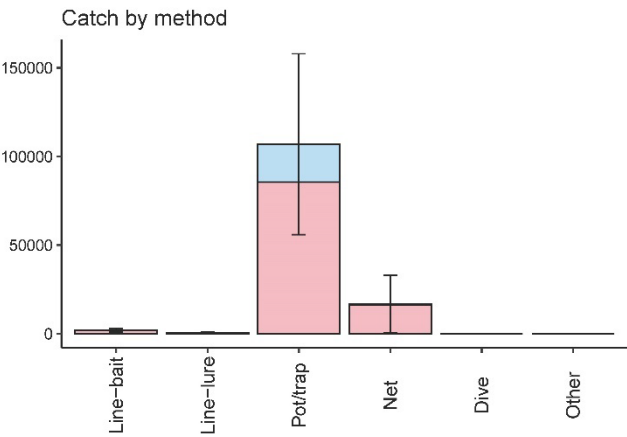
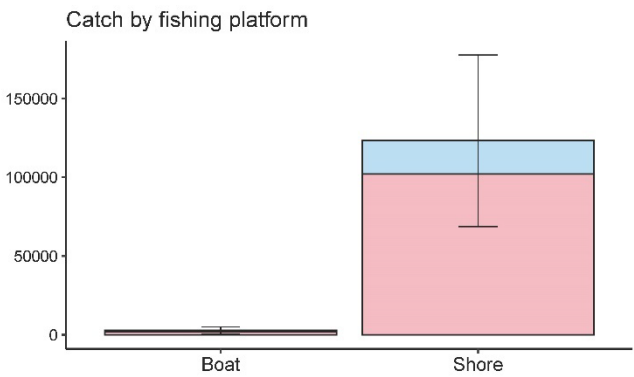
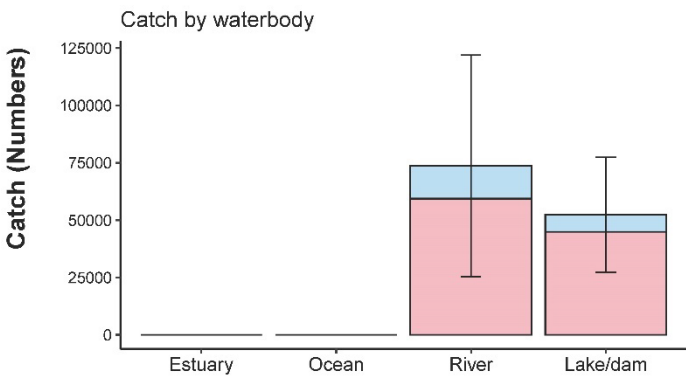
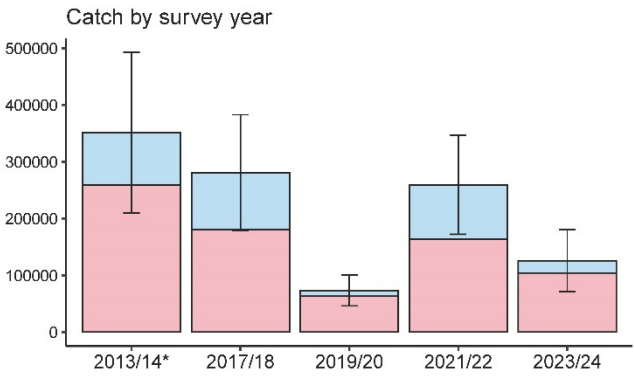
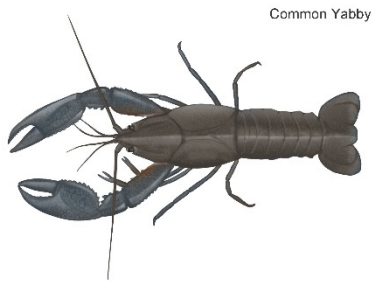


Kept Catch Released Catch

Yabbies (species complex)

Yabbies (freshwater)

- ‘Yabbies (freshwater)’ is a species complex of several Parastacidae species, with the Common Yabby dominating the state-wide catch for this group.
- Total state-wide catch was 126,011 (RSE = 43 %), with 83 % being kept and 17 % released during 2023/24.



Kept Catch Released Catch

Discussion

The last two RFMP TD surveys (2019/20 and 2021/22) encompassed a highly challenging period both for recreational fishers and the broader NSW community. The period 2020-2022 included extensive restrictions on travel and recreational activities, as well as economic uncertainty resulting from the COVID-19 pandemic. In addition, the climatic conditions along the east coast of Australia led to drought and extreme bushfires, followed by extensive rainfall and flooding through 2019-2022. The extremely wet conditions were associated with a protracted La Niña period, which further extended through to 2024. As discussed in previous reports, these challenges have adversely influenced recreational fishing for an extended period; however, the 2023/24 TD survey showed improvements across many of the monitored indices. These temporal changes are briefly discussed below.

Participation and effort

Overall sales of RFLs have increased since 2021, but in the past 2 fiscal years there has been a slight uptick in purchase of 3-day RFFRs. Increased fishing license sales were consistent with concomitant increases in participation and the number of fishing events undertaken by survey participants. While total participation had increased, it still remained lower than in 2017/18. However, overall fisher-days in 2023/24 approximated that estimated for 2017/18. This was driven by minor changes in avidity profiles, with a greater proportion of participating fishers fishing for 5-14 or > 20 days per year in 2023/24, compared to 2017/18, and a smaller proportion fishing <5 days.

Catch

Increases in effort (compared to recent surveys) were mirrored by increases in overall catch for 2023/24, which exceeded all survey years except 2013/14. However, changes in catch were not consistent across species. There were large increases in estimated catch for Dusky Flathead and Snapper, but similarly to previous years, a majority of the catch was released. Catch of Yellowtail Kingfish, Luderick and Leatherjackets more than doubled, and the catch of Blue Swimmer Crab (both overall, and kept catch) was the highest yet observed in the RFMP series of surveys. The much improved catches of Mulloway observed in the 2021/22 survey year, were continued in 2023/24. Other primarily ocean-caught species, such as Pearl Perch, showed dramatic increases in 2023/24, with estimated catch the highest yet observed in the RFMP series. Certain species however, showed declines; for example, the catch of Grey Morwong continued a pattern of decline over the period from 2013/14 to 2023/24.

For freshwater species, catches of primary native species Murray Cod and Golden Perch remained comparatively stable between 2021/22 and 2023/24. Catches of European Carp increased sharply in 2023/24, with fishers complying with requirements to retain fish rather than releasing them back into the water. Catches of Brown and Rainbow Trout, Redfin, and Yabbies, declined in 2023/24, possibly due to environmental conditions during the survey period.

Summary

Despite continued environmental challenges facing both freshwater and saltwater ecosystems in NSW, including major coastal flooding across different parts of the state in November-December 2023, and April-June 2024, indices of recreational fishing participation and performance generally

increased in 2023/24. This included increased catch across many of the most important recreational species, as well as the highest catches yet recorded for certain species.

The RFMP TD survey performed well for the 2023/24 survey year, however the response rate in the Screening Survey dropped considerably compared to 2021/22 – by almost 10%. This is likely a function of the substantial uptick in both legitimate survey and telemarketing calls, and spam calls, during 2022. This has led to an increasing general reluctance to answer calls from unfamiliar numbers, and is likely to have impacted the performance of the RFMP Screening Survey in 2023/24.

The data collected by the RFMP TD Survey provides a robust insight into the changes in the NSW recreational fishery through time, and the potential influences of extrinsic factors on recreational fishing activity. The time-series collected by the RFMP continues to aid government and industry in understanding the potential consequences of major environmental (e.g., droughts, floods, bushfires) and social events (e.g., Covid), and manage their impacts. The patterns presented in this report again highlight the importance of a consistent, on-going time-series of recreational fishing surveys.

References

- Argent, R. (2016) Australia State of the Environment 2016; Inland water. Department of the Environment and Energy, <https://soe.environment.gov.au/theme/inland-water>.
- Cooke, S.J., and Cowx, I.G. (2006) Contrasting recreational and commercial fishing: Searching for common issues to promote unified conservation of fisheries resources and aquatic environments. *Biological Conservation* **128**(1), 93-108.
- Fowler, A.M., Ochwada-Doyle, F.A., Dowling, N.A., Folpp, H., Hughes, J.M., Lowry, M.B., Lyle, J.M., Lynch, T.P., Miles, N.G., and Chick, R.C. (2022) Integrating recreational fishing into harvest strategies: Linking data with objectives. *ICES Journal of Marine Science* **79**(2), 285-307.
- Henry, G.W., and Lyle, J.M. (2003) The national recreational and indigenous fishing survey. Australian Government Department of Agriculture, Fisheries and Forestry, Canberra.
- Hyder, K., Maravelias, C.D., Kraan, M., Radford, Z., and Prellezo, R. (2020) Marine recreational fisheries — current state and future opportunities. *ICES Journal of Marine Science* **77**(6), 2171-2180.
- Ihde, T.F., Wilberg, M.J., Loewensteiner, D.A., Secor, D.H., and Miller, T.J. (2011) The increasing importance of marine recreational fishing in the US: challenges for management. *Fisheries Research* **108**(2), 268-276.
- Lumley, T. (2004) Analysis of complex survey samples. *Journal of Statistical Software* **9**, 1-19.
- Lumley, T. (2011) 'Complex Surveys: A Guide to Analysis Using R.' (John Wiley & Sons, New Jersey)
- Lyle, J.M., Coleman, A.P., West, L., Campbell, D., and Henry, G.W. (2002) New large-scale survey methods for evaluating sport fisheries. In *Recreational Fisheries: Ecological, Economic and Social Evaluation*. (Eds. TJ Pitcher and CE Hollingworth) pp. 207-226.
- Lyle, J.M., Wotherspoon, S., and Stark, K.E. (2010) Developing an analytical module for large-scale recreational fishery data based on phone-diary survey methodology. Final Report for FRDC Project No. 2007/064. Fisheries Research and Development Corporation, Canberra. .
- Lyle, J.M., Stark, K.E., and Tracey, S.R. (2014) 2012-13 Survey of Recreational Fishing in Tasmania. Institute for Marine and Antarctic Studies, University of Tasmania, Battery Point.
- Lyle, J.M., Stark, K.E., Ewing, G.P., and Tracey, S.R. (2019) 2017-18 Survey of Recreational Fishing in Tasmania. Institute for Marine and Antarctic Studies, University of Tasmania, Battery Point.
- McPhee, D.P. (2017) Urban recreational fisheries in the Australian coastal zone: The sustainability challenge. *Sustainability* **9**(3), 422.

Murphy, J.J., Ochwada-Doyle, F.A., West, L.D., Stark, K.E., and Hughes, J.M. (2020) Survey of recreational fishing in NSW, 2017/18. NSW Department of Primary Industries, Nelson Bay, Fisheries Final Report Series No. 158.

Murphy, J.J., Ochwada-Doyle, F.A., West, L.D., Stark, K.E., Hughes, J.M., and Taylor, M.D. (2022) Survey of recreational fishing in NSW, 2019/20. NSW Department of Primary Industries, Nelson Bay, Fisheries Final Report Series No. 161.

Murphy, J.J., Ochwada-Doyle, F.A., West, L.D., Stark, K.E., Hughes, J.M., and Taylor, M.D. (2024) Survey of recreational fishing in NSW, 2021/22. NSW Department of Primary Industries, Nelson Bay, Fisheries Final Report Series.

NOAA (2020) Recreational Fishing Data Survey - Statistics Overview. <https://www.fisheries.noaa.gov>.

R Core Team (2023) R: A language and environment for statistical computing. (R Foundation for Statistical Computing: Vienna, Austria)

Ryan, K.L., Hall, N.G., Lai, E.K., Smallwood, C.B., Taylor, S.M., and Wise, B.S. (2015) State-wide survey of boat-based recreational fishing in Western Australia 2013/14. Fisheries Research Report No. 268, Fisheries Research Division, Department of Primary Industries and Regional Development, Government of Western Australia.

Ryan, K.L., Trinnie, F.I., Jones, R., Hart, A.M., and Wise, B.S. (2016) Recreational fisheries data requirements for monitoring catch shares. *Fisheries Management and Ecology* **23**(3-4), 218-233.

Ryan, K.L., Hall, N.G., Lai, E.K., Smallwood, C.B., Tate, A., Taylor, S.M., and Wise, B.S. (2019) Statewide survey of boat-based recreational fishing in Western Australia 2017/18. Fisheries Research Report No. 297, Department of Primary Industries and Regional Development, Western Australia.

West, L.D., Stark, K.E., Murphy, J.J., Lyle, J.M., and Ochwada-Doyle, F.A. (2015) Survey of Recreational Fishing in New South Wales and the ACT, 2013/14. NSW Department of Primary Industries, Nelson Bay, Fisheries Final Report Series No. 149.

Appendices

The appendices listed below can be found by clicking the embedded .xlsx file at the end of the list:

Appendix 1. Annual recreational participation (numbers of persons*) by Waterbody, Platform, Method and Region for RFL households who fished in NSW waters during 2023/24.

Appendix 2. Annual recreational fishing effort (numbers of fisher-days*) by Waterbody, Waterbody and Platform, Method and Region for RFL households who fished in NSW waters during 2023/24.

Appendix 3. Annual recreational catch (total, kept and released numbers) for 20 key species/groups caught by RFL households in NSW waters for 4 survey years, 2013/14, 2017/18, 2019/20, 2021/22 and 2023/24.

Appendix 4. Annual state-wide recreational catch (total, kept and released numbers) for all species/groups caught by RFL households in NSW waters during 2023/24.

Appendix 5. Annual recreational catch (total, kept and released numbers) for 20 key species caught by RFL households in NSW waters during 2023/24 by Waterbody.

Appendix 6. Annual recreational catch (total, kept and released numbers) for 20 key species caught by RFL households in NSW waters during 2023/24 by Platform.

Appendix 7. Annual recreational catch (total, kept and released numbers) for 20 key species caught by RFL households in NSW waters during 2023/24 by Method.

Appendix 8. Annual recreational catch (total, kept and released numbers) for 20 key species caught by RFL households in NSW waters during 2023/24 by Region.

Follow these instructions to download the data appendices:

1. Download the report, save to your hard drive, and open the report in Adobe Acrobat (or Adobe Reader)
2. Double-click the .xlsx file symbol on the right, and the file will open in Microsoft Excel

NOTE: This will not work if you are viewing the file in your internet browser, you must be viewing the report in the Adobe Acrobat app



Appendices_ALL.xlsx
x