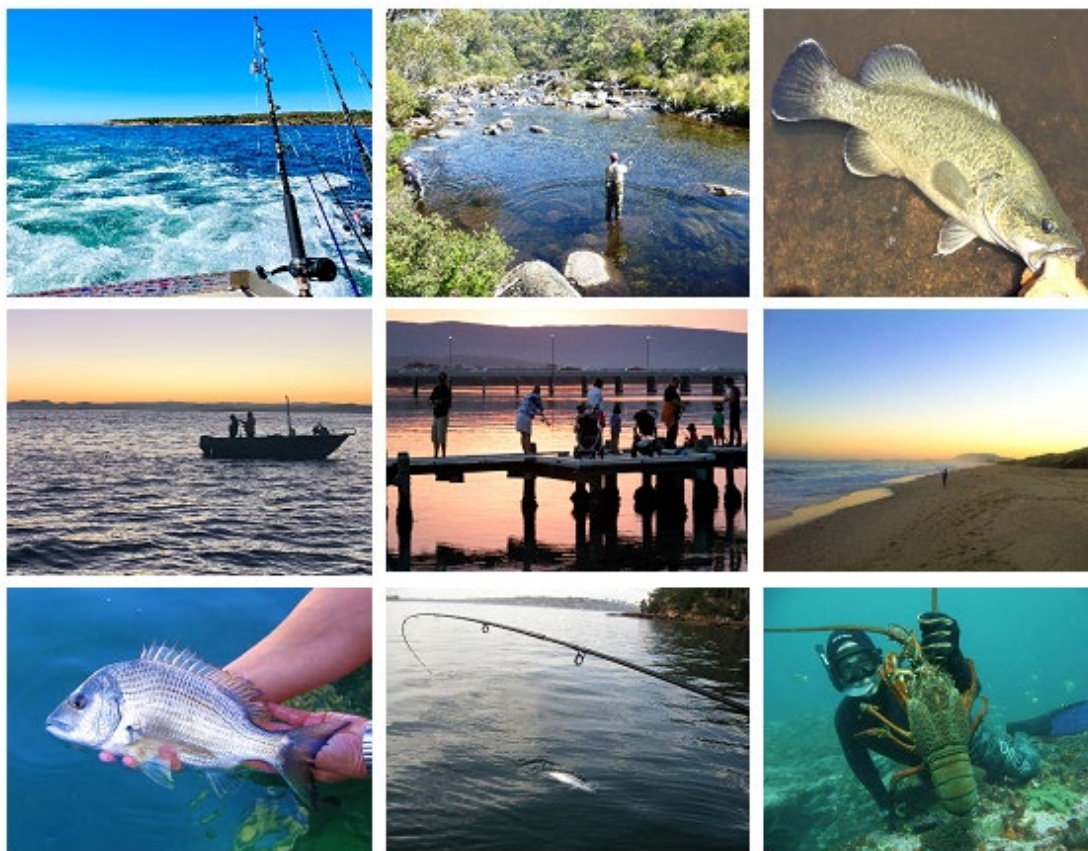# Department of Primary Industries

NSW GOVERNMENT

Fisheries Final Report Series | No. 158

Survey of recreational fishing in NSW, 2017/18

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Survey of recreational fishing in NSW, 2017/18

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Objectives

To provide detailed information for recreational fishing in NSW waters. Data elements included:

Annual catch and effort information for long-term (1 or 3-year duration) NSW recreational fishing licence holders and other members of their households – by fishing method, platform (boat or shore), waterbody type (e.g. ocean waters, estuaries, rivers and lakes/dams) and for six defined fishing zones during 2017/18.

Key words

Recreational fishing, telephone/diary survey

Summary

Recreational fishing is one of NSW's most popular pastimes with large proportions of the population participating in some type of recreational fishing during a typical year. Recreational fishing also accounts for substantial amounts of the total catch for many key species in NSW and indeed for some, recreational fishers account for the majority of the catch.

Due to the significance of the recreational fishery, the NSW Department of Primary Industries (NSWDPI) is committed to providing quality recreational fishing opportunities and ensuring sustainability of the State's fish stocks. To achieve these aims, regular and cost-effective monitoring of the recreational fishery is required to ensure effective management and ongoing health of our fisheries.

Collecting information on the recreational sector is extremely challenging and can be costly. There are hundreds of thousands of participants, targeting a wide variety of species across a diverse array of waterbodies, with thousands of access points.

On-going monitoring is important to provide estimates of recreational fishing effort and catch and to observe changes in these indices through time. For fisheries where recreational fishing provides the only source of data or where the recreational catch is equal to or exceeds the commercial catch, understanding the impact of recreational fishing is essential.

To meet these demands for a cost-effective, high quality and regular monitoring program the NSWDPI developed the Recreational Fisheries Monitoring Program (RFMP). The RFMP is a comprehensive citizen science program that engages with thousands of recreational fishers who voluntarily provide information on their fishing activities within a rigorous scientific framework.

There are two components to the RFMP:

1)   Recreational Fishing Research Surveys
State-wide 12-month surveys of long-term (1 or 3 years duration) recreational fishing licence holders and other members of their households; and,

2)   Charter Fishery Monitoring
A logbook and on-board observer program to monitor the NSW Charter Fishery

This report presents key results from the first year of the Research Surveys of the RFMP. The Charter Fishery monitoring is the subject of a separate report (see Hughes et al. 2020).

RFMP Research Survey 2017/18 – Background

The RFMP Research Surveys are based on the long-established telephone/diary survey method that has been effectively used for many large-scale recreational fishing surveys, both in Australia and overseas. In NSW, a licence is required to fish anywhere in NSW waters and this licensing system provides a comprehensive list of fishers that is used as the sampling frame for the telephone/diary RFMP surveys. Surveying long-term RFL holders from the NSW licence database results in several cost and operational efficiencies being achieved when compared to more traditional methods used to survey recreational fishers.

The RFMP surveys are designed to provide data on key indices of recreational fishery performance through time by surveying long-term recreational fishing licence (RFL) holders

on a biennial basis i.e. 12-month Diary Surveys will be run every second year. Importantly, other members within the household of the selected RFL holder who fish are also included in the survey to optimise the amount of fishing data collected.

High rates of coverage of the fishing population in NSW are achieved by sampling recreational fishers resident within RFL households. For example, a review of survey data from the 2000/01 National Recreational and Indigenous Survey revealed that RFL households would likely represent over 55% of all resident NSW and ACT fishers (aged five years and older) and account for 70% of total fishing effort (fisher days) and close to 80% of the total catch (Stark unpublished data).

Survey Sample Sizes

A 12-month Diary Survey was held from 1st October 2017 through to 31st September 2018 which collected large amounts of fishing activity data from a robust sample of RFL households.

Prior to the start of the Diary Survey, there were 432,218 current NSW long-term RFL holders (as at 31st March 2017) who resided in the most populous eastern states of Australia (New South Wales, Victoria, Queensland and the ACT). The Sydney region contributed the largest number of licence holders (38%) followed by the Hunter region (10%) and Victoria (10%). To select fishers for the Diary Survey, a Screening Survey of these RFL holders was conducted and 1,618 RFL households fully responded. Information on all members of RFL households was collected which profiled past fishing history and any household member's intention to fish in the coming 12-month Diary Survey period. When information on all household members is considered, recreational fishing and demographic profiling was collected for a total of 4,335 residents aged five years and older from within the sampled RFL households.

Of the 1,618 fully responding RFL households from the Screening Survey, 1,413 households (87%) were identified as having at least one resident (aged five years and older) with an intention to do some recreational fishing anywhere in NSW waters during the Diary Survey period. Of these households, 1,312 (93%) agreed to take part in the Diary Survey and 1,257 (89%) completed the survey. In total, the fishing activities of 3,442 residents aged five years and older were assessed within these 1,257 RFL households. The majority of these households (73%) reported some fishing activity during the diary period and among these, 1,610 residents aged five years and older reported some fishing activity – for a total of 10,951 person-based fishing events.

Number of Fishers

Of the 432,218 RFL holders that were current as of 31st March 2017, an estimated 60% (257,722) fished during the Diary Survey period. An additional 616,551 persons were estimated to be residing in RFL households, and 22% of these persons (134,762) fished during the diary period. Thus, an estimated total of 392,484 persons fished during the Diary Survey.

Fishing Effort

These RFL household fishers expended an estimated 2,156,548 fisher days of effort during the 12-month diary period, at an average of 7.83 days per fisher. The majority of this fishing activity occurred in Saltwater (68%) with fishing effort in estuaries accounting for 48% of the total waterbody effort followed by ocean waters (20%). Fishing in Freshwater systems represented the remaining 32% of total fishing effort and of this, 65% of effort occurred in rivers and the remainder (35%) in lakes and dams.

Catch

State-wide, it was estimated that over 9.3 million individual organisms (fish and invertebrates) were caught (numbers kept plus released) of 131 different species or species groups. The top five finfish species caught (numbers kept plus released) were Bream (944,000), Dusky Flathead (886,800), Sand Flathead (648,600), Snapper (451,400) and Murray Cod (416,700). The top 5 invertebrate species caught (numbers kept plus released) were Ghost Nippers (700,800), Freshwater Shrimp (468,300), Saltwater Prawns (328,700), Freshwater Yabbies (280,700) and Saltwater Pipis (144,300).

Almost half (49%) of the individual organisms caught were subsequently released, with release rates varying considerably by species. Highest rates of release (>75%) were evident for Australian Bass, Murray Cod, Red Rock Cod, sharks/rays and wrasse/gropers.

Comparisons with 2013/14

Results from a sub-set of data from the 2017/18 survey were compared with a similar survey done in 2013/14 (which excluded Queensland residents). It is important to note, however, that despite the fundamental comparability of the two studies, comparing just two points in time and the issue of inter-annual variability must be taken into consideration – especially in terms of the natural availability of certain species and therefore the catch levels in a given year. Sample sizes for each of the two survey periods were similar with participation in fishing amongst all RFL household fishers estimated to be 41% in 2013/14, compared to 38% in 2017/18.

In 2013/14, RFL households accounted for an estimated 2,391,456 fisher days of effort compared to 2,061,271 during the 2017/18 survey, a difference of 14%. In 2013/14 an annual mean of 8.6 days per fisher was recorded compared to an annual mean of 7.9 days per fisher for 2017/18.

An estimated state-wide total number of 11.6 million organisms were caught (numbers kept plus released) by RFL households during 2013/14, compared to an estimated 8.9 million in 2017/18. The number of individual organisms caught was 24% lower during the 2017/18 survey year. The estimated kept (harvested) catch of all organisms went from 6.4 million in 2013/14 to 4.6 million in 2017/18 (28% lower in 2017/18). The estimated number of released animals changed from 5.3 million in 2013/14 to 4.3 million in 2017/18 (18% lower in 2017/18).

Changes in the numbers of organisms caught varied from species to species, with some showing higher overall catches in 2017/18, e.g. Dusky Flathead (7% higher) Yellowtail Scad (46% higher) and Tailor (32% higher).

Satisfaction with Fishing

Whilst the attitudes and opinions of fishers are to be presented in a separate report, it is worthwhile noting that the greater majority of respondents (over 80%) were at least "quite satisfied" with their recreational fishing experiences during the 2017/18 survey period – compared with around 75% in 2013/14.

Satisfaction with Fishing

Introduction

Need for recreational fishing data in NSW

The fisheries resources of NSW are shared among recreational fishers, commercial fishers, charter operators and people practising traditional Aboriginal fishing. Fisheries management policies are designed to promote sharing of the resource between these sectors to achieve overall resource sustainability and maximise socio-economic outcomes (Ryan *et al.* 2016, Sutinen & Johnston 2003; Crowe *et al.* 2013; Fenichel *et al.* 2013). The non-fishing NSW public also value a well-managed resource with sustainable fisheries an important component of broader marine ecosystem health.

Implementing such policies requires an understanding of the exploited resource and estimates of the number of participants, when and where this activity occurs and the amount of kept or retained catch (harvest) from each sector. Historically, the commercial sector has received most attention by fisheries management as it was considered to harvest more fish and have greater economic importance than the recreational sector. However, it is now widely accepted that the recreational sector can take a significant proportion of the catch from many shared fish stocks (Ryan *et al.* 2016, Cooke & Cowx 2006; Ihde *et al.* 2011; Lloret & Font 2013). For example, in NSW, recreational fishing accounts for a majority of the harvest of many key species such as Dusky and Sand Flathead, Mulloway, Tailor and Yellowtail Kingfish (West *et al.* 2015).

The economic value of the recreational sector is also estimated to be many times that of the commercial sector, with recent estimates revealing that recreational fishing contributes about $3.4 billion into the NSW economy each year and creates the equivalent of about 14,000 full-time jobs (McIlgorm and Pepperell 2014). By comparison, the NSW commercial fishery has been estimated to contribute approximately $436 million in revenue to the annual NSW economy, and generates about 3,300 full-time jobs (Voyer *et al.* 2016).

Recreational fishing is an important pastime for about 1 in 8 NSW residents and represents the 3rd highest annual participation rate of all physical/recreational activities – behind only 'walking/jogging for exercise' and 'fitness/gymnasium activities' (West *et al.* 2015). Such participation rates are reflected in the substantial social and economic value that recreational fishing provides to the community (Hyder *et al.* 2018). Non-catch related aspects are often more highly valued than those associated with catch among recreational fishers with primary motivations to go fishing including 'to relax and unwind', 'to spend time with family', 'fishing for sport' and 'to be outdoors' (Georgeson *et al.* 2015). Recreational fishing enhances social capital, promotes respect for nature, provides health benefits and can provide substantial economic benefits to society (McPhee, 2017). Fishing quality is also an important aspect of angler participation which requires an understanding of fisher interests and priorities to manage fisheries effectively (Brownscombe *et al.* 2019).

In NSW, commercial fisheries have traditionally provided the primary source of data for management and reporting purposes. However, the nature and harvest of commercial fisheries in NSW has changed through time, and commercial effort has been removed or largely restricted from selected areas (e.g. Recreational Fishing Havens and freshwater systems), leaving recreational fishing as the sole source of catch and effort information for many species and areas. For example, there was a peak of over 4,000 NSW commercial

fishing licence holders in 1977, but this has steadily declined to about 630 in 2020. Similarly, overall commercial catch and effort have declined from approximately 20,000 tonnes total harvest and 235,000 annual days fished in 1997/98 to 12,000 tonnes harvest and 65,000 days fished in 2018/19 (DPI unpublished data).

A growing appreciation of the importance of the recreational sector by NSW DPI-Fisheries has resulted in a commitment to collect information on recreational fishing to meet management and reporting requirements for several State and Federal agencies. For example, NSW has introduced quota systems to manage the catch for selected species, and is developing harvest strategies for some species which are subject to harvest by recreational fishers. NSW DPI-Fisheries is also required to provide regular updates on the status of key species through the national Status of Australian Fish Stocks program (SAFS), which includes provision of estimates of harvest across all sectors, including recreational catch. Reporting frameworks such as these require recreational fisheries information at broad regional and state-wide scales to match the spatial scale at which fisheries are generally managed.

The Recreational Fisheries Monitoring Program

Regular and cost-effective broad-scale monitoring of the recreational fishing sector in NSW is required in order to meet several management objectives and obligations. The provision of catch and effort data is necessary for assessment of trends in the fishery, which will ultimately feed into stock assessment of key species, complying with reporting obligations and allowing evaluation of the impact of various management regulations/scenarios.

To meet these objectives, the Recreational Fisheries Monitoring Program (RFMP) was developed to collect cost-effective, high quality, up-to-date, information on recreational and charter fishing in NSW on a regular basis. The RFMP is designed to provide data on key indices of recreational fishery performance through time. Long-term monitoring of recreational fishing provides a greater understanding of the variability and trajectories in effort and catch that are required for the assessment of stocks, resource allocation, and to inform management provisions. The data collected from the RFMP also complements information from monitoring other fishing sectors, contributing to a detailed picture of the health and status of our fisheries and aquatic ecosystems. This information is critical to managing the State's aquatic resources and ensuring that the quality of recreational fishing in NSW is maintained.

The RFMP is a comprehensive citizen-science program that engages with thousands of recreational fishers who voluntarily provide information on their fishing activities within a rigorous scientific framework.

There are two main components to the RFMP:

1) **Recreational Fishing Research Surveys**
   State-wide 12-month phone/diary surveys of long-term (1 or 3 years duration) NSW recreational fishing licence holders.

2) **Charter Fishery Monitoring**
   A logbook and on-board observer program to monitor the NSW Charter Fishery.

The phone/diary surveys are conducted on a biennial basis and the second annual survey period (2019/20) is currently underway. Monitoring of the Charter Fishery is done on an on-going annual basis. The first RFMP surveys of long-term licence holders and monitoring of the charter fishing fleet were completed in 2017/18.

Report Structure

This report presents results for the first survey year of the RFMP (from 1st October 2017 to 30th September 2018). State-wide and regional estimates of the fishing catch and effort for the phone/diary surveys are the primary focus of this report.

The 'Background' chapter below provides a broad overview of the development of methods used for the RFMP followed by chapters that discuss the phone/diary survey design and analysis, results for fishing effort and catch, and a comparison of key results from a previous state-wide survey done in 2013/14.

Background

History of recreational fishing surveys in NSW

Fisheries NSW has an extensive history in recreational fisheries research dating back to the early 1980's. Most of these studies employed on-site or 'creel survey' methods to provide information at various temporal and spatial scales, usually at the more local (e.g. individual estuary) or regional scales and limited to daylight fishing hours (see West *et al.* 2015 for a summary of historical recreational fisheries research work done within NSW).

Although important, these smaller-scale studies are limited in their contribution to broader state-wide fishery assessment programs. Studies carried out at larger spatial scales have greater potential to represent the diffuse and diverse recreational fishery within NSW and contribute to these broader assessment goals.

The National Recreational Fishing Survey (NRFS) in 2000/01 was the first study to provide a detailed state-based assessment of participation, catch and effort in NSW, as well collecting data on fishing-related expenditure, boat profiling, and the opinions and satisfaction levels of recreational fishers (see Henry & Lyle 2003). The NRFS provided an important benchmark in the assessment of recreational fishing in NSW and estimated over 1 million NSW residents participated in recreational fishing. This survey confirmed recreational fishing to be an extremely important activity that brings significant social and economic benefits to the community. Importantly, this survey also assessed the contribution of fishers residing in other states who fished in NSW waters.

During 2013/14, a second state-wide survey (West *et al.* 2015) was conducted to provide survey estimates that were directly comparable with the NRFS and enabling measurement of changes in the recreational fishery that occurred since the 2000/01 survey. Participants in the 2013/14 survey included residents of NSW and the ACT only, as it was not feasible to collect data from residents of other states that fished in NSW waters. Data from the 2000/01 survey were re-analysed to assess the contribution of NSW and ACT residents only, enabling direct comparison with the 2013/14 survey. West *et al.* (2015) provides a comprehensive report on the 2013/14 survey and includes a comparison of key results between the two survey periods. The RFMP surveys are designed to build upon these previous large-scale surveys with the aim of providing a more cost-effective time series of recreational fisheries information.

Phone/Diary surveys

Collecting data on the recreational sector is extremely challenging with hundreds of thousands of participants, targeting a wide variety of species across a diverse array of waterbodies, with thousands of access points. Collecting reliable data on the recreational fishery as a whole requires survey techniques that representatively sample recreational fishers to determine the characteristics of the entire recreational fishing population. Representative sampling is an effective method when it is not possible or practical to conduct a census of a target population that is as large and diffuse as the NSW recreational fishing community.

The phone/diary off-site survey method, as used for the NRFS (Henry & Lyle 2003) and the 2013/14 state-wide survey (West *et al.* 2015) has been proven to provide cost-effective and statistically-robust recreational fisheries data over large spatial scales (both regional and state-wide). It is widely acknowledged that the methodology is a highly effective and appropriate method to assess recreational fisheries (Georgeson *et al.* 2015). Consequently, all large-scale, state-wide recreational fishing surveys conducted within Australia since the NRFS have used the phone/diary survey method. Georgeson *et al.* (2015) provides broad descriptions and comparisons of key aspects for each of these state-wide surveys.

phone/diary surveys typically involve representative random sampling of the general population of interest, screening and interviewing a sub-set of the sampled population, recruiting fishers to participate in a phone/diary survey, regular assessment of the fishing activities of "diarists" over a defined time-period (usually a year) and scaling up of data to derive estimates of key metrics across the entire angling population (Beckmann *et al.* 2019). Detailed descriptions of the design, philosophy, and methodology for phone/diary fishing surveys are also provided in Lyle *et al.* (2002) and Henry and Lyle (2003). Importantly, survey response rates for phone/diary surveys in Australia remain high (between 75-85% full response, Georgeson *et al.* 2015) compared to other off-site methods such as mail and internet surveys. Phone/diary surveys have multiple objectives, but a common primary objective of all previous large-scale surveys done in Australia has been to identify key species and quantify the total catch and effort across the recreational sector within the relevant jurisdiction. That is, to enable the estimation of these metrics across all participating recreational fishers.

Survey Sampling Frames

To conduct cost-effective and statistically-robust large-scale recreational fishing surveys, a comprehensive listing or 'sample frame' of phone numbers and geographic areas is required to select a representative sample of recreational fishers.

Most state-wide recreational fishing surveys done in Australia since the NRFS relied on the White Pages phone directory to provide a sample frame of potential respondents from which to draw a probability-based representative sample. At the time of the NRFS, well over 80% of all resident households in Australia had a White Pages-listed home phone.

However, due to declining rates of household listings in the directory, the White Pages can no longer be used with any confidence. Changes in telecommunications, which includes the rise of unlisted mobile-only households, widespread use of social media and internet-only communications have reduced the ability of the White Pages to provide adequate and representative coverage of the general population. A large fraction (40.6%) of Australian adults only have a mobile phone; with just 3.2% of these mobile-only adults reporting that their number is listed (ABS 2019).

Sampling recreational fishers from the White Pages frame is also highly inefficient and costly, since finding a representative sample of recreational fishers requires contacting many non-fishing households, as fishers typically account for a comparatively small proportion of the general population (Ryan *et al.* 2017, Beckmann *et al.* 2019).

Due to the declining utility of the White Pages, scientific workshops conducted within Australia in recent years were held to develop solutions to improve the effectiveness of surveys. The primary recommendation from these workshops was to develop a national registry of *all* recreational fishers to provide a sample frame from which national and jurisdictional recreational fishing statistics could be derived (see Georgeson *et al.* 2015 and Beckman *et al.* 2019). However, the workshops noted that this would be a costly and difficult process that would require the cooperation of all States and Territories.

In the absence of a comprehensive register of all fishers, a recreational fishing licensing system can provide an effective means to contact recreational fishers. A review of the regulation and management of marine fisheries and aquaculture by the Federal Productivity Commission (Productivity Commission 2016), recommended that a well-designed licensing system is a key step for better managing recreational fishing in Australia. The Commission also noted that a comprehensive licence system would provide a practical and proportional way of better incorporating recreational fishing into harvest and other management strategies. They also stated that for maximum efficiency, licensing systems should have high coverage rates, with minimal exemptions.

The advantages of sampling from a licence database include: reduced costs for the Screening Survey, high response rates (reducing non-response bias), and the ability to use an optimal survey design where avid fishers are adequately sampled, which can effectively increase the number of fishing events in the sample and improve precision (Ryan *et al.* 2009).

Thus, targeted sampling frames such as recreational fishing licence registers are more desirable for conducting effective and efficient surveys of recreational fishers. NSW has been operating a general all-waters licence since 2001. Hence, as part of the development for the RFMP, it was recommended that the NSW licence database be investigated for use as a sampling frame as a matter of priority.

NSW Recreational Fishing Licence database - overview

The NSW recreational fishing licence system has 2 broad categories of licence; long-term (1 year or 3 years duration), and short-term (3 days or 1 month duration), with several exemptions where no licence is required. The category of licence (long or short-term) is important as long-term licence holders only are required to have their contact details stored in a database and thus available for selection in a licence frame survey. For further details on the NSW Recreational Fishing Licence see the NSW DPI-Fisheries website via the following link: *NSW recreational fishing licence*

A review and re-analysis of the NRFS data from 2000/01 for NSW summarised catch and effort by licence category estimated that over one-third (37%) of all resident NSW and ACT fishers were classified as long-term licence holders, 28% were short-term and 35% of fishers were exempt. Despite comprising 37% of the fishing population, long-term licence holders accounted for a majority of the total fishing effort (57% of fisher days) and the total catch of all species (over 60%) (Stark unpublished data). Importantly, for the most important species (for research and management within NSW), long-term licence holders were estimated to be responsible for the greater majority of the catch with many exceeding 70% of the total take (e.g. Yellowtail Kingfish, Mulloway, Trevally, Murray Cod, Trout, Australian Bass). For species that are widespread throughout the state and heavily targeted, long-term licence holders were less prominent in the catch, but still responsible for between 40 and 60% of the total catch of species such as Snapper, Whiting and Bream.

Furthermore, even higher coverage factors emerged when the results were preliminarily analysed to include other members of the RFL holder's household, aged five years or more. For example: over 55% of all resident NSW and ACT fishers; 70% of total fishing effort (fisher days) and close to 80% of the total catch (Stark unpublished data).

Following these investigations, it was decided that monitoring long-term recreational fishing licence holders and their household members through time should provide a reasonable indication of trends in recreational catch and effort to support stock assessment, development of harvest strategies and assessment of the performance of management settings, among many other demands for recreational fisheries data.

Biological sampling

The Diary component of the survey collects details of fishing effort and catch, with catch reported by common name and the *numbers* of individual organisms caught (both kept and released). Catch is based on numbers of organisms, rather than weight, as weight information tends to be less reliable when self-reported by recreational fishers (West *et al.* 2015). On-site survey methods are therefore often used to complement off-site surveys by providing additional biological information on catches such as species composition, lengths and weights of organisms caught with data being gathered by trained scientific technicians who directly observe the catch. This information can subsequently be used to calibrate the results from the self-reported data in the off-site surveys. Also, data from on-site surveys can be used to convert the numbers of organisms reported in the Diary Surveys to weight which is essential when comparing the retained recreational catch of a species to landings in tonnage from other sectors which share the resource (e.g. the commercial fishery). Providing such comparisons is critical to informing stock assessments which are shared by multiple

harvesting sectors (Sloan *et al.* 2014). Trained scientific observers also collect other information such as the size composition and age structure of a species, which can provide accurate data on mortality and recruitment that directly contributes to species stock assessments. The on-board observer component of the Charter Fishery Monitoring program provides such biological information for recreationally-caught species to complement the data collected by the RFMP Diary Survey.

For many important recreational fish species, the size composition of the marine Charter Fishery catch has been shown to be similar to that for the recreational fishery (Stewart & Hughes 2008, Gray & Kennelly 2017b). Sampling the lengths and other biological parameters of Charter Fishery catches is therefore also a cost-effective strategy to monitor key recreational species. In addition, fishers on board charter boats must abide by the same bag and size limit rules as other individual recreational fishers and are restricted to hook and line techniques. Further details on this Charter Fishery monitoring component of the RFMP are provided in a separate report (Hughes *et al.* 2020).

Survey Methods

Data collection for the 2017/18 survey was based on the phone/diary survey approach as broadly described above. Further detailed descriptions of the phone/diary design philosophy and methodology are provided in Lyle *et al.* (2002) and Henry and Lyle (2003). The 2017/18 NSW survey was analysed in the statistical computing package R (R Core Team 2016) using the 'survey' package (Lumley 2004, 2010), following the process outlined in Lyle *et al.* (2010). This approach has been used successfully to analyse several other state-wide recreational fishing surveys within Australia (Lyle *et al.* 2002, 2014, 2019, Ryan *et al.* 2015, 2017, 2019 and West *et al.* 2015).

The phone/diary methodology involved a two-phase survey design, the principal components being an initial screening phase to gather profiling information from a sample of households that contained a person with a long-term licence which was current as at 31st March 2017 and a subsequent, intensive phase, in which respondents provided detailed catch and effort information over a 12-month period from 1st October 2017 to 30th September 2018. At the end of the Diary Survey a Non-Intending Fisher Call-back Survey was conducted, to identify and account for 'unexpected fishing' that may have occurred during the 12-month diary period, as well as a wash-up/attitudinal survey. The wash-up/attitudinal survey is subject to separate reporting and is not presented within this report.

Figure 1.   Survey components diagram - Survey of Recreational Fishing, 2017/18.
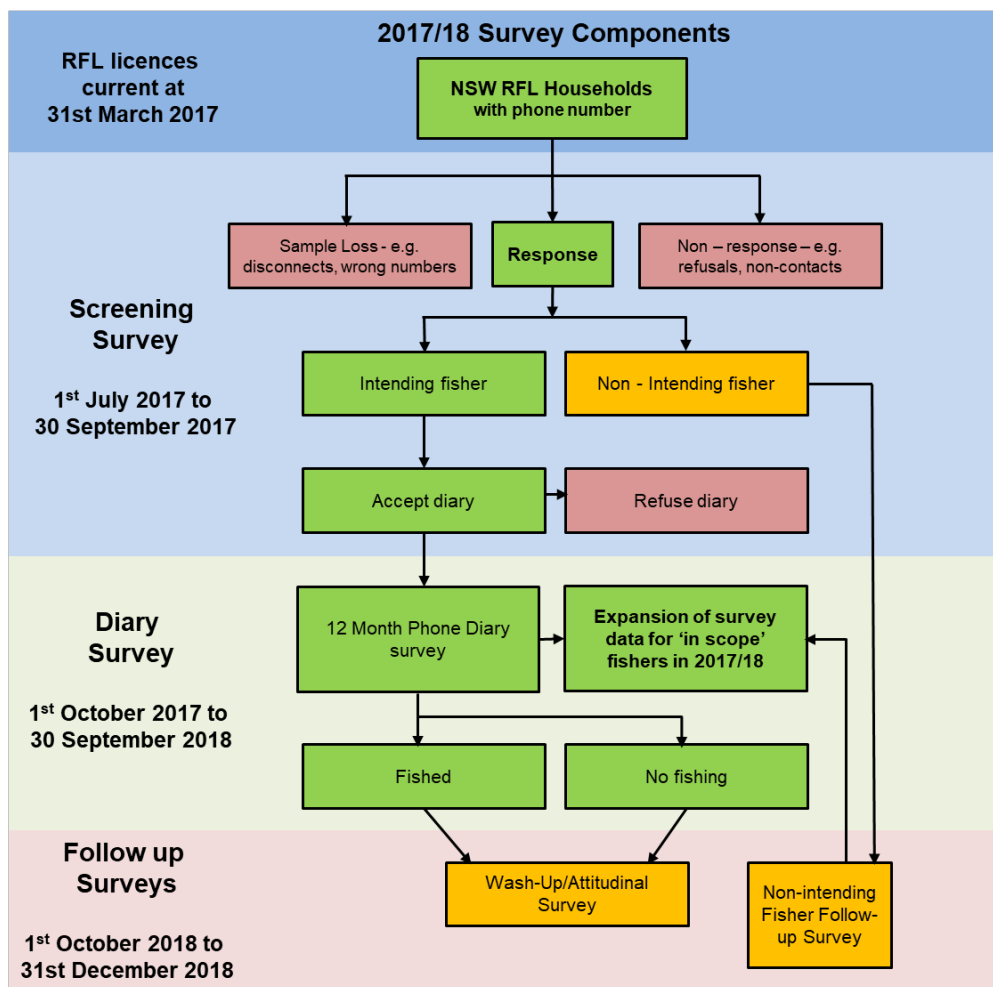
Screening Survey

The Screening Survey was administered as a structured telephone interview on a stratified random sample of individual long-term RFL holders. Although fishing licences are assigned to an individual, and thus the sampling frame was person-based, the survey collected information from all household members (aged 5 years and above). Thus, the fishing activity of other long-term and short-term licence holders, as well as exempt fishers and non-fishers within the selected RFL holders' household were recorded.

The Recreational Fishing Licence database provided the sample frame of telephone numbers. Fishers who held a current long-term licence as at 31st March 2017 were defined as being eligible for the Screening Survey (regardless of when that licence was due to expire). It was necessary to select a date well in advance of the start of the Screening Survey (3 months) to ensure the database was as up to date as possible and all editing and stratification of the data was complete. Information on past fishing activity, any intention to fish in the coming 12 months amongst other general profiling information (e.g. age and sex) were recorded for all members of the household and used to determine eligibility to participate in the following diary phase.

Stratified random sampling was undertaken with 12 strata defined by ABS Statistical Area classification, Level 4 (SA4) (see 'Sampling Strata' for further details). Sampling rates were higher for those strata with smaller resident populations (e.g. the North West stratum) and lower sampling rates for the larger strata (e.g. Sydney). In order to minimise non-contacts, at least 15 calls were made to each 'live' telephone number. Disconnected numbers, wrong numbers etc. were treated as sample loss and not replaced. The Screening Survey was conducted during the 3-month period from 1st July to 30th September 2017.

Diary Survey

RFL households identified as eligible were invited to participate in the Diary Survey. Fishing activity of all household members aged five years and older was monitored between 1st October 2017 and 30th September 2018. The approach taken in this survey differs to conventional angler diary surveys in two important ways: first the diary was employed more as a 'memory jogger' than a logbook; and second, responsibility for data collection rested with the survey interviewers and not the diarists. Typically, response rates from other forms of diary survey (e.g. mail-back surveys) are low and data quality can suffer in terms of completeness, accuracy and consistency (Pollock *et al.* 1994). Also, since the burden of maintaining the diary rests with the respondent, instructions may be misinterpreted and data may be incomplete or ambiguous. The need to periodically remind respondents to submit documentation creates a further problem, whereby information that has not been diarised must be collected on the basis of recall, if at all.

By contrast, the telephone/diary approach employed in the current study (a form of panel survey), effectively transferred the burden of data collection from the respondent to the survey interviewer. Data collection was undertaken by a brief telephone interview in which trained interviewers recorded details of any fishing that had occurred since the last contact. The level of fishing activity determined the frequency of such contact, but as a general rule, respondents were called at least once a month, even if no fishing was planned. All fishing

activity was recorded, with fishing event duration, location, method, gear quantities, as well as any kept or released catch by species, and reasons for release.

Non-intending Fisher Follow-up Survey

A random sample was drawn from all households (identified at screening) that indicated no intention to go fishing during the diary period (and hence not eligible for the Diary Survey) and these were re-contacted shortly after the Diary Survey. Whether any fishing had occurred during the diary period was established in a brief telephone interview, with particular care to identify whether there had been a change in the household (e.g. telephone number re-allocated) and also that household members were the same as those at screening. Respondents who were identified as not being residents of the household at the time of screening were excluded from the analysis.

Further details were collected from any households in which (unexpected) fishing was reported, including which individual household members had fished and the number of days fished (by category) during the 12 months of the diary period.

Wash-up/Attitudinal Survey

This survey was conducted with diarists at the end of the diary period and was designed to assess a range of information such as opinions on the satisfaction of fishing, issues of importance to recreational fishers and information on the recreational fishing boat 'fleet'. As noted earlier, this component of the survey is not reported here and will be the subject of separate reporting.

Survey Scope and Definitions

Recreational Fishing

Recreational fishing was broadly defined as the capture (or attempted capture) of aquatic animals (freshwater, estuarine and marine), other than for commercial purposes and excluding traditional fishing. However, any recreational fishing by Aboriginal residents or commercial fishers was included. All recreational fishing techniques and harvesting activities were considered in-scope, including dive and hand collection, the use of pots, nets and spears, as well as various forms of line fishing.

RFL Households

RFL households are defined as those that included at least one resident that possessed a long-term (1 or 3 years duration) NSW recreational fishing licence as at March 31st 2017. Other household members (aged 5 years and above) were included in the definition of 'RFL Household'. This included any other long-term and short-term licence holders, as well as exempt fishers and non-fishers within the household. The majority of fishing effort in NSW is attributable to RFL households within NSW and the ACT, Victoria and Queensland; RFL households within these jurisdictions were therefore included in the survey. Small numbers of RFL households from other states (e.g. Tasmania) and international RFL holders were excluded from the study scope.

Fishing Regions

State-wide

'NSW waters' were defined as all waters within the borders of NSW and also included waterbodies within the ACT. State-wide marine boundaries included NSW waters (out to the 3nm State Waters limit) and those offshore from the state limit boundary out to the eastern boundary of the 200 nm Exclusive Economic Zone.

Regional

The results in this report have been confined to six fishing zones that include the 3 major drainage basins of NSW for freshwater systems (Argent, 2016). Three major coastal regions complement the boundaries defined for the Marine Estate of NSW (NSW Marine Estate Management Committee, 2018) and these include all estuarine, coastal (e.g. headlands and beaches) and marine habitats.

Freshwater drainage basins:

1)   Eastern – East of the Great Dividing Range

2)   Murray/Darling – West of the Great Dividing Range and includes the waters of the   River Murray

3)   South East – the Snowy Mountains region

Saltwater coastal regions:

4)   Northern – Queensland border to Stockton Beach (just north of Newcastle)

5)   Central – Stockton to Shellharbour (just south of Wollongong)

6)   South – Shellharbour to Victorian Border

For the purposes of this report, waterbodies within the Australian Capital Territory have been reported as part of the Murray/Darling drainage basin.

A map of the six fishing zones is shown in Figure 2 and all results from the Diary phase of the survey have been routinely analysed on this regional basis.

Figure 2.   Map of NSW showing fishing regions for reporting fishing activities.

Waterbodies

Within each of the above defined fishing regions, other fishing location information was also collected in the Diary Survey in terms of waterbody type and included:

1) Ocean waters* - from the coastline out to the boundary of the Exclusive Economic Zone (EEZ)

2) Estuarine waters

3) Freshwater rivers

4) Freshwater lakes/dams (public or private).

* Note: Previous state-wide surveys (the NRFS of 2000/01 and the 2013/14 state-wide survey) reported ocean fishing as 2 distinct zones i) inshore waters (coastal waters within 5km of the coastline) and ii) offshore waters (>5km from the shoreline). In this report we combined these 2 zones and report fishing activity as 'Ocean Waters' as the earlier studies indicated 'offshore waters' contributed small proportions of fishing effort and catch. However, data were collected under the previous 'inshore' and 'offshore' definitions and the project database can be queried to produce estimates according to these definitions.

Sampling Strata

Initial long-term RFL holder selection (i.e. telephone listing/number) was based on a stratified random sample design using twelve residential strata, aligning to Australian Bureau of Statistics (ABS) Statistical Areas (SA4 level) in the Australian Statistical Geography Standard (ASGS), (ABS 2016) as follows:

1) Sydney: comprising fifteen SA4 codes: 102, plus 115 through to 128 (inclusive);

2) Hunter: SA4 codes 106 and 111;

3) Illawarra: SA4 codes 107 and 114;

4) Richmond/Tweed: SA4 code 112;

5) Mid North Coast: SA4 codes 104 and 108;

6) Central West/North: SA4 codes 103 and 110;

7) North West: SA4 code 105;

8) South East: SA4 code 101;

9) South West: SA4 codes 109 and 113;

10) ACT: SA4 code 801.

11) Queensland – all SA4 codes grouped

12) Victoria – all SA4 codes grouped

The strata listed above have not changed in structure since the Census of Population and Housing (Census) 2016.

A map of residential strata for the current survey is shown in Figure 3 (Note: two detached areas comprise the Central West/North stratum).

Figure 3. Map of NSW and the ACT, showing ABS-based, residential survey strata used for sample stratification and population benchmarks.
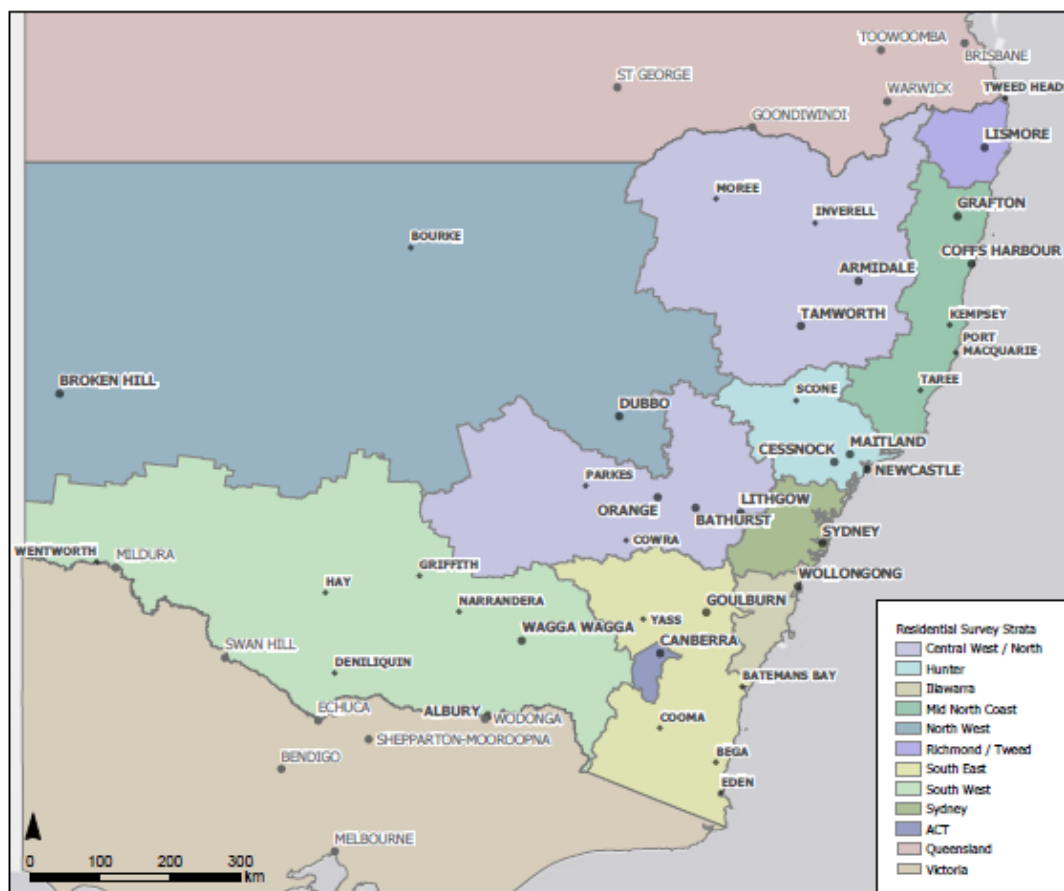
Fishing Effort

Fishing information was collected on an 'event' basis, where an event was defined as a discrete fishing episode and the actual household member(s) involved in the event were recorded, along with the number of other (non-household member) fishers involved in the event. Separate fishing events were defined where there was a change in fishing region or waterbody type, target species and/or fishing method. As a result, a day's fishing trip could comprise more than one event; e.g. fishers may gather bait prior to line fishing for flathead and this would be recorded as two separate events, since the effort expended in the capture of bait cannot be attributed to the capture of any flathead and vice versa. Similarly, the use of passive fishing gear (such as crab pots) at the same time as line fishing, was recorded as separate fishing events. The delineation of fishing activity in this manner provided an ability to analyse effort (and catch) based on fishing method and target species/fishery. Furthermore, four measures of effort have been applied, namely the number of fishers, fisher days (i.e. separate days on which some form of fishing was undertaken by a fisher), fishing events and hours fished. However, fisher days has been used as the primary measure of fishing effort in this report. For passive fishing methods such as potting, the day the pots were 'pulled' only were counted towards effort, and not each day that the pot was 'soaking'.

Fishing Methods

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

Catch

A Species Identification Guide including clear colour images was provided to all diarists to optimise the accuracy of species identification in the survey. A key factor here is that the resolution required for individual species must recognise the identification capabilities of fishers, from a lowest-common-denominator perspective. Although excellent reporting accuracy can be achieved at the species level in some instances (confirmed through on-site surveys – Lyle and Campbell, 1999; Lyle *et al.*, 2002), species groupings were required where fishers could not reasonably be expected to delineate particular species, even with the aid of the Species Identification Guide. For example, iconic species such as Snapper were readily recognisable, whereas identification to the species level for bream or leatherjackets was not always achievable.

For the purpose of reporting catches, individual species (e.g. Dusky Flathead and Sand Whiting) have been used in many cases, with species groups in other cases (e.g. Bream and Leatherjackets) and broad taxonomic groupings required in some instances (e.g. sharks and rays). However, certain species or species groups were represented by very few records, making it necessary to pool these into broader taxonomic categories for analysis (principally, 'scalefish, other'). Complete details of all taxa reported in catches and the relevant species groupings are provided in Appendix 3a.

Catches were reported as numbers of individuals kept or harvested, and numbers released or discarded by species. In some cases (mainly Prawns and Shrimp), respondents reported catches in units of weight or volume and these were converted to numbers by application of mean weight estimates for these species. Catch was reported for each fishing event as a total for all fishers involved in the fishing event, and the relevant fraction was then assigned to the RFL household. For example, if a selected RFL holder fished with 3 friends (not members of their household), one-quarter of the total catch from the fishing event was assigned to the selected RFL holder. This is because many fishing activities are group or team activities (e.g. pulling pots).

Standard Error and Relative Standard Error

All recreational catch and effort estimates presented in this report include measures of precision that indicate how confident we are in the point estimate i.e. the specific numbers of fisher days (effort) and numbers of fish (catch) that were calculated. The measure of precision used is the Standard Error (SE), which is a measure of the statistical accuracy of an estimate. The smaller the standard error number, the higher the confidence that an estimate is close to the actual population value. When the standard error increases, it becomes less

likely that any given estimate may be an accurate representation of the true population. The size of the standard error depends on the size of the sample, the design of the survey, and natural variability within the population being sampled. Increasing the sample size generally decreases the sampling error (NOAA 2020). For example, catch estimates for commonly caught species are often more precise than catch estimates for rarely caught species.

Standard Errors (SEs) are included in all substantive figures, data tabulations and appendices throughout this report. All bar graphs presented in this report display the SE as a vertical range above and below the point estimates. A smaller difference between the upper and lower bounds indicates that the estimates are more likely to provide an accurate representation of the fishery parameters being measured. The range of the SE bars can also be used to indicate if point estimates are likely to be statistically significantly different (or not) between groups. In general, where error bars for different groups overlap, it is less likely that the difference between estimates is statistically significant. Conversely, where there is no overlap of SE bars between groups, it is more likely that the difference is significant (statistical testing can be applied to obtain a valid conclusion on this point). Unless otherwise stated, all error bars displayed on charts in this report represent ±1 SE.

The Relative Standard Error (RSE) is an alternate display of precision presented with most tabulated estimates in this report. The RSE expresses the SE of an estimate as a percentage of that estimate. Large RSE's indicate low precision, while small RSE's indicate more precise estimates. They allow comparison of the relative precision between different estimates.

Estimates with RSE's of 40% or greater have been highlighted in the various tables in this report and are regarded as imprecise. As a further precaution, estimates derived from records with a sample size of fewer than 30 RFL households have also been highlighted, since they may be particularly influenced by the activities of very few fishers.

Sample and Response Profiles

Screening Survey

There were 432,218 individual long-term licence holders as at 31st March 2017 (from the eastern states), with the Sydney region contributing the largest number (38%), followed by the Hunter region (10%) and Victoria (10%), Figure 4.

A stratified gross sample of 2,089 licence holder households was selected from the survey regions. Due to sample loss (through disconnected numbers, wrong numbers etc.) the net sample was reduced to 1,960. Of this number,1,618 households (82.6%) fully responded to the Screening Survey. Response rates were high across all strata and ranged from 72.7% in the Murray/Murrumbidgee area to over 90% in the Central West/North (Appendix 1a). When information on other household members is considered, recreational fishing and demographic profiling was collected for a total of 4,335 residents aged five years and older from within the sampled RFL households.

Figure 4.   The number of individual long-term licence holders current as at 31st March 2017 by survey stratum.
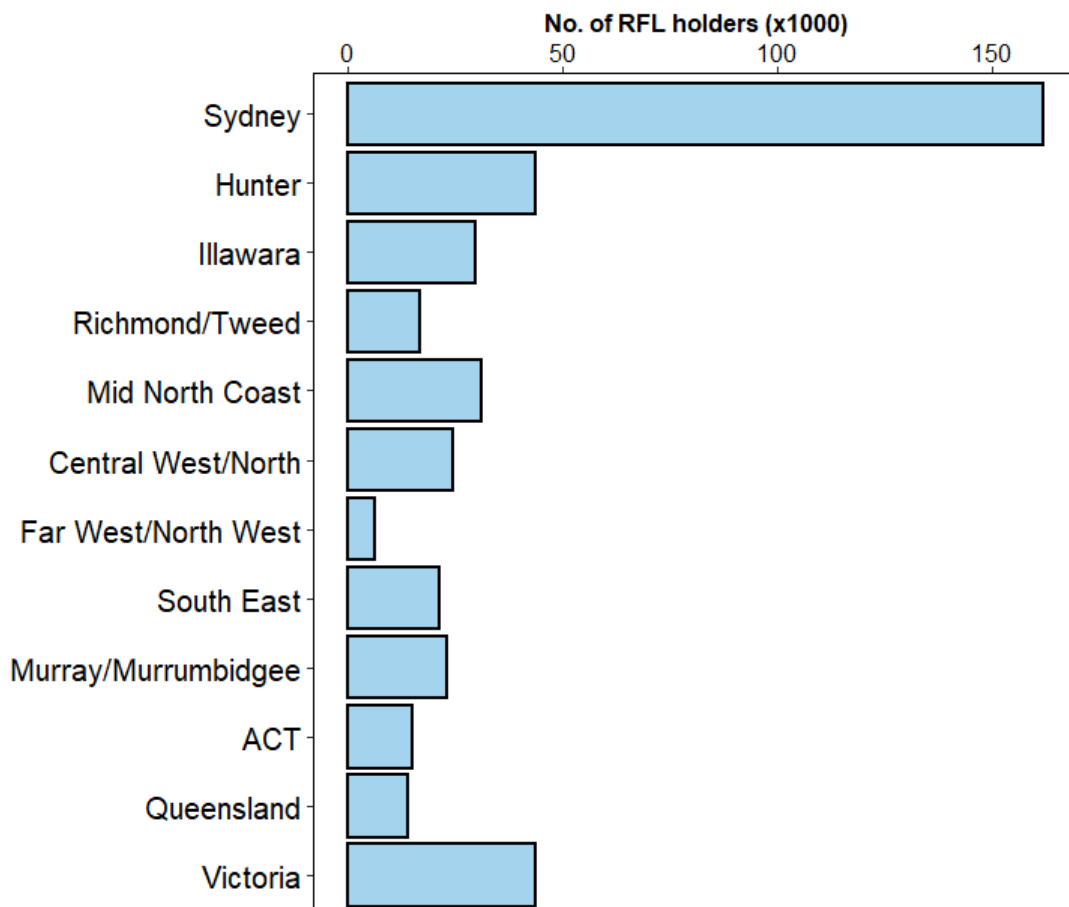
Diary Survey

Of the 1,618 fully responding RFL households from the Screening Survey, 1,413 households (87%) were identified as having at least one resident (aged five years and older) with an intention to do some recreational fishing anywhere in NSW waters during the diary period (1st October 2017 to 30th September 2018). Of these 'eligible' households, 1,312 (93%) agreed to take part in the Diary Survey and 1,257 (89%) completed the survey (see Appendix 1b for further details). Such high uptake and completion rates were achieved across all strata and ranged from 84.0% completion among eligible households for the Hunter area to almost 96% for the ACT (Appendix 1b). In total, the fishing activities of 3,442 residents aged five years and older were assessed within these 1,257 RFL households. The majority of these households (918 or 73%) reported some fishing activity during the diary period and among these, 1,610 residents aged five years and older reported some fishing activity – for a total of 10,948 person-based fishing events.

Non-Intending Fisher Survey

A 'Non-intending Fisher Follow-up Survey' (NIF) was conducted on a sample of RFL households who at the Screening Survey reported no intention to fish in NSW waters in the diary period. A proportional sample of 103 households (from 205 non-intending households) was randomly selected. Among these, 85 households (over 83%) fully responded, 6 households were considered sample loss (disconnected numbers etc), 8 were 'non-contacts' (after 10 calls), and 4 declined to participate.

Overall, by comparison with other general population surveys and traditional mail-back diary studies, the response rates achieved in all components of this study are exceptionally high and provide an important performance indicator in terms of the efficacy of the survey instrument.

Results

Number of Fishers

The 432,218 RFL holders as at 31st March 2017 were estimated to represent 369,875 (SE=3,274) Households, with each Household comprising, on average 1.2 RFL holders and 1.7 others (non-RFL holders 5 years or older).

Of the 432,218 RFL holders, an estimated 60% (257,722; SE = 6,986) fished during the diary period (Table 1). An additional 616,551 (SE = 19,807) persons were estimated to be residing in RFL households, and 22% of these persons (134,762; SE=12,435) fished during the diary period (Table 1). Thus, an estimated total of 392,484 (SE=16,005) persons in 231,985 (SE=6,650) RFL households fished during the diary period (Table 1).

Table 1.   Estimated number of RFL holders and Others (persons in RFL holder households who were not RFL holders themselves) who fished in Freshwater or Saltwater during 2017/18. RSE (%) is Relative Standard Error.

	Freshwater		Saltwater		Total Fished*	
Participation	Number	RSE (%)	Number	RSE (%)	Number	RSE (%)
Total Persons	145,373	6	304,434	5	392,484	4
RFL holders	101,698	5	200,785	3	257,722	3
Others	43,675	12	103,649	11	134,762	9
Total Households	90,331	5	183,030	4	231,985	3

*Note: The numbers of fishers/households who fished Fresh and Salt waters are not directly additive as some fished both.

Participation by Waterbody

An estimated 78% of fishers in RFL households fished recreationally in Saltwater during the diary period (Table 1). The majority of fishers (62%) fished in estuaries, followed by oceanic waters (35%) (Figure 5). Fishing in Freshwater was conducted by smaller numbers of fishers in RFL households (37%) (Table 1). River systems had the highest levels of participation (28%) than lakes/dams (17%) (Figure 5).

Figure 5. Participation (number of fishers) by waterbody type for RFL households during 2017/18. Error bars represent 1 standard error.
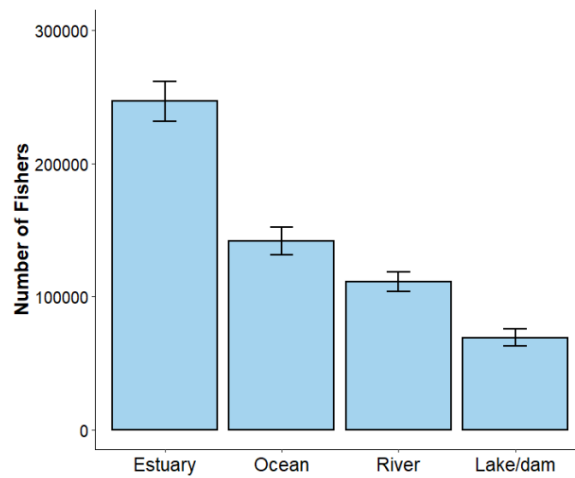
Participation by Platform

Rates of participation were similar for Shore-based and Boat-based fishing, with 68% of fishers in RFL households doing some form of shore-based fishing during the diary period, and 71% participating in boat-based fishing events (Figure 6).

Figure 6. Participation (number of fishers) by fishing platform for RFL households during 2017/18. Error bars represent 1 standard error.
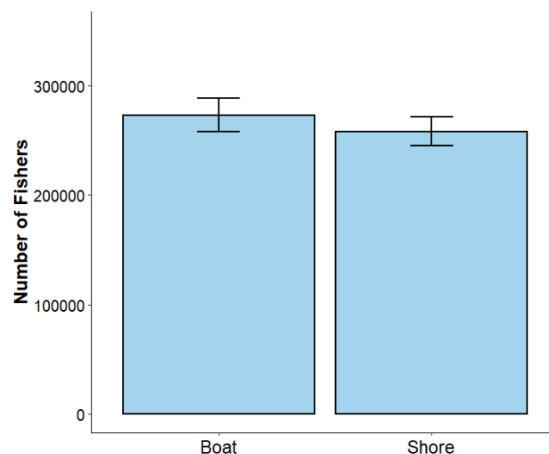
Participation by Region

Rates of participation were high in all 3 marine regions but were highest in the Central region (36%; Figure 7). For inland/freshwater regions, the Murray-Darling had the greatest participation, with 30% of fishers in RFL Households fishing there during the diary period. Fewer than 10% of fishers fished the smaller Eastern and South Eastern inland regions (Figure 7).

Figure 7.   Participation (number of fishers) by region for RFL households during 2017/18. Error bars represent 1 standard error.
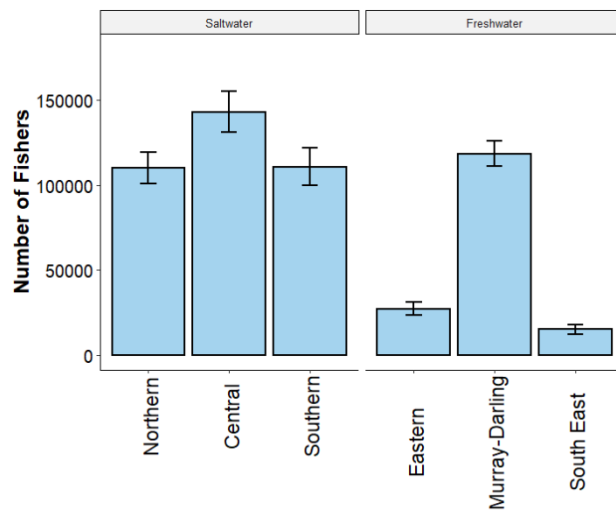
Participation by Method

Line fishing was the dominant method with nearly all fishers (97%) participating in fishing events using lines (Figure 8). Fewer than 10% used Pots or Other fishing methods, and fewer than 3% participated in Dive or Net fishing methods (Figure 8).

Figure 8.   Participation (number of fishers) by method for RFL households during 2017/18. Error bars represent 1 standard error.
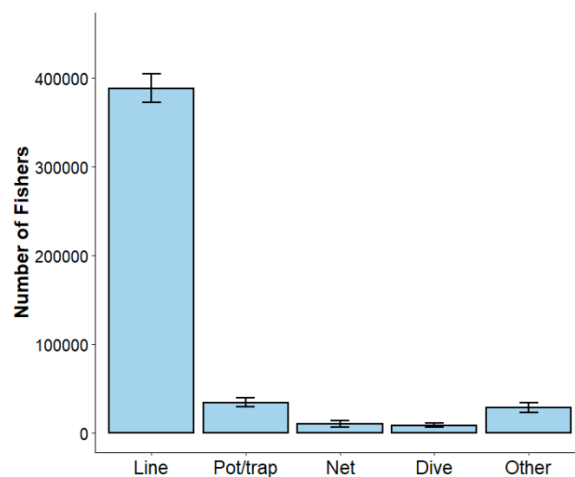
Fishing Effort

Fishing effort is presented as 'Fisher Days' where each day that a fisher actively fished was counted (regardless of the number of events on that day). For passive fishing methods such as potting or trapping, only days where pots/traps were 'pulled' are counted, not all days that the pots/traps were 'soaking'. Fishing by all residents over 5 years of age in the household of the sampled RFL holder are included.

An estimated 275,372 NSW, ACT, Queensland and Victorian residents aged five years and older within RFL households fished a total of 2,156,548 days during the 12-month period, at an average of 7.83 days per fisher. Overall, 40% of fishers fished at least once in Freshwater, while 78% fished at least once in Saltwater – with 32% of the effort (fisher days) in Freshwater and 68% in Saltwater (Table 2).

Table 2. Estimated number of persons and days fished by RFL households who fished in Freshwater or Saltwater during 2017/18. RSE (%) is Relative Standard Error.

Effort	Freshwater		Saltwater		Total*	
	Number	RSE (%)	Number	RSE (%)	Number	RSE (%)
Persons	110,086	5	215,556	3	275,372	3
Fisher days	691,871	8	1,471,930	7	2,156,548	6

*Note: The numbers of fishers who fished Fresh and Salt waters are not directly additive as some RFL households fished both systems on the same day.

Around 23% of fishers fished 1-4 days, 15% fished 5-9 days, 13% fished 10-14 days, 6% fished 15-19 days and 21% fished 20 or more days during the 12-month diary period (Figure 9).

Figure 9. Distribution of fishing effort (fisher days) by annual number of days fished for RFL households during 2017/18.
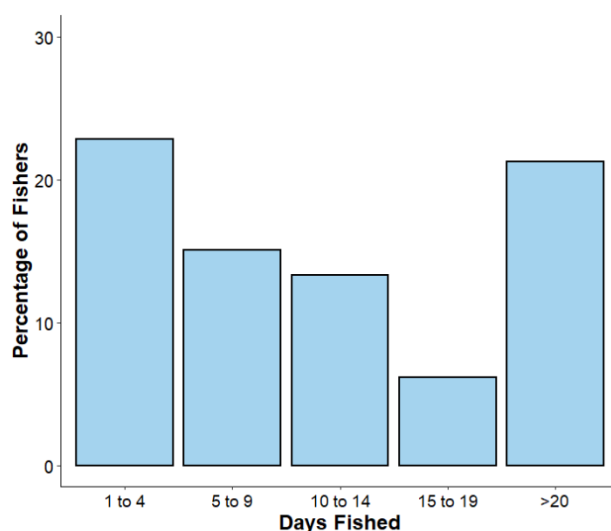
Effort by Waterbody

The vast majority (68%) of recreational fishing activity was concentrated in marine waters – with estuaries accounting for nearly half (48% or 1,046,245 fisher days) of the total effort, followed by ocean waters (20% or 444,965 fisher days) (Figure 10, Appendix 2). Fishing in Freshwater represented around 32% of total fishing effort (691,870 fisher days) – of which, 65% occurred in rivers (452,830 fisher days), as opposed to lakes and dams (240,827 fisher days). It should be noted that estuaries within NSW waters were defined according to Roy *et al.* (2001) and include several large ocean embayments, or semi-enclosed bays that are characterized by marine waters with little fresh water inflow, (e.g. Botany Bay, Jervis Bay, Batemans Bay and Twofold Bay) as well as estuaries with large entrances and tidal ranges (e.g. Hawkesbury River, Port Jackson and Port Hacking), which make conditions in these areas similar to the open ocean. As a result, many oceanic species are commonly found within these NSW estuaries. Although to a lesser extent, some estuarine species can similarly be found within freshwater environments.

Figure 10.   Fishing effort (fisher days) by waterbody type for RFL households during 2017/18. Error bars represent 1 standard error.
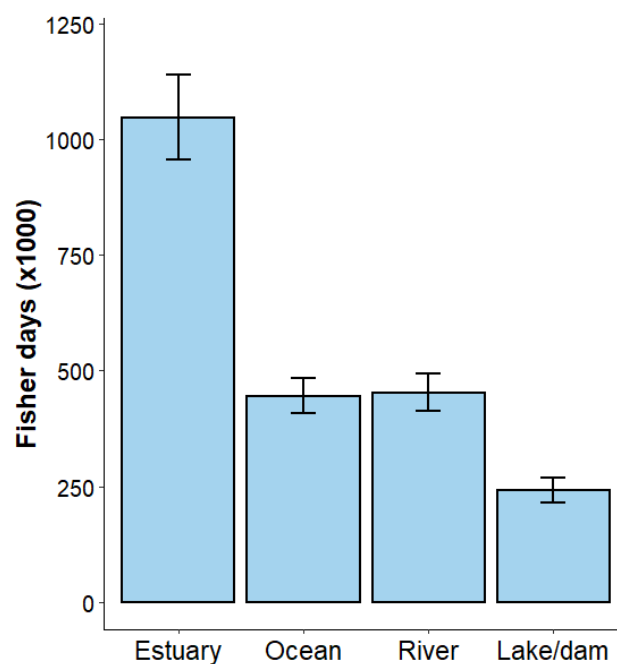
Effort by Platform

Overall, 50% of recreational fishers fished at least once from a boat-based platform during the diary period, 48% fished at least once from a shore-based platform whilst 2% fished at least once from both platforms, and these groups accounted for 55%, 44% and 1% of total fisher days during 2017/18 respectively (Appendix 2). Boat-based fishing was split between estuaries with 27% of fisher days, Freshwater areas (18%) and oceanic areas (10%) (Figure 11). Shore-based fishing effort was split between estuaries (21% of fisher days), Freshwater areas (14%), then oceanic waters (10%) (Figure 11).

Figure 11.   Fishing effort (fisher days) by waterbody type and fishing platform for RFL households during 2017/18. Error bars represent 1 standard error.
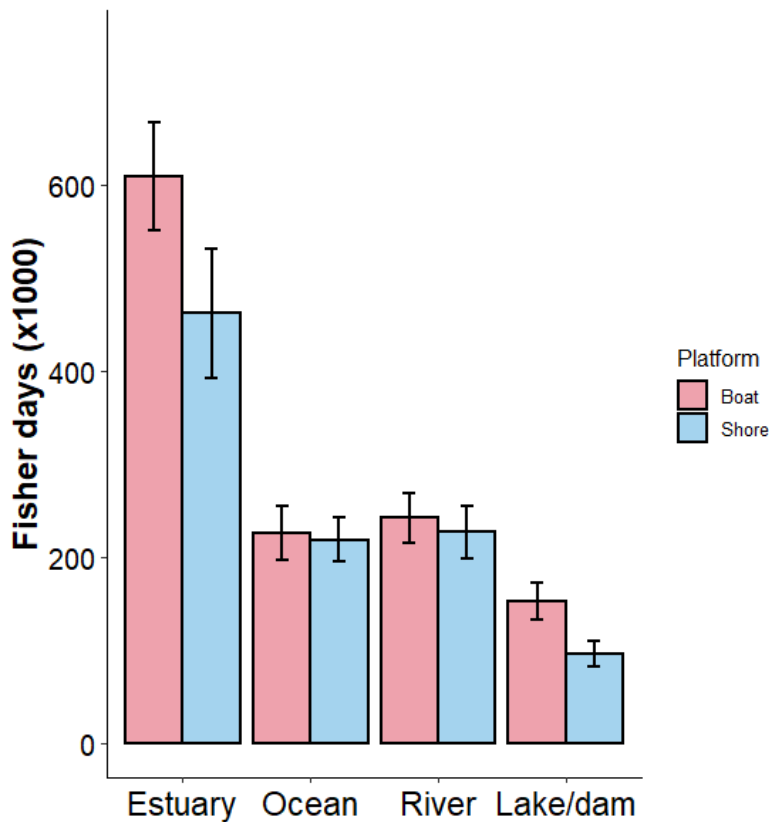
Effort by Region

Among the 6 broad fishing regions (see 'Regions' and Figure 3 for details), the Central region accounted for 27% of total fisher days, followed by the Murray-Darling (25%), the Northern (23%), the Southern (18%), the Eastern (4%) and the South East (3%) regions (Figure 12, Appendix 2). Among the Freshwater regions (Eastern, Murray-Darling and South East), the Murray Darling had the greatest number of fisher days.

Figure 12.   Fishing effort (fisher days) by fishing Region for RFL households during 2017/18. Error bars represent 1 standard error.
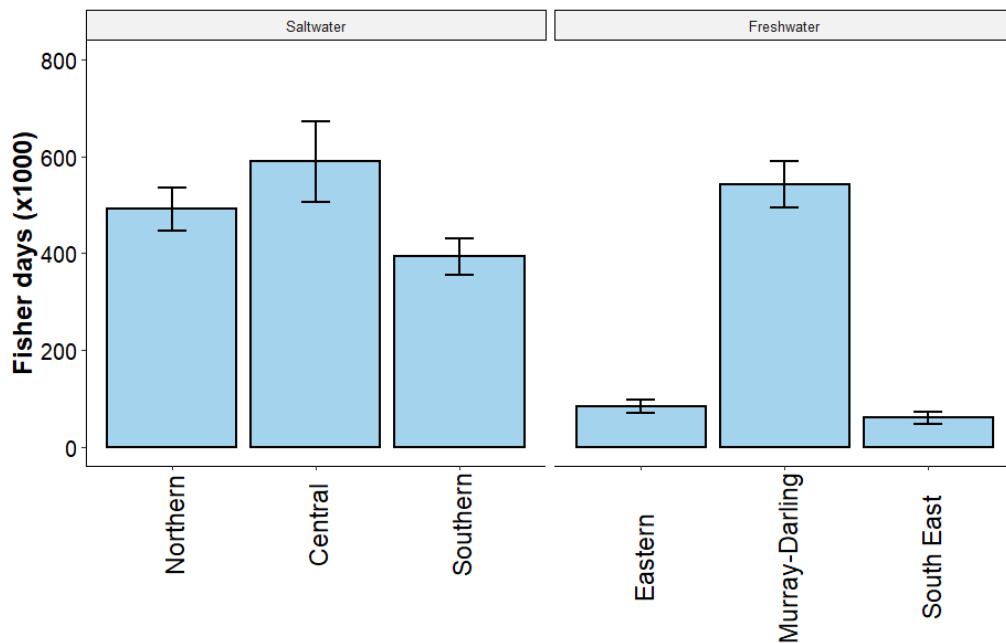
Effort by Method

Line fishing was the most common method, used by 82% of all fishers (with bait and/or artificial lures and jigs). Line fishing accounted for 91% of all fisher days during 2017/18 (Figure 13, Appendix 2). Line fishing with bait accounted for a majority (43%) of all fisher days, with lure and jig fishing at 30% of the total and the use of both line fishing methods (within the one fishing event) at 18%. Pot/trap fishing accounted for 5% of all fisher days, followed by other/hand-collecting methods (2%), diving methods (1%) and various types of net (mainly scoop nets) (1%).

Figure 13. Fishing effort (fisher days) by fishing method for RFL households during 2017/18. Error bars represent 1 standard error.
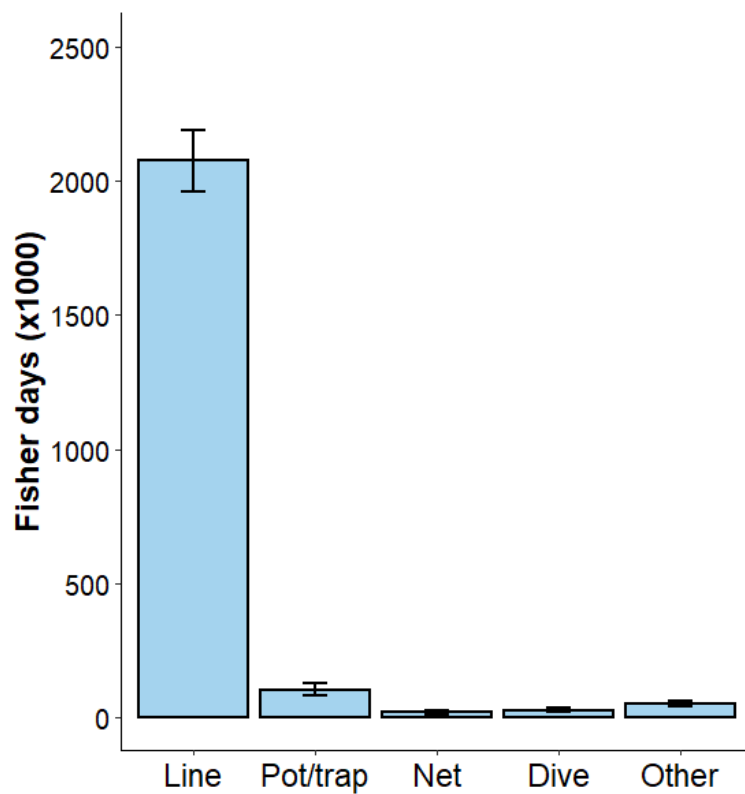
Catch

Recreational fishers in NSW caught a diverse range of finfish, elasmobranchs (sharks and rays), crustaceans, molluscs, and other taxa, with 131 species and species groupings caught during the 2017/18 Diary Survey (Appendix 3a). Catch results presented in this section of the report are focussed on 43 key species that, cumulatively, comprised 90% of the total catch (in numbers) for each higher-level reporting group (Table 3). These 10 higher-level groupings include: (i) saltwater finfish, including sharks and rays; then; (ii) freshwater finfish, (iii) salt and fresh water finfish (iv) small baitfishes (v) cephalopods, (vi) crabs and lobsters; (vii) prawns and yabbies; (viii) molluscs; (ix) worms; and, (x) miscellaneous non-fish taxa.

Some species have been grouped (e.g. Bream species are a grouping comprised of Black and Yellowfin Bream), typically at the family level. This was done in recognition that fishers could not reasonably be expected to delineate some organisms to the species level due to subtle taxonomic differences, and also in cases where particular species were rarely reported.

Total catch is divided into kept or harvested (i.e. not returned to the water) and released (i.e. returned to the water whether alive or not). The harvested component may be used for a variety of purposes, most commonly for consumption or for use as bait. The reasons for releasing or discarding catch may include adherence to regulations (e.g. size and bag limits), ethical reasons (e.g. catch and release fishing) or undesirability (e.g. poor eating quality, damaged or diseased). Details for all species caught are provided in Appendices 3a to 3f. Note: a standard format for catch results has been applied throughout this report, namely where the *total* catch (kept <u>plus</u> released combined) is reported first, followed by the kept/harvested component, then the released component (see Table 3).

Catches have been analysed and presented in terms of the numbers kept and released by waterbody type; fishing method; fishing platform and region. Also, some 25 species/species groups have been separately assessed in the chapter 'Key Species'.

Total Catch

Overall, the total recreational catch was estimated to be 9,336,314 individual organisms, with half (51%) being kept and the remainder (49%) released. Large fish (scale fish, sharks and rays) dominated the total catch, accounting for 69% of the total numbers (6,466,978), followed by prawns and yabbies (1,820,875), small fish used primarily as bait (485,635), crabs & lobsters (217,677), molluscs (148,637), cephalopods (135,957), worms (54,046) and other taxa (such as sea urchins and cunjevoi, 6,509).

Among the saltwater finfish species, Bream was the most common species/group caught by RFL households, with an estimated total catch of 944,288 individuals. Dusky Flathead accounted for a similar total (886,749), followed by Sand Flathead (648,602) Snapper (451,427), Sand Whiting (340,783) and Tailor (227,200). Yellowtail Scad (238,626) dominated the total catch among small baitfish.

In terms of freshwater finfish species, Murray Cod (416,677) dominated the total catch, followed by European Carp (370,332), the Australian Bass species group (245,690), Golden Perch (194,758), Redfin Perch (125,612), with Brown Trout (90,086) and Rainbow Trout (85,200) at lower levels (Table 3).

The non-finfish species component of the total catch was dominated by crustaceans and in particular, the small species primarily used for bait such as Ghost Nippers (700,810), followed by Freshwater Shrimp (468,314), Saltwater Prawns (328,698) and Freshwater Yabbies (280,681). For larger crustaceans, Mud Crabs (111,425) dominated the total catch, followed by Blue Swimmer Crabs (84,000), Murray Crayfish (42,373), other crab species (11,513) and Rock Lobsters (10,329). Excluding key bait species, such as Pipis (144,296) and Beach Worms (54,046), the remainder of the non-finfish species catch was mainly the various species of cephalopod including squids (116,485) and Southern Calamari (15,247) (Table 3).

Harvested Catch

In total, an estimated 2,418,913 finfish were kept which equated to 37% of the total catch of all finfish species. Among saltwater finfish, Dusky Flathead dominated the retained catch (310,650), followed by Sand Flathead (281,844), Bream (228,553), Snapper (157,530) and Sand Whiting (120,831). Among the baitfish species Yellowtail Scad (172,480) and Blue Mackerel (113,689) were kept in the highest numbers. European Carp (370,332) dominated the retained catch of freshwater finfish, followed by Redfin Perch (109,095), Golden Perch (79,297), Brown Trout (37,865) and Murray Cod (36,434) (Table 3).

Among other key taxa, substantial numbers of Ghost Nippers (662,210), Freshwater Shrimp (422,026), Saltwater Prawns (327,809), Freshwater Yabbies (180,446), Squid (108,213), Pipis (75,696), Blue Swimmer Crabs (63,034), Mud Crabs (58,212) and Beach Worms (54,046), were retained (Table 3).

Released Catch

Overall, an estimated 4,048,065 finfish were released, representing 63% of the total finfish catch, with varying release rates depending upon species (Table 3). The highest rates of release (>75%) were evident for taxa such as the Australian Bass species group, Murray Cod, Red Rock Cod, sharks and rays and wrasse/gropers (Table 3). The lowest rates of release (<25%) occurred for Blue Mackerel, Yellowfin Tuna, Garfish, Pearl Perch, Redfin Perch, Saltwater Prawns, Freshwater Shrimp, Nippers, Squid, Abalone, Blue Mussels, Cockles and Beach Worms (Table 3). For each species released during the Diary Survey, Appendix 4 gives the number of animals released, as well as details on the reasons for release.

Table 3. Annual catch (total, kept and released numbers) and proportion of released key species caught by RFL households during 2017/18. Values in bold indicate relative standard error (RSE) > 40%; values in italics indicate fewer than 30 RFL households recorded a catch of a species.

Reporting Group	Species/group	Total Number	RSE (%)	Kept Number	RSE (%)	Released Number	RSE (%)	% Rel.
Finfish - Saltwater								
	Bream*	943,966	9	228,553	12	715,412	9	76
	Dusky Flathead	886,749	11	310,650	12	576,099	13	65
	Sand Flathead*	648,602	16	281,844	16	366,758	18	57
	Snapper	451,427	12	157,534	15	293,893	13	65
	Sand Whiting	340,783	14	120,831	18	219,953	15	65
	Tailor	227,200	15	89,914	23	137,286	17	60
	Yellowtail Kingfish	107,865	24	45,791	36	62,074	23	58
	Trumpeter Whiting	*83,671*	*77*	*31,562*	*86*	*52,109*	*73*	62
	Luderick	83,544	33	51,272	39	32,272	30	39
	Red rock cod	67,854	24	*14,727*	*39*	53,127	23	78
	Australian Salmon	60,556	28	33,948	32	*26,607*	*37*	44
	Leatherjacket*	53,063	23	31,106	28	21,956	35	41
	Sergeant Baker	**52,938**	**41**	**6,368**	**59**	**46,570**	**40**	88
	Silver Trevally	49,258	20	15,315	26	33,942	24	69
	Tiger Flathead	**48,893**	**46**	**25,001**	**53**	**23,891**	**43**	49
	Dolphinfish	47,280	37	*25,413*	*38*	**21,867**	**47**	46
	Sweep	**41,277**	**42**	**13,051**	**54**	**28,226**	**53**	68
	Bonito	*39,538*	*32*	*21,231*	*28*	**18,307**	**45**	46
	Wrasse, other*	**36,432**	**46**	**7,631**	**56**	**28,801**	**48**	79
	Grey Morwong	33,859	25	26,770	25	**7,090**	**44**	21
	Swallowtail Dart	32,719	29	**6,511**	**50**	26,208	32	80
Finfish - Freshwater								
	Murray Cod	416,677	13	36,434	22	380,242	13	91
	European Carp	370,332	24	370,332	24	-	-	-
	Golden Perch	194,758	17	79,297	19	115,461	20	59
	Redfin Perch	125,612	29	109,095	33	**16,517**	**43**	13
	Brown Trout	90,086	26	37,865	30	*52,221*	*28*	58

Table 3, continued

Reporting Group	Species/group	Total Number	RSE (%)	Kept Number	RSE (%)	Released Number	RSE (%)	% Rel.
Finfish – Salt & Fresh								
	Australian Bass*	245,690	25	*11,142*	*46*	234,548	26	95
Finfish - Baitfishes								
	Yellowtail Scad	238,626	37	172,480	33	*66,145*	*55*	28
	Blue Mackerel	145,229	27	113,689	32	*31,540*	*35*	22
	Mullet*	68,446	35	*34,491*	*32*	*33,954*	*53*	50
Cephalopods								
	Squids*	**116,485**	**50**	108,213	53	*8,272*	*42*	7
	Southern Calamari	*15,247*	*42*	*15,247*	*42*	-	-	-
Crabs & Lobsters								
	Mud Crab	**111,425**	**51**	58,212	42	53,213	61	48
	Blue Swimmer Crab	84,000	32	63,034	33	*20,966*	*34*	25
Prawns & Yabbies								
	Ghost Nippers (saltwater)	700,810	24	662,210	24	*38,600*	*39*	6
	Shrimp (freshwater)*	*468,314*	*33*	422,026	35	*46,288*	*67*	10
	Prawns (saltwater)*	***328,698***	***43***	***327,809***	***43***	***889***	***100***	0
	Yabbies (freshwater)	*280,681*	*36*	180,446	26	*100,234*	*71*	36
Molluscs								
	Pipis	***144,296***	***56***	***75,696***	***56***	***68,601***	***100***	48
Worms								
	Beach Worms*	*54,046*	*37*	*54,046*	*37*	-	-	-
Miscellaneous								
	Non-fish other*	*3,015*	*35*	-	-	*3,015*	*35*	100
Non-fish Taxa								
	Sea urchins*	*2,429*	*99*	*2,429*	*99*	-	-	-
	Cunjevoi	*1,065*	*99*	*1,065*	*99*	-	-	-

*species were grouped to account for instances where fishers could not reasonably be expected to identify individual species.

Catch by Waterbody

Of the total of all organisms caught (kept and released) by RFL households during 2017/18, the largest proportion (48%) was from estuarine waters, followed by oceanic waters (26%), rivers (17%) and lakes/dams (9%) (Figure 14).

Figure 14. **Total catch estimates (numbers kept plus released) for key species/groups by waterbody caught during 2017/18 by RFL households. Error bars represent 1 standard error on the total catch.**
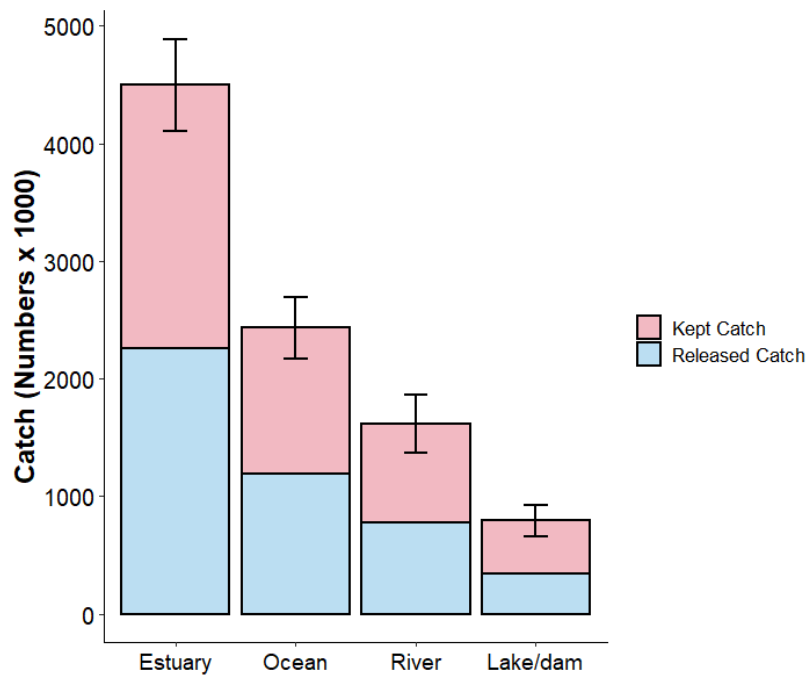
Catch details by waterbody type are summarised for key species (those that, cumulatively, comprised 90% of the total catch estimated for each waterbody) in Figures 15 and 16 and Appendix 3b. In estuarine waters, Dusky Flathead were caught in the greatest numbers followed by Bream and Ghost Nippers which, respectively, comprised 19%, 17% and 16% of the estuarine catch, followed by Saltwater Prawns (7%) and Sand Whiting (6%) (Figure 15). All other species caught in estuarine waters comprised ≤ 5% of the total catch within this waterbody.

In oceanic waters, Sand Flathead comprised 24% of the total catch, followed by Snapper (9%), Bream (7%), Pipis and Yellowtail Scad (each 6%) (Figure 15). All other species caught in oceanic waters comprised ≤ 5% of the total catch within this waterbody. Compared to the estuarine catch, the oceanic catch was more diverse in terms of the number of species caught that comprised 90% of the catch.

Within freshwater rivers, Freshwater Shrimp (25%) were the most commonly caught species by number, followed by Murray Cod (23%), European Carp (19%), the Australian Bass species group (10%) and Golden Perch (7%) (Figure 16). All other species caught in rivers comprised

≤ 5% of the total catch within this waterbody. Yabbies were caught at the greatest numbers in lakes/dams, comprising (29%) of the catch. They were followed by Redfin Perch (14%), Golden Perch (11%), European Carp (9%), Freshwater Shrimp (8%), Brown Trout (8%) and Australian Bass (6%) (Figure 16). All other species caught in lakes and dams comprised ≤ 5% of the total catch within this waterbody. The species catch composition from rivers and lakes/dams, was similar in terms of the species that comprised 90% of the catch. Redfin Perch and Brown Trout were an important component of the catch from lakes/dams whilst Murray Crayfish were only an important component of the catch in rivers.

Figure 15. Total catch estimates (numbers kept plus released) by waterbody type for key marine species (Estuary and Ocean) caught during 2017/18 by RFL households. Key species were defined as those that, cumulatively, comprised 90% of the total catch estimated for each waterbody during the Diary Survey. Error bars represent 1 standard error on the total catch. Note: different scales on catch axes.
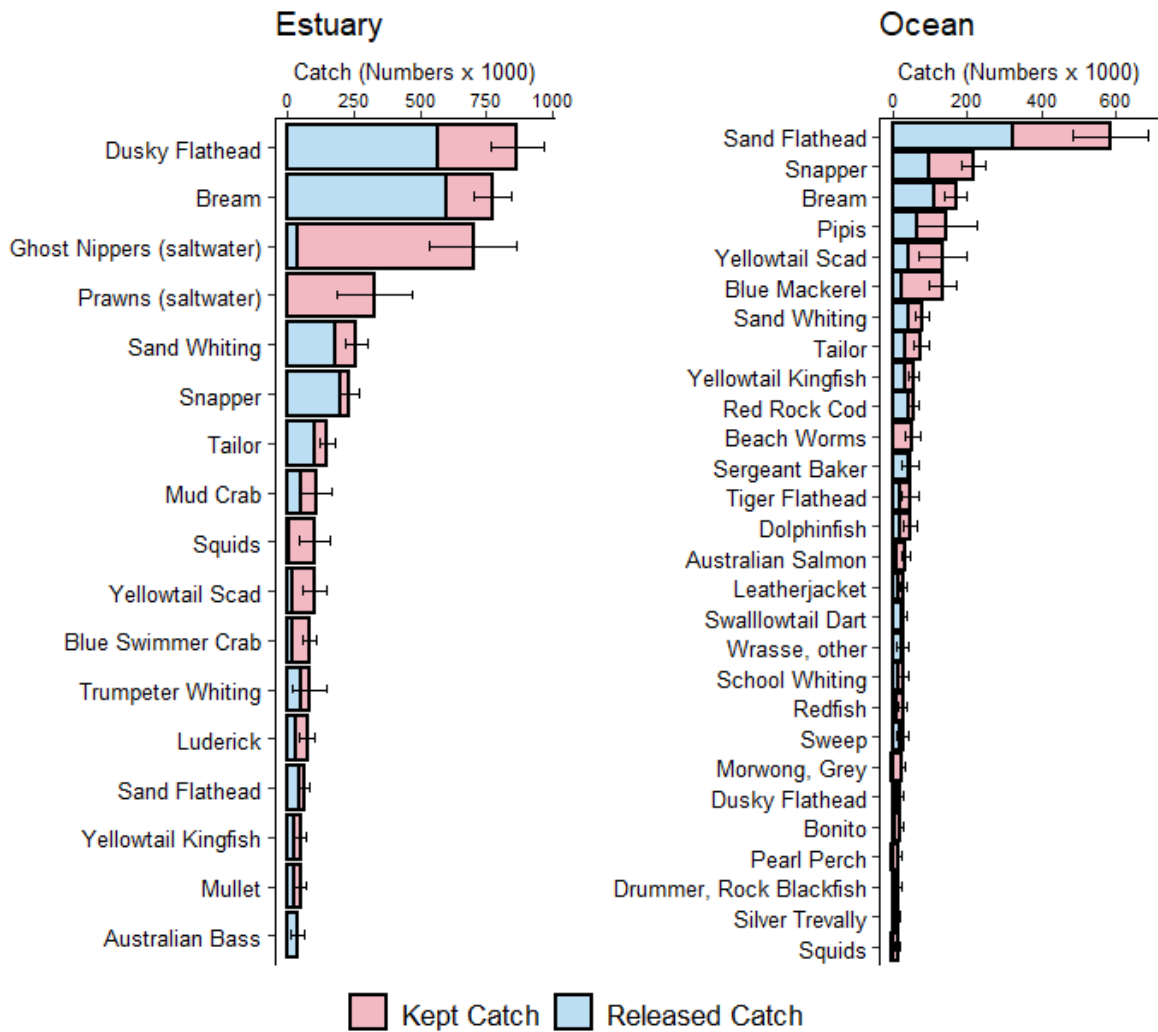
Figure 16. Total catch estimates (numbers kept plus released) by waterbody type for key freshwater species (river and lake/dam) caught during 2017/18 by RFL households. Key species were defined as those that, cumulatively, comprised 90% of the total catch estimated for each waterbody during the Diary Survey. Error bars represent 1 standard error on the total catch. Note: different scales on catch axes.
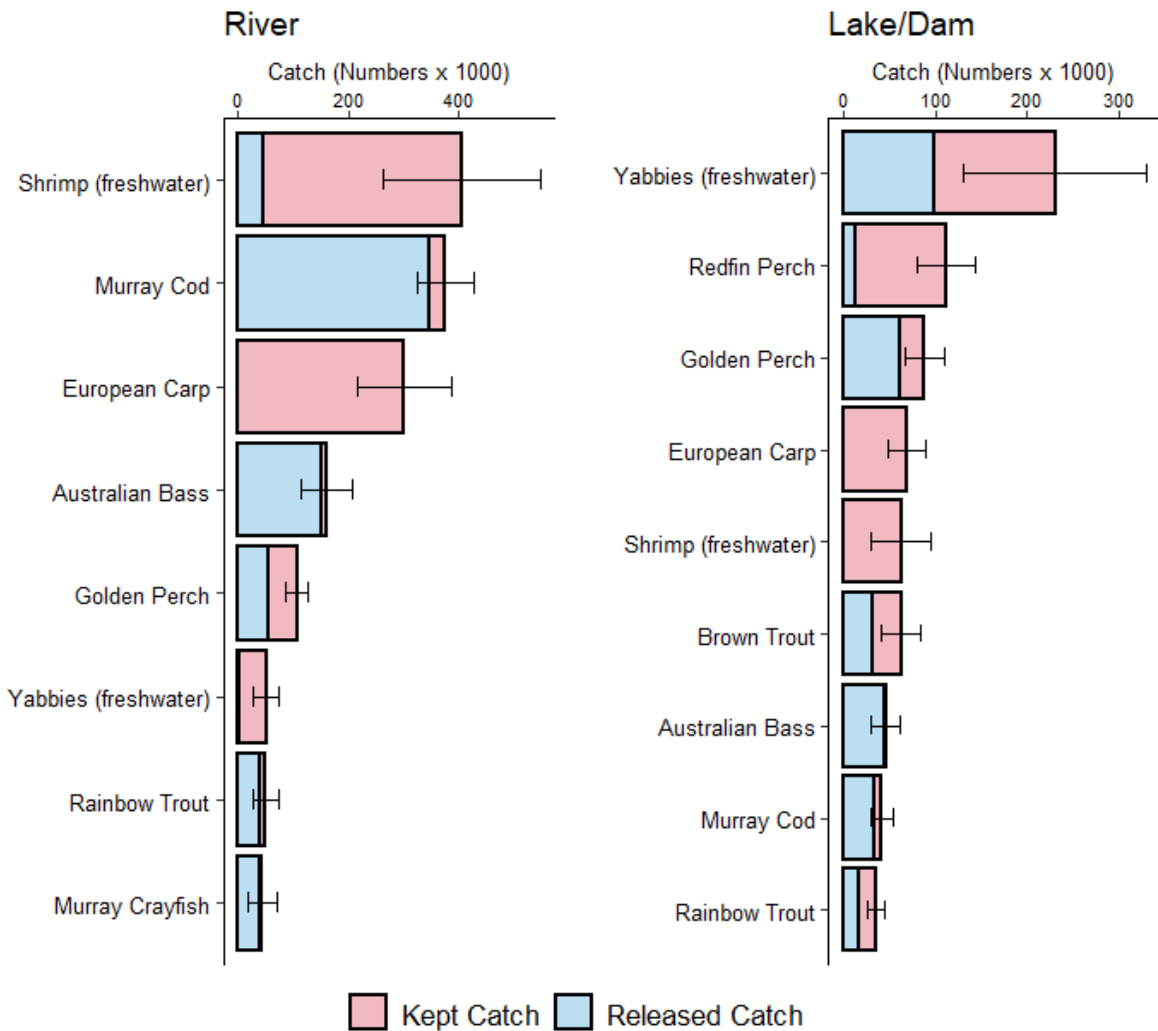
Catch by Platform

Catch details by platform within each waterbody type are summarised across all species/groups in Figure 17 and a summary of catch by platform for all species/groups caught is provided in Appendix 3c. Boat-based fishing accounted for 57% of the overall total catch and shore-based fishing accounted for 43% of the catch. Within estuarine waters, 57% of the total catch was from boat-based fishing and 53% was from shore-based fishing. Boat- and shore-based fishing within oceanic waters accounted for 68% and 32% of total catch respectively. In rivers, 43% of the total catch was from boat-based fishing and shore-based fishing accounted for 57% of the catch. In lakes/dams, boat-based catch was 55% and 45% for shore-based fishing.

Figure 17. Total catch estimates (numbers kept plus released) by waterbody type and fishing platform across all species/groups caught during 2017/18 by RFL households. Error bars represent 1 standard error on the total catch.
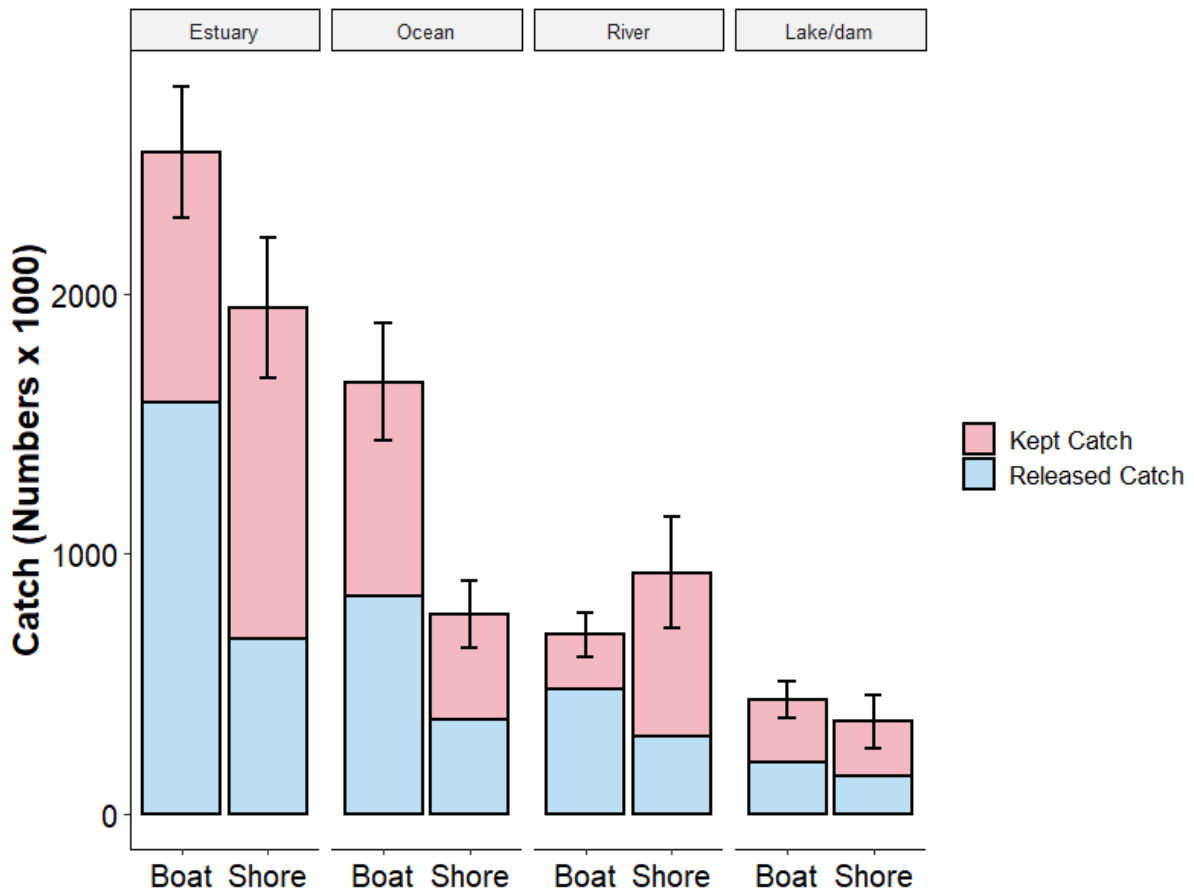
Catch by Region

Catch details by Region are summarised across all species/groups in Figure 18. Of the total catch (kept plus released) of all organisms taken by RFL households during 2017/18, the largest catch occurred in Southern region (27%), followed closely by the Northern region (26%) and then the Murray-Darling and Central regions (each 21%) followed by the Eastern (4%) and South East (1%) regions.

Figure 18. Total catch estimates (numbers kept plus released) by region across all species/groups caught during 2017/18 by RFL households. Error bars represent 1 standard error on the total catch.
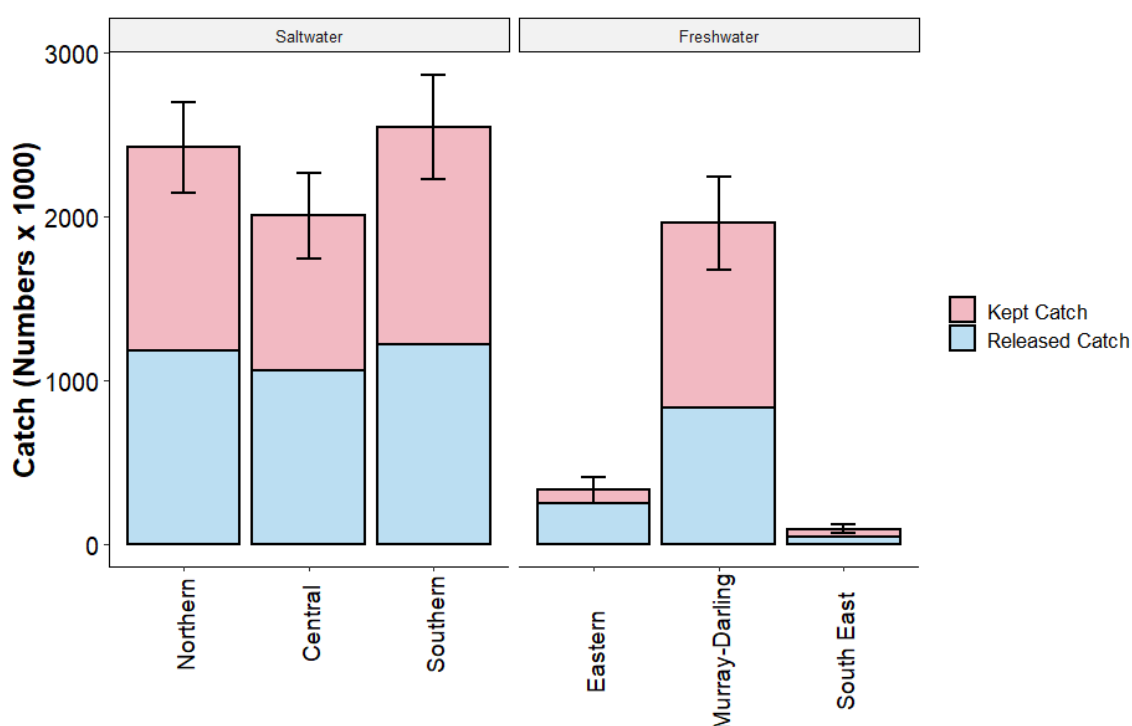
Catch details by region are summarised for key species (those that, cumulatively, comprised 90% of the total catch estimated for each region) in Figures 19 and 20 and Appendix 3d. In the Northern coastal region, Ghost Nippers were the main species caught and comprised 15% of the total catch by number in that region, followed by Bream (15%), Dusky Flathead (13%), Sand Whiting (8%) and Snapper (6%) (Figure 19). In the Central region, Bream were the main species caught and comprised 19% of the total catch in that region, followed by Dusky Flathead (11%), Yellowtail Scad (9%), Snapper (9%) and Tailor (6%) (Figure 19). Within the Southern region, Sand Flathead were the main species caught and comprised 19% of the total catch in that region, followed by Dusky Flathead (14%), Ghost Nippers (11%), Saltwater Prawns (9%) and Bream (8%) (Figure 19). For each coastal region, all other species caught comprised ≤ 5% of the total regional catch.

Australian Bass (62%) were the main species caught in the Eastern region, followed by Freshwater Shrimp (11%) and European Carp (8%) (Figure 20). In the Murray-Darling region, Freshwater Shrimp were the main species caught and comprised 22% of the total catch in

that region, followed by Murray Cod (21%), European Carp (16%), Freshwater Yabbies (14%), Golden Perch (10%) and Redfin Perch (6%) (Figure 20). In the South East region, Brown Trout were the main species caught and comprised 46% of the total catch in that region, followed by Rainbow Trout (43%) and Freshwater Yabbies (8%) (Figure 20). For each inland region, all other species caught comprised ≤ 5% of the total regional catch.

Figure 19. **Total catch estimates (numbers kept plus released) for the 3 coastal saltwater regions (Northern, Central and Southern) of key species caught during 2017/18 by RFL households. Key species were those that, cumulatively, comprised 90% of the total catch estimated for each region during the Diary Survey. Error bars represent 1 standard error on the total catch. Note: different scales on the catch axes.**
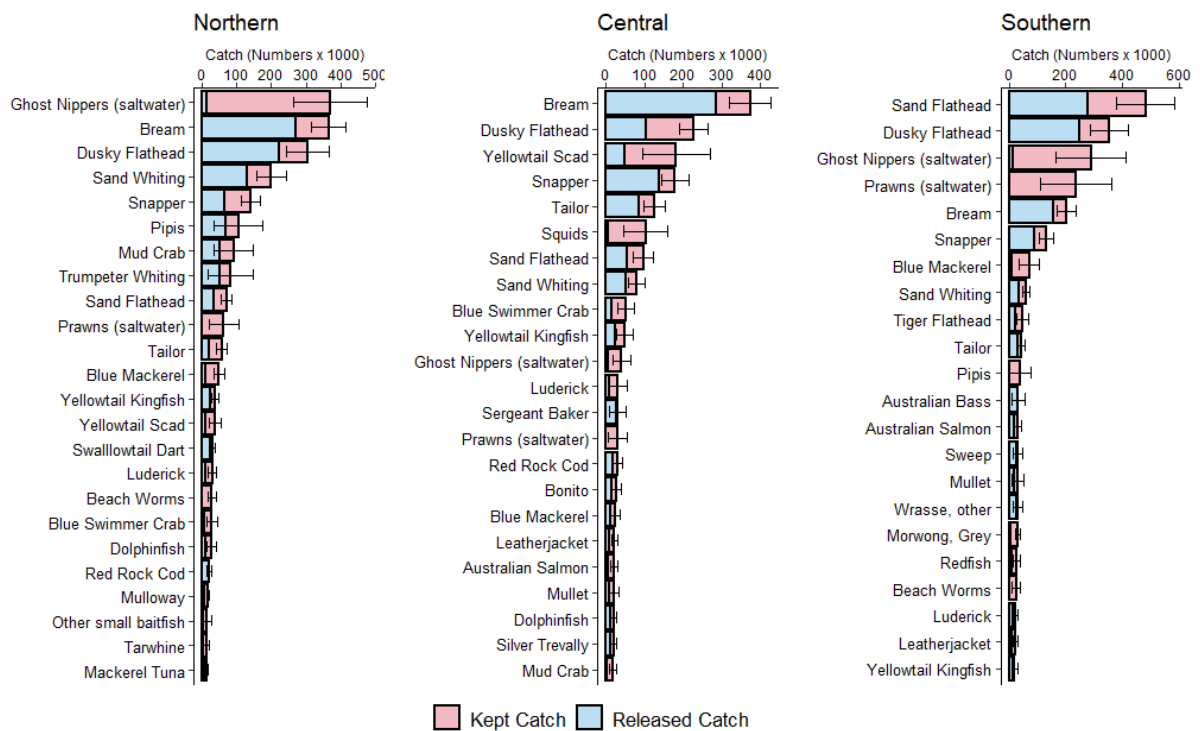
Figure 20. **Total catch estimates (kept plus released) for the 3 Freshwater regions (Eastern, Murray-Darling and South East) of key species caught during 2017/18 by RFL households. Key species were those that, cumulatively, comprised 90% of the total catch estimated for each region during the Diary Survey. Error bars represent 1 standard error on the total catch. Note: different scales on the catch axes.**
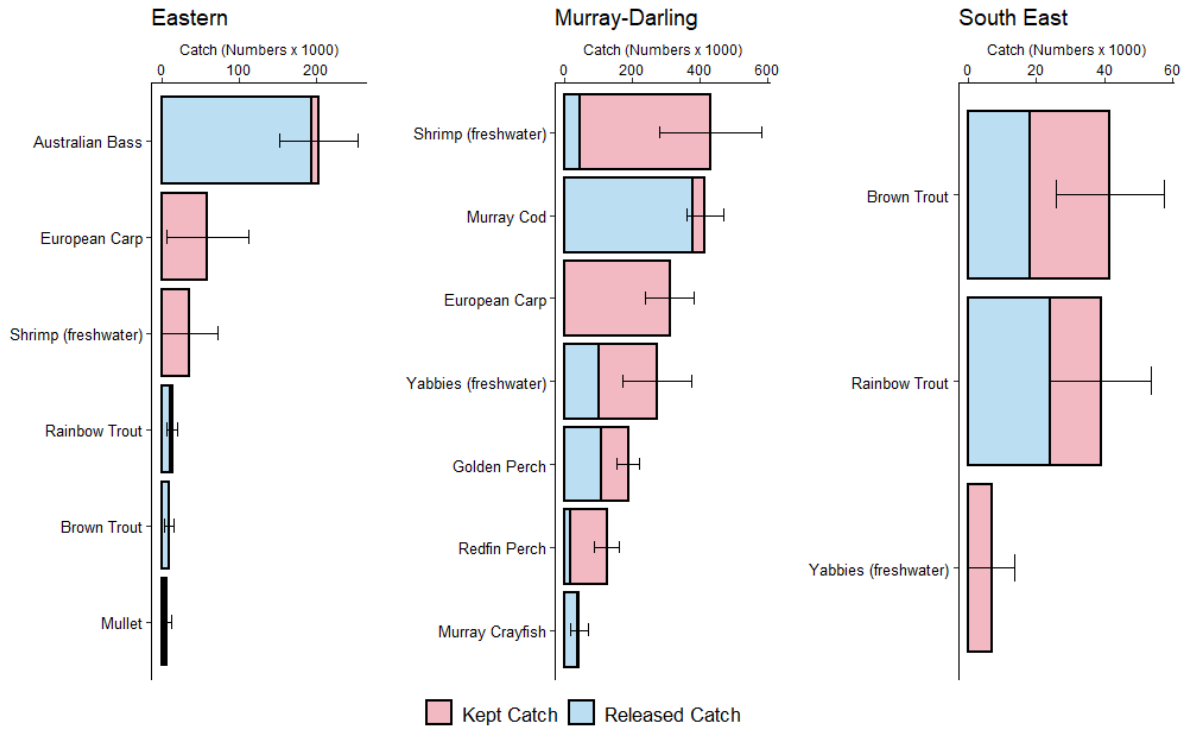
Catch by Method

Catch details by fishing method are summarised across all species/groups in Figure 21. A summary of catch by fishing method for all species/groups caught is provided in Appendix 3e. The majority of organisms were caught using line methods (75%). Methods classified as 'Other' (e.g. hand collecting, pumping) and pots/traps accounted for similar levels of total catch (10 and 9% respectively), followed by netting methods (5%). The lowest levels of catch were estimated for diving methods (1%).

Figure 21.   Total catch estimates (numbers kept plus released) by fishing method across all species/groups caught during 2017/18 by RFL households. Error bars represent 1 standard error on the total catch.
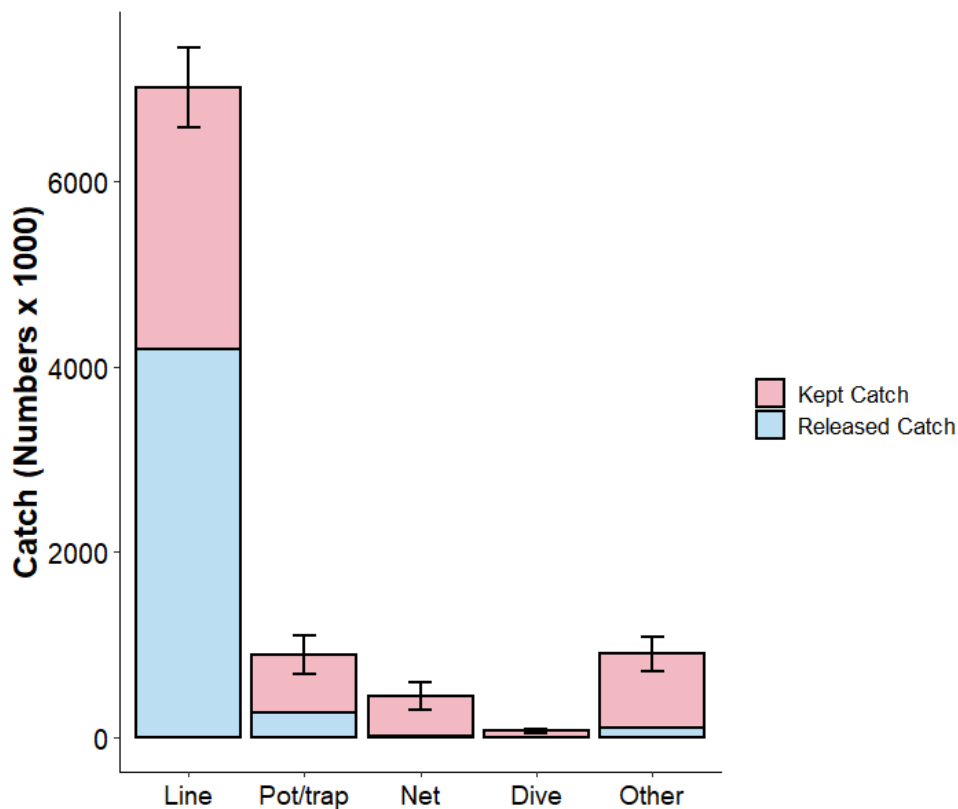
Key Species Summaries

In the following section, the total estimated catch by RFL households for 25 key species/groups have been described in terms of: waterbody type; fishing platform; fishing region and method. For each of these categories, the numbers of fish retained and released are also displayed in the figures presented below. Catch estimates for all species caught for each of these reporting categories are also presented in a series of appendices at the end of this report. See catch by waterbody type (Appendix 3b); fishing platform (Appendix 3c); fishing region (Appendix 3d) and method (Appendix 3e).

Catch information provided by fishers during the Diary Survey is presented here as expanded estimates of the total catch during 2017/18 by all RFL households. The species/groups included in this section refer to those with relatively large total catch estimates for the period and are also of interest in terms of recreational and commercial fisheries management in NSW. However, species were excluded from this chapter if the RSE for the total catch estimate was greater than 40% or where the total catch estimate was based on less than 30 households (refer Table 3).

Bream

'Bream' is a grouping of two species, Yellowfin Bream (*Acanthopagrus australis*) and Black Bream (*Acanthopagrus butcheri*) with Yellowfin Bream dominating the state-wide catch for this group. Yellowfin Bream are found coast-wide in NSW while Black Bream are confined to estuaries on the southern coast. The two species are known to hybridise (Ochwada-Doyle *et al.*, 2012; Roberts *et al.*, 2011). These species were grouped to account for instances where fishers could not reasonably be expected to identify individual species.

The total state-wide catch of Bream was 943,966 with 24% being kept and 76% released during 2017/18 (Table 3). The majority of the total catch of Bream by waterbody was from estuarine waters (Figure 22A). The boat-based catch and shore-based catch for Bream were similar (Figure 22B). In terms of fishing method, Bream were primarily caught by line fishing (using bait) (Figure 22C). The total catch of Bream by region was highest in the Northern and Central coastal regions (Figure 22D).

Figure 22. Characteristics of the recreational fishery for Bream caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
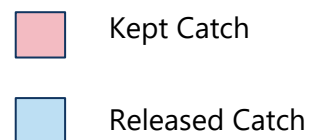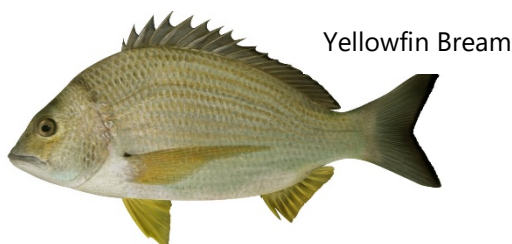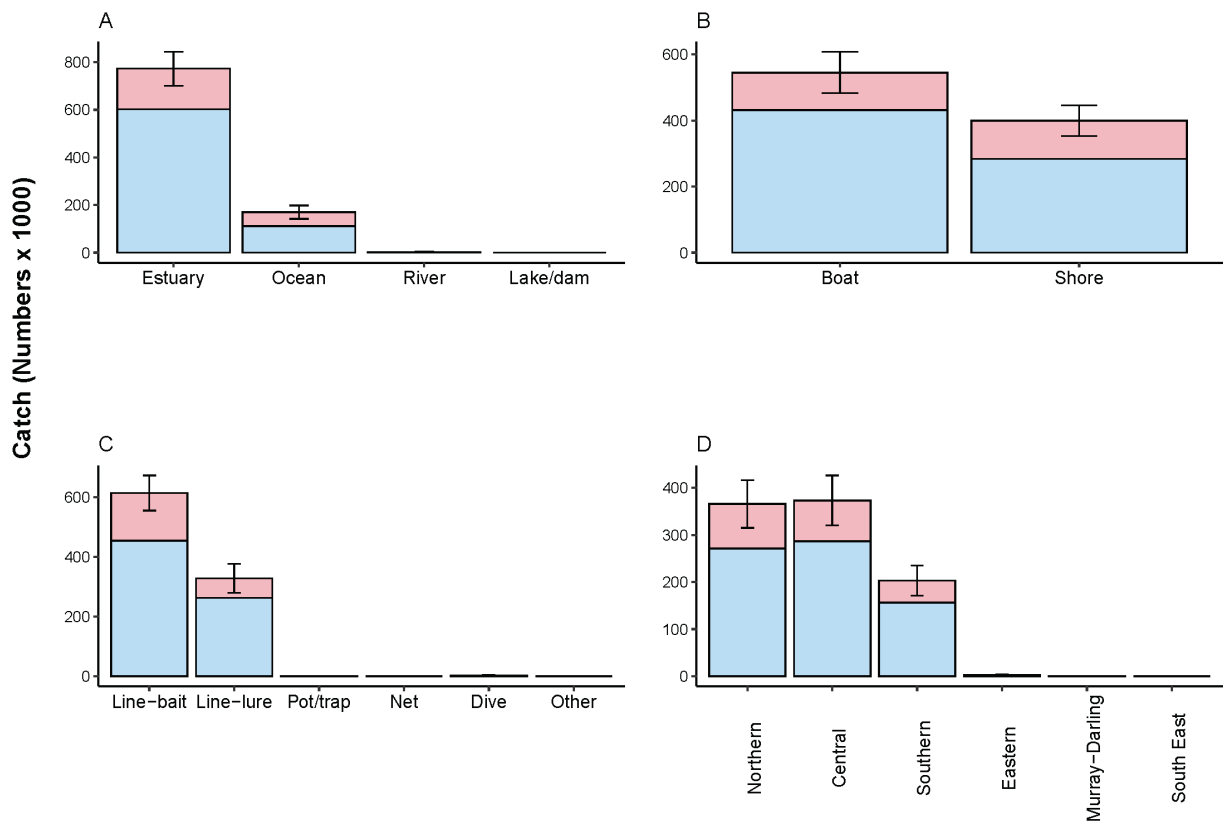
Dusky Flathead

The total state-wide catch of Dusky Flathead was 886,749 with 35% being kept and 65% released during 2017/18 (Table 3). The majority of Dusky Flathead total catch was taken in estuarine waters, (Figure 23A). The boat-based catch was higher than the shore-based catch (Figure 23B) and all Dusky Flathead were caught by line fishing (using both bait and lures) (Figure 23C). Dusky Flathead were caught in similar quantities in all 3 coastal regions (Figure 23D).

Figure 23. Characteristics of the recreational fishery for Dusky Flathead caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
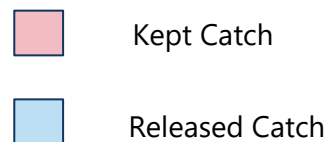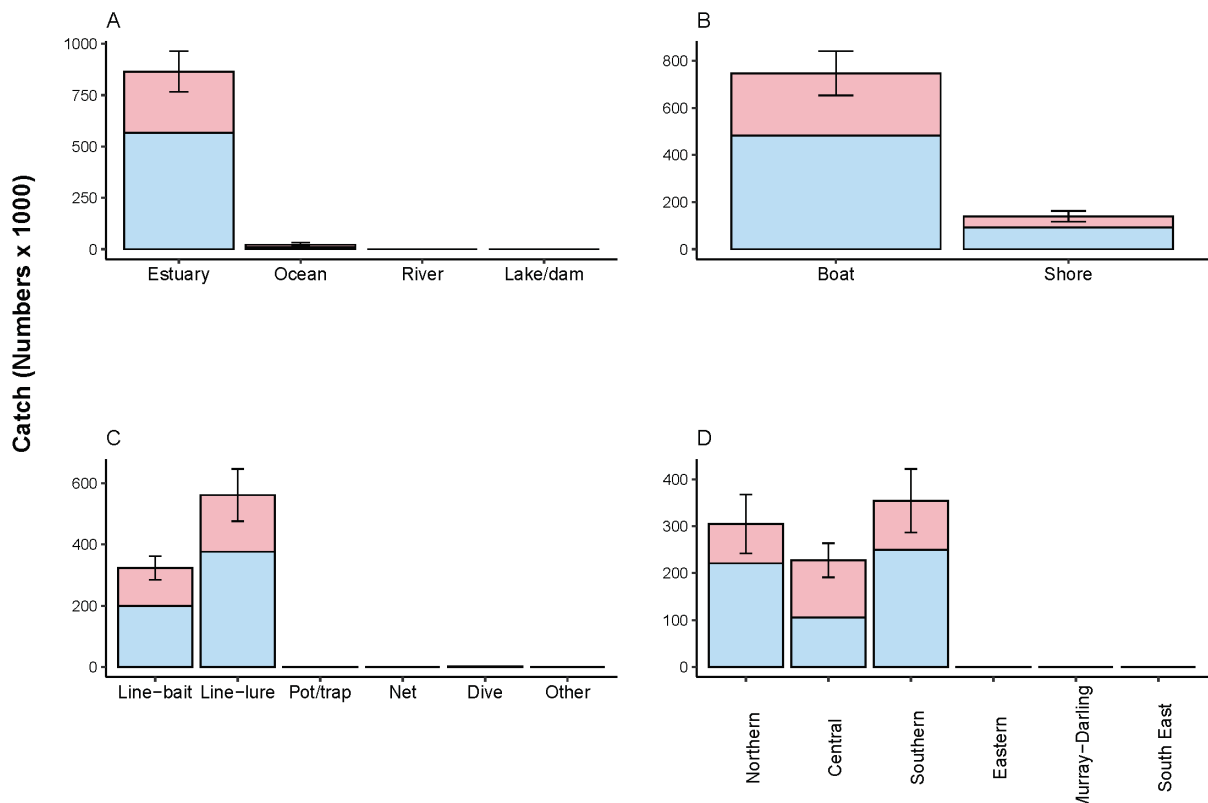
Sand Flathead

'Sand Flathead' is a grouping of several *Platycephalidae* species but recreational catch in NSW is dominated by Eastern Bluespotted Flathead (*Platycephalus caeruleopunctatus*) (West *et al.*, 2015). Other Sand Flatheads in this group include Southern Bluespotted Flathead (*P. bassensis*), Northern Sand Flathead (*P. endrachtensis*), and Long-Spined Flathead (*P. grandispinis*). These species were grouped to account for instances where fishers could not reasonably be expected to identify individual species.

The total state-wide catch of Sand Flathead was 648,602 with 43% being kept and 57% released during 2017/18 (Table 3). The majority of the Sand Flathead catch was from oceanic waters, (Figure 24A), and by boat-based fishing (Figure 24B). In terms of fishing method, Sand Flathead were primarily caught by line fishing (using bait) (Figure 24C). The total catch of Sand Flathead by region was highest in the Southern coastal region (Figure 24D).

Figure 24. Characteristics of the recreational fishery for Sand Flathead caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
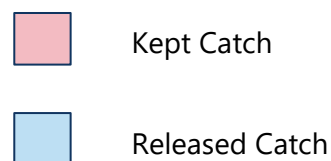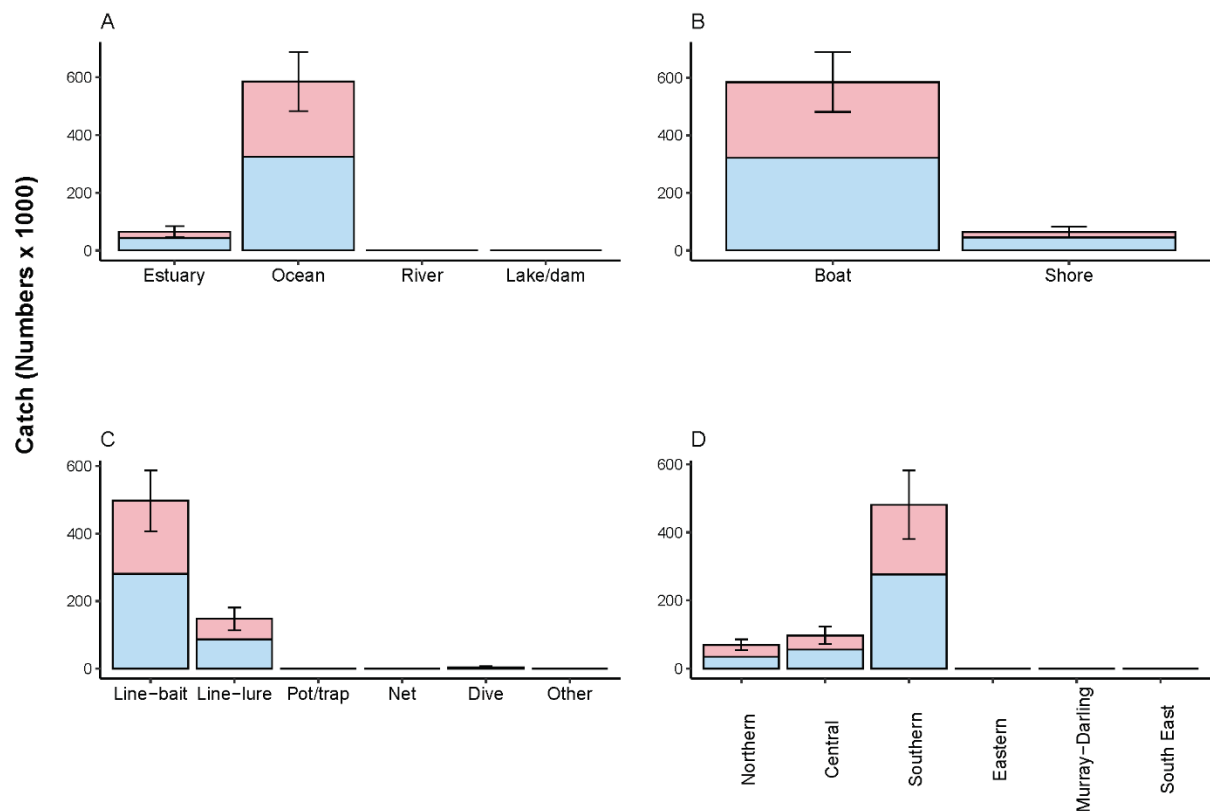
Snapper

The total state-wide catch of Snapper was 451,247 with 35% being kept and 65% released during 2017/18 (Table 3). Snapper were caught in estuarine and oceanic waters (Figure 25A), predominantly by boat-based fishing (Figure 25B). In terms of fishing method, Snapper were all caught by line fishing (predominantly using bait) (Figure 25C). Snapper were caught in all 3 coastal regions in similar numbers (Figure 25D).

Figure 25. Characteristics of the recreational fishery for Snapper caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
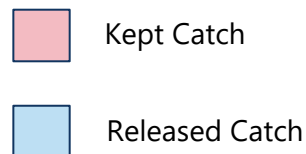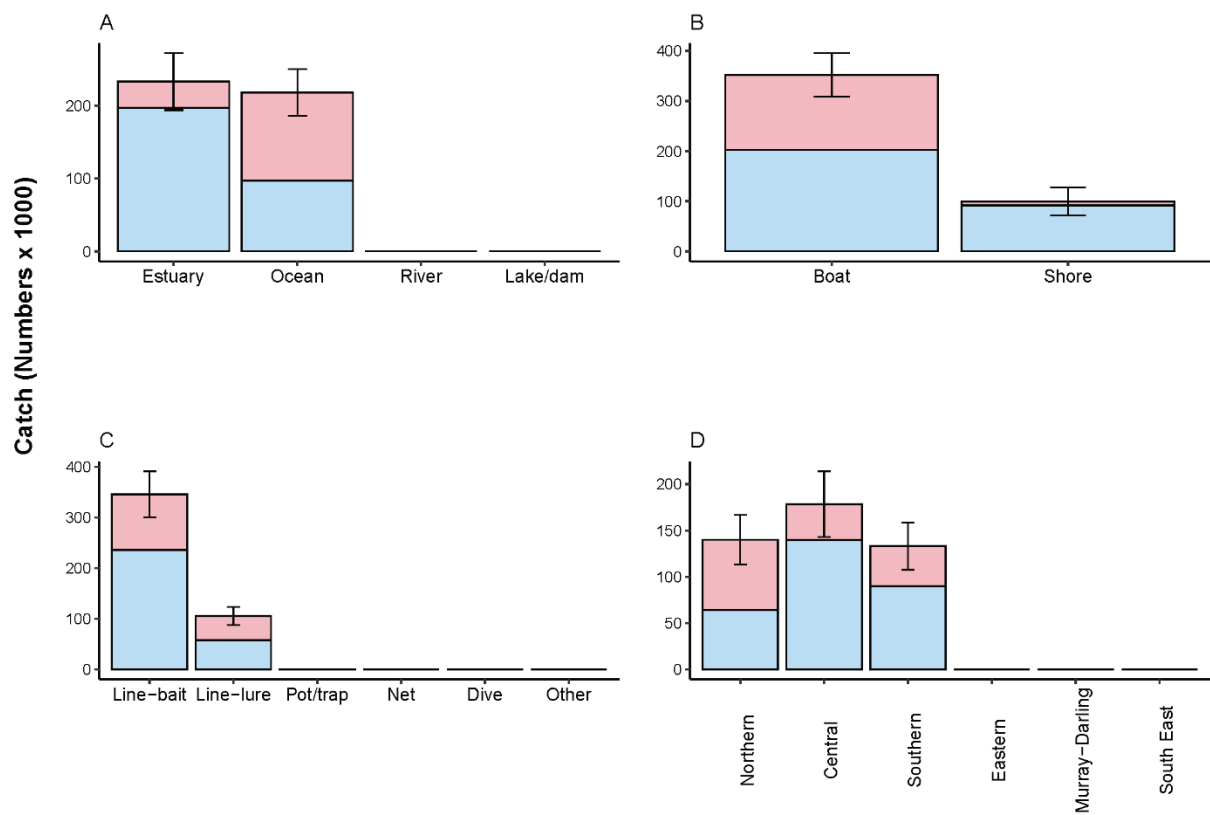
Sand Whiting

The total state-wide catch of Sand Whiting was 340,783 with 35% being kept and 65% released during 2017/18 (Table 3). Catch was highest in estuarine waters (Figure 26A). The boat and shore-based catch of Sand Whiting were similar (Figure 26B). In terms of fishing method, Sand Whiting were primarily caught by line fishing (using bait) (Figure 26C). The total catch of Sand Whiting by region was highest in the Northern coastal zone (Figure 26D).

Figure 26. Characteristics of the recreational fishery for Sand Whiting caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households. Relative catch is presented by A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
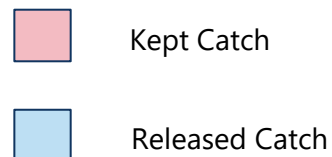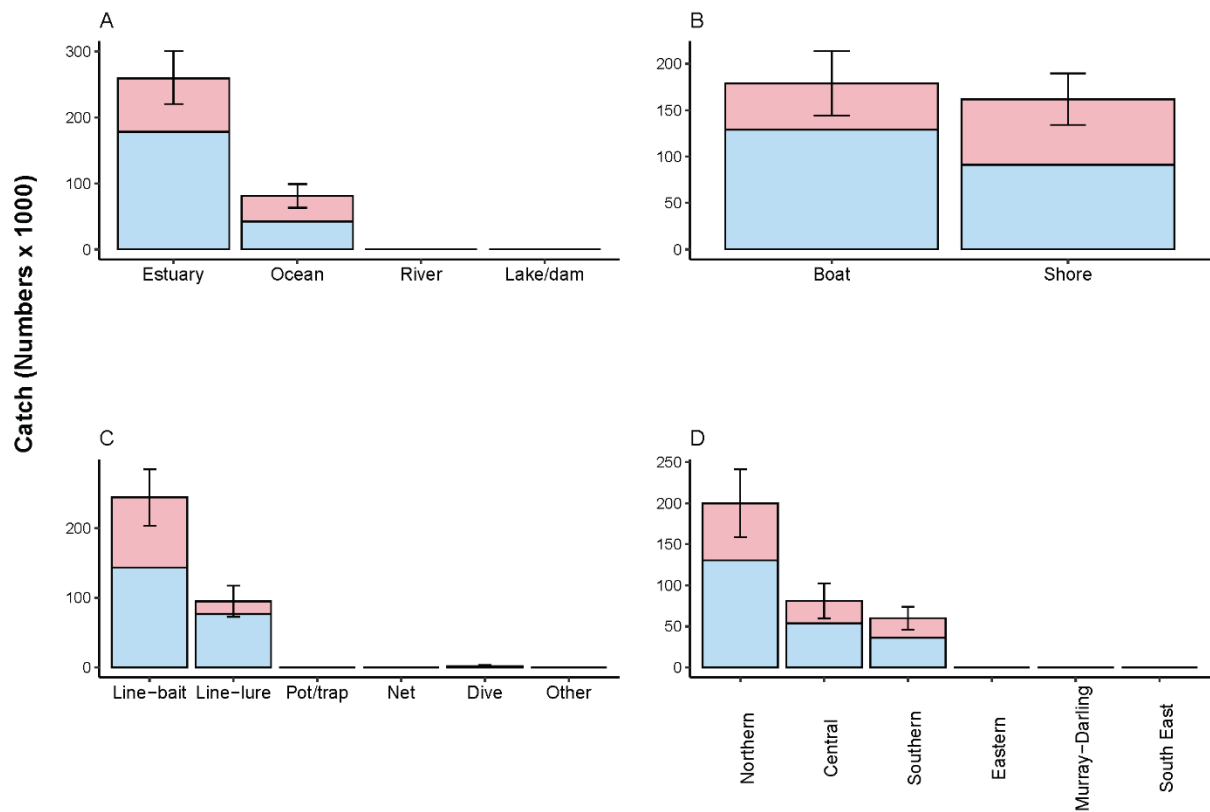
Tailor

The total state-wide catch of Tailor was 237,200 with 40% being kept and 60% released during 2017/18 (Table 3). Tailor were mainly caught in estuarine and oceanic waters (Figure 27A) and in similar numbers for both boat and shore-based methods (Figure 27B). In terms of fishing method, all Tailor were caught by line fishing (using bait and lures) (Figure 27C). The total catch of Tailor by region was highest in the Central coastal zone (Figure 27D).

Figure 27. **Characteristics of the recreational fishery for Tailor caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method; D) seasonality and E) region. Error bars represent 1 standard error on the total catch.**
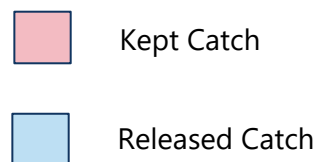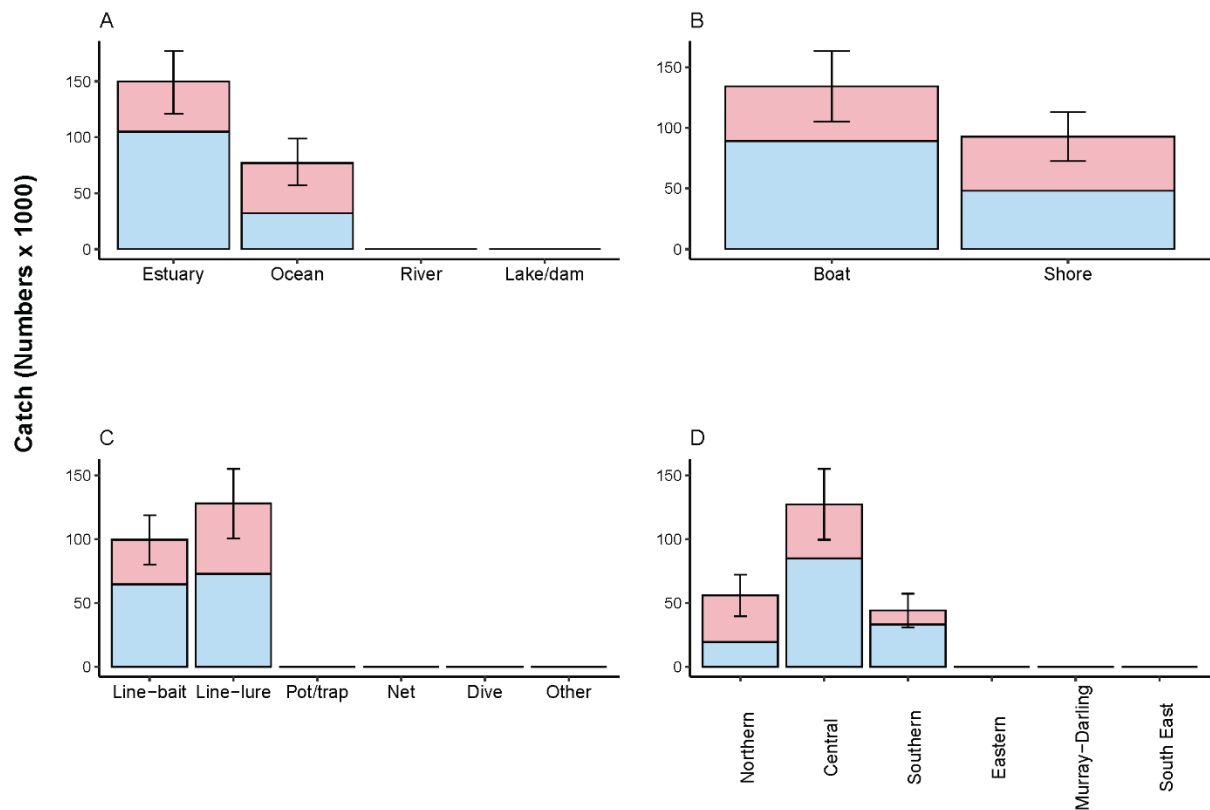
Yellowtail Kingfish

The total state-wide catch of Yellowtail Kingfish was 107,865 with 42% being kept and 58% released during 2017/18 (Table 3). Yellowtail Kingfish were caught in both estuarine and oceanic waters (Figure 28A) and by both boat and shore-based methods (Figure 28B). In terms of fishing method, Yellowtail Kingfish were primarily caught by line fishing (using bait and lure) (Figure 28C). Catches of Yellowtail Kingfish occurred throughout the 3 coastal regions (Figure 28D).

Figure 28. Characteristics of the recreational fishery for Yellowtail Kingfish during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
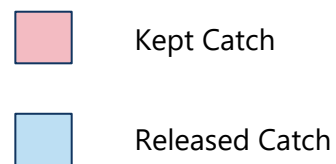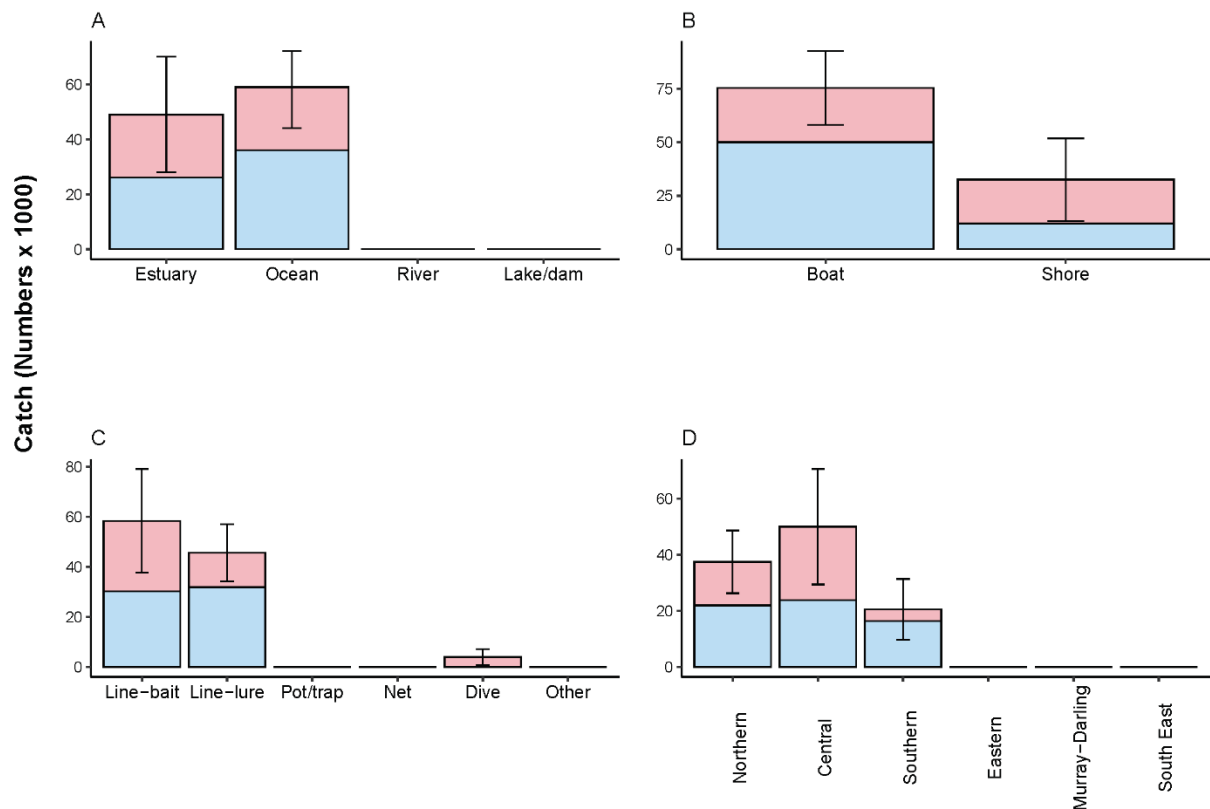
Luderick

The total state-wide catch of Luderick was 83,544 with 61% being kept and 39% released during 2017/18 (Table 3). The total catch of Luderick by waterbody was highest in estuarine waters (Figure 29A). The majority of Luderick was caught from shore-based platforms (Figure 29B). In terms of fishing method, Luderick were primarily caught by line fishing (using bait) (Figure 29C). Luderick were caught in all 3 coastal regions (Figure 29D).

Figure 29. Characteristics of the recreational fishery for Luderick caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
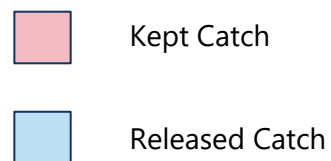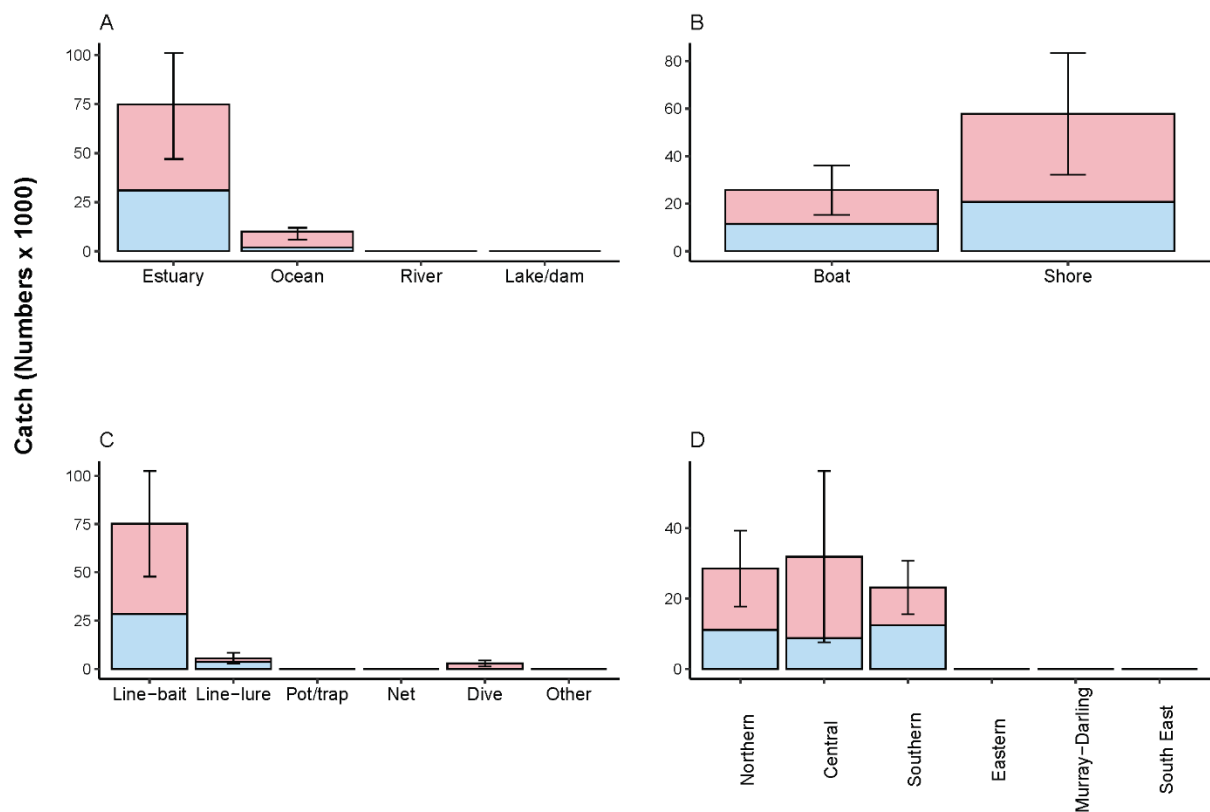
Australian Salmon

The total state-wide catch of Australian Salmon was 60,556 with 56% being kept and 44% released during 2017/18 (Table 3). Australian Salmon were caught in estuarine and oceanic waters (Figure 30A). They were caught from both boat and shore-based platforms, predominantly using line fishing methods (Figure 30B & 30C). Australian Salmon were caught in all 3 coastal regions with the largest catch in the southern region (Figure 30D).

Figure 30. Characteristics of the recreational fishery for Australian Salmon caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
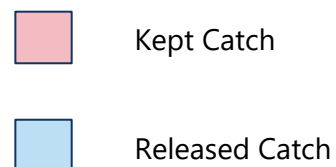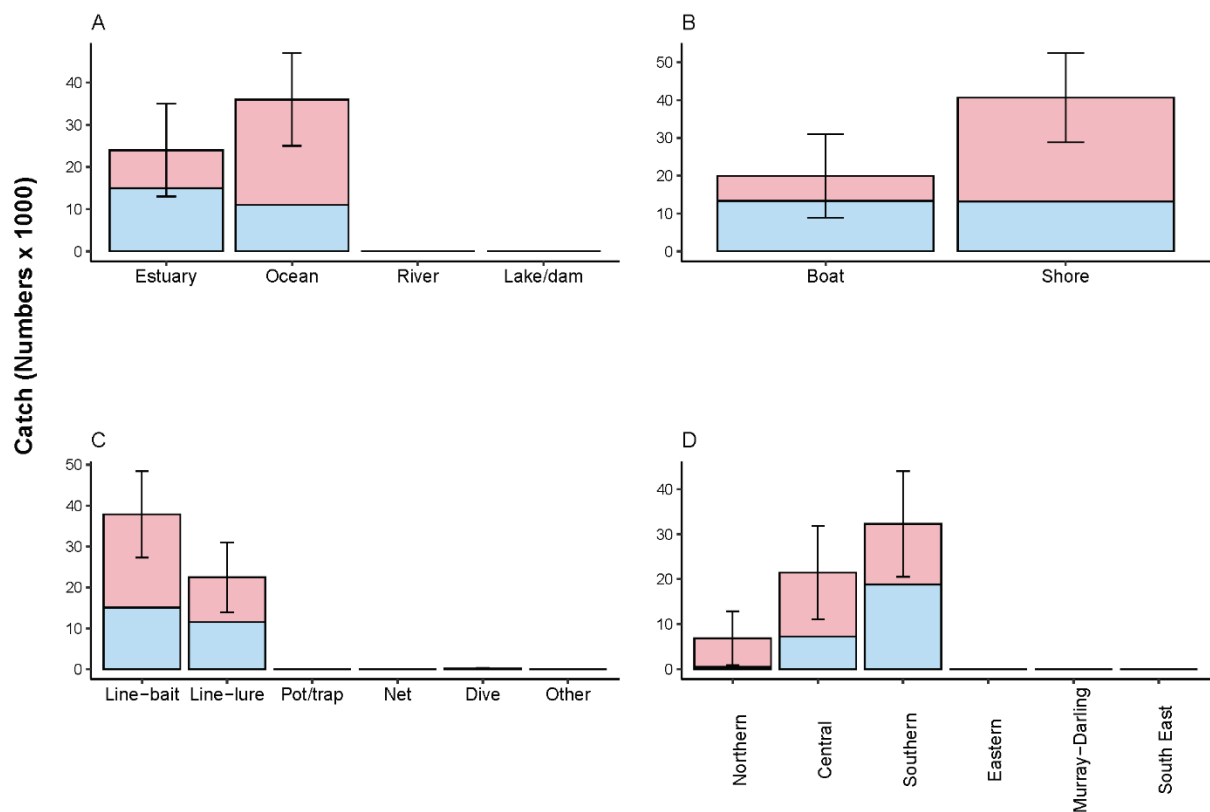
Leatherjacket

'Leatherjacket' is a grouping of several Balistidae and Monacanthidae species. There are more than 20 species of Leatherjackets found throughout NSW waters and, depending on the species, can be caught in estuarine, coastal and offshore waters. In estuarine waters, examples of Leatherjacket species include Fan-belly (*Monacanthus chinensis*), Six Spine (*Meuschenia freycineti)* and Rough Leatherjackets (*Scobinichthys granulatus*). In coastal and offshore areas examples include Six Spine, Yellow-finned (*Meuschenia trachylepis*), Black Reef (*Eubalichthys Bucephalus*) and Ocean (*Nelusetta ayraud*) Leatherjackets. Leatherjacket species were grouped to account for instances where fishers could not reasonably be expected to identify individual species.

The total state-wide catch of Leatherjacket was 53,063 with 59% being kept and 41% released during 2017/18 (Table 3). Leatherjacket were caught in estuarine and oceanic waters (Figure 31A), from both boat and shore-based platforms (Figure 31B). In terms of fishing method, Leatherjacket were primarily caught by line fishing (using bait) (Figure 31C). Leatherjacket were caught in all 3 coastal regions, with lowest numbers in the Northern region (Figure 31D).

Figure 31. Characteristics of the recreational fishery for Leatherjacket caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
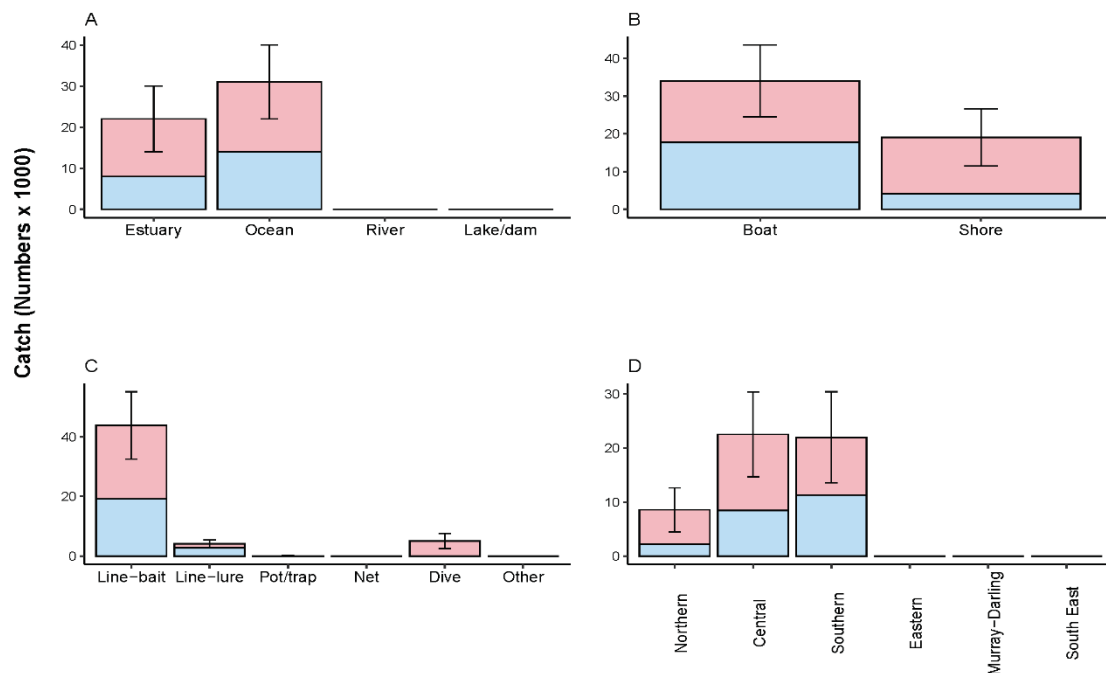
Six Spined Leatherjacket
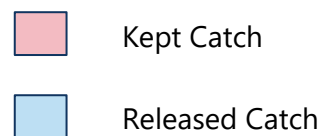
Silver Trevally

The total state-wide catch of Silver Trevally was 49,258 with 31% being kept and 69% released during 2017/18 (Table 3). Silver Trevally were caught in both estuarine and oceanic waters (Figure 32A) from both boat and shore-based platforms using line fishing methods (Figure 32B & 32C). Silver Trevally were caught in all 3 coastal regions but predominantly in the Central and Southern regions (Figure 32D).

Figure 32. Characteristics of the recreational fishery for Silver Trevally caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
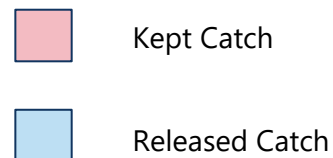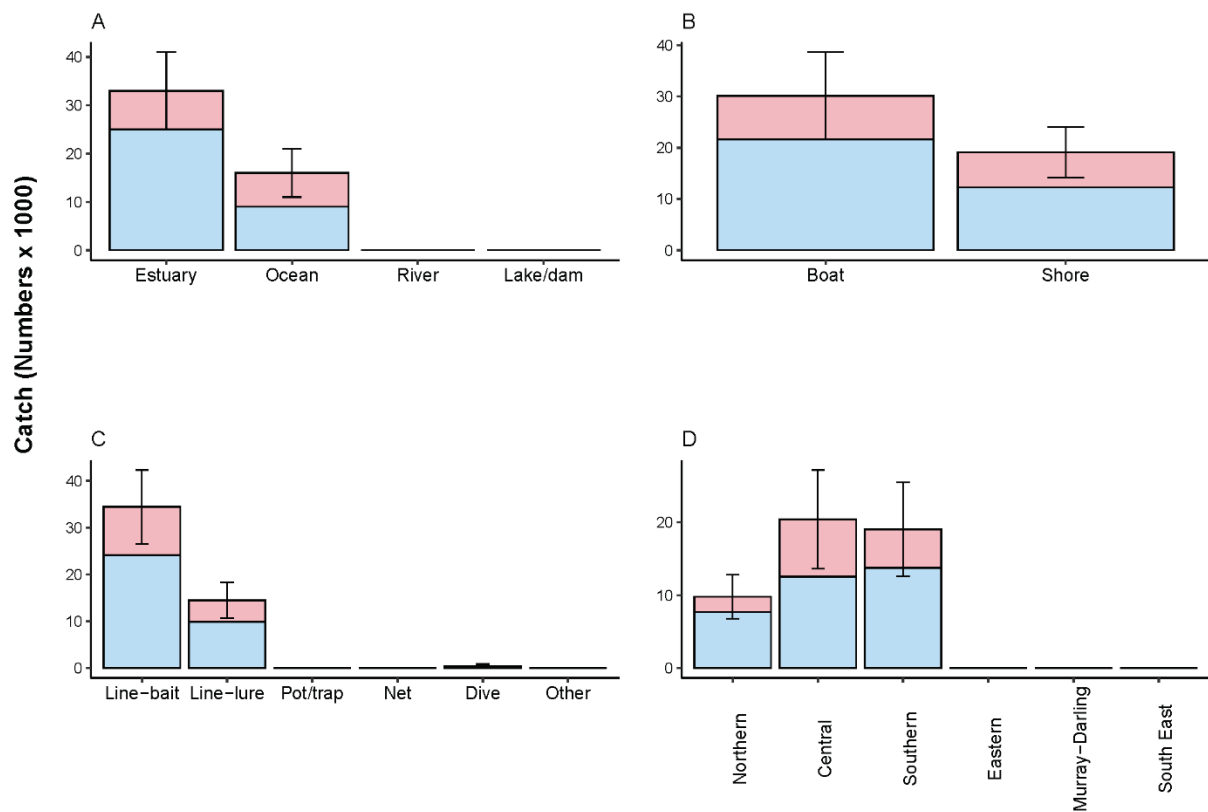
Grey Morwong

The total state-wide catch of Grey Morwong was 33,859 with 79% being kept and 21% released during 2017/18 (Table 3). Grey Morwong were caught predominantly in oceanic waters (Figure 33A) and the boat-based catch was dominant (Figure 33B). In terms of fishing method, Grey Morwong were primarily caught by line fishing (using bait) (Figure 33C). The total catch of Grey Morwong by region was highest in the Southern coastal zone (Figure 33D).

Figure 33. Characteristics of the recreational fishery for Grey Morwong caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
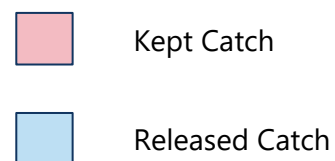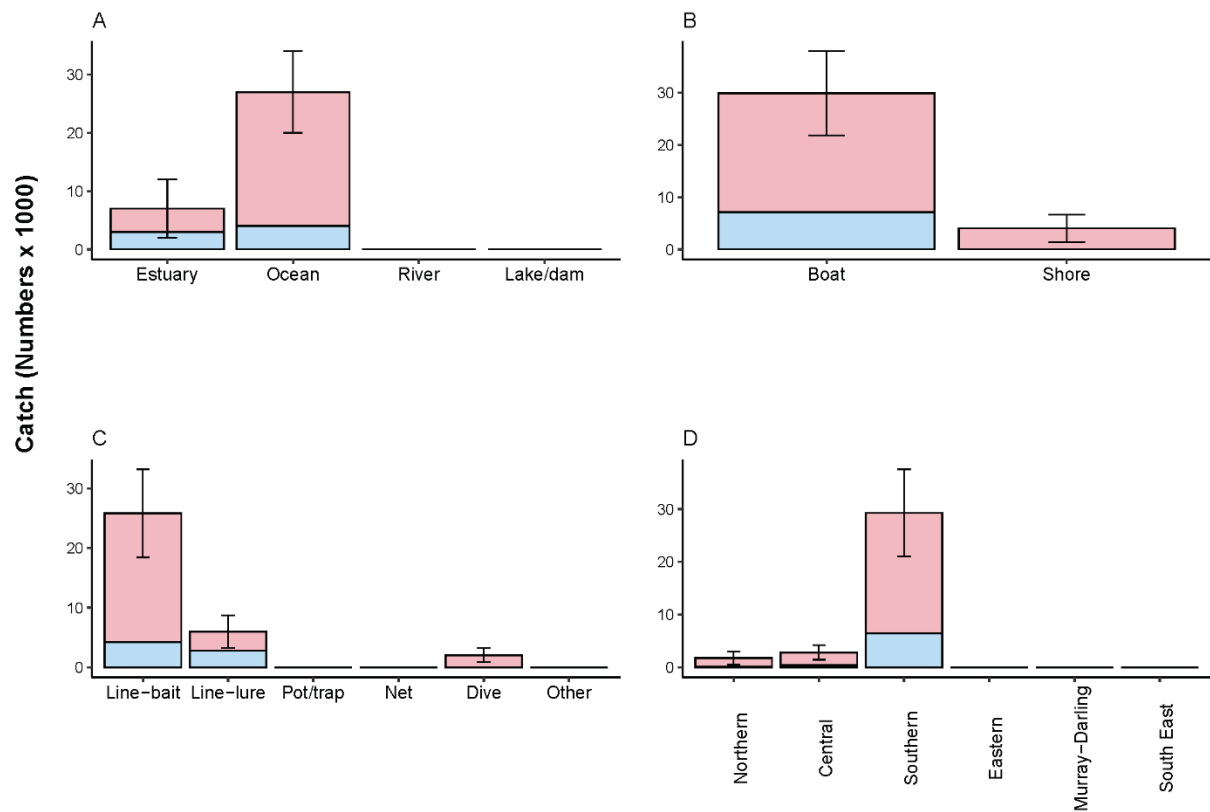
Mulloway

The total state-wide catch of Mulloway was 27,173 with 50% being kept and 50% released during 2017/18 (Table 3). Mulloway were caught in both estuarine and oceanic waters (Figure 34A), from both boat and shore-based platforms using bait and lure line fishing techniques (Figures 34B & 34C). Mulloway were caught in all 3 coastal regions with highest catches in the Northern coastal zone (Figure 34D).

Figure 34. Characteristics of the recreational fishery for Mulloway caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
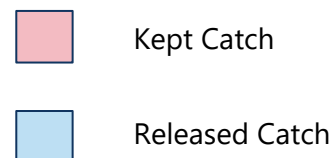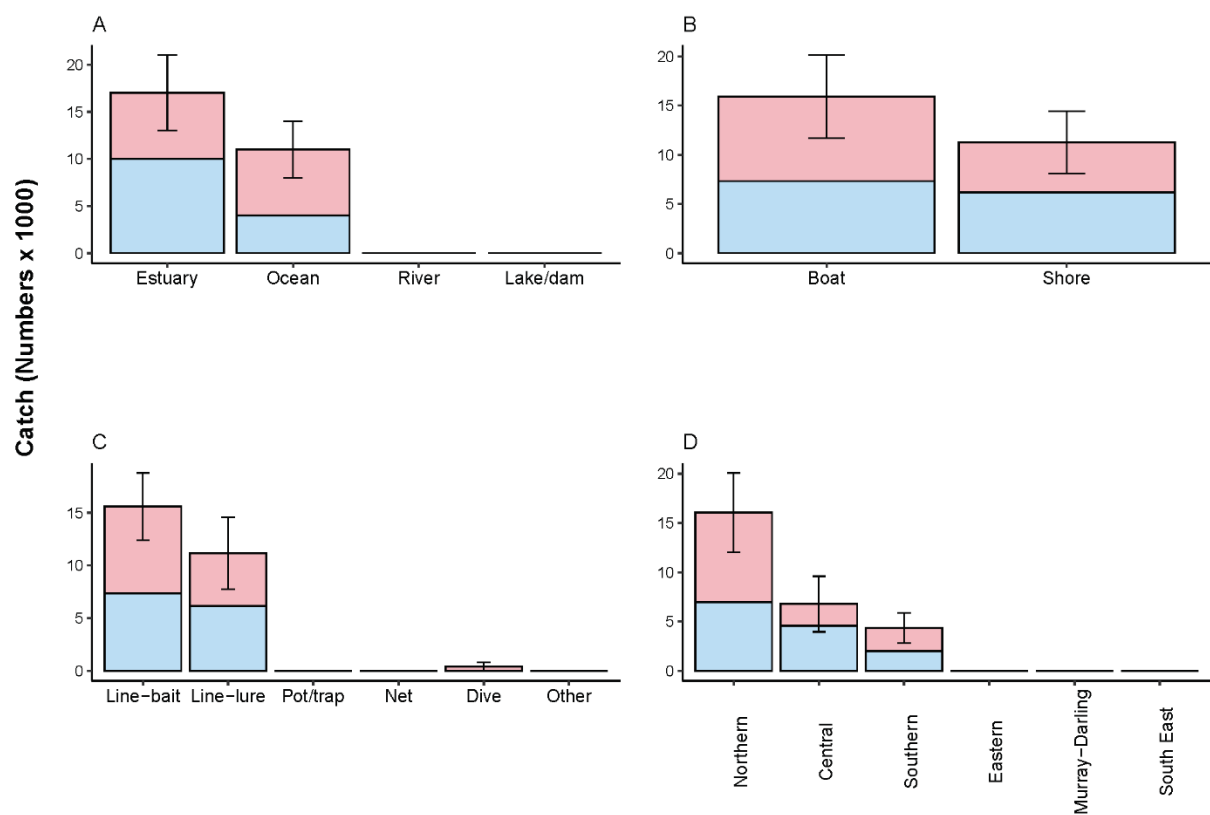
Yellowtail Scad

The total state-wide catch of Yellowtail Scad was 238,626 with 72% being kept and 28% released during 2017/18 (Table 3). Yellowtail Scad were caught in both estuarine and oceanic waters (Figure 35A), from both boat and shore-based platforms, using bait and lure line fishing techniques (Figures 35B & 35C). Yellowtail Scad were caught in all 3 coastal regions, but catch was highest in the Central zone (Figure 35D).

Figure 35. Characteristics of the recreational fishery for Yellowtail Scad caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
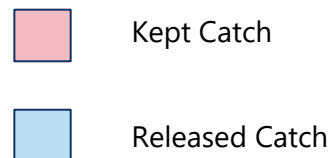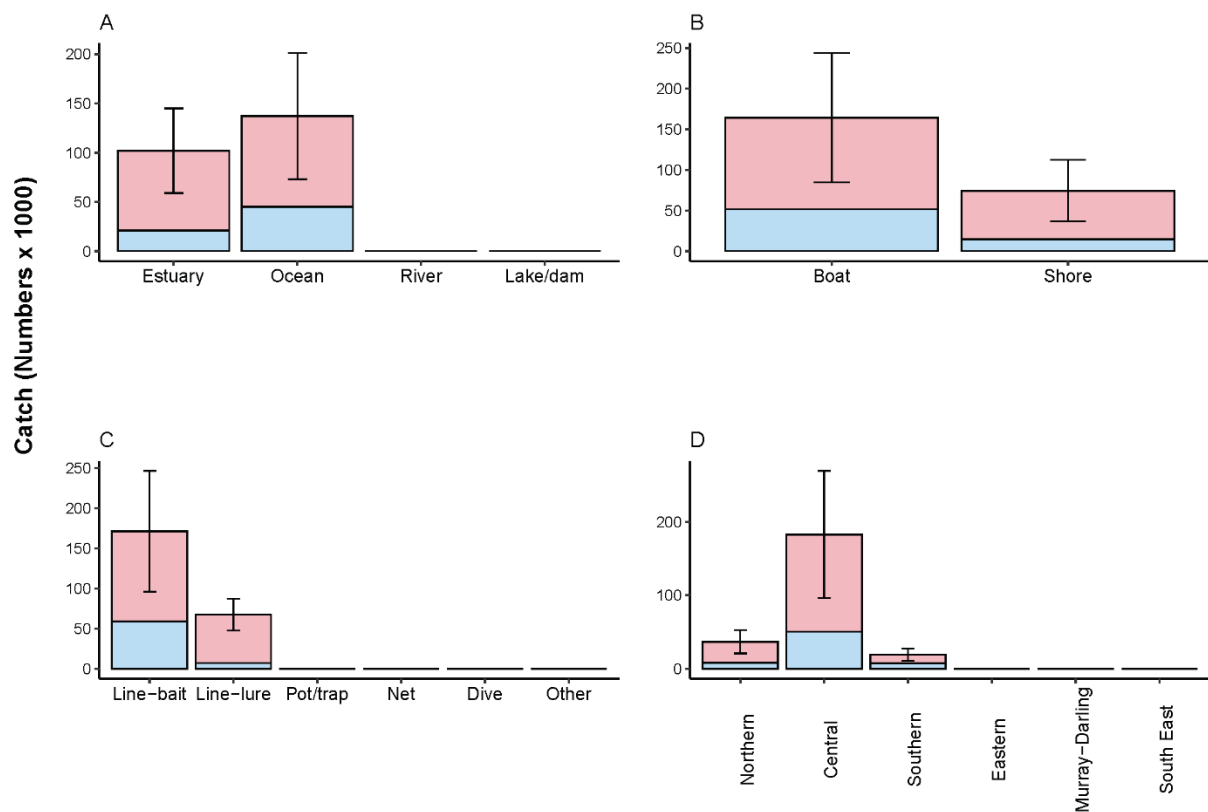
Blue Mackerel

The total state-wide catch of Blue Mackerel was 145,229 with 78% being kept and 22% released during 2017/18 (Table 3). The total catch of Blue Mackerel by waterbody was dominant in oceanic waters with a small amount taken in estuaries (Figure 36A). The catch was predominantly boat-based and caught using both bait and lure line fishing methods (Figures 36B & 36C). Blue Mackerel were caught in all 3 coastal regions (Figure 36D).

Figure 36. Characteristics of the recreational fishery for Blue Mackerel caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
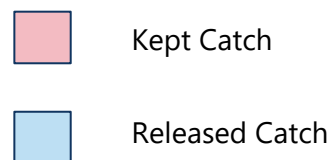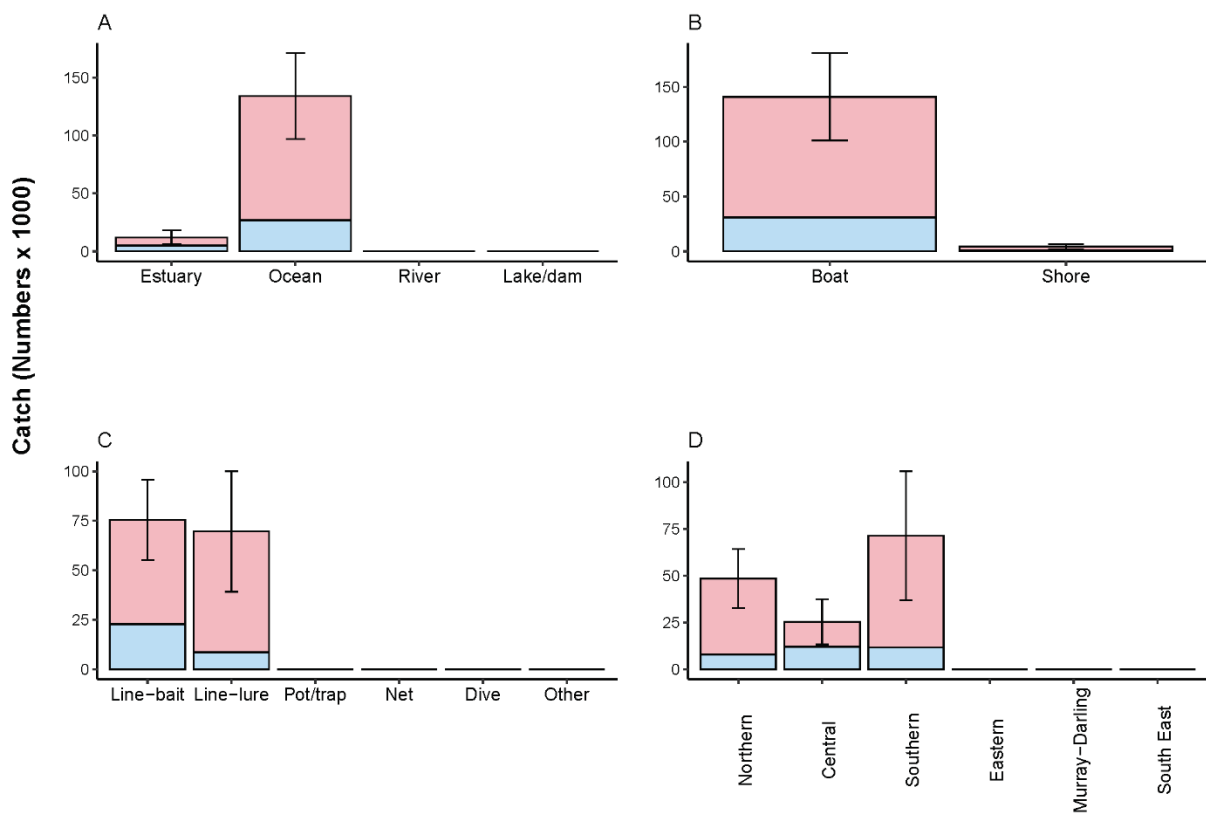
Mullet

'Mullet' is a grouping of several *Mugilidae* species. There are several species of Mullet caught by recreational fishers in NSW and these include Sand Mullet, (*Myxus elongatus),* Yellow-eye Mullet (*Aldrichetta forsteri*), Flat-tail Mullet (*Liza argentea*) and Sea Mullet (*Mugil cephalus*). These species were grouped to account for instances where fishers could not reasonably be expected to identify individual species.

The total state-wide catch of Mullet was 68,446 with 50% being kept and 50% released during 2017/18 (Table 3). Mullet were caught in estuarine and oceanic waters, with small amounts in freshwater rivers (Figure 37A). The catch was predominantly taken from shore-based platforms (Figure 37B) and by both Line and Pot/Trap fishing methods (Figure 37C). Mullet were caught in all 3 coastal regions with highest catches in the Southern zone (Figure 37D).

Figure 37. Characteristics of the recreational fishery for Mullet caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
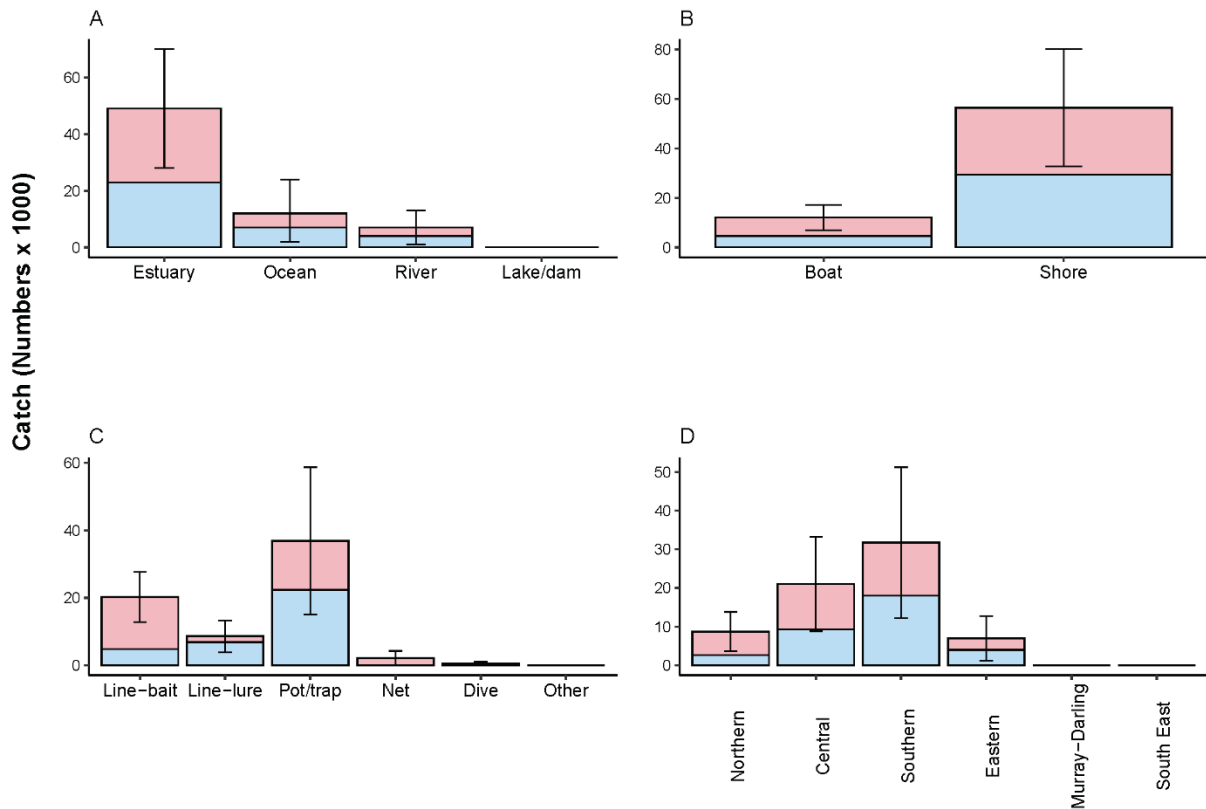
Sea Mullet
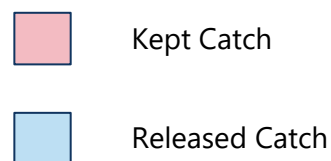
Murray Cod

The total state-wide catch of Murray Cod was 416,677 with 9% being kept and 91% released during 2017/18 (Table 3). The total catch of Murray Cod by waterbody was highest in rivers (Figure 38A). Murray Cod were primarily caught from boat-based platforms using line fishing methods (both bait and lures) (Figure 38B & 38C). All Murray Cod catch occurred in the Murray-Darling region (Figure 38D).

Figure 38. Characteristics of the recreational fishery for Murray Cod during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
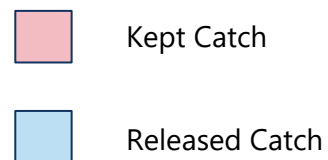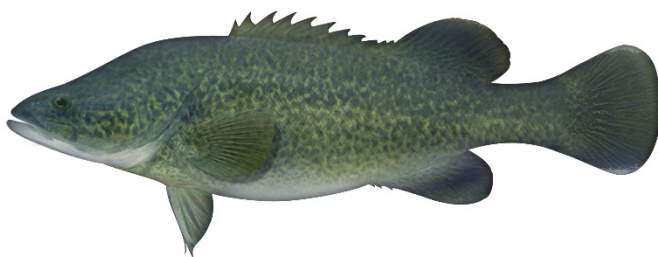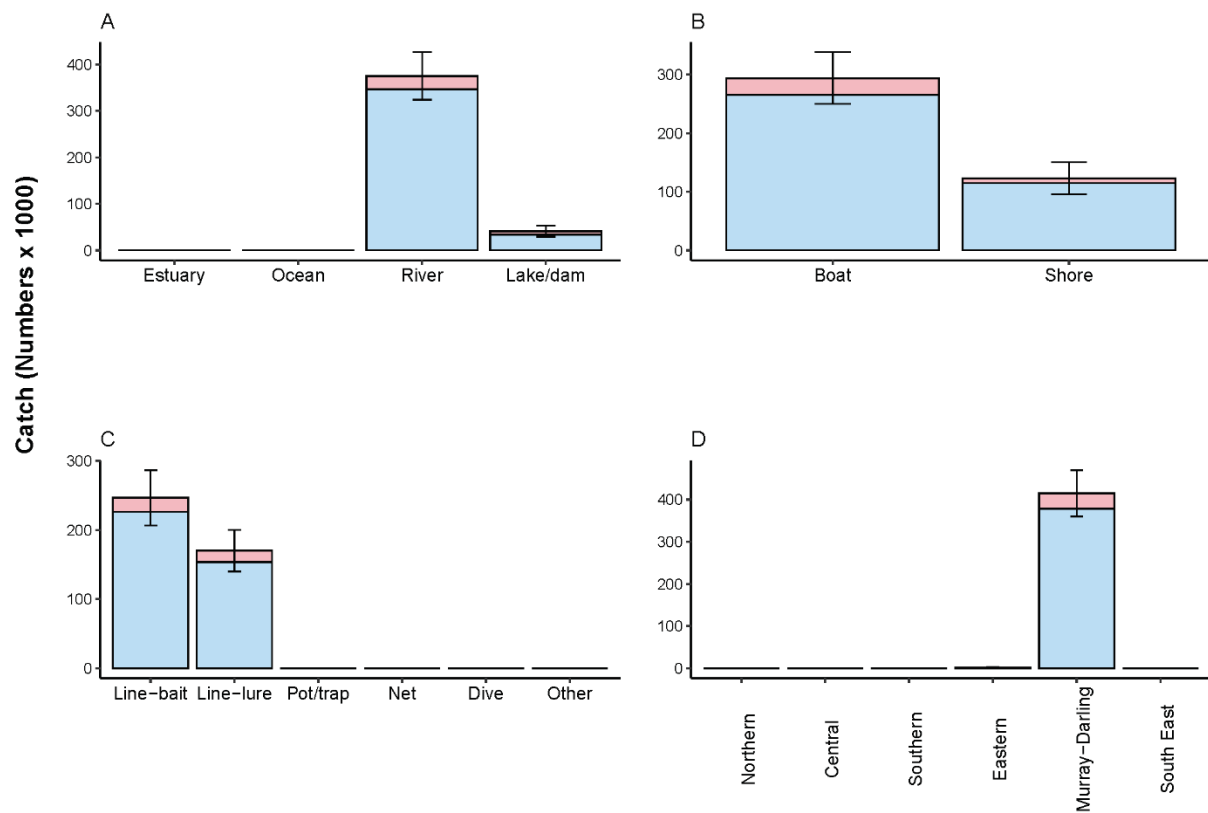
European Carp

The total state-wide catch of European Carp was 370,332 with 100% being kept and none released during 2017/18 (Table 3). The total catch of European Carp by waterbody was highest in rivers (Figure 39A). The catch was taken by both boat and shore-based line fishing methods (both bait and lures) (Figures 39B & 39C). The total catch of European Carp by region was predominantly in the Murray-Darling region (Figure 39D).

Figure 39. Characteristics of the recreational fishery for European Carp during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
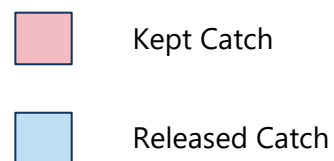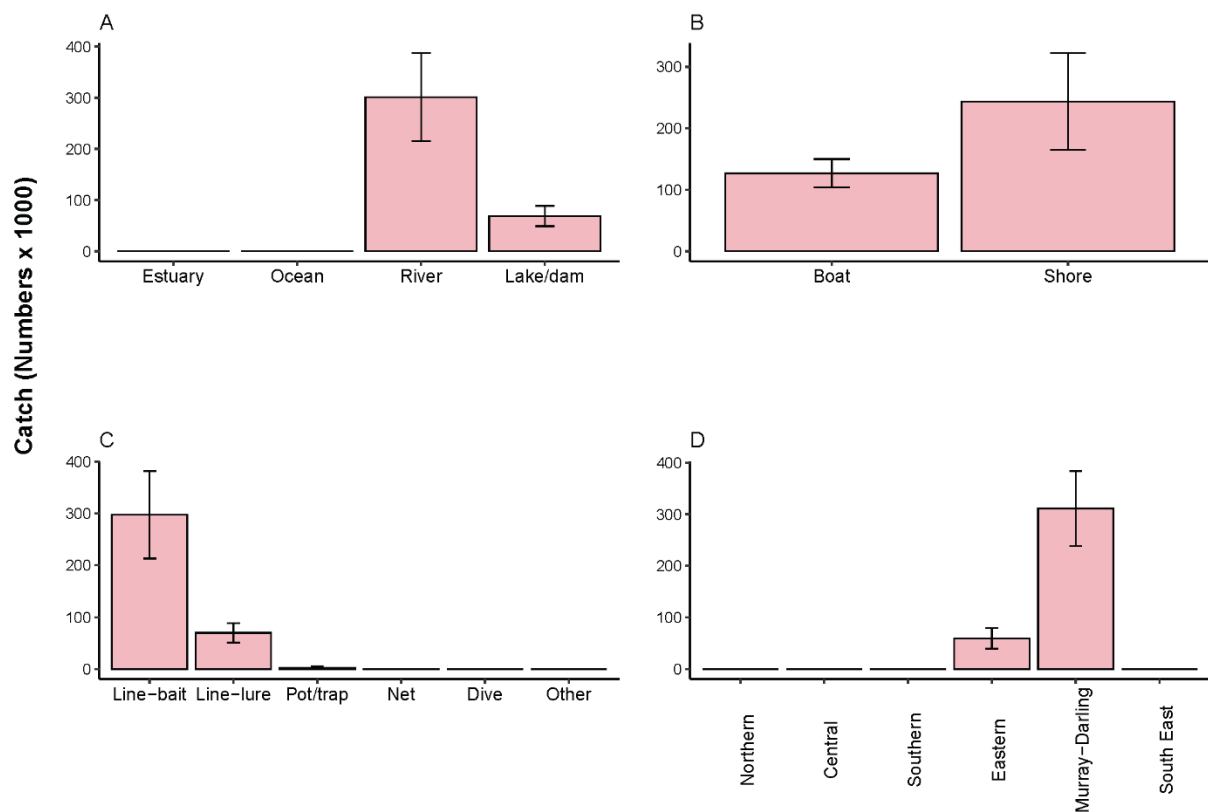
Australian Bass

'Australian Bass' is a grouping of two species, Australian Bass (*Macquaria novemaculeata*) and Estuary Perch (*Macquaria colonorum*) with the former dominating the state-wide catch for this group. Australian Bass is an anadromous fish found in coastal freshwater streams and estuaries. Estuary Perch are confined to coastal estuaries and is commonly confused with the Australian Bass. These species were grouped to account for instances where fishers could not reasonably be expected to identify individual species.

The total state-wide catch of Australian Bass was 245,690 with 5% being kept and 95% released during 2017/18 (Table 3). The catch of Australian Bass came from estuaries, rivers and lakes and dams (Figure 40A). Boat-based fishing accounted for most of the catch of Australian Bass (Figure 40B). In terms of fishing method, Australian Bass were primarily caught by line fishing methods using lures (Figure 40C). The total catch of Australian Bass by region was highest in the Eastern region (Figure 40D).

Figure 40. **Characteristics of the recreational fishery for Australian Bass caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.**
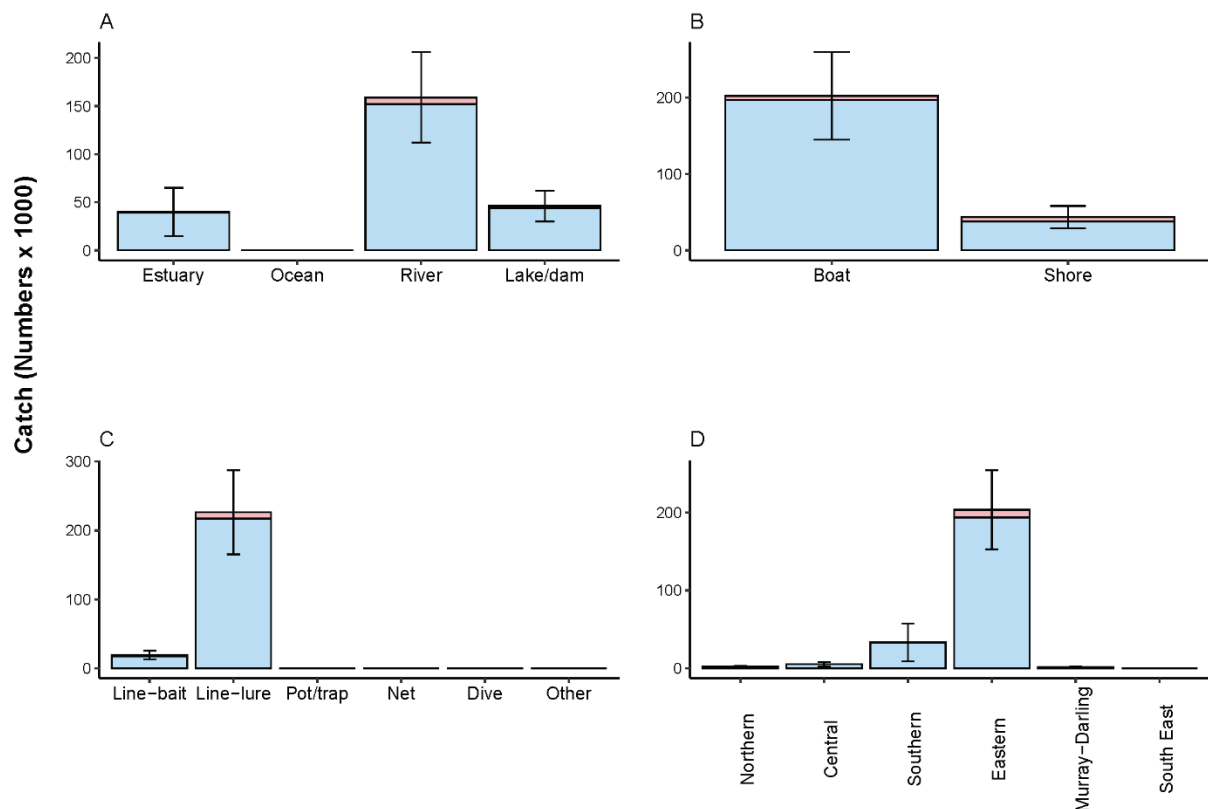
Australian Bass
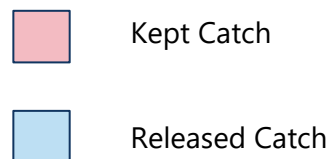
Golden Perch

The total state-wide catch of Golden Perch was 194,758 with 41% being kept and 59% released during 2017/18 (Table 3). The total catch of Golden Perch by waterbody was from rivers and lakes/dams (Figure 41A). The boat-based catch was greater than the shore-based catch for Golden Perch (Figure 41B). In terms of fishing method, Golden Perch were primarily caught through line fishing (both bait and lures) (Figure 41C). The majority of the Golden Perch catch was taken in the Murray-Darling region (Figure 41D).

Figure 41. **Characteristics of the recreational fishery for Golden Perch caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.**
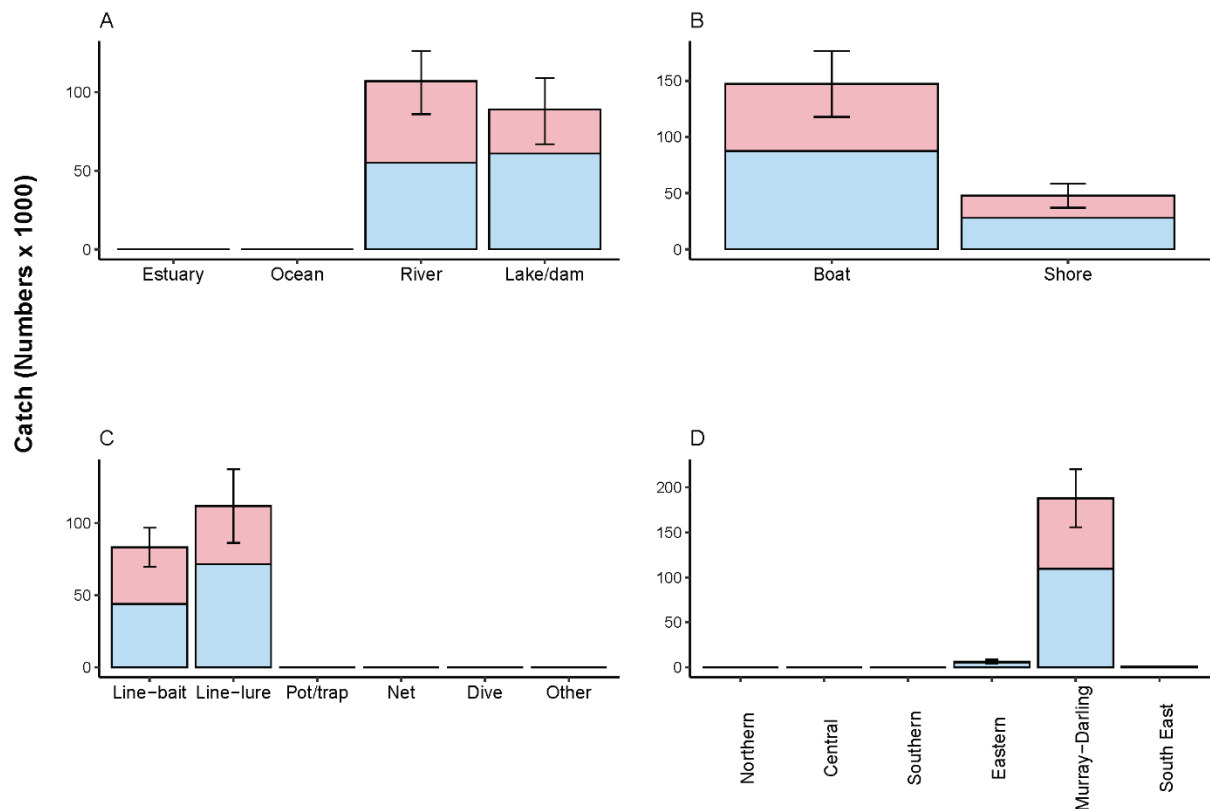
Redfin Perch

The total state-wide catch of Redfin Perch was 125,612 with 87% being kept and 13% released during 2017/18 (Table 3). The total catch of Redfin Perch by waterbody was highest in lakes and dams (Figure 42A). The boat-based catch was greater than the shore-based catch for Redfin Perch (Figure 42B). Redfin Perch were primarily caught by line fishing methods (using lures) (Figure 42C). All Redfin Perch catch occurred in the Murray-Darling region (Figure 42D).

Figure 42. Characteristics of the recreational fishery for Redfin Perch waters during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method; D) seasonality and E) region. Error bars represent 1 standard error on the total catch.
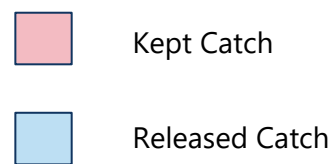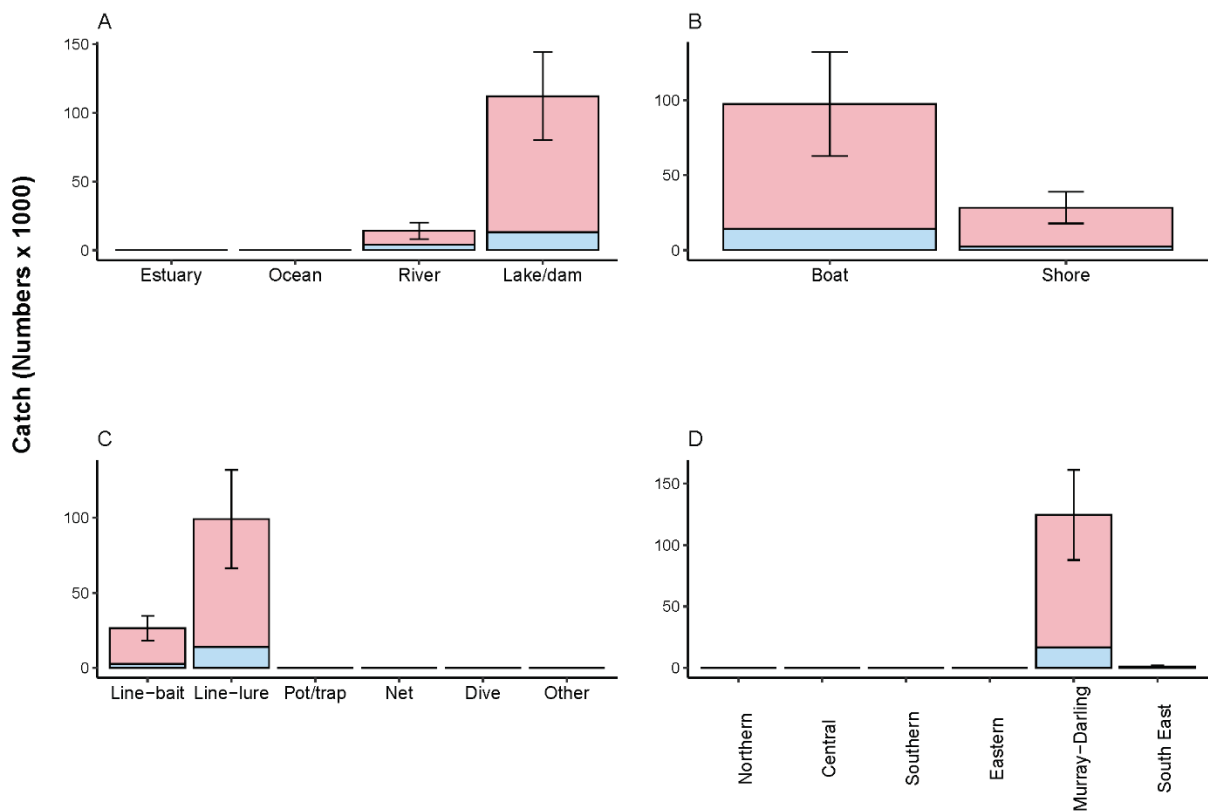
Brown Trout

The total state-wide catch of Brown Trout was 90,086 with 42% being kept and 58% released during 2017/18 (Table 3). Brown Trout were caught in rivers and lakes/dams (Figure 43A), from both boat and shore-based platforms primarily using line fishing with lures (Figures 43B & 43C). Brown Trout catches mainly occurred in the Murray-Darling and South East regions (Figure 43D).

Figure 43. Characteristics of the recreational fishery for Brown Trout caught during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
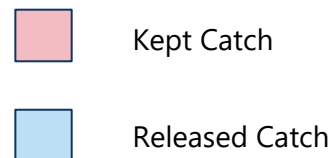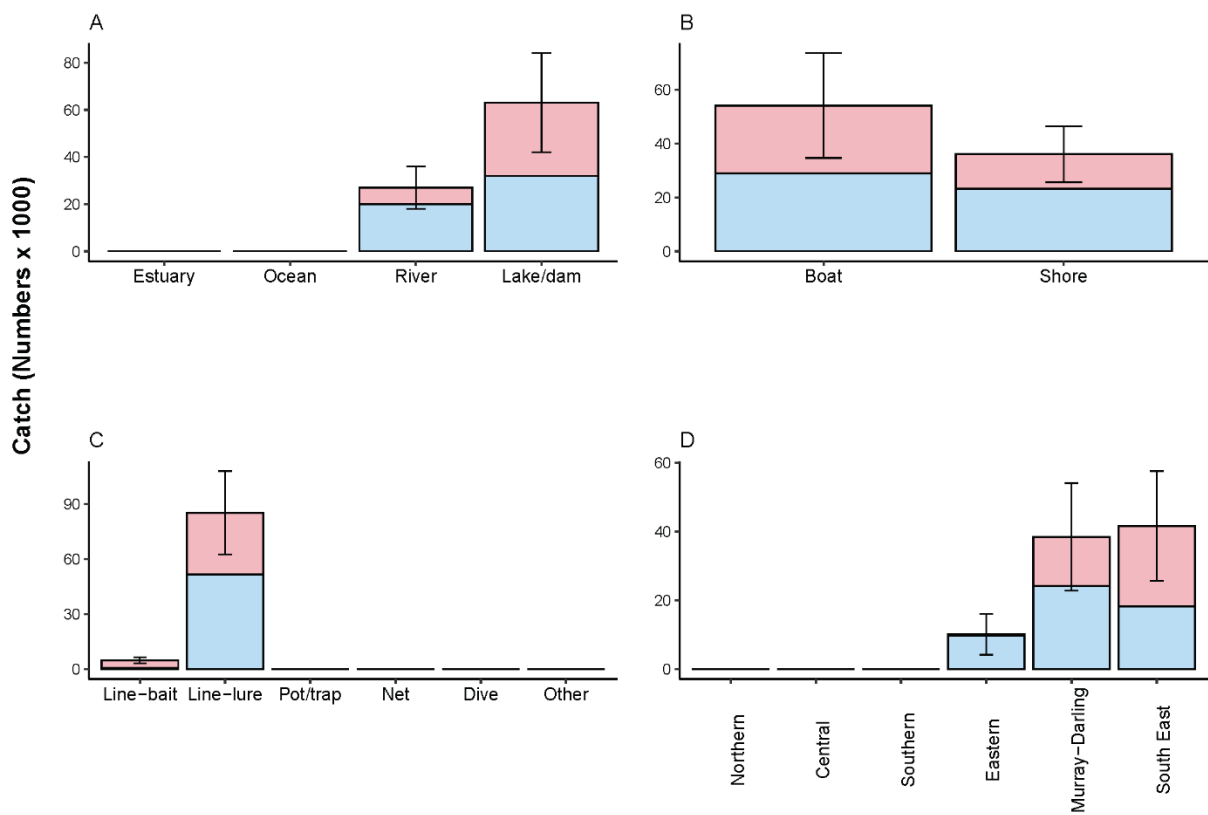
Rainbow Trout

The total state-wide catch of Rainbow Trout was 85,200 with 34% being kept and 66% released during 2017/18 (Table 3). Rainbow Trout were caught in in rivers and lakes/dams (Figure 44A) from both boat and shore-based platforms, primarily using line fishing methods with lures (Figures 44B & 44C). Rainbow Trout catch occurred in all 3 inland regions (Figure 44D).

Figure 44. Characteristics of the recreational fishery for Rainbow Trout caught during 2017/18 in terms of total catch (numbers kept and released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
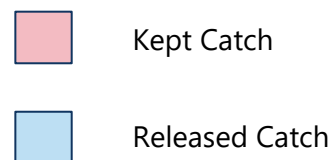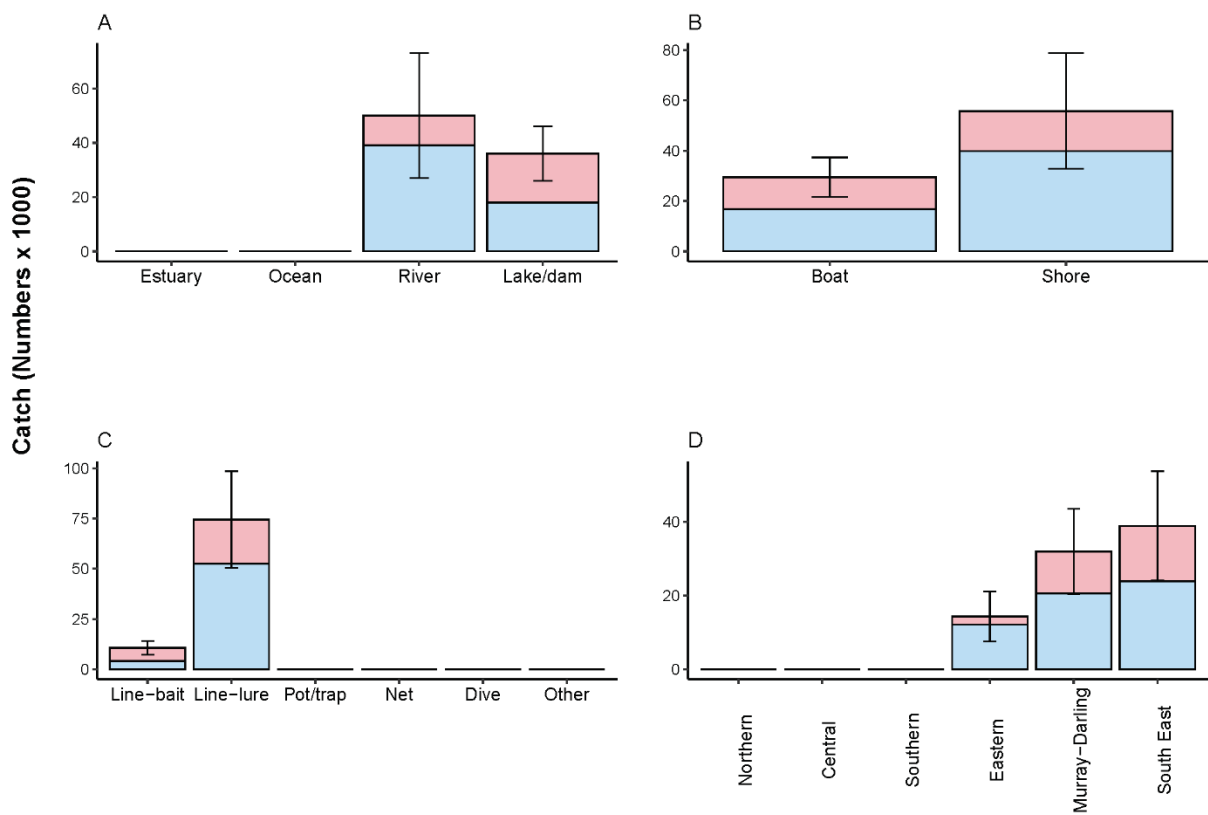
Blue Swimmer Crab

The total state-wide catch of Blue Swimmer Crab was 84,000 with 75% being kept and 25% released during 2017/18 (Table 3). All Blue Swimmer Crab catch was from estuarine waters (Figure 45A), predominantly from boat-based fishing (Figure 45B). In terms of fishing method, Blue Swimmer Crabs were primarily caught by potting/trapping methods (Figure 45C). Catch of Blue Swimmer Crabs was highest in the Northern and Central coastal regions (Figure 45D).

Figure 45. Characteristics of the recreational fishery for Blue Swimmer Crabs during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D region. Error bars represent 1 standard error on the total catch.
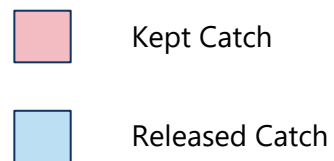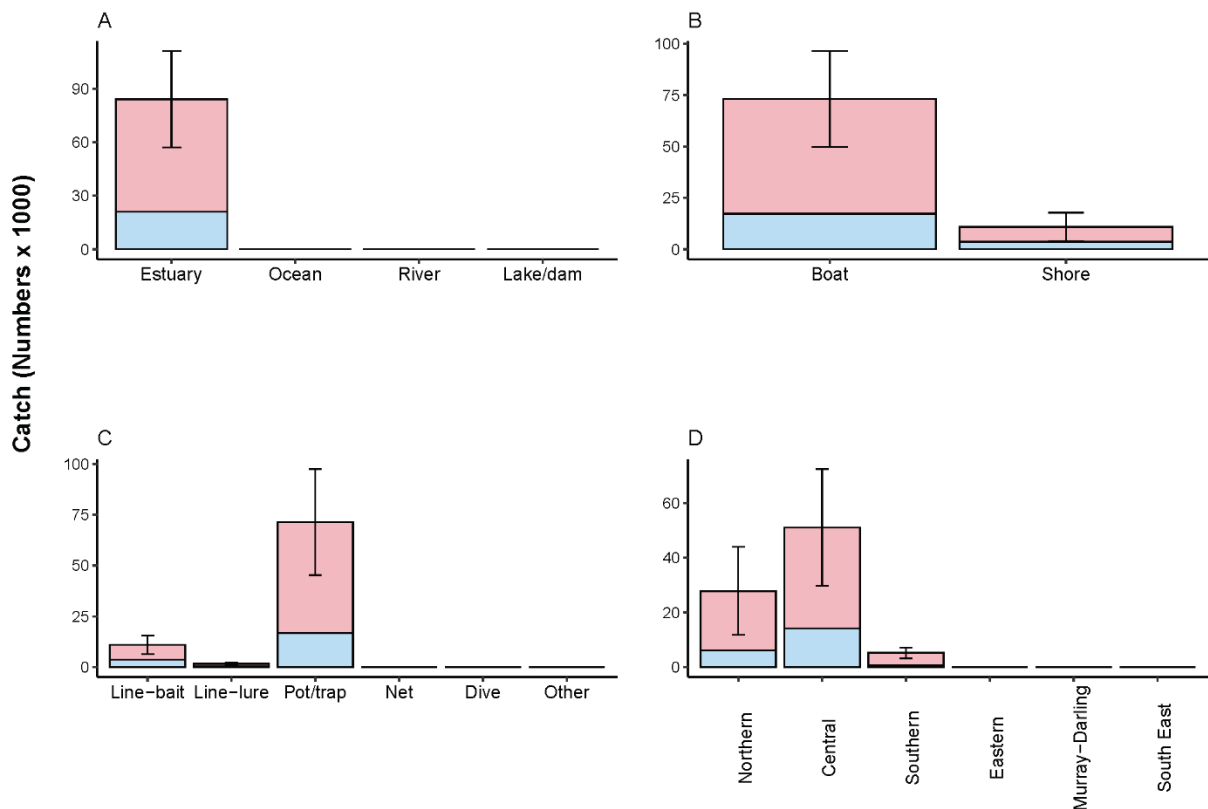
Ghost Nippers

The total state-wide catch of Ghost Nippers was 700,810 with 94% being kept and 6% released during 2017/18 (Table 3). The total catch of Ghost Nippers was in estuarine waters (Figure 46A) from shore-based platforms using methods classified as 'Other', but predominantly hand pumping methods (Figures 46B & 46C). Ghost Nippers were predominantly caught in the Northern and Southern regions (Figure 46D).

Figure 46. Characteristics of the recreational fishery for Ghost Nippers (saltwater) during 2017/18 in terms of total catch (numbers kept plus released) by RFL households for A) waterbody fished; B) boat and shore-based fishing; C) fishing method and D) region. Error bars represent 1 standard error on the total catch.
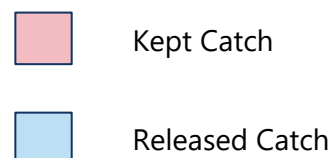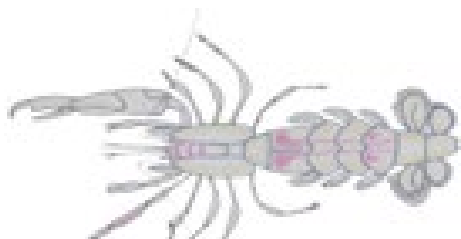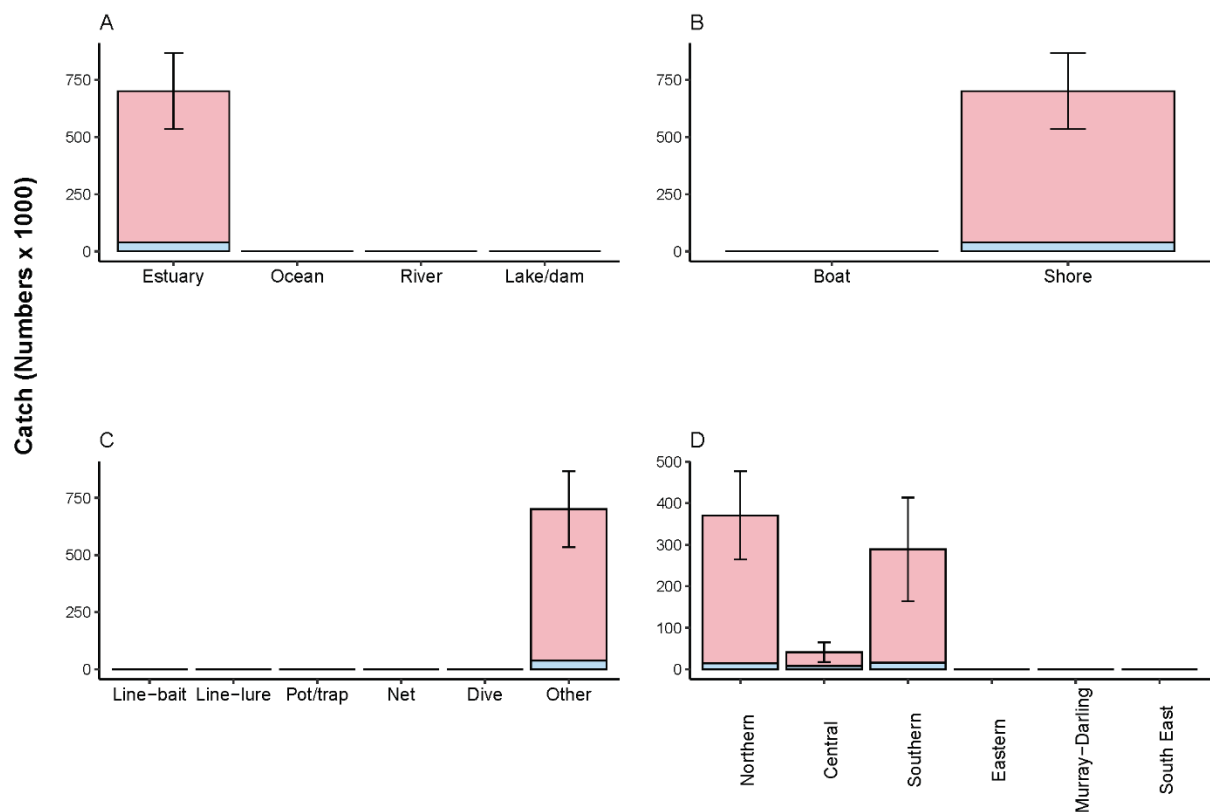
Harvest Weights

Catch information collected during the Diary Survey and reported in the preceding chapters was based on the *numbers* of fish kept or released, rather than the weight of fish caught, since weight information tends to be less reliable when self-reported by recreational fishers. However, the weight of the recreational harvest is of interest to resource managers, scientists and the various stakeholder groups, particularly for species which are shared among multiple harvesting sectors. From a stock assessment perspective, estimates of recreational harvest weights enable comparison with other sectors (e.g. the commercial fishery), for which harvest is routinely reported by weight.

Recreational harvest weight estimates can be obtained for a given species by multiplying the number of individual fish harvested (kept) by the average weight of an individual of that species, which, in turn, may be obtained using established length-weight relationships. Prior to this however, an appropriate average length must be estimated for each species of interest. Size composition data in terms of length can be accessed from various current and historical fisheries datasets. However, individual species can vary by size over a range of temporal and spatial scales. Fishing methods and skills can also have an impact, along with differences in size-selectivity among sectors. Consequently, the application of any average individual weight introduces additional uncertainty to recreational harvest weight estimates, i.e. in addition to the uncertainty already specified for harvest numbers. Furthermore, any grouping of species for reporting purposes can confound this issue, due to variations in size among the species within the group.

This uncertainty can be reduced if 'off-site' diary surveys are complemented by parallel 'on-site' monitoring programs that collect accurate length data that are representative of the recreational fishery over comprehensive spatio-temporal scales. The 2017/18 off-site Diary Survey was complemented by a simultaneous 12-month on-site Charter Fishery Monitoring Program, which included a state-wide on-board observer component. This component provided representative size data that could be used to calculate recreational harvest weights for the more common species captured in marine waters. For species not adequately represented in the on-board observer component, either due to a species' habitation of non-marine waters or relatively low sample sizes, it was decided to access a range of alternative existing data sources to estimate the average size. These alternate data sources were initially restricted to the most recent on-site recreational fishing surveys within NSW for both estuarine and marine environments (Murray-Jones and Steffe, 2000; Reid and Montgomery, 2005; Steffe and Murphy, 2011; Ochwada-Doyle *et al.,* 2014). In cases where inadequate recreational length data were available from either the on-board observer component of the Charter Fishery Monitoring Program or recent on-site recreational surveys, mean weights were obtained from data collected for the commercial fishery sector.

As detailed in Appendix 5, separate mean weight calculations were applied to species caught within estuaries and oceanic waters, due to the different size structures that can occur in each case. Where recreational data were available, length/weight relationships were used to derive a mean weight and these were then applied to survey harvest numbers to estimate total harvest weights. For each species considered in this section, weight estimates for the commercial sector were obtained from reported landings by NSW commercial fisheries for the same time period as the Diary Survey (1st October 2017 to 30th September 2018). Table 4 presents weight comparisons between the recreational and commercial fishery sectors. This

list is restricted to 16 species of key interest to commercial and recreational fisheries management and also where harvest estimates from the survey were considered sufficiently robust, i.e. the state-wide estimate for the kept component of the catch had an RSE <40% and a minimum of 30 households reported the catch (refer Table 4). Also, it should again be noted, harvest estimates for the recreational sector presented in this report are confined to the harvest from RFL households (as at 31st March 2017) *only* and do not include estimates from fisher households comprised exclusively of short-term and/or exempt fishers, nor households which may have taken up a long-term licence after 31st March (just prior to and during the diary period). Therefore, weight estimates from RFL households are considered to be <u>underestimates</u> of the total recreational harvest but it is highly likely that RFL households are responsible for a large majority of the harvest for many of the species contained in Table 4.

For all the above reasons, it is strongly recommended that the recreational harvest weights in this report be regarded as <u>indicative</u> only.

Noting the above caveats, a majority of the total (recreational plus commercial) harvest weight in 2017/18 was attributable to RFL households for three of the sixteen species – with over 60% of the total harvest for Dusky Flathead, followed by Yellowtail Kingfish (58%) and Mulloway (55%) (Table 4). Sand Flathead and Grey Morwong caught by RFL households accounted for almost half the total catch.

Table 4. Indicative estimates of recreational harvest weight (tonnes) for key species taken during 2017/18 by RFL households, compared with reported landings for the commercial fisheries sector during 2017/18.

Species	Harvest (tonnes)			% Recreational
	Recreational	Commercial	Total	
Blue Mackerel	41	393	434	9.5
Blue Swimmer Crab	14	94	108	13.1
Sand Flathead	129	135	265	48.8
Dusky Flathead	190	124	314	60.4
Australian Salmon	83	851	934	8.9
Morwong, Grey	22	25	46	47.0
Luderick	30	241	272	11.2
Mulloway	90	72	162	55.5
Sand Whiting	34	78	112	30.0
Silver Trevally	8	70	79	10.8
Snapper	107	176	283	37.8
Tailor	49	88	137	35.9
Bream	124	265	388	31.8
Yellowtail Kingfish	129	93	222	58.1
Yellowtail Scad	30	438	468	6.4
Ghost Nipper	2	4	6	31.4

Comparison of Key Survey Results – 2013/14 and 2017/18

Comparability of Results

The 2013/14 Survey of Recreational Fishing included a component where a separate sample of RFL households were surveyed. This independent RFL survey was conducted in parallel with the White Pages sample that was used as the core sampling frame for that study. See West *et al.* (2015) for details about the methods used and justification for the parallel 2013/14 RFL Survey.

It is important to note that the survey of RFL households from 2013/14 has *not previously been analysed or reported*. Information in the 2013/14 survey report by West *et al.* (2015) was based on the White Pages listings as the core sample frame which enabled direct comparability with data from the 2000/01 NRFS survey which also sampled the White Pages listings.

<u>Therefore, it must clearly be stated</u> that results presented in the West *et al.* (2015) report are <u>not comparable</u> to results presented here due to the different survey methods used. Data from the <u>2013/14 RFL Survey only</u> form the basis of the comparison to the 2017/18 RFL Survey results.

Queensland residents were not included in the 2013/14 RFL Survey mainly due to sampling and cost constraints at the time. Therefore participation, catch and effort information from Queensland residents collected during the 2017/18 RFL Survey have been omitted for the temporal comparisons described in this section, allowing for direct comparability of results with the 2013/14 RFL Survey.

Results from the two RFL surveys have been compared to identify any changes or developments that occurred in the recreational fishery over the intervening four-year period. Standard Errors (SEs) are included in all substantive figures as a vertical range above and below the point estimates. The degree of overlap between error bars on the 2013/14 and 2017/18 point estimates provides an indication of statistical significance. Overlapping error bars suggests that the differences between the point estimates for the two surveys are unlikely to be statistically significant. Where there is no overlap of SE bars between groups, the difference may be significant (and statistical testing can be applied to obtain a valid conclusion). It is important to note, however, that despite the robust nature and fundamental comparability of the two studies, the comparison of just two points in time and the issue of <u>inter-annual variability is a critical factor</u> here – especially in terms of variation in the natural availability of certain species and therefore the catch levels in a given year.

Sample and Response Profiles

Screening Survey

The sample for the 2013/14 RFL Survey was drawn from the database of individual long-term RFL holders current as at 1 November 2012 – namely 392,194 persons resident in NSW, the ACT and Victoria, compared with 418,295 for the 2017/18 RFL survey. Note: the original sample for the latter was selected from 432,218 RFL holders, which included 13,923 QLD residents. Therefore, (as discussed above) the following comparisons between the two surveys exclude all results for QLD residents.

The initial sample for the 2013/14 survey was 2,153 RFL licence holders, compared with 1,935 for the 2017/18 RFL Survey. In the 2013/14 Screening Survey, sample loss (disconnected numbers etc) was 271, compared with 117 for 2017/18 and the net sample was 1,882, compared with 1,818 for 2017/18. Full response of 1,686 RFL households (close to 90%) was achieved in 2013/14, compared with 1,498 (82%) for 2017/18. The higher response rate in the former was primarily due to fewer non-contacts (after 10 calls) – 111 in 2013/14 vs. 208 in 2017/18.

Diary Survey

Of the 1,686 fully responding households at screening in the 2013/14 RFL Survey, over 90% (1,521) were identified as having at least one resident (aged five years or more) with an intention to do some recreational fishing during the diary period (June 2013 to May 2014). Similar 'eligibility rates' for the Diary Survey occurred in 2017/18 (87%).

High completion rates were also achieved for the Diary Surveys (84% of eligible households for 2013/14 and 89% for 2017/18) and among these, large proportions fished during the diary period (80% and 74% respectively). Within these households, a total of 1,777 residents fished in the 2013/14 diary period for a total of 13,940 person-based fishing events. Comparable results for the 2017/18 diary period are 1,525 resident fishers and a total of 10,352 person-based fishing events.

Non-Intending Fisher Survey

In the 2013/14 RFL Survey, 165 RFL households at screening reported no intention to fish in the diary period. A proportional sample of 70 such households was selected across the strata and 56 (80%) responded fully to the Non-intending Fisher Follow-up Survey (NIF). This compares with 190 NIF RFL households in the 2017/18 RFMP Screening Survey, from which a sample of 88 households was drawn, with 82 (93%) households responding fully to the follow-up survey.

Survey Results – 2013/14 vs 2017/18

Number of Fishers

In 2013/14, an estimated 68% (265,036; SE=6,360) of RFL holders fished during the diary period, while in 2017/18 the participation rate was 61% (244,370; SE=6,828). When *all* Persons within RFL households were considered, participation was estimated at 41% (442,797; SE=14,705) in 2013/14 and 38% (374,125; SE=15,815) in 2017/18 (Table 5).

Table 5.   Estimated proportion of people in RFL households who fished in Freshwater or Saltwater during 2013/14 and 2017/18 (excluding Queensland). RSE (%) is Relative Standard Error.

Survey Year	Freshwater			Saltwater			Total Fished*	
	Number	Prop (%)	RSE (%)	Number	Prop (%)	RSE (%)	Number	RSE (%)
2013/14	193,215	0.44	6	334,372	0.76	4	442,797	3
2017/18	139,870	0.37	6	290,168	0.78	5	374,125	4

*Note: The numbers of fishers who fished Fresh and Salt waters are not directly additive as some fished both.

Participation by Waterbody

The proportion of fishers in RFL households that fished recreationally in Saltwater was similar for 2013/14 and 2017/18 (Table 5). For both surveys, the majority of fishers in RFL households fished in estuaries (60% in 2013/14 and 63% in 2017/18), followed by oceanic waters (39% and 36% respectively) (Figure 47).

Rates of participation in Freshwater systems were lower than Saltwater, with 44% of fishers fishing in Freshwater in 2013/14 and 37% in 2017/18 (Table 5). In both surveys river systems (32% in 2013/14 and 29% in 2017/18) were fished by more people than lakes/dams (22% and 18% respectively) (Figure 47).

Figure 47. Estimated participation rate of fishers in RFL households by waterbody (as a proportion of the estimated total number of fishers). Error bars represent 1 standard error.
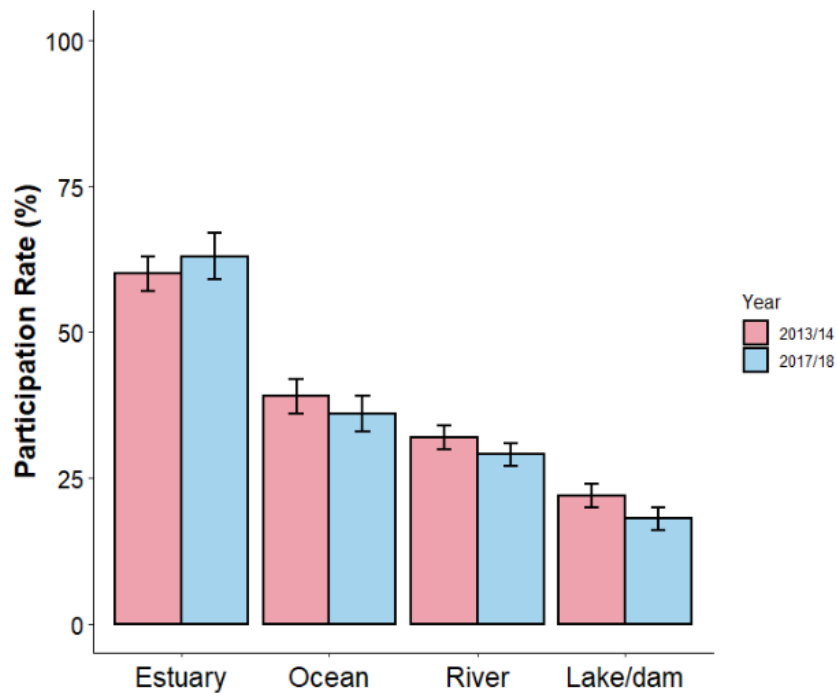
Participation by Platform

Rates of participation were similar for Shore-based and Boat-based fishing, with 71% and 66% of fishers in RFL Households doing some form of shore-based fishing during the 2013/14 and 2017/18 surveys respectively (Figure 48). An estimated 66% and 70% of fishers in RFL households participated in boat-based fishing events during the 2013/14 and 2017/18 surveys respectively (Figure 48).

Figure 48. Estimated participation rate of fishers in RFL households by fishing platform (as a proportion of the estimated total number of fishers). Error bars represent 1 standard error.
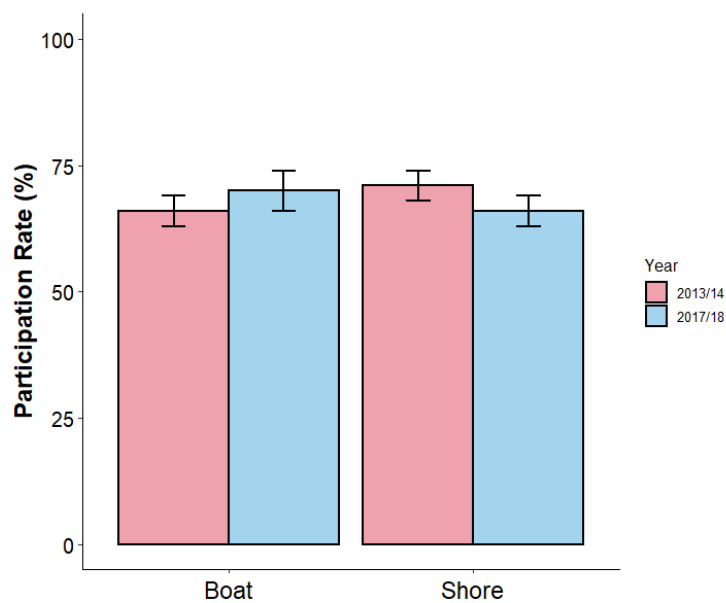
Participation by Region

Rates of participation were high in all 3 marine regions but were highest in the Central region and lowest in the Northern region in both surveys (Figure 49). Participation rates were slightly lower in 2013/14 compared to 2017/18 in the Central region; from 30% to 38% of fishers in RFL households (Figure 49).

For the freshwater regions, the Murray-Darling had by far the greatest level of participation, with 32% and 31% of fishers in RFL households fishing there during the 2013/14 and 2017/18 surveys respectively. Fewer than 10% of fishers in RFL households fished the smaller Eastern and South East regions in both surveys (Figure 49).

Figure 49. Estimated participation rate of fishers in RFL households by region (as a proportion of the estimated total number of fishers). Error bars represent 1 standard error.
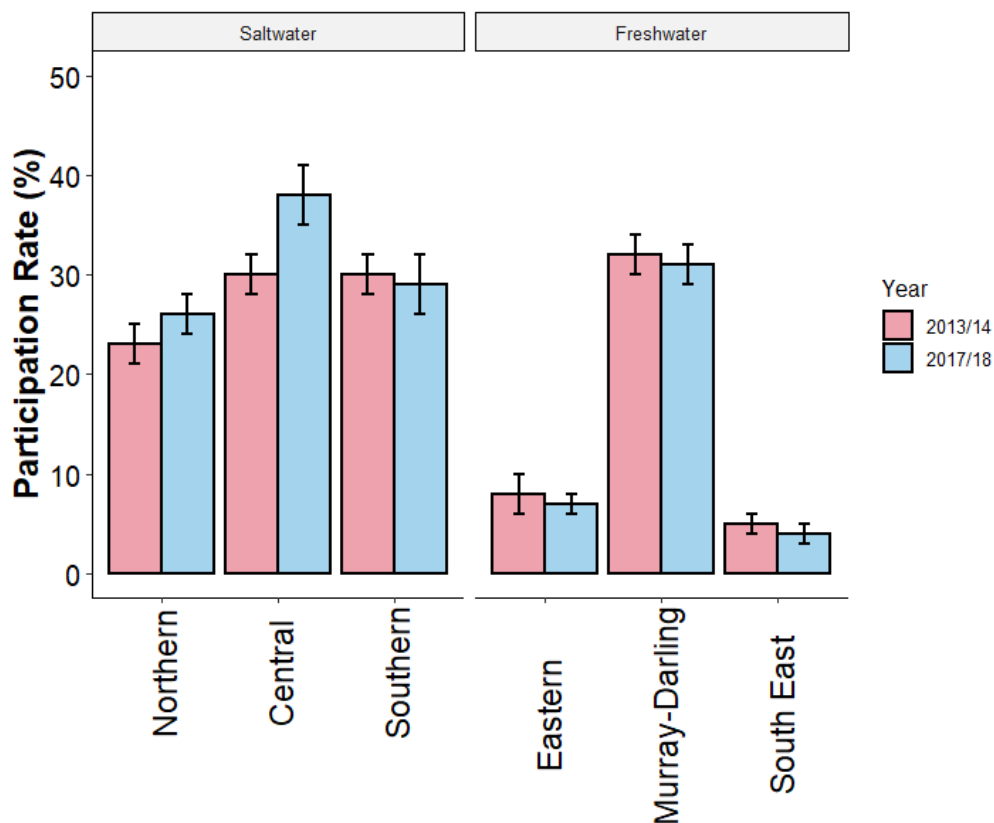
Participation by Method

Line fishing was the dominant method with nearly all fishers in RFL households participating in fishing events using lines (more than 99% in both surveys; Figure 50). Fewer than 10% of fishers in RFL households used each of the other fishing methods in either survey, and rates of participation were similar for all methods (Figure 50).

Figure 50. **Estimated participation rate of fishers in RFL households by fishing method (as a proportion of the estimated total number of fishers). Error bars represent 1 standard error.**
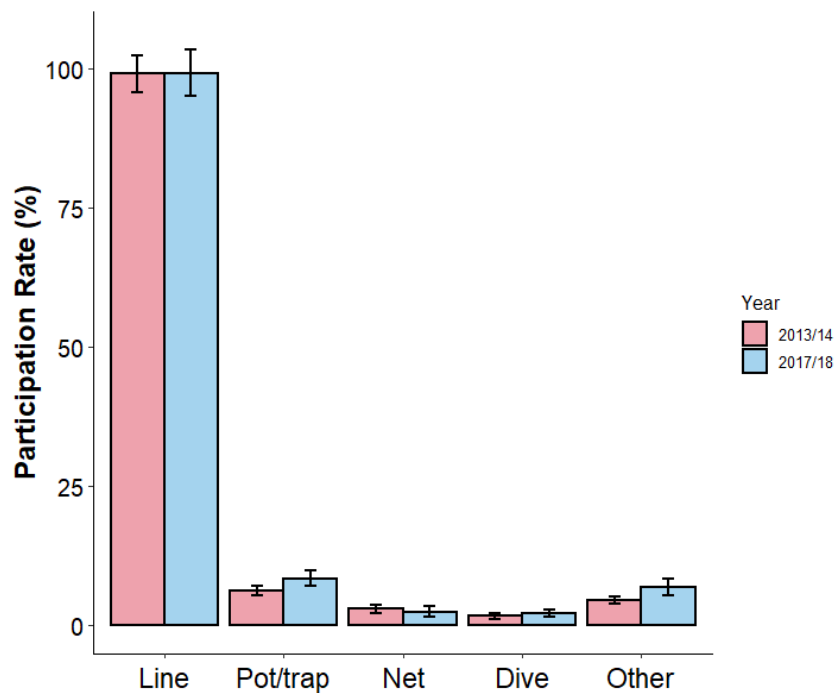
Fishing Effort

In 2013/14, RFL households accounted for an estimated 2,391,456 (SE 134,773) fisher days of effort compared to 2,061,271 (SE 117,506) during the 2017/18 survey, a reduction of 14%. In 2013/14 an annual mean of 8.6 days per fisher was recorded compared to an annual mean of 7.9 days per fisher for 2017/18. The number of fisher days was lower in 2017/18 compared to 2013/14 for both Freshwater and Saltwater waterbodies (Table 6).

Table 6.   Comparison of fishing effort (fisher days) by RFL households who fished in Freshwater or Saltwater waterbodies during 2013/14, compared with 2017/18.

Survey Year	Freshwater		Saltwater		Total*	
	Fisher Days	RSE (%)	Fisher Days	RSE (%)	Fisher Days	RSE (%)
2013/14	862,693	10	1,529,223	8	2,391,456	6
2017/18	663,893	8	1,404,530	7	2,061,271	6

*Note: The addition of the numbers of fishers who fished Fresh and Salt waters do not equal Total fisher days as some RFL households fished both systems.

Effort by Waterbody

Fishing effort (fisher days) was lower in 2017/18 compared to 2013/14 in all waterbodies except estuaries. Rivers, oceans and lakes/dams showed a 25%, 19% and 19% decline in effort respectively (Figure 51). Effort declined by only 3% in estuaries and standard error bars overlap substantially (Figure 51).

Figure 51.   Comparison of recreational fishing effort (fisher days) by RFL households for 2013/14 compared with 2017/18 - by waterbody type. Error bars represent 1 standard error.
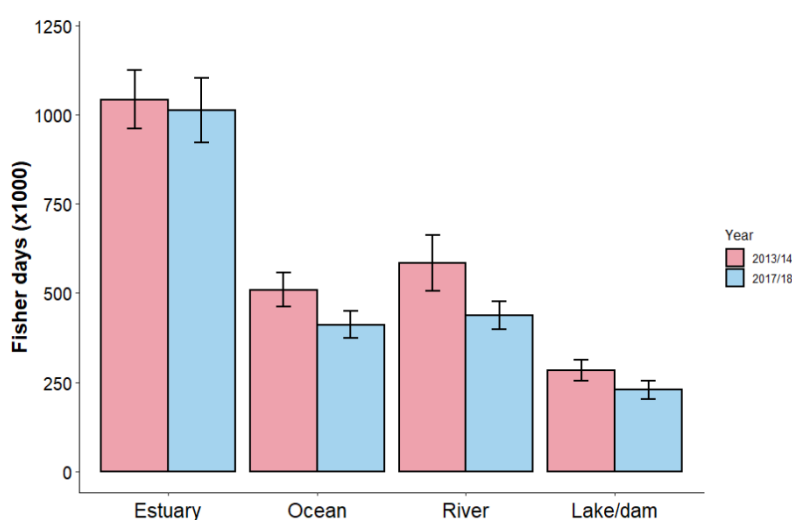
Effort by Platform

Boat-based fishing effort in both survey periods was slightly greater than shore-based effort, although standard error bars clearly overlap in 2013/14 (Figure 52). Both boat and shore-based fishing effort (fisher days) were lower in 2017/18 compared to 2013/14, although standard error bars overlap for boat-based effort estimates.

Figure 52. Comparison of recreational fishing effort (fisher days) by RFL households for 2013/14 compared with 2017/18 - by fishing platform. Error bars represent 1 standard error.
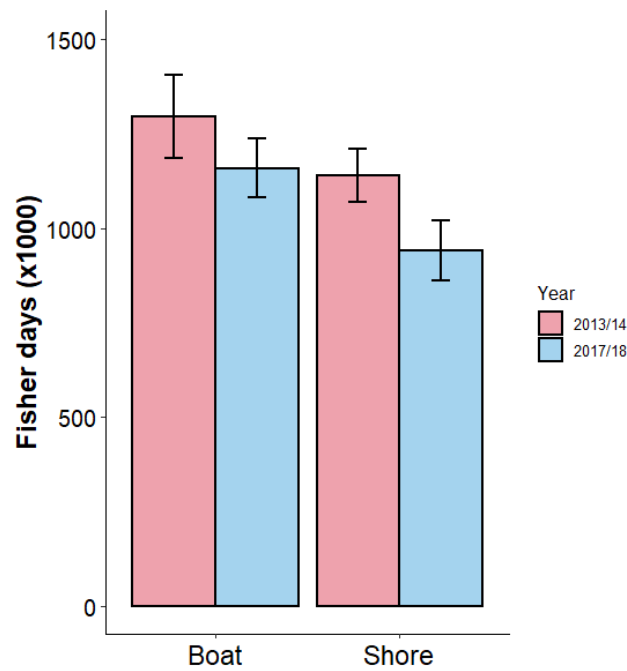
Effort by Region

Fishing effort (fisher days) in the Southern coastal and Murray-Darling inland region was 33% and 27% lower, respectively, in 2017/18. The Northern and South East regions, respectively, showed 13% and 18% lower effort in the second survey year, but with overlapping standard errors (Figure 53). Fishing effort in the Central region displayed was greater during 2017/18 (22%) compared to 2013/14 with no real change in the Eastern region (3% greater in 2017/18) (Figure 53).

Figure 53. Comparison of recreational fishing effort (fisher days) by RFL households for 2013/14 compared with 2017/18 - by fishing region. Error bars represent 1 standard error.
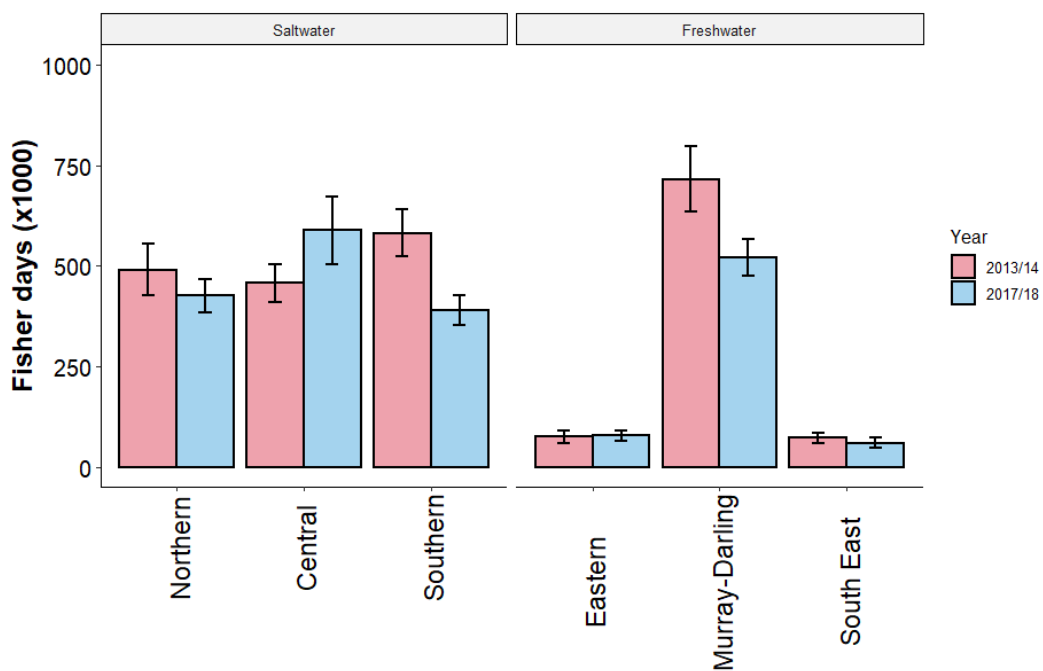
Effort by Method

Line fishing, which accounted for the majority of fishing effort, was 14% lower in 2017/18 (Figure 54). Effort attributable to methods classified as 'other' also showed a 26% decline between the two survey periods (Figure 54), although error bars overlap. Fishing effort by pot/trap, net and dive methods was 21%, 4% and 5% greater in 2017/18, respectively, but with overlapping error bars (Figure 54).

Figure 54. Comparison of recreational fishing effort (fisher days) by RFL households for 2013/14 compared with 2017/18 - by fishing method. Error bars represent 1 standard error.
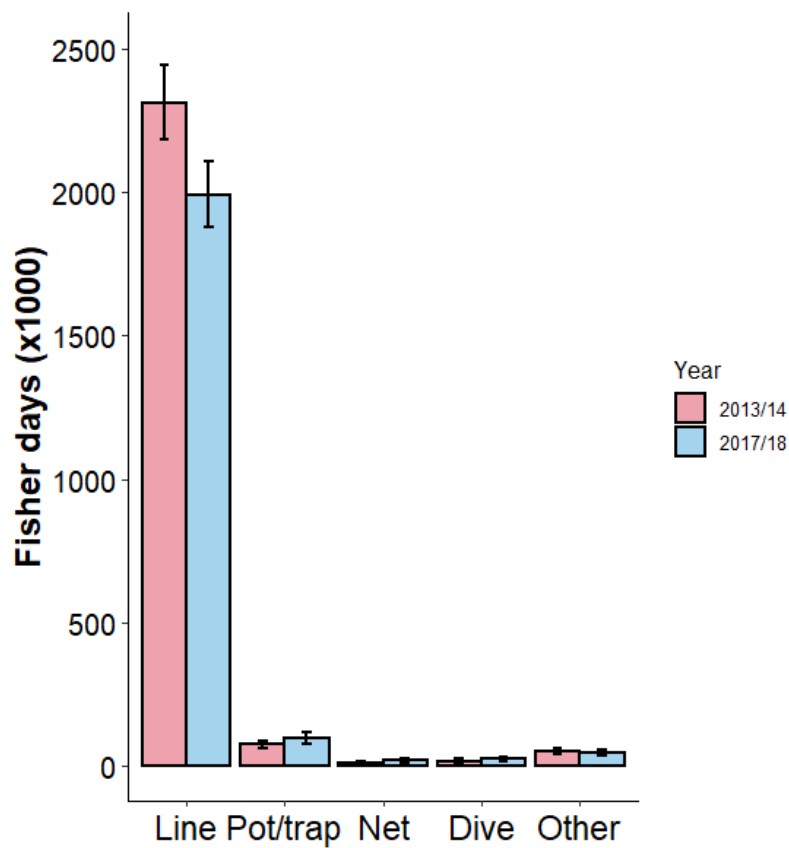
Catch

An estimated state-wide total number of 11,613,141 (SE 1,099,465) organisms were caught (kept plus released) by RFL households during 2013/14, compared to an estimated 8,881,688 (SE 877,648) in 2017/18. The number of individual organisms caught was 24% lower during 2017/18. The estimated kept (harvested) catch of all organisms was 6,305,957 (SE 874,314) in 2013/14 and 4,530,558 (SE 410,224) in 2017/18, representing a 28% lower harvest in 2017/18. The estimated number of released animals was 5,307,177 (SE 425,353) in 2013/14 and 4,351,130 (SE 297,332) in 2017/18 (18% lower in 2017/18).

Catch by Waterbody

Total estimated catch by waterbody type was highest in estuarine waters and lowest in lakes/dams in both survey years (Figure 55). The total catch within ocean waters was 29% lower in 2017/18. Catch in estuaries, lake/dams and rivers, respectively, were 22%, 18% and 23% lower in the second survey year, although error bars overlap substantially for river and lake/dam estimates (Figure 55).

Figure 55. Total catch numbers (kept plus released) by RFL households across all species/groups caught during 2013/14 compared with 2017/18 - by waterbody type. Error bars represent 1 standard error on the total catch.
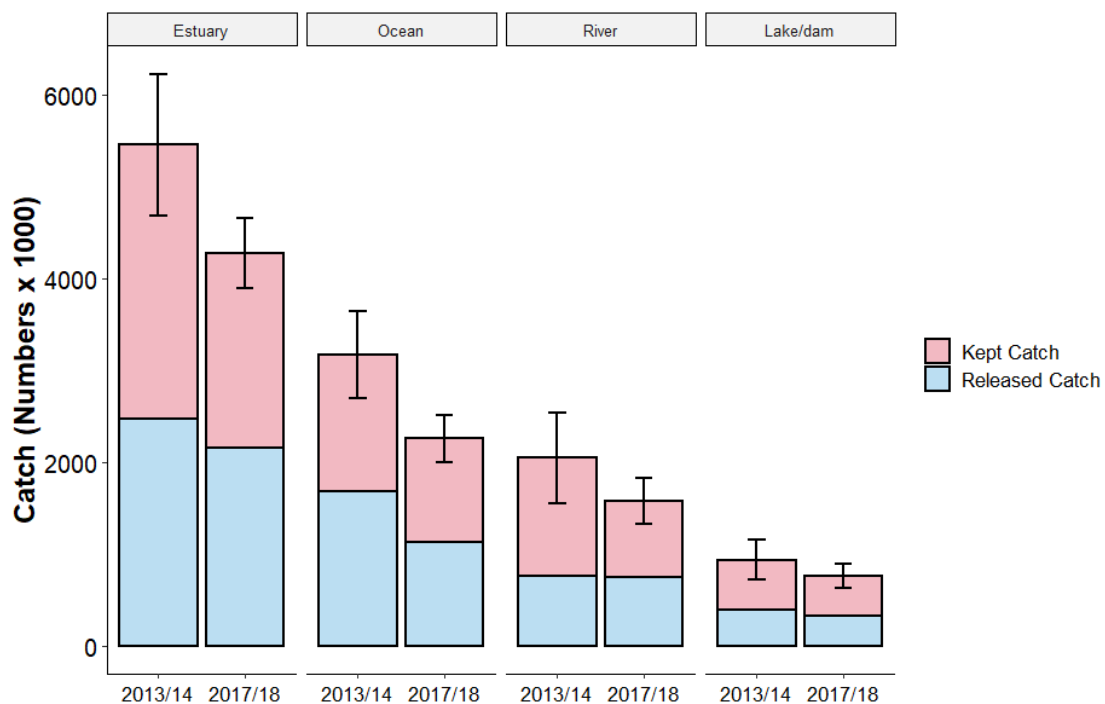
Catch by Platform

Estimated boat-based total catch in both survey periods, was greater than shore-based total catch (Figure 56). Boat- and shore-based total catch were 30% and 13%, respectively, lower in 2017/18 compared to 2013/14, although shore-based error bars overlap (Figure 56).

Figure 56. Total catch numbers (kept plus released) by RFL households across all species/groups caught during 2013/14 compared with 2017/18 - by platform. Error bars represent 1 standard error on the total catch.
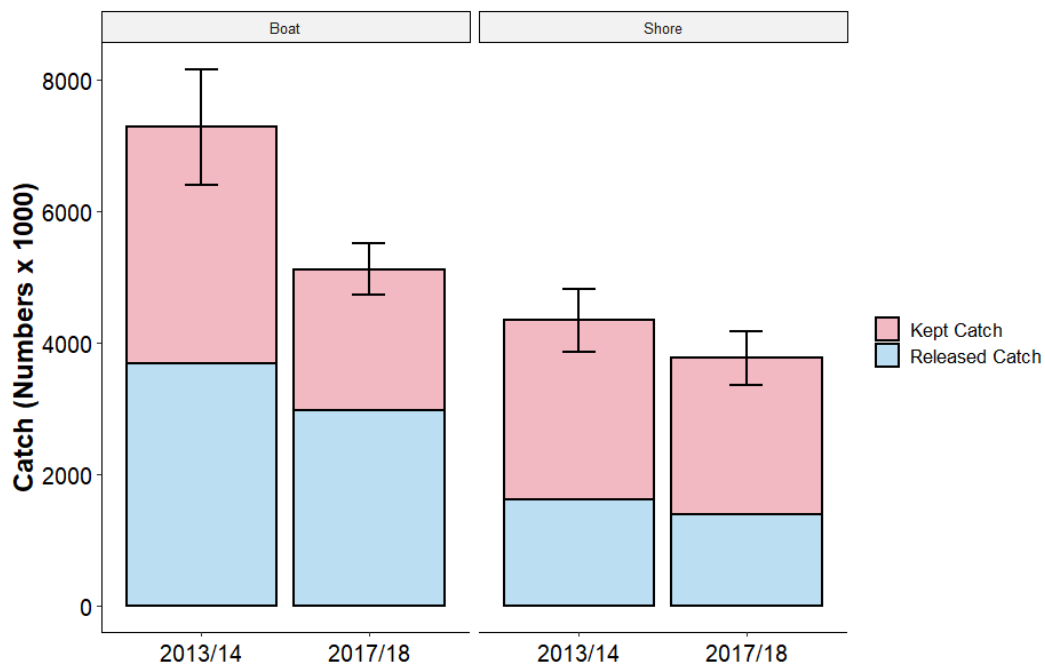
Catch by Region

Total catch by region was highest in the Southern region and lowest in the South East region during both survey periods (Figure 57). The total catch within the Northern, Central, Southern, Murray-Darling and South East regions during 2017/18 was 31%, 13%, 41%, 25% and 29%, respectively, lower but the error bars between survey years overlap for all Regions other than Southern (Figure 57). The total catch within the Eastern region was 15% greater in 2017/18 (Figure 57) but with substantially overlapping error bars.

Figure 57. Total catch numbers (kept plus released) by RFL households across all species/groups caught during 2013/14 compared with 2017/18 - by fishing region. Error bars represent 1 standard error on the total catch.
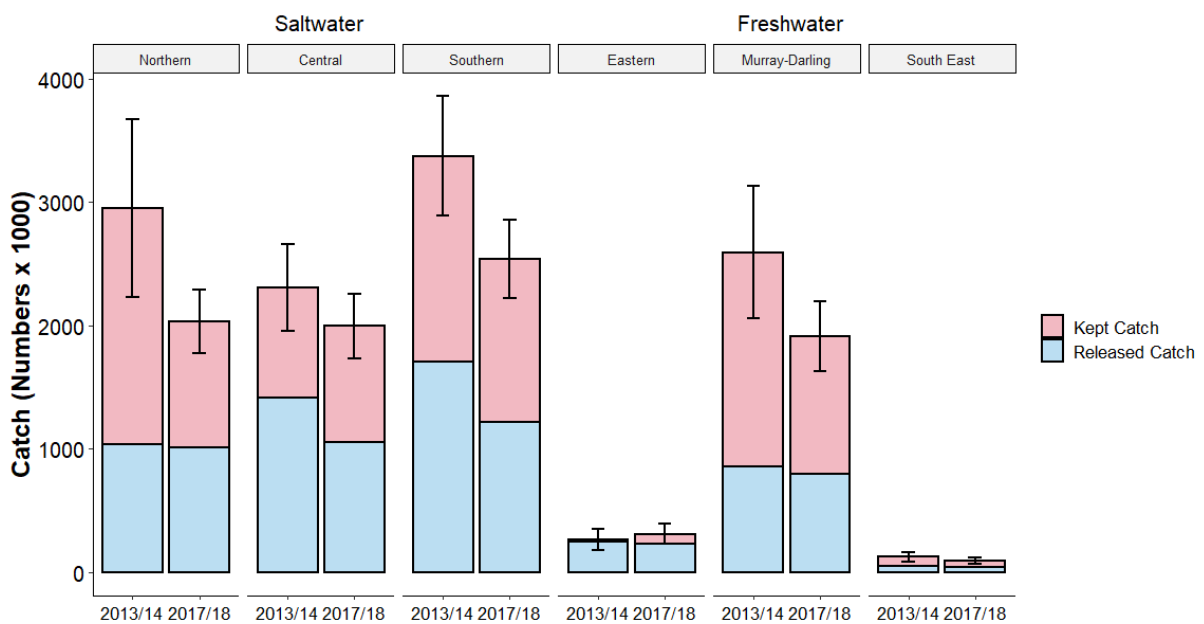
Catch by Method

Line fishing resulted in the largest number of animals caught during both 2013/14 and 2017/18 (Figure 58). The numbers of animals caught using pot/trap methods and dive methods were10% and 58%, respectively, higher in 2017/18. However, the total catch was 27%, 17%, and 23% lower in the second year for line fishing, netting and other methods when comparing 2013/14 to 2017/18 (Figure 58). Error bars did not overlap for line fishing methods (only).

Figure 58. Total catch numbers (kept plus released) by RFL households across all species/groups caught during 2013/14 compared with 2017/18 - by fishing method. Error bars represent 1 standard error on the total catch.
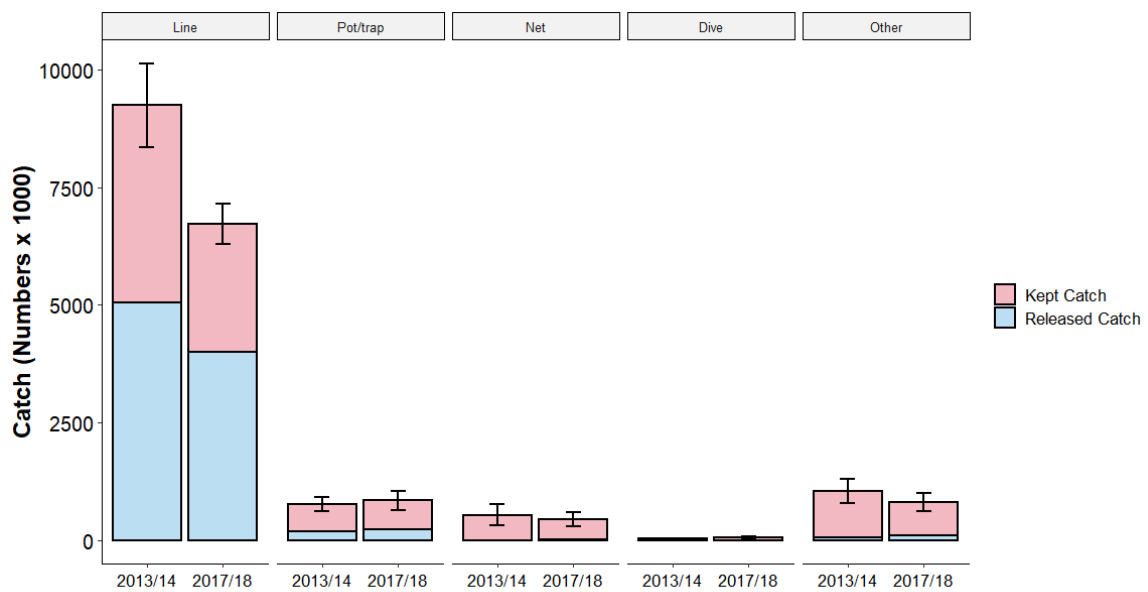
Key Species Comparisons

Comparative estimates for the two survey periods of total, kept and released catch, are presented for key saltwater and freshwater species. Except for Dusky Flathead (7% higher catch numbers in 2017/18), Yellowtail Scad (46% higher catch numbers in 2017/18) and Tailor (32% higher catch numbers in 2017/18), most key saltwater species had lower total catch numbers in 2017/18 compared to 2013/14 (Figure 59). However, standard error bars between years overlap for all species apart from Bream, Sand Flathead, Luderick, Tailor, Leatherjacket and Mulloway. Catch numbers for Leatherjacket and Luderick, respectively, were 59% and 54% lower in 2017/18.

For key freshwater species, total catch was 53% higher in 2017/18 was observed for Murray Cod (Figure 60). European Carp was the only fresh water species with a large (57%) decline in catch when comparing the two survey periods (Figure 60). Details of the catch for both survey years for all species are also presented in Appendices 6a-c.

Figure 59. Total catch numbers (kept plus released) by RFL households across all species/groups caught during 2013/14 compared with 2017/18 - by key marine species/groups. Error bars represent 1 standard error on the total catch.
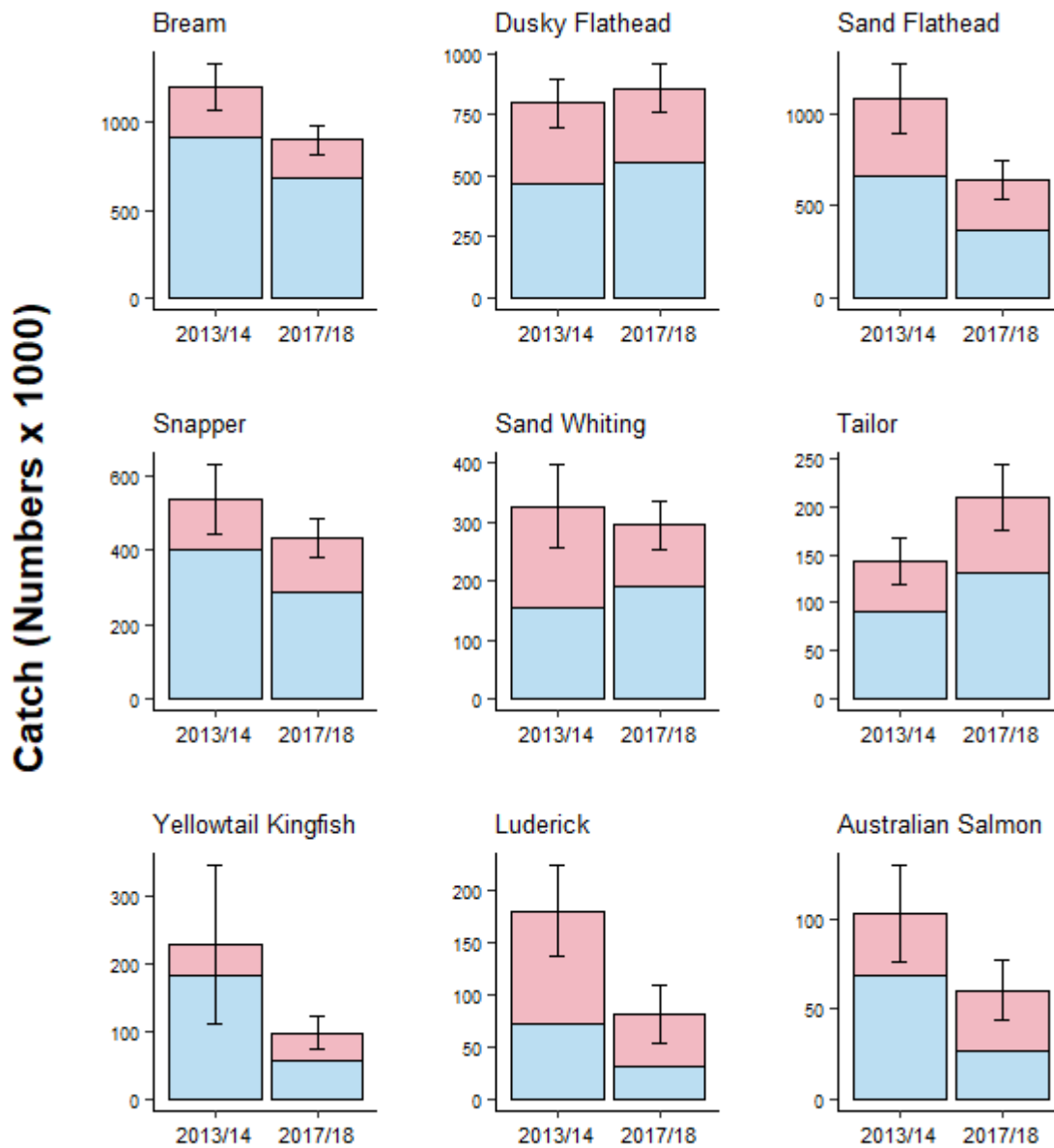
Figure 59, continued
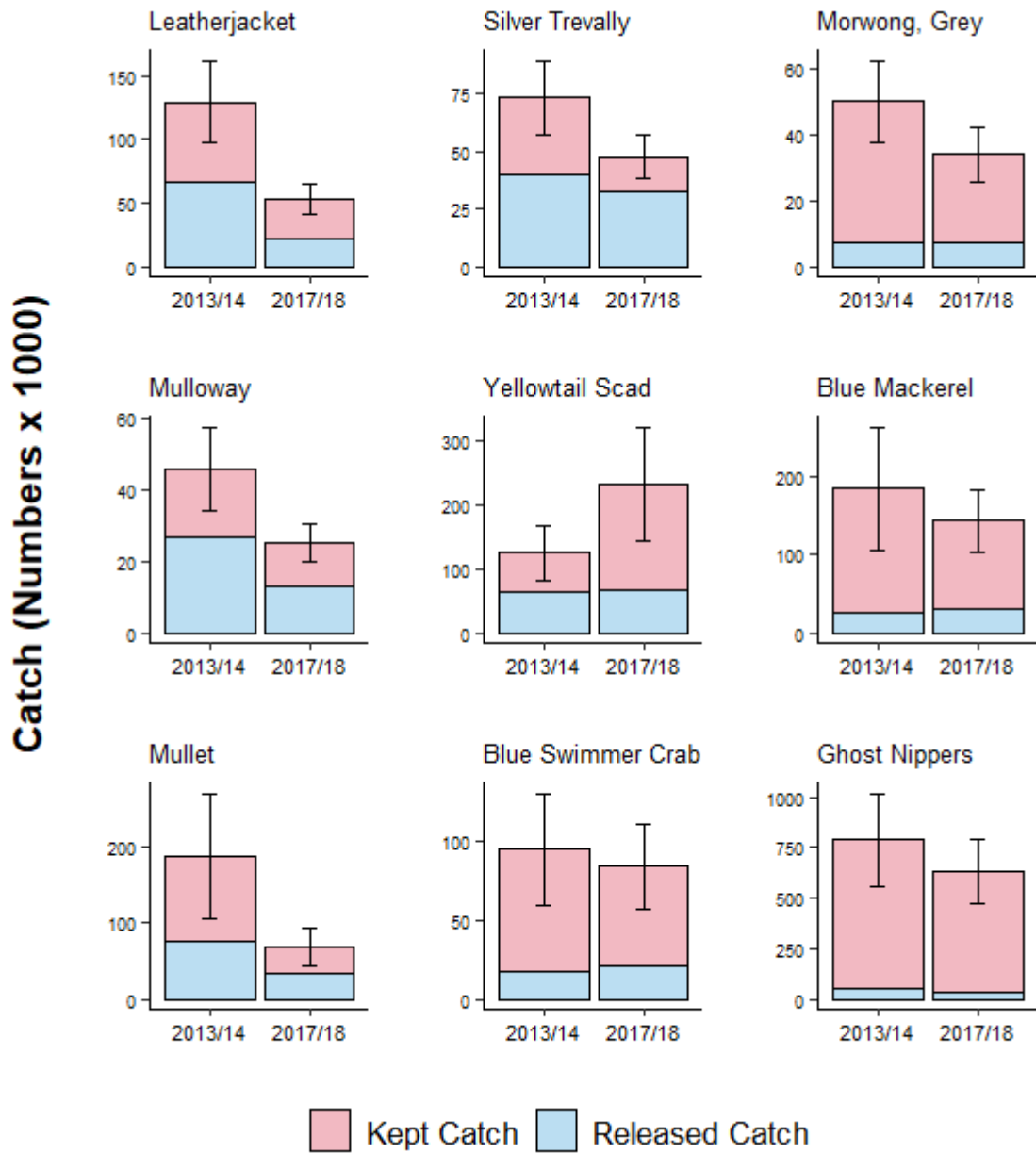
Figure 60. Total catch numbers (kept plus released) by RFL households across all species/groups caught during 2013/14 compared with 2017/18 - by key freshwater species/groups. Error bars represent 1 standard error on the total catch.
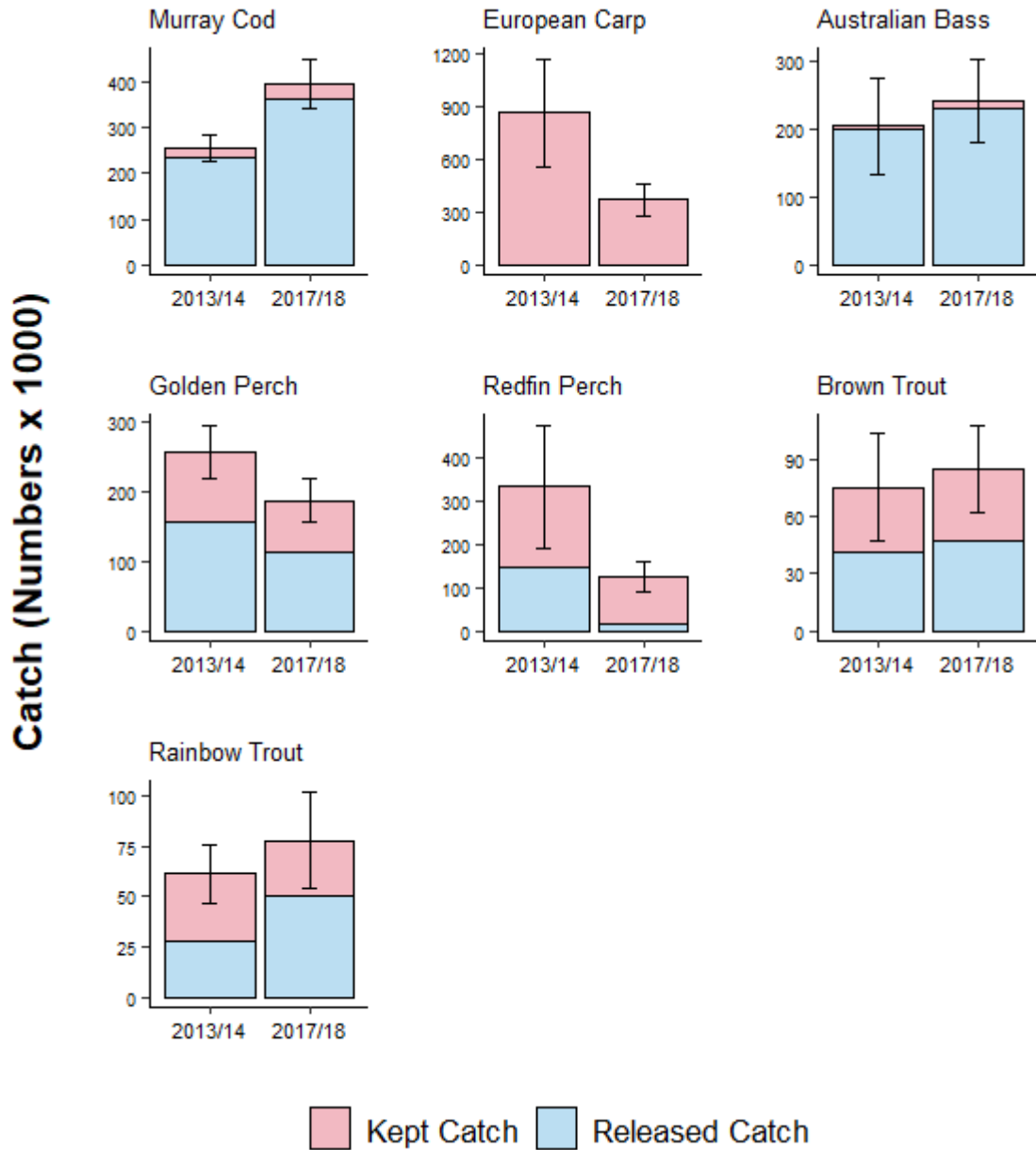
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Appendices

Appendix 1a. The number of individual long-term RFL holders current as at 31 March 2017, sample size and sample loss/response profiles for the Screening Survey, by Stratum.

Residential Stratum	Total RFL Holders	Initial sample	Sample loss	Net sample	Non response	Full response	Response rate
1_Sydney	162,104	374	17	357	89	268	75.1%
2_Hunter	43,711	195	16	179	21	158	88.3%
3_Illawarra	29,857	164	13	151	16	135	89.4%
4_Richmond_Tweed	16,825	122	6	116	15	101	87.1%
5_Mid North Coast	31,035	190	17	173	39	134	77.5%
6_Central West/North	24,556	134	8	126	12	114	90.5%
7_Far West/North West	6,437	118	6	112	12	100	89.3%
8_NSW South East	21,428	163	9	154	24	130	84.4%
9_Murray/Murrumbidgee	23,265	159	9	150	41	109	72.7%
10_ACT	15,207	145	5	140	31	109	77.9%
11_QLD	13,923	154	12	142	22	120	84.5%
12_VIC	43,870	171	11	160	20	140	87.5%
Grand Total	432,218	2089	129	1960	342	1618	82.6%

Appendix 1b. Response profiles of RFL holders for the Diary Survey, by stratum.

Residential Stratum	Full response at screening	Eligible for the Diary Survey	Diary Survey uptake	Diary Survey completed	Uptake rate (among eligibles)	Completion rate (among uptake)	Completion rate (among eligibles)
1_Sydney	268	232	205	199	88.4%	97.1%	85.8%
2_Hunter	158	131	119	110	90.8%	92.4%	84.0%
3_Illawarra	135	119	110	105	92.4%	95.5%	88.2%
4_Richmond_Tweed	101	92	85	80	92.4%	94.1%	87.0%
5_Mid North Coast	134	120	113	110	94.2%	97.3%	91.7%
6_Central West/North	114	100	96	86	96.0%	89.6%	86.0%
7_Far West/North West	100	88	84	80	95.5%	95.2%	90.9%
8_NSW South East	130	104	95	93	91.3%	97.9%	89.4%
9_Murray/Murrumbidgee	109	96	93	87	96.9%	93.5%	90.6%
10_ACT	109	98	94	94	95.9%	100.0%	95.9%
11_QLD	120	105	96	93	91.4%	96.9%	88.6%
12_VIC	140	128	122	120	95.3%	98.4%	93.8%
Grand Total	1618	1413	1312	1257	92.9%	95.8%	89.0%

Appendix 2. Annual recreational fishing effort (number of fisher days) by Waterbody, Platform, Fishing Method and Region for RFL households who fished in NSW waters during 2017/18.

		Fisher days	SE	RSE
Waterbody	Estuary	1,046,245	91,751	9%
	Ocean	444,965	38,292	9%
	Lake/Dam	240,827	27,080	11%
	River	452,830	39,483	9%
Platform	Boat	1,206,348	80,097	7%
	Shore	972,771	80,512	8%
	Both	18,117	4,444	25%
Method	Line	2,075,120	115,561	6%
	Pot/Trap	102,935	21,357	21%
	Dive	25,898	7,362	28%
	Net	18,844	7,268	39%
	Other	52,581	10,137	19%
Saltwater Regions	Northern	491,252	43,874	9%
	Central	588,682	83,019	14%
	Southern	392,394	37,280	10%
Freshwater Regions	Eastern	90,177	16,326	18%
	Murray-Darling	542,261	46,634	9%
	South East	59,729	12,839	21%

Appendix 3a. Annual recreational catch (total, kept and released numbers) caught by RFL households in NSW waters during 2017/18 by reporting and species/groups. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species/species group. Note: estimates are presented by reporting group then sorted by Total numbers from highest to lowest for species/groups.

Appendix 3a - State-wide annual catch Reporting & Species/group	Scientific Names	TOTAL			KEPT			RELEASED		
		Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
FINFISH - SALTWATER										
Bream	Acanthopagrus spp.	943,966	80,442	9%	228,553	27,897	12%	715,412	64,663	9%
Flathead, Dusky	*Platycephalus fuscus*	886,749	99,617	11%	310,650	37,439	12%	576,099	73,290	13%
Flathead, Sand	*Platycephalus caeruleopunctatus, P.bassensis, P. endrachtensis & P. grandispinis*	648,602	106,147	16%	281,844	46,361	16%	366,758	64,745	18%
Snapper	*Chrysophrys auratus*	451,427	51,973	12%	157,534	23,407	15%	293,893	39,277	13%
Whiting, Sand	*Sillago ciliata*	340,783	48,075	14%	120,831	22,245	18%	219,953	33,200	15%
Tailor	*Pomatomus saltatrix*	227,200	35,137	15%	89,914	20,845	23%	137,286	22,912	17%
Yellowtail Kingfish	*Seriola lalandi*	107,865	25,659	24%	45,791	16,668	36%	62,074	14,265	23%
Whiting, Trumpeter	*Sillago maculata*	***83,671***	***64,394***	***77%***	***31,562***	***27,058***	***86%***	***52,109***	***37,789***	***73%***
Luderick	*Girella tricuspidata*	83,544	27,673	33%	51,272	20,086	39%	32,272	9,567	30%
Red Rock Cod	*Scorpaena jacksoniensis*	67,854	16,378	24%	*14,727*	*5,780*	*39%*	53,127	12,411	23%
Australian Salmon	Arripis spp.	60,556	16,958	28%	33,948	10,800	32%	*26,607*	*9,939*	*37%*
Leatherjacket	Balistidae & Monacanthidae - undifferentiated	53,063	12,114	23%	31,106	8,854	28%	21,956	7,720	35%
Sergeant Baker	*Latropiscus purpurissatus*	**52,938**	**21,661**	**41%**	***6,368***	***3,746***	***59%***	**46,570**	**18,641**	**40%**

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Scientific Names**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
Trevally, Silver	*Pseudocaranx georgianus*	49,258	9,813	20%	15,315	3,963	26%	33,942	8,133	24%
Flathead, Tiger	*Platycephalus richardsoni*	*48,893*	*22,643*	*46%*	*25,001*	*13,330*	*53%*	*23,891*	*10,199*	*43%*
Dolphinfish	*Coryphaena hippurus*	47,280	17,397	37%	25,413	9,662	38%	*21,867*	*10,256*	*47%*
Sweep	*Scorpis lineolata*	*41,277*	*17,511*	*42%*	*13,051*	*7,058*	*54%*	*28,226*	*14,830*	*53%*
Tuna, Bonito	Sarda spp.	*39,538*	*12,635*	*32%*	*21,231*	*5,934*	*28%*	*18,307*	*8,199*	*45%*
Wrasse, other	Labridae - undifferentiated	*36,432*	*16,611*	*46%*	*7,631*	*4,292*	*56%*	*28,801*	*13,796*	*48%*
Morwong, Grey	*Nemadactylus douglasii*	33,859	8,464	25%	26,770	6,777	25%	*7,090*	*3,109*	*44%*
Swallowtail Dart	*Trachinotus coppingeri*	32,719	9,456	29%	*6,511*	*3,248*	*50%*	26,208	8,256	32%
Flounder/sole	Bothidae & Pleuronectidae spp, Soleidae	31,519	5,260	17%	12,735	2,702	21%	18,785	3,750	20%
Tarwhine	*Rhabdosargus sarba*	30,628	10,481	34%	*12,376*	*8,396*	*68%*	*18,253*	*6,257*	*34%*
Whiting, School	*Sillago bassensis, S. flindersi & S. robusta*	*29,938*	*15,831*	*53%*	*10,933*	*8,016*	*73%*	*19,006*	*10,352*	*54%*
Redfish	*Centroberyx affinis*	*29,792*	*11,067*	*37%*	*17,018*	*8,550*	*50%*	*12,775*	*6,923*	*54%*
Mulloway	*Argyrosomus japonicus*	27,173	5,355	20%	13,641	2,843	21%	*13,533*	*3,497*	*26%*
Ray, other	Dasyatidae - undifferentiated	23,131	5,742	25%	-	-	-	23,131	5,742	25%
Drummer, Rock Blackfish	*Girella elevata*	*22,602*	*9,866*	*44%*	9,983	3,951	40%	*12,619*	*6,822*	*54%*
Tuna, Skipjack	*Katsuwonus pelamis*	*21,875*	*15,586*	*71%*	*4,164*	*3,195*	*77%*	*17,712*	*15,283*	*86%*

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Scientific Names**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
Toads/pufferfish	Tetraodontidae & Ostraciidae - undifferentiated	19,434	5,626	29%	*592*	*365*	*62%*	18,842	5,614	30%
Pike	Sphyraenidae - undifferentiated	*18,784*	*6,340*	*34%*	*9,266*	*4,892*	*53%*	*9,518*	*3,528*	*37%*
Ray, Shovelnose	*Aptychotrema rostrata*	17,792	4,845	27%	*2,435*	*2,112*	*87%*	15,358	3,824	25%
Pearl Perch	*Glaucosoma scapulare*	*17,486*	*6,946*	*40%*	*13,794*	*6,325*	*46%*	*3,693*	*1,689*	*46%*
Teraglin	*Atractoscion aequidens*	*13,051*	*4,113*	*32%*	*11,363*	*3,848*	*34%*	*1,689*	*941*	*56%*
Shark, Whaler	Carcharhinidae	*12,026*	*3,366*	*28%*	*3,068*	*1,431*	*47%*	*8,958*	*2,917*	*33%*
Garfish	Hemiramphidae - undifferentiated	*12,004*	*5,120*	*43%*	*9,036*	*4,496*	*50%*	*2,968*	*2,463*	*83%*
Tuna, Mackerel	*Euthynnus affinis*	*11,847*	*6,237*	*53%*	*6,166*	*4,134*	*67%*	*5,682*	*2,748*	*48%*
Cod/groupers	Serranidae - undifferentiated	*11,130*	*2,895*	*26%*	*3,862*	*1,800*	*47%*	*7,267*	*1,954*	*27%*
Trumpeter/grunters	Terapontidae - undifferentiated	*10,526*	*3,610*	*34%*	*1,759*	*1,484*	*84%*	*8,767*	*3,005*	*34%*
Wrasse, Maori	*Ophthalmolepis lineolata*	*9,022*	*2,840*	*31%*	*4,062*	*1,904*	*47%*	*4,960*	*2,034*	*41%*
Morwong, Red	*Cheilodactylus fuscus*	*8,652*	*3,260*	*38%*	8,652	3,260	38%	-	-	-
Marlin, Black	*Makaira indica*	*8,445*	*3,485*	*41%*	*200*	*200*	*100%*	*8,245*	*3,468*	*42%*
Silverbiddy	Gerreidae - undifferentiated	*7,888*	*6,887*	*87%*	*637*	*637*	*100%*	*7,252*	*6,838*	*94%*
Pigfish	*Bodianus unimaculatus*	*6,704*	*4,725*	*70%*	*6,519*	*4,720*	*72%*	*186*	*165*	*89%*

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	Scientific Names	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Shark, other	Several families - undifferentiated	3,638	2,619	72%	-	-	-	3,638	2,619	72%
Tuna, Yellowfin	Thunnus albacares	3,568	1,997	56%	2,817	1,673	59%	751	530	71%
Batfish/butter bream	Monodactylus argenteus	3,332	1,653	50%	-	-	-	3,332	1,653	50%
Parrotfish	Scaridae - undifferentiated	3,312	1,628	49%	2,456	1,141	46%	856	618	72%
Mackerel, Narrow-barred	Scomberomorus commerson	3,301	1,697	51%	2,820	1,550	55%	481	309	64%
Moses Snapper	Lutjanus russellii	3,170	1,492	47%	968	482	50%	2,202	1,357	62%
Shark, Port Jackson	Heterodontus portusjacksoni	2,894	1,255	43%	-	-	-	2,894	1,255	43%
Shark, Wobbegong	Brachaeluridae - undifferentiated	2,797	2,057	74%	-	-	-	2,797	2,057	74%
Gurnard	Triglidae & Peristediidae - undifferentiated	2,587	1,536	59%	756	491	65%	1,831	1,148	63%
Cobia	Rachycentron canadum	2,336	999	43%	2,105	970	46%	231	163	71%
Surgeonfish	Prionurus microlepidotus	2,068	2,033	98%	2,046	2,033	99%	22	22	100%
Shark, Gummy	Mustelus antarcticus	2,022	1,117	55%	1,550	1,083	70%	471	248	53%
Wrasse, unspecified	Labridae - undifferentiated	1,869	892	48%	100	100	100%	1,769	887	50%
Mackerel, Spotted	Scomberomorus munroi	1,693	945	56%	1,602	940	59%	90	90	100%
Barracuda	Sphyraena barracuda	1,670	1,283	77%	-	-	-	1,670	1,283	77%
Marlin, Striped	Tetrapturus audax	1,551	1,020	66%	115	92	80%	1,436	931	65%
Shark, Mako	Isurus oxyrinchus	1,449	1,108	76%	1,050	1,050	100%	398	354	89%

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	Scientific Names	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Amberjack	*Seriola dumerili*	1,386	861	62%	754	706	94%	632	306	48%
Perch, unspecified	Percichthyidae & Serranidae - undifferentiated	1,273	1,062	83%	1,273	1,062	83%	-	-	-
Tuskfish	*Choerodon spp.*	1,246	842	68%	1,180	836	71%	65	65	100%
Bullseye	*Pempheridae spp.*	1,193	1,191	100%	795	794	100%	398	397	100%
Wrasse, Blue Groper	*Achoerodus viridis*	1,190	620	52%	515	434	84%	675	442	66%
Mangrove Jack	*Lutjanus argentimaculatus*	1,138	936	82%	202	201	99%	936	914	98%
Drummer, Silver	*Kyphosus sydneyanus*	1,131	581	51%	391	266	68%	740	521	70%
Lizardfish/Grinners	*Synodontidae spp.*	1,106	875	79%	-	-	-	1,106	875	79%
Wahoo	*Acanthocybium solandri*	855	806	94%	855	806	94%	-	-	-
Long Tom	Belonidae - undifferentiated	828	416	50%	177	176	100%	650	377	58%
Shark, School	*Galeorhinus galeus*	666	527	79%	164	163	100%	502	502	100%
Trumpeter, Bastard	*Latridopsis forsteri*	502	502	100%	502	502	100%	-	-	-
Shark, unspecified	Several families - undifferentiated	428	210	49%	-	-	-	428	210	49%
Marlin, Blue	*Makaira nigricans*	378	228	60%	181	180	100%	197	140	71%
Morwong, unspecified	*Cheilodactylidae spp.*	353	351	99%	-	-	-	353	351	99%
Bass Grouper	*Polyprion moeone*	350	350	100%	350	350	100%	-	-	-

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	Scientific Names	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Mackerel, Queensland School	*Scomberomorus queenslandicus*	304	302	99%	-	-	-	304	302	99%
Rock Cale/Kelpfish	Chironemidae & Aplodactylidae - undifferentiated	246	245	100%	-	-	-	246	245	100%
Fish, unknown	Several families - undifferentiated	227	227	100%	-	-	-	227	227	100%
Tuna, Northern Bluefin	*Thunnus tonggol*	212	149	70%	212	149	70%	-	-	-
Eastern Wirrah	*Acanthistius ocellatus*	212	212	100%	-	-	-	212	212	100%
Sweetlip, Grass	*Lethrinus laticaudis*	202	201	99%	202	201	99%	-	-	-
Shark, Hammerhead	Sphyrnidae - undifferentiated	180	127	70%	-	-	-	180	127	70%
Trevally, Giant	*Caranx ignobilis*	167	120	72%	-	-	-	167	120	72%
Sailfish	*Istiophorus platypterus*	101	101	99%	-	-	-	101	101	99%
Shark, Tiger	*Galeocerdo cuvier*	101	101	99%	-	-	-	101	101	99%
Trevally, Golden	*Gnathanodon speciosus*	100	100	100%	-	-	-	100	100	100%
Stargazer	Uranoscopidae - undifferentiated	50	50	100%	-	-	-	50	50	100%
Trevally, other	Carangidae - undifferentiated	40	40	100%	40	40	100%	-	-	-
FINFISH - FRESHWATER										
Murray Cod	*Maccullochella peelii*	416,677	54,690	13%	36,434	7,862	22%	380,242	50,769	13%

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Scientific Names**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
European Carp	*Cyprinus carpio*	370,332	88,697	24%	370,332	88,697	24%	-	-	-
Golden Perch	*Macquaria ambigua*	194,758	32,339	17%	79,297	15,095	19%	115,461	22,931	20%
Redfin Perch	*Perca fluviatilis*	125,612	36,877	29%	109,095	35,537	33%	*16,517*	*7,048*	*43%*
Trout, Brown	*Salmo trutta*	90,086	23,334	26%	37,865	11,298	30%	*52,221*	*14,543*	*28%*
Trout, Rainbow	*Oncorhynchus mykiss*	85,200	24,816	29%	28,595	6,788	24%	56,606	19,614	35%
Silver Perch	*Bidyanus bidyanus*	39,926	10,712	27%	*5,138*	*2,272*	*44%*	34,787	10,178	29%
Trout Cod	*Maccullochella macquariensis*	*37,762*	*21,060*	*56%*	*2,813*	*2,011*	*71%*	*34,949*	*19,534*	*56%*
Spangled Perch	*Leiopotherapon unicolor*	*8,764*	*7,037*	*80%*	-	-	-	*8,764*	*7,037*	*80%*
Bony Bream	*Nematalosa erebi & Nematalosa vlaminghi*	*2,243*	*1,576*	*70%*	*92*	*91*	*100%*	*2,151*	*1,568*	*73%*
Bullrout	*Notesthes robusta*	*40*	*40*	*100%*	-	-	-	*40*	*40*	*100%*

FINFISH – SALT & FRESH										
Australian Bass	*Macquaria novemaculeata*	245,690	62,215	25%	*11,142*	*5,111*	*46%*	234,548	61,858	26%
Catfish, eeltail	Plotosidae - undifferentiated	28,293	10,066	36%	*1,694*	*1,255*	*74%*	26,600	9,083	34%
Eel	Several families - undifferentiated	*11,699*	*5,532*	*47%*	*2,955*	*2,636*	*89%*	*8,744*	*3,154*	*36%*
Catfish, forktail	Ariidae - undifferentiated	*11,551*	*4,573*	*40%*	-	-	-	*11,551*	*4,573*	*40%*

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	Scientific Names	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Fish, unknown	Several families - undifferentiated	*227*	*227*	*100%*	-	-	-	*227*	*227*	*100%*
FINFISH - BAITFISHES										
Yellowtail Scad	*Trachurus novaezelandiae*	238,626	88,355	37%	172,480	56,298	33%	**66,145**	**36,600**	**55%**
Blue Mackerel	*Scomber australasicus*	145,229	39,758	27%	113,689	36,311	32%	*31,540*	*11,062*	*35%*
Mullet	Mugilidae - undifferentiated	68,446	24,260	35%	*34,491*	*10,927*	*32%*	**33,954**	**17,895**	**53%**
Other small baitfish	Several families - undifferentiated	*33,335*	*15,159*	*45%*	*29,169*	*14,797*	*51%*	*4,167*	*2,980*	*72%*
CEPHALOPODS										
Squids	Loliginidae - undifferentiated	**116,485**	**57,751**	**50%**	**108,213**	**57,289**	**53%**	**8,272**	**3,449**	**42%**
Southern Calamari	*Sepioteuthis australis*	*15,247*	*6,479*	*42%*	*15,247*	*6,479*	*42%*	-	-	-
Octopus	Octopodidae - undifferentiated	*4,047*	*1,451*	*36%*	*1,347*	*681*	*51%*	*2,700*	*1,286*	*48%*
Cuttlefish	Sepiidae - undifferentiated	*178*	*131*	*73%*	*115*	*115*	*100%*	*63*	*63*	*99%*
CRABS & LOBSTERS										
Crab, Mud	*Scylla spp.*	**111,425**	**56,380**	**51%**	58,212	24,614	42%	53,213	32,365	61%
Crab, Blue Swimmer	*Portunus pelagicus*	84,000	26,714	32%	63,034	21,011	33%	*20,966*	*7,177*	*34%*

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	Scientific Names	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Murray Crayfish	*Euastacus armatus*	*42,373*	*26,422*	*62%*	*3,967*	*2,507*	*63%*	*38,406*	*24,910*	*65%*
Crab, other	Brachyura - undifferentiated	*11,513*	*10,546*	*92%*	*11,513*	*10,546*	*92%*	-	-	-
Lobster, Rock	Palinuridae - undifferentiated	*10,329*	*5,062*	*49%*	*6,492*	*3,176*	*49%*	*3,837*	*2,091*	*54%*
Lobster, Tropical	*Panulirus longipes and P. ornatus*	*409*	*407*	*99%*	*409*	*407*	*99%*	-	-	-
PRAWNS & YABBIES										
Ghost Nippers	*Trypaea australiensis*	700,810	166,029	24%	662,210	161,832	24%	38,600	15,160	39%
Shrimp (freshwater)	Palaemonidae - undifferentiated	468,314	153,556	33%	422,026	148,947	35%	*46,288*	*31,233*	*67%*
Prawns (saltwater)	Penaeidae - undifferentiated	*328,698*	*140,954*	*43%*	*327,809*	*140,951*	*43%*	*889*	*887*	*100%*
Yabbies (freshwater)	*Cherax spp.*	280,681	102,215	36%	180,446	47,100	26%	*100,234*	*71,272*	*71%*
MOLLUSCS										
Pipis	*Donax (Plebidonax) deltoides*	*144,296*	*80,579*	*56%*	*75,696*	*42,424*	*56%*	*68,601*	*68,507*	*100%*
Abalone	Haliotidae - undifferentiated	*2,094*	*1,183*	*56%*	*2,094*	*1,183*	*56%*	-	-	-
Blue Mussel	*Mytilus galloprovincialis*	*1,428*	*1,426*	*100%*	*1,428*	*1,426*	*100%*	-	-	-
Cockles	*Katelysia scalarina Anadara trapezius*	*818*	*643*	*79%*	*818*	*643*	*79%*	-	-	-

Appendix 3a - State-wide annual catch		TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Scientific Names**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
WORMS										
Beach worms	Arenicolidae - undifferentiated	*54,046*	*20,044*	*37%*	*54,046*	*20,044*	*37%*	*-*	*-*	*-*
MISCELLANEOUS TAXA										
Non-fish, other	Several families - undifferentiated	*3,015*	*1,069*	*35%*	*-*	*-*	*-*	*3,015*	*1,069*	*35%*
Sea Urchin	*Heliocidaris erythrogramma*	**2,429**	**2,414**	**99%**	**2,429**	**2,414**	**99%**	*-*	*-*	*-*
Cunjevoi	*Pyura praeputialis*	**1,065**	**1,059**	**99%**	**1,065**	**1,059**	**99%**	*-*	*-*	*-*

Appendix 3b. Annual recreational catch (total, kept and released numbers) caught by RFL households in NSW waters during 2017/18 by reporting and species/group and WATERBODY. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species/species group. Note: estimates are presented by reporting group and Waterbody then sorted by species/group common name.

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
FINFISH – ESTUARY									
Australian Bass	*39,881*	*24,751*	*62%*	*1,343*	*841*	*63%*	*38,539*	*24,731*	*64%*
Australian Salmon	*24,152*	*11,200*	*46%*	*9,038*	*3,569*	*39%*	*15,114*	*8,577*	*57%*
Batfish/butter bream	*2,319*	*1,467*	*63%*	-	-	-	*2,319*	*1,467*	*63%*
Bream	772,372	71,181	9%	170,679	23,994	14%	601,693	57,950	10%
Bullrout	**40**	**40**	**100%**	-	-	-	**40**	**40**	**100%**
Bullseye	**1,193**	**1,191**	**100%**	**795**	**794**	**100%**	**398**	**397**	**100%**
Catfish, eeltail	*6,977*	*2,659*	*38%*	**106**	**106**	**100%**	*6,871*	*2,644*	*38%*
Catfish, forktail	*6,518*	*2,564*	*39%*	-	-	-	*6,518*	*2,564*	*39%*
Cobia	**670**	**481**	**72%**	**670**	**481**	**72%**	-	-	-
Cod/groupers	*5,036*	*1,916*	*38%*	**268**	**198**	**74%**	*4,768*	*1,752*	*37%*
Drummer, Rock Blackfish	**6,228**	**5,743**	**92%**	**1,342**	**1,082**	**81%**	**4,886**	**4,675**	**96%**
Drummer, Silver	**452**	**371**	**82%**	**90**	**90**	**100%**	**362**	**360**	**99%**
Eastern Wirrah	**212**	**212**	**100%**	-	-	-	**212**	**212**	**100%**

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Eel	8,433	5,342	63%	2,626	2,624	100%	5,807	2,807	48%
Fish, unknown	227	227	100%	-	-	-	227	227	100%
Flathead, Dusky	864,726	99,274	11%	297,929	37,078	12%	566,797	73,178	13%
Flathead, Sand	64,830	19,426	30%	21,719	6,186	28%	43,111	15,456	36%
Flathead, Tiger	1,205	1,201	100%	-	-	-	1,205	1,201	100%
Flounder/sole	27,340	4,550	17%	10,774	2,405	22%	16,566	3,374	20%
Garfish	7,145	3,742	52%	7,113	3,742	53%	32	32	99%
Gurnard	1,679	1,427	85%	675	484	72%	1,005	1,001	100%
Leatherjacket	21,996	7,680	35%	13,797	6,907	50%	8,199	2,864	35%
Lizardfish/Grinners	1,106	875	79%	-	-	-	1,106	875	79%
Long Tom	760	411	54%	177	176	100%	583	371	64%
Luderick	74,362	27,428	37%	43,637	19,778	45%	30,725	9,548	31%
Mangrove Jack	1,138	936	82%	202	201	99%	936	914	98%
Morwong, Grey	6,818	4,593	67%	3,916	2,460	63%	2,902	2,161	74%
Morwong, Red	2,760	2,133	77%	2,760	2,133	77%	-	-	-
Moses Snapper	1,842	814	44%	573	348	61%	1,269	627	49%
Mulloway	16,660	4,323	26%	6,907	2,184	32%	9,752	2,976	31%
Pike	9,372	4,885	52%	7,433	4,793	64%	1,940	970	50%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Ray, other	15,846	5,096	32%	-	-	-	15,846	5,096	32%
Ray, Shovelnose	10,677	4,019	38%	2,101	2,100	100%	8,576	2,717	32%
Red Rock Cod	12,915	4,120	32%	4,240	2,898	68%	8,675	2,902	33%
Redfish	2,201	1,915	87%	2,083	1,911	92%	119	118	99%
Sergeant Baker	4,603	1,768	38%	-	-	-	4,603	1,768	38%
Shark, other	47	47	99%	-	-	-	47	47	99%
Shark, Port Jackson	803	492	61%	-	-	-	803	492	61%
Shark, Whaler	6,923	2,636	38%	2,027	1,300	64%	4,896	2,293	47%
Shark, Wobbegong	578	527	91%	-	-	-	578	527	91%
Silverbiddy	7,888	6,887	87%	637	637	100%	7,252	6,838	94%
Snapper	233,500	38,995	17%	36,209	11,672	32%	197,290	35,053	18%
Stargazer	50	50	100%	-	-	-	50	50	100%
Surgeonfish	22	22	100%	-	-	-	22	22	100%
Swallowtail Dart	4,110	2,123	52%	1,294	920	71%	2,816	1,476	52%
Sweep	13,758	7,986	58%	8,081	6,212	77%	5,677	3,004	53%
Tailor	149,493	28,319	19%	44,608	15,434	35%	104,885	19,814	19%
Tarwhine	18,610	6,452	35%	3,288	2,009	61%	15,322	6,133	40%
Toads/pufferfish	10,789	3,023	28%	592	365	62%	10,197	3,001	29%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Trevally, Giant	67	67	100%	-	-	-	67	67	100%
Trevally, other	40	40	100%	40	40	100%	-	-	-
Trevally, Silver	33,303	8,330	25%	8,446	2,800	33%	24,857	7,185	29%
Trumpeter/grunters	7,950	2,869	36%	1,455	1,453	100%	6,495	2,077	32%
Tuna, Bonito	18,664	10,046	54%	8,713	3,609	41%	9,951	6,704	67%
Tuna, Skipjack	16,508	15,258	92%	127	127	100%	16,381	15,257	93%
Whiting, Sand	259,750	39,851	15%	81,477	16,461	20%	178,272	30,024	17%
Whiting, School	1,465	1,055	72%	130	130	100%	1,335	1,015	76%
Whiting, Trumpeter	83,671	64,394	77%	31,562	27,058	86%	52,109	37,789	73%
Wrasse, Maori	1,524	1,150	75%	1,050	1,050	100%	473	471	99%
Wrasse, other	7,850	3,962	50%	3,151	3,149	100%	4,699	2,404	51%
Wrasse, unspecified	1,275	836	66%	-	-	-	1,275	836	66%
Yellowtail Kingfish	49,368	21,119	43%	23,034	15,456	67%	26,334	8,762	33%
FINFISH – BAITFISHES – ESTUARY									
Blue Mackerel	11,674	5,561	48%	6,809	3,802	56%	4,865	4,059	83%
Mullet	48,814	20,894	43%	26,227	9,522	36%	22,587	16,454	73%
Yellowtail Scad	101,829	43,030	42%	80,631	34,880	43%	21,198	10,789	51%
Other small baitfish	24,745	11,720	47%	21,889	11,367	52%	2,856	2,853	100%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
CEPHALOPODS – ESTUARY									
Octopus	*3,745*	*1,434*	*38%*	**1,045**	**642**	**61%**	**2,700**	**1,286**	**48%**
Southern Calamari	**14,325**	**6,432**	**45%**	**14,325**	**6,432**	**45%**	-	-	-
Squids	**102,877**	**56,178**	**55%**	**98,569**	**55,897**	**57%**	**4,308**	**2,356**	**55%**
CRABS & LOBSTERS – ESTUARY									
Crab, Blue Swimmer	84,000	26,714	32%	63,034	21,011	33%	20,966	7,177	34%
Crab, Mud	**108,931**	**56,326**	**52%**	**56,549**	**24,559**	**43%**	**52,381**	**32,355**	**62%**
Crab, other	**11,513**	**10,546**	**92%**	**11,513**	**10,546**	**92%**	-	-	-
Lobster, Rock	**99**	**76**	**77%**	**99**	**76**	**77%**	-	-	-
PRAWNS & YABBIES – ESTUARY									
Ghost Nippers	700,810	166,029	24%	662,210	161,832	24%	*38,600*	*15,160*	*39%*
Prawns (saltwater)	**328,698**	**140,954**	**43%**	**327,809**	**140,951**	**43%**	**889**	**887**	**100%**
MOLLUSCS – ESTUARY									
Abalone	*286*	*285*	*100%*	*286*	*285*	*100%*	-	-	-
Cockles	*818*	*643*	*79%*	*818*	*643*	*79%*	-	-	-
FINFISH – OCEAN									
Amberjack	*1,386*	*861*	*62%*	*754*	*706*	*94%*	*632*	*306*	*48%*
Australian Salmon	36,404	10,654	29%	*24,910*	*8,921*	*36%*	*11,493*	*4,224*	*37%*

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Barracuda	1,670	1,283	77%	-	-	-	1,670	1,283	77%
Bass Groper	350	350	100%	350	350	100%	-	-	-
Batfish/butter bream	1,013	565	56%	-	-	-	1,013	565	56%
Bream	169,595	28,093	17%	57,875	10,755	19%	111,721	21,519	19%
Catfish, eeltail	106	106	100%	-	-	-	106	106	100%
Catfish, forktail	212	212	100%	-	-	-	212	212	100%
Cobia	1,665	875	53%	1,435	842	59%	231	163	71%
Cod/groupers	6,094	2,156	35%	3,595	1,789	50%	2,499	843	34%
Dolphinfish	47,280	17,397	37%	25,413	9,662	38%	21,867	10,256	47%
Drummer, Rock Blackfish	16,374	8,020	49%	8,641	3,797	44%	7,733	4,969	64%
Drummer, Silver	679	447	66%	300	250	83%	378	376	99%
Eel	1,517	1,136	75%	102	101	100%	1,415	1,131	80%
Flathead, Dusky	21,824	9,877	45%	12,622	6,074	48%	9,202	4,088	44%
Flathead, Sand	583,772	102,053	17%	260,125	44,777	17%	323,647	61,893	19%
Flathead, Tiger	47,687	22,611	47%	25,001	13,330	53%	22,686	10,128	45%
Flounder/sole	4,179	2,592	62%	1,961	1,274	65%	2,218	1,466	66%
Garfish	4,859	3,117	64%	1,923	1,911	99%	2,936	2,462	84%
Gurnard	908	568	63%	82	82	100%	826	562	68%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Leatherjacket	31,067	9,486	31%	17,310	5,623	32%	13,757	7,212	52%
Long Tom	67	67	100%	-	-	-	67	67	100%
Luderick	9,182	3,406	37%	7,635	3,174	42%	1,547	696	45%
Mackerel, Narrow-barred	3,301	1,697	51%	2,820	1,550	55%	481	309	64%
Mackerel, Queensland School	304	302	99%	-	-	-	304	302	99%
Mackerel, Spotted	1,693	945	56%	1,602	940	59%	90	90	100%
Marlin, Black	8,445	3,485	41%	200	200	100%	8,245	3,468	42%
Marlin, Blue	378	228	60%	181	180	100%	197	140	71%
Marlin, Striped	1,551	1,020	66%	115	92	80%	1,436	931	65%
Morwong, Grey	27,041	7,019	26%	22,853	6,263	27%	4,188	2,235	53%
Morwong, Red	5,892	2,458	42%	5,892	2,458	42%	-	-	-
Morwong, unspecified	353	351	99%	-	-	-	353	351	99%
Moses Snapper	1,328	875	66%	395	334	84%	933	806	86%
Mulloway	10,514	2,613	25%	6,733	1,672	25%	3,780	1,354	36%
Parrotfish	3,312	1,628	49%	2,456	1,141	46%	856	618	72%
Pearl Perch	17,486	6,946	40%	13,794	6,325	46%	3,693	1,689	46%
Perch, unspecified	1,273	1,062	83%	1,273	1,062	83%	-	-	-
Pigfish	6,704	4,725	70%	6,519	4,720	72%	186	165	89%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Pike	9,412	4,051	43%	1,833	1,000	55%	7,579	3,393	45%
Ray, other	7,285	2,651	36%	-	-	-	7,285	2,651	36%
Ray, Shovelnose	7,115	2,706	38%	334	233	70%	6,782	2,693	40%
Red Rock Cod	54,939	15,647	28%	10,488	5,026	48%	44,451	11,852	27%
Redfish	27,591	10,900	40%	14,935	8,334	56%	12,656	6,922	55%
Rock Cale/Kelpfish	246	245	100%	-	-	-	246	245	100%
Sailfish	101	101	99%	-	-	-	101	101	99%
Sergeant Baker	48,335	21,587	45%	6,368	3,746	59%	41,967	18,554	44%
Shark, Gummy	2,022	1,117	55%	1,550	1,083	70%	471	248	53%
Shark, Hammerhead	180	127	70%	-	-	-	180	127	70%
Shark, Mako	1,449	1,108	76%	1,050	1,050	100%	398	354	89%
Shark, other	3,590	2,618	73%	-	-	-	3,590	2,618	73%
Shark, Port Jackson	2,091	1,157	55%	-	-	-	2,091	1,157	55%
Shark, School	666	527	79%	164	163	100%	502	502	100%
Shark, Tiger	101	101	99%	-	-	-	101	101	99%
Shark, unspecified	428	210	49%	-	-	-	428	210	49%
Shark, Whaler	5,103	2,103	41%	1,042	600	58%	4,061	1,815	45%
Shark, Wobbegong	2,220	1,988	90%	-	-	-	2,220	1,988	90%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Snapper	217,927	32,463	15%	121,324	18,893	16%	96,603	16,107	17%
Surgeonfish	*2,046*	*2,033*	*99%*	*2,046*	*2,033*	*99%*	-	-	-
Swallowtail Dart	28,609	9,060	32%	*5,217*	*2,956*	*57%*	*23,392*	*8,099*	*35%*
Sweep	*27,519*	*15,426*	*56%*	*4,970*	*3,067*	*62%*	*22,549*	*14,469*	*64%*
Sweetlip, Grass	*202*	*201*	*99%*	*202*	*201*	*99%*	-	-	-
Tailor	77,707	20,679	27%	45,306	14,048	31%	*32,401*	*11,663*	*36%*
Tarwhine	*12,018*	*8,258*	*69%*	*9,088*	*8,147*	*90%*	*2,931*	*1,276*	*44%*
Teraglin	*13,051*	*4,113*	*32%*	*11,363*	*3,848*	*34%*	*1,689*	*941*	*56%*
Toads/pufferfish	*8,645*	*4,764*	*55%*	-	-	-	*8,645*	*4,764*	*55%*
Trevally, Giant	*100*	*100*	*100%*	-	-	-	*100*	*100*	*100%*
Trevally, Golden	*100*	*100*	*100%*	-	-	-	*100*	*100*	*100%*
Trevally, Silver	15,955	4,725	30%	*6,869*	*2,809*	*41%*	*9,085*	*3,060*	*34%*
Trumpeter, Bastard	*502*	*502*	*100%*	*502*	*502*	*100%*	-	-	-
Trumpeter/grunters	*2,576*	*2,216*	*86%*	*304*	*302*	*99%*	*2,272*	*2,195*	*97%*
Tuna, Bonito	*20,874*	*6,964*	*33%*	*12,517*	*4,398*	*35%*	*8,357*	*4,170*	*50%*
Tuna, Mackerel	*11,847*	*6,237*	*53%*	*6,166*	*4,134*	*67%*	*5,682*	*2,748*	*48%*
Tuna, Northern Bluefin	*212*	*149*	*70%*	*212*	*149*	*70%*	-	-	-
Tuna, Skipjack	*5,367*	*3,304*	*62%*	*4,037*	*3,193*	*79%*	*1,330*	*849*	*64%*

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Tuna, Yellowfin	3,568	1,997	56%	2,817	1,673	59%	751	530	71%
Tuskfish	1,246	842	68%	1,180	836	71%	65	65	100%
Wahoo	855	806	94%	855	806	94%	-	-	-
Whiting, Sand	81,033	17,888	22%	39,353	9,950	25%	41,680	10,255	25%
Whiting, School	28,473	15,813	56%	10,802	8,015	74%	17,671	10,311	58%
Wrasse, Blue Groper	1,190	620	52%	515	434	84%	675	442	66%
Wrasse, Maori	7,498	2,602	35%	3,011	1,596	53%	4,487	1,979	44%
Wrasse, other	28,582	16,058	56%	4,480	2,916	65%	24,102	13,485	56%
Wrasse, unspecified	594	315	53%	100	100	100%	494	298	60%
Yellowtail Kingfish	58,497	13,641	23%	22,757	6,297	28%	35,740	10,028	28%
FINFISH – BAITFISHES – OCEAN									
Blue Mackerel	133,555	36,820	28%	106,880	33,331	31%	26,675	10,295	39%
Mullet	12,634	11,000	87%	5,245	4,882	93%	7,388	6,140	83%
Yellowtail Scad	136,797	64,035	47%	91,849	33,636	37%	44,947	34,990	78%
Other small baitfish	8,590	5,524	64%	7,280	5,273	72%	1,310	862	66%
CEPHALOPODS – OCEAN									
Cuttlefish	178	131	73%	115	115	100%	63	63	99%
Octopus	302	225	74%	302	225	74%	-	-	-

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Southern Calamari	922	835	91%	922	835	91%	-	-	-
Squids	13,608	5,646	41%	9,644	3,685	38%	3,963	2,528	64%
CRABS & LOBSTERS – OCEAN									
Crab, Mud	2,495	2,490	100%	1,663	1,660	100%	832	830	100%
Lobster, Rock	10,230	5,061	49%	6,393	3,175	50%	3,837	2,091	54%
Lobster, Tropical	409	407	99%	409	407	99%	-	-	-
MOLLUSCS – OCEAN									
Abalone	1,809	1,148	63%	1,809	1,148	63%	-	-	-
Blue Mussel	1,428	1,426	100%	1,428	1,426	100%	-	-	-
Pipis	144,296	80,579	56%	75,696	42,424	56%	68,601	68,507	100%
WORMS – OCEAN									
Beach worms	54,046	20,044	37%	54,046	20,044	37%	-	-	-
MISCELLANEOUS TAXA – OCEAN									
Cunjevoi	1,065	1,059	99%	1,065	1,059	99%	-	-	-
Sea Urchin	2,429	2,414	99%	2,429	2,414	99%	-	-	-
FINFISH – RIVERS									
Australian Bass	159,394	46,819	29%	7,354	4,752	65%	152,041	46,468	31%
Bony Bream	2,060	1,565	76%	-	-	-	2,060	1,565	76%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Bream	1,998	2,000	100%	-	-	-	1,998	2,000	100%
Catfish, eeltail	4,778	1,640	34%	257	255	99%	4,521	1,622	36%
Catfish, forktail	799	642	80%	-	-	-	799	642	80%
Eel	656	360	55%	-	-	-	656	360	55%
European Carp	301,371	86,382	29%	301,371	86,382	29%	-	-	-
Flathead, Dusky	200	200	100%	100	100	100%	100	100	100%
Golden Perch	106,349	20,346	19%	51,604	12,422	24%	54,745	11,439	21%
Mullet	6,998	5,776	83%	3,019	2,398	79%	3,979	3,463	87%
Murray Cod	375,390	51,081	14%	29,359	6,307	21%	346,032	48,339	14%
Redfin Perch	13,579	5,955	44%	9,835	5,603	57%	3,744	2,049	55%
Silver Perch	27,004	7,954	29%	2,488	1,145	46%	24,516	7,882	32%
Trout Cod	37,476	21,058	56%	2,813	2,011	71%	34,663	19,532	56%
Trout, Brown	27,255	8,997	33%	7,246	2,714	37%	20,009	7,373	37%
Trout, Rainbow	49,548	23,026	46%	10,624	5,155	49%	38,924	18,352	47%
CRABS & LOBSTERS – RIVERS									
Murray Crayfish	42,373	26,422	62%	3,967	2,507	63%	38,406	24,910	65%
PRAWNS & YABBIES – RIVERS									
Shrimp (freshwater)	405,074	143,707	35%	358,787	138,652	39%	46,288	31,233	67%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Yabbies (freshwater)	*50,419*	*22,618*	*45%*	*49,064*	*22,312*	*45%*	*1,354*	*772*	*57%*
MISCELLANEOUS TAXA – RIVERS									
Non-fish, other	*2,595*	*1,027*	*40%*	-	-	-	*2,595*	*1,027*	*40%*
FINFISH – LAKES & DAMS									
Australian Bass	*46,415*	*15,659*	*34%*	*2,446*	*1,684*	*69%*	*43,969*	*15,291*	*35%*
Bony Bream	*183*	*183*	*100%*	*92*	*91*	*100%*	*92*	*91*	*100%*
Catfish, eeltail	*16,433*	*9,589*	*58%*	*1,331*	*1,224*	*92%*	*15,102*	*8,559*	*57%*
Catfish, forktail	*4,022*	*3,744*	*93%*	-	-	-	*4,022*	*3,744*	*93%*
Eel	*1,093*	*891*	*82%*	*227*	*227*	*100%*	*866*	*864*	*100%*
European Carp	68,962	20,329	29%	68,962	20,329	29%	-	-	-
Golden Perch	88,410	21,025	24%	27,693	6,006	22%	60,716	18,536	31%
Murray Cod	41,286	12,002	29%	*7,076*	*3,338*	*47%*	34,211	9,134	27%
Redfin Perch	112,033	32,374	29%	99,260	30,838	31%	*12,773*	*6,752*	*53%*
Silver Perch	*12,922*	*7,182*	*56%*	*2,650*	*1,962*	*74%*	*10,272*	*6,445*	*63%*
Spangled Perch	*8,764*	*7,037*	*80%*	-	-	-	*8,764*	*7,037*	*80%*
Trout Cod	*286*	*285*	*100%*	-	-	-	*286*	*285*	*100%*
Trout, Brown	62,831	21,392	34%	*30,619*	*10,996*	*36%*	32,212	12,298	38%
Trout, Rainbow	35,653	9,590	27%	*17,971*	*4,538*	*25%*	17,682	6,944	39%

Appendix 3b – catch by Waterbody	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
PRAWNS & YABBIES – LAKES & DAMS									
Shrimp (freshwater)	*63,240*	*32,450*	*51%*	*63,240*	*32,450*	*51%*	-	-	-
Yabbies (freshwater)	*230,262*	*98,968*	*43%*	*131,382*	*39,670*	*30%*	*98,880*	*71,269*	*72%*
MISCELLANEOUS TAXA – LAKES & DAMS									
Non-fish, other	*420*	*298*	*71%*	-	-	-	*420*	*298*	*71%*

Appendix 3c Annual recreational catch (total, kept and released numbers) caught by RFL households in NSW waters during 2017/18 by reporting and species/groups and PLATFORM. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species/group. Note: estimates are presented by reporting group and Platform then sorted by species/group common name.

Appendix 3c – catch by Platform	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
FINFISH – SALTWATER – BOAT									
Amberjack	*1,386*	*861*	*62%*	*754*	*706*	*94%*	*632*	*306*	*48%*
Australian Salmon	**19,959**	**11,036**	**55%**	**6,579**	**3,028**	**46%**	**13,381**	**8,518**	**64%**
Barracuda	**1,670**	**1,283**	**77%**	-	-	-	**1,670**	**1,283**	**77%**
Bass Groper	**350**	**350**	**100%**	**350**	**350**	**100%**	-	-	-
Batfish/butter bream	**710**	**471**	**66%**	-	-	-	**710**	**471**	**66%**
Bream	543,088	62,402	**11%**	112,551	17,128	15%	430,537	52,695	12%
Bullseye	**1,193**	**1,191**	**100%**	**795**	**794**	**100%**	**398**	**397**	**100%**
Cobia	**1,911**	**905**	**47%**	**1,681**	**872**	**52%**	**231**	**163**	**71%**
Cod/groupers	*8,825*	*2,765*	*31%*	**3,862**	**1,800**	**47%**	*4,963*	*1,768*	*36%*
Dolphinfish	*47,280*	*17,397*	*37%*	*25,413*	*9,662*	*38%*	**21,867**	**10,256**	**47%**
Drummer, Rock Blackfish	**5,557**	**4,815**	**87%**	**3,026**	**2,421**	**80%**	**2,531**	**2,405**	**95%**
Drummer, Silver	**300**	**250**	**83%**	**300**	**250**	**83%**	-	-	-
Eastern Wirrah	**212**	**212**	**100%**	-	-	-	**212**	**212**	**100%**
Flathead, Dusky	743,846	93,608	13%	262,559	34,930	13%	481,288	68,232	14%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Flathead, Sand	584,310	103,676	18%		262,765	45,758	17%		321,545	62,662	19%
Flathead, Tiger	48,840	22,643	46%		25,001	13,330	53%		23,838	10,199	43%
Flounder/sole	25,147	4,409	18%		10,892	2,595	24%		14,255	3,233	23%
Garfish	8,834	3,952	45%		7,113	3,742	53%		1,721	1,283	75%
Gurnard	2,587	1,536	59%		756	491	65%		1,831	1,148	63%
Leatherjacket	34,009	9,522	28%		16,259	5,461	34%		17,750	7,399	42%
Lizardfish/Grinners	273	272	100%		-	-	-		273	272	100%
Long Tom	249	190	76%		177	176	100%		72	72	100%
Luderick	25,696	10,386	40%		14,231	6,215	44%		11,465	4,875	43%
Mackerel, Narrow-barred	2,884	1,676	58%		2,403	1,526	63%		481	309	64%
Mackerel, Queensland School	304	302	99%		-	-	-		304	302	99%
Mackerel, Spotted	1,268	844	67%		1,178	839	71%		90	90	100%
Mangrove Jack	772	584	76%		202	201	99%		569	549	96%
Marlin, Black	8,445	3,485	41%		200	200	100%		8,245	3,468	42%
Marlin, Blue	378	228	60%		181	180	100%		197	140	71%
Marlin, Striped	1,551	1,020	66%		115	92	80%		1,436	931	65%
Morwong, Grey	29,835	8,064	27%		22,745	6,269	28%		7,090	3,109	44%
Morwong, Red	4,054	2,156	53%		4,054	2,156	53%		-	-	-

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Morwong, unspecified	353	351	99%		-	-	-		353	351	99%
Moses Snapper	1,908	1,345	70%		219	165	75%		1,690	1,334	79%
Mulloway	15,903	4,223	27%		8,570	2,352	27%		7,333	2,762	38%
Parrotfish	3,312	1,628	49%		2,456	1,141	46%		856	618	72%
Pearl Perch	17,486	6,946	40%		13,794	6,325	46%		3,693	1,689	46%
Perch, unspecified	1,273	1,062	83%		1,273	1,062	83%		-	-	-
Pigfish	6,704	4,725	70%		6,519	4,720	72%		186	165	89%
Pike	12,667	4,596	36%		3,956	2,260	57%		8,711	3,486	40%
Ray, other	13,046	4,899	38%		-	-	-		13,046	4,899	38%
Ray, Shovelnose	5,621	2,224	40%		82	82	100%		5,539	2,219	40%
Red Rock Cod	60,737	16,115	27%		11,555	5,147	45%		49,181	12,319	25%
Redfish	29,792	11,067	37%		17,018	8,550	50%		12,775	6,923	54%
Sailfish	101	101	99%		-	-	-		101	101	99%
Sergeant Baker	47,401	20,665	44%		6,368	3,746	59%		41,033	17,474	43%
Shark, Gummy	1,940	1,108	57%		1,550	1,083	70%		390	234	60%
Shark, Hammerhead	180	127	70%		-	-	-		180	127	70%
Shark, Mako	1,449	1,108	76%		1,050	1,050	100%		398	354	89%
Shark, other	406	222	55%		-	-	-		406	222	55%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shark, Port Jackson	919	412	45%		-	-	-		919	412	45%
Shark, School	164	163	100%		164	163	100%		-	-	-
Shark, Tiger	101	101	99%		-	-	-		101	101	99%
Shark, unspecified	382	205	54%		-	-	-		382	205	54%
Shark, Whaler	8,137	2,788	34%		2,378	1,327	56%		5,760	2,289	40%
Shark, Wobbegong	237	235	99%		-	-	-		237	235	99%
Silverbiddy	3,785	3,049	81%		637	637	100%		3,148	2,936	93%
Snapper	352,058	43,305	12%		149,670	23,190	15%		202,388	27,088	13%
Stargazer	50	50	100%		-	-	-		50	50	100%
Swallowtail Dart	2,644	1,784	67%		1,399	947	68%		1,245	883	71%
Sweep	31,842	16,054	50%		6,782	4,030	59%		25,059	14,721	59%
Tailor	134,274	28,961	22%		45,148	16,256	36%		89,126	19,924	22%
Tarwhine	11,128	4,320	39%		1,472	1,228	83%		9,656	4,151	43%
Teraglin	13,051	4,113	32%		11,363	3,848	34%		1,689	941	56%
Toads/pufferfish	10,155	4,798	47%		197	196	100%		9,959	4,794	48%
Trevally, Giant	67	67	100%		-	-	-		67	67	100%
Trevally, other	40	40	100%		40	40	100%		-	-	-
Trevally, Silver	30,129	8,528	28%		8,437	3,057	36%		21,691	6,958	32%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Trumpeter/grunters	3,703	2,301	62%		304	302	99%		3,400	2,282	67%
Tuna, Bonito	37,625	12,580	33%		19,318	5,813	30%		18,307	8,199	45%
Tuna, Mackerel	10,574	6,111	58%		5,953	4,129	69%		4,621	2,544	55%
Tuna, Northern Bluefin	212	149	70%		212	149	70%		-	-	-
Tuna, Skipjack	20,040	15,528	77%		4,164	3,195	77%		15,876	15,225	96%
Tuna, Yellowfin	3,568	1,997	56%		2,817	1,673	59%		751	530	71%
Tuskfish	1,246	842	68%		1,180	836	71%		65	65	100%
Wahoo	855	806	94%		855	806	94%		-	-	-
Whiting, Sand	177,403	34,467	19%		50,007	12,408	25%		127,396	27,816	22%
Whiting, School	28,296	15,812	56%		10,625	8,013	75%		17,671	10,311	58%
Whiting, Trumpeter	83,628	64,394	77%		31,519	27,058	86%		52,109	37,789	73%
Wrasse, Blue Groper	206	146	71%		91	91	100%		115	115	100%
Wrasse, Maori	7,073	2,582	37%		3,011	1,596	53%		4,062	1,971	49%
Wrasse, other	27,821	16,102	58%		3,422	2,719	79%		24,399	13,604	56%
Wrasse, unspecified	316	238	75%		100	100	100%		217	216	100%
Yellowtail Kingfish	75,382	17,181	23%		25,252	6,740	27%		50,130	13,398	27%
FINFISH – FRESHWATER – BOAT											
Bony Bream	1,933	1,560	81%		-	-	-		1,933	1,560	81%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
European Carp	118,533	22,095	19%		118,533	22,095	19%		-	-	-
Golden Perch	144,058	29,012	20%		58,277	13,507	23%		85,781	20,903	24%
Murray Cod	286,595	43,753	15%		26,721	7,079	26%		259,874	40,068	15%
Redfin Perch	97,231	34,588	36%		*83,235*	*33,322*	*40%*		*13,995*	*6,902*	*49%*
Silver Perch	22,744	7,030	31%		*3,589*	*1,713*	*48%*		19,155	6,786	35%
Spangled Perch	*7,939*	*6,910*	*87%*		-	-	-		*7,939*	*6,910*	*87%*
Trout Cod	*35,077*	*19,549*	*56%*		*1,179*	*1,177*	*100%*		*33,898*	*19,526*	*58%*
Trout, Brown	*53,884*	*19,376*	*36%*		24,928	9,009	36%		*28,956*	*11,980*	*41%*
Trout, Rainbow	*29,460*	*7,813*	*27%*		12,649	3,892	31%		16,810	5,762	34%
FINFISH – SALT & FRESH – BOAT											
Australian Bass	201,202	57,102	28%		*5,223*	*2,124*	*41%*		195,978	56,939	29%
Catfish, eeltail	*12,481*	*4,224*	*34%*		*360*	*275*	*76%*		*12,121*	*4,217*	*35%*
Catfish, forktail	*3,937*	*1,999*	*51%*		-	-	-		*3,937*	*1,999*	*51%*
Eel	*5,004*	*1,695*	*34%*		*227*	*227*	*100%*		*4,777*	*1,682*	*35%*
FINFISH – BAITFISHES – BOAT											
Blue Mackerel	140,956	39,699	28%		110,104	36,246	33%		*30,852*	*11,048*	*36%*
Mullet	*12,048*	*5,148*	*43%*		7,467	4,451	60%		4,581	2,584	56%
Yellowtail Scad	**164,201**	**79,522**	**48%**		**112,621**	**45,758**	**41%**		51,580	35,720	69%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Other small baitfish	18,273	8,958	49%		14,917	8,358	56%		3,356	2,896	86%
CEPHALOPODS – BOAT											
Cuttlefish	178	131	73%		115	115	100%		63	63	99%
Octopus	1,842	1,126	61%		424	358	84%		1,418	1,068	75%
Southern Calamari	10,119	4,815	48%		10,119	4,815	48%		-	-	-
Squids	85,614	54,098	63%		81,869	53,793	66%		3,745	2,208	59%
CRABS & LOBSTERS – BOAT											
Crab, Blue Swimmer	73,107	23,286	32%		55,731	18,057	32%		17,376	6,709	39%
Crab, Mud	102,271	56,257	55%		50,772	24,415	48%		51,499	32,353	63%
Lobster, Rock	2,915	1,755	60%		1,084	587	54%		1,830	1,221	67%
Murray Crayfish	17,529	10,274	59%		3,214	2,392	74%		14,315	8,003	56%
PRAWNS & YABBIES – BOAT											
Prawns (saltwater)	95,852	52,407	55%		95,852	52,407	55%		-	-	-
Shrimp (freshwater)	51,081	25,462	50%		51,081	25,462	50%		-	-	-
Yabbies (freshwater)	47,080	19,115	41%		46,484	19,067	41%		596	416	70%
MOLLUSCS – BOAT											
Abalone	977	601	62%		977	601	62%		-	-	-

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Cockles	206	206	100%		206	206	100%		-	-	-
MISCELLANEOUS TAXA – BOAT											
Non-fish, other	1,780	829	47%		-	-	-		1,780	829	47%
FINFISH – SALTWATER – SHORE											
Australian Salmon	40,596	11,776	29%		27,370	9,824	36%		13,226	5,139	39%
Batfish/butter bream	2,622	1,524	58%		-	-	-		2,622	1,524	58%
Bream	397,285	46,349	12%		114,907	21,079	18%		282,379	32,908	12%
Cobia	424	425	100%		424	425	100%		-	-	-
Cod/groupers	2,092	818	39%		-	-	-		2,092	818	39%
Drummer, Rock Blackfish	17,045	7,087	42%		6,957	2,908	42%		10,089	5,484	54%
Drummer, Silver	831	528	64%		90	90	100%		740	521	70%
Flathead, Dusky	136,595	22,450	16%		44,973	8,627	19%		91,621	18,079	20%
Flathead, Sand	63,208	18,689	30%		17,995	7,304	41%		45,213	12,371	27%
Flathead, Tiger	53	53	100%		-	-	-		53	53	100%
Flounder/sole	6,000	2,284	38%		1,470	708	48%		4,530	1,834	40%
Garfish	3,170	2,264	71%		1,923	1,911	99%		1,248	1,214	97%
Leatherjacket	19,054	7,557	40%		14,848	6,968	47%		4,206	2,316	55%
Lizardfish/Grinners	833	831	100%		-	-	-		833	831	100%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Long Tom	578	370	64%		-	-	-		578	370	64%
Luderick	57,723	25,515	44%		36,916	19,003	51%		20,807	8,182	39%
Mackerel, Narrow-barred	417	294	71%		417	294	71%		-	-	-
Mackerel, Spotted	424	425	100%		424	425	100%		-	-	-
Mangrove Jack	366	366	100%		-	-	-		366	366	100%
Morwong, Grey	4,025	2,655	66%		4,025	2,655	66%		-	-	-
Morwong, Red	4,598	2,432	53%		4,598	2,432	53%		-	-	-
Moses Snapper	1,262	616	49%		749	453	60%		512	260	51%
Mulloway	11,270	3,158	28%		5,070	1,580	31%		6,200	1,950	31%
Pike	6,118	4,376	72%		5,310	4,342	82%		807	546	68%
Ray, other	10,085	2,996	30%		-	-	-		10,085	2,996	30%
Ray, Shovelnose	12,171	4,322	36%		2,353	2,111	90%		9,818	3,139	32%
Red Rock Cod	7,117	3,146	44%		3,172	2,680	84%		3,946	1,657	42%
Rock Cale/Kelpfish	246	245	100%		-	-	-		246	245	100%
Sergeant Baker	5,537	5,265	95%		-	-	-		5,537	5,265	95%
Shark, Gummy	82	82	100%		-	-	-		82	82	100%
Shark, other	3,232	2,609	81%		-	-	-		3,232	2,609	81%
Shark, Port Jackson	1,975	1,153	58%		-	-	-		1,975	1,153	58%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shark, School	502	502	100%		-	-	-		502	502	100%
Shark, unspecified	46	45	99%		-	-	-		46	45	99%
Shark, Whaler	3,889	1,895	49%		691	536	78%		3,198	1,818	57%
Shark, Wobbegong	2,561	2,044	80%		-	-	-		2,561	2,044	80%
Silverbiddy	4,104	3,909	95%		-	-	-		4,104	3,909	95%
Snapper	99,369	28,021	28%		7,864	3,017	38%		91,505	26,920	29%
Surgeonfish	2,068	2,033	98%		2,046	2,033	99%		22	22	100%
Swallowtail Dart	30,075	9,115	30%		5,112	2,923	57%		24,963	8,194	33%
Sweep	9,435	7,005	74%		6,269	5,795	92%		3,166	1,836	58%
Sweetlip, Grass	202	201	99%		202	201	99%		-	-	-
Tailor	92,926	20,179	22%		44,766	12,953	29%		48,160	11,737	24%
Tarwhine	19,500	8,938	46%		10,904	8,305	76%		8,597	3,255	38%
Toads/pufferfish	9,279	2,881	31%		395	308	78%		8,884	2,865	32%
Trevally, Giant	100	100	100%		-	-	-		100	100	100%
Trevally, Golden	100	100	100%		-	-	-		100	100	100%
Trevally, Silver	19,129	4,949	26%		6,878	2,540	37%		12,251	4,200	34%
Trumpeter, Bastard	502	502	100%		502	502	100%		-	-	-
Trumpeter/grunters	6,822	2,803	41%		1,455	1,453	100%		5,367	1,986	37%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Tuna, Bonito	1,913	1,220	64%		1,913	1,220	64%		-	-	-
Tuna, Mackerel	1,273	1,274	100%		212	212	100%		1,061	1,062	100%
Tuna, Skipjack	1,835	1,297	71%		-	-	-		1,835	1,297	71%
Whiting, Sand	160,382	27,748	17%		70,824	16,531	23%		89,558	14,824	17%
Whiting, School	1,642	1,070	65%		307	219	71%		1,335	1,015	76%
Whiting, Trumpeter	43	43	100%		43	43	100%		-	-	-
Wrasse, Blue Groper	985	602	61%		424	425	100%		560	427	76%
Wrasse, Maori	1,949	1,163	60%		1,050	1,050	100%		899	500	56%
Wrasse, other	8,611	4,342	50%		4,210	3,321	79%		4,402	2,668	61%
Wrasse, unspecified	1,553	861	55%		-	-	-		1,553	861	55%
Yellowtail Kingfish	32,483	19,383	60%		20,539	15,330	75%		11,944	5,176	43%
FINFISH – FRESHWATER – SHORE											
Bony Bream	309	222	72%		92	91	100%		218	155	71%
Bullrout	40	40	100%		-	-	-		40	40	100%
European Carp	235,220	77,735	33%		235,220	77,735	33%		-	-	-
Golden Perch	44,610	10,466	23%		18,468	4,408	24%		26,142	7,413	28%
Murray Cod	115,570	27,075	23%		6,506	2,188	34%		109,065	26,698	24%
Redfin Perch	28,257	10,524	37%		25,860	10,278	40%		2,398	1,254	52%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Silver Perch	11,497	4,253	37%		1,549	864	56%		9,948	4,102	41%
Spangled Perch	825	822	100%		-	-	-		825	822	100%
Trout Cod	2,524	1,727	68%		1,635	1,631	100%		889	569	64%
Trout, Brown	35,850	10,339	29%		12,585	4,171	33%		23,265	7,845	34%
Trout, Rainbow	55,741	22,969	41%		15,945	5,483	34%		39,795	18,246	46%
FINFISH – SALT & FRESH – SHORE											
Australian Bass	42,547	14,380	34%		5,521	4,627	84%		37,026	13,425	36%
Catfish, eeltail	10,083	3,340	33%		106	106	100%		9,977	3,325	33%
Catfish, forktail	6,070	2,809	46%		-	-	-		6,070	2,809	46%
Eel	6,695	5,278	79%		2,728	2,626	96%		3,967	2,680	68%
Fish, unknown	227	227	100%		-	-	-		227	227	100%
FINFISH – BAITFISHES – SHORE											
Blue Mackerel	4,273	2,350	55%		3,585	2,263	63%		688	642	93%
Mullet	56,398	23,671	42%		27,025	10,013	37%		29,373	17,714	60%
Yellowtail Scad	74,425	37,947	51%		59,859	32,095	54%		14,566	8,042	55%
Yellowtail Scad	74,425	37,947	51%		59,859	32,095	54%		14,566	8,042	55%
Other small baitfish	15,062	9,408	62%		14,251	9,382	66%		811	707	87%

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
CEPHALOPODS – SHORE											
Octopus	*2,205*	*921*	*42%*		*923*	*579*	*63%*		*1,282*	*717*	*56%*
Southern Calamari	*5,128*	*3,353*	*65%*		*5,128*	*3,353*	*65%*		-	-	-
Squids	*30,871*	*20,285*	*66%*		*26,344*	*19,769*	*75%*		*4,527*	*2,649*	*59%*
CRABS & LOBSTERS – SHORE											
Crab, Blue Swimmer	*10,894*	*6,957*	*64%*		*7,303*	*5,327*	*73%*		*3,590*	*1,932*	*54%*
Crab, Mud	*9,154*	*3,706*	*40%*		*7,441*	*3,050*	*41%*		*1,714*	*964*	*56%*
Crab, other	*11,513*	*10,546*	*92%*		*11,513*	*10,546*	*92%*		-	-	-
Lobster, Rock	*7,414*	*4,108*	*55%*		*5,407*	*2,787*	*52%*		*2,007*	*1,420*	*71%*
Lobster, Tropical	*409*	*407*	*99%*		*409*	*407*	*99%*		-	-	-
Murray Crayfish	*24,844*	*24,330*	*98%*		*753*	*752*	*100%*		*24,091*	*23,577*	*98%*
PRAWNS & YABBIES – SHORE											
Ghost Nippers	700,810	166,029	24%		662,210	161,832	24%		*38,600*	*15,160*	*39%*
Prawns (saltwater)	*232,846*	*124,971*	*54%*		*231,957*	*124,968*	*54%*		*889*	*887*	*100%*
Shrimp (freshwater)	*406,598*	*142,966*	*35%*		*360,310*	*137,977*	*38%*		*46,288*	*31,233*	*67%*
Yabbies (freshwater)	*233,601*	*98,832*	*42%*		*133,962*	*41,287*	*31%*		*99,639*	*71,271*	*72%*
MOLLUSCS – SHORE											
Abalone	*1,118*	*1,019*	*91%*		*1,118*	*1,019*	*91%*		-	-	-

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
Blue Mussel	*1,428*	*1,426*	*100%*		*1,428*	*1,426*	*100%*		-	-	-
Cockles	*611*	*610*	*100%*		*611*	*610*	*100%*		-	-	-
Pipis	**144,296**	**80,579**	**56%**		**75,696**	**42,424**	**56%**		**68,601**	**68,507**	**100%**
WORMS – SHORE											
Beach worms	*54,046*	*20,044*	*37%*		*54,046*	*20,044*	*37%*		-	-	-
MISCELLANEOUS TAXA – SHORE											
Cunjevoi	*1,065*	*1,059*	*99%*		*1,065*	*1,059*	*99%*		-	-	-
Non-fish, other	*1,235*	*676*	*55%*		-	-	-		*1,235*	*676*	*55%*
Sea Urchin	*2,429*	*2,414*	*99%*		*2,429*	*2,414*	*99%*		-	-	-
FINFISH – SALTWATER – BOTH (Boat & Shore platforms)											
Bream	*3,593*	*1,405*	*39%*		**1,096**	**614**	**56%**		*2,497*	*1,152*	*46%*
Cod/groupers	**212**	**212**	**100%**		-	-	-		**212**	**212**	**100%**
Flathead, Dusky	*6,308*	*2,353*	*37%*		*3,118*	*1,229*	*39%*		**3,190**	**1,583**	**50%**
Flathead, Sand	**1,084**	**1,081**	**100%**		**1,084**	**1,081**	**100%**		-	-	-
Flounder/sole	**372**	**371**	**100%**		**372**	**371**	**100%**		-	-	-
Luderick	**124**	**124**	**100%**		**124**	**124**	**100%**		-	-	-
Whiting, Sand	**2,998**	**2,542**	**85%**		-	-	-		**2,998**	**2,542**	**85%**
FINFISH – FRESHWATER – BOTH (Boat & Shore platforms)											

Appendix 3c – catch by Platform	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
European Carp	16,579	13,588	82%		16,579	13,588	82%		-	-	-
Golden Perch	6,090	3,191	52%		2,553	1,711	67%		3,538	2,202	62%
Murray Cod	14,512	5,820	40%		3,208	1,646	51%		11,304	4,834	43%
Redfin Perch	124	124	100%		-	-	-		124	124	100%
Silver Perch	5,685	3,529	62%		-	-	-		5,685	3,529	62%
Trout Cod	161	161	100%		-	-	-		161	161	100%
Trout, Brown	353	351	99%		353	351	99%		-	-	-
FINFISH – SALT & FRESH – BOTH (Boat & Shore platforms)											
Australian Bass	1,941	1,588	82%		398	397	100%		1,544	1,537	100%
Catfish, eeltail	5,729	5,693	99%		1,228	1,220	99%		4,501	4,473	99%
Catfish, forktail	1,544	1,537	100%		-	-	-		1,544	1,537	100%
PRAWNS & YABBIES – FRESHWATER – BOTH (Boat & Shore platforms)											
Shrimp (freshwater)	10,635	10,606	100%		10,635	10,606	100%		-	-	-

Appendix 3d Annual recreational catch (total, kept and released numbers) caught by RFL households in NSW waters during 2017/18 by reporting and species/groups and REGION. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species/group. Note: estimates are presented by reporting group and Region, then sorted by species/group common name.

Appendix 3d – catch by Region	TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
FINFISH – NORTHERN									
Amberjack	*1,386*	*861*	*62%*	*754*	*706*	*94%*	*632*	*306*	*0*
Australian Bass	*2,078*	*1,126*	*54%*	*1,097*	*805*	*73%*	*981*	*588*	*60%*
Australian Salmon	*6,836*	*6,004*	*88%*	*6,351*	*5,997*	*94%*	*484*	*293*	*61%*
Barracuda	*477*	*477*	*100%*	-	-	-	*477*	*477*	*100%*
Bass Groper	*350*	*350*	*100%*	*350*	*350*	*100%*	-	-	-
Batfish/butter bream	*1,350*	*673*	*50%*	-	-	-	*1,350*	*673*	*50%*
Bream	365,653	50,561	14%	94,599	18,866	20%	271,054	37,415	14%
Bullrout	*40*	*40*	*100%*	-	-	-	*40*	*40*	*100%*
Catfish, eeltail	*4,923*	*2,476*	*50%*	*106*	*106*	*100%*	*4,816*	*2,455*	*51%*
Catfish, forktail	*5,657*	*2,336*	*41%*	-	-	-	*5,657*	*2,336*	*41%*
Cobia	*1,363*	*658*	*48%*	*1,132*	*614*	*54%*	*231*	*163*	*71%*
Cod/groupers	*7,642*	*2,278*	*30%*	*3,685*	*1,791*	*49%*	*3,957*	*1,076*	*27%*
Dolphinfish	*25,884*	*14,117*	*55%*	*15,713*	*8,849*	*56%*	*10,171*	*6,146*	*60%*
Drummer, Rock Blackfish	*11,130*	*6,712*	*60%*	*4,109*	*2,638*	*64%*	*7,022*	*5,188*	*74%*

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Drummer, Silver	82	82	100%		82	82	100%		-	-	-
Eastern Wirrah	212	212	100%		-	-	-		212	212	100%
Eel	614	321	52%		-	-	-		614	321	52%
Flathead, Dusky	304,832	62,838	21%		83,936	17,407	21%		220,895	48,642	22%
Flathead, Sand	70,026	15,672	22%		35,227	9,752	28%		34,799	7,772	22%
Flathead, Tiger	220	132	60%		167	120	72%		53	53	100%
Flounder/sole	7,002	2,743	39%		2,157	1,289	60%		4,845	1,695	35%
Garfish	9,438	4,789	51%		6,470	4,107	63%		2,968	2,463	83%
Leatherjacket	8,560	4,067	48%		6,338	3,822	60%		2,222	1,301	59%
Long Tom	358	297	83%		-	-	-		358	297	83%
Luderick	28,515	10,799	38%		17,469	6,654	38%		11,046	4,889	44%
Mackerel, Narrow-barred	2,891	1,648	57%		2,683	1,544	58%		207	146	71%
Mackerel, Queensland School	304	302	99%		-	-	-		304	302	99%
Mackerel, Spotted	1,602	940	59%		1,602	940	59%		-	-	-
Mangrove Jack	1,138	936	82%		202	201	99%		936	914	98%
Marlin, Black	6,036	3,215	53%		200	200	100%		5,836	3,196	55%
Marlin, Blue	197	140	71%		-	-	-		197	140	71%
Marlin, Striped	92	91	100%		-	-	-		92	91	100%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Morwong, Grey	1,739	1,231	71%		1,579	1,223	77%		160	140	87%
Morwong, Red	732	518	71%		732	518	71%		-	-	-
Moses Snapper	3,170	1,492	47%		968	482	50%		2,202	1,357	62%
Mulloway	16,054	4,034	25%		9,073	2,402	26%		6,980	2,290	33%
Parrotfish	3,312	1,628	49%		2,456	1,141	46%		856	618	72%
Pearl Perch	11,842	4,092	35%		8,150	2,915	36%		3,693	1,689	46%
Perch, unspecified	100	100	100%		100	100	100%		-	-	-
Pigfish	429	284	66%		407	283	70%		22	22	100%
Pike	5,960	3,632	61%		774	677	88%		5,186	3,023	58%
Ray, other	9,129	2,416	26%		-	-	-		9,129	2,416	26%
Ray, Shovelnose	9,804	3,251	33%		334	233	70%		9,470	3,240	34%
Red Rock Cod	20,579	7,508	36%		1,276	750	59%		19,303	7,427	38%
Redfish	2,752	1,404	51%		1,416	985	70%		1,336	854	64%
Sailfish	101	101	99%		-	-	-		101	101	99%
Sergeant Baker	5,522	2,720	49%		764	540	71%		4,758	2,667	56%
Shark, Gummy	50	50	100%		50	50	100%		-	-	-
Shark, Hammerhead	92	91	100%		-	-	-		92	91	100%
Shark, Mako	45	45	100%		-	-	-		45	45	100%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shark, other	425	257	61%		-	-	-		425	257	61%
Shark, Port Jackson	549	406	74%		-	-	-		549	406	74%
Shark, Tiger	101	101	99%		-	-	-		101	101	99%
Shark, unspecified	324	183	57%		-	-	-		324	183	57%
Shark, Whaler	6,710	2,555	38%		793	414	52%		5,917	2,364	40%
Shark, Wobbegong	2,036	1,975	97%		-	-	-		2,036	1,975	97%
Silverbiddy	1,038	870	84%		637	637	100%		401	284	71%
Snapper	140,030	26,634	19%		75,676	14,916	20%		64,354	13,839	22%
Stargazer	50	50	100%		-	-	-		50	50	100%
Surgeonfish	2,046	2,033	99%		2,046	2,033	99%		-	-	-
Swallowtail Dart	29,099	9,259	32%		6,330	3,243	51%		22,769	8,030	35%
Sweep	1,315	763	58%		366	366	100%		949	670	71%
Sweetlip, Grass	202	201	99%		202	201	99%		-	-	-
Tailor	55,924	16,240	29%		36,588	12,410	34%		19,337	6,809	35%
Tarwhine	12,148	8,251	68%		9,316	8,154	88%		2,832	1,127	40%
Teraglin	10,865	3,486	32%		9,176	3,169	35%		1,689	941	56%
Toads/pufferfish	4,126	1,860	45%		301	222	74%		3,824	1,847	48%
Trevally, Giant	167	120	72%		-	-	-		167	120	72%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Trevally, Golden	100	100	100%		-	-	-		100	100	100%
Trevally, other	40	40	100%		40	40	100%		-	-	-
Trevally, Silver	9,779	3,023	31%		2,110	986	47%		7,669	2,522	33%
Trumpeter/grunters	2,348	1,092	47%		304	302	99%		2,044	1,050	51%
Tuna, Bonito	9,334	4,097	44%		5,796	2,859	49%		3,537	2,616	74%
Tuna, Mackerel	11,847	6,237	53%		6,166	4,134	67%		5,682	2,748	48%
Tuna, Northern Bluefin	212	149	70%		212	149	70%		-	-	-
Tuna, Skipjack	4,365	3,261	75%		3,251	3,151	97%		1,114	840	75%
Tuna, Yellowfin	2,949	1,957	66%		2,552	1,661	65%		397	395	100%
Tuskfish	1,246	842	68%		1,180	836	71%		65	65	100%
Wahoo	855	806	94%		855	806	94%		-	-	-
Whiting, Sand	199,960	41,358	21%		69,616	19,344	28%		130,344	27,898	21%
Whiting, School	10,861	9,020	83%		348	208	60%		10,513	9,014	86%
Whiting, Trumpeter	81,368	64,375	79%		31,562	27,058	86%		49,806	37,757	76%
Wrasse, Blue Groper	912	587	64%		515	434	84%		397	395	100%
Wrasse, Maori	1,097	607	55%		199	198	100%		899	500	56%
Wrasse, other	1,148	728	63%		-	-	-		1,148	728	63%
Wrasse, unspecified	283	208	74%		100	100	100%		183	183	100%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Yellowtail Kingfish	37,412	11,160	30%		15,513	4,492	29%		21,899	7,447	34%
FINFISH – BAITFISHES – NORTHERN											
Blue Mackerel	48,564	15,777	32%		40,719	12,366	30%		7,845	4,689	60%
Mullet	8,739	5,073	58%		6,114	3,693	60%		2,624	1,683	64%
Yellowtail Scad	36,785	15,791	43%		28,711	12,284	43%		8,074	4,588	57%
Other small baitfish	14,676	11,636	79%		13,365	11,519	86%		1,310	862	66%
CEPHALOPODS – NORTHERN											
Cuttlefish	63	63	99%		-	-	-		63	63	99%
Octopus	550	271	49%		302	225	74%		248	152	61%
Southern Calamari	999	1,000	100%		999	1,000	100%		-	-	-
Squids	2,632	1,724	65%		2,425	1,711	71%		207	206	99%
CRABS & LOBSTERS – NORTHERN											
Crab, Blue Swimmer	27,829	16,083	58%		21,655	12,040	56%		6,174	4,989	81%
Crab, Mud	90,689	55,516	61%		41,158	23,505	57%		49,531	32,230	65%
Crab, other	1,009	1,005	100%		1,009	1,005	100%		-	-	-
Lobster, Rock	5,220	3,912	75%		3,437	2,447	71%		1,783	1,516	85%
Lobster, Tropical	409	407	99%		409	407	99%		-	-	-
PRAWNS & YABBIES – NORTHERN											

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Ghost Nippers	370,834	106,404	29%		356,258	105,149	30%		**14,576**	**7,742**	**53%**
Prawns (saltwater)	**62,672**	**42,537**	**68%**		**62,672**	**42,537**	**68%**		-	-	-
MOLLUSCS – NORTHERN											
Abalone	**464**	**276**	**60%**		**464**	**276**	**60%**		-	-	-
Cockles	**206**	**206**	**100%**		**206**	**206**	**100%**		-	-	-
Pipis	**104,209**	**71,745**	**69%**		**35,609**	**21,309**	**60%**		**68,601**	**68,507**	**100%**
WORMS – NORTHERN											
Beach worms	**28,122**	**13,244**	**47%**		**28,122**	**13,244**	**47%**		-	-	-
MISCELLANEOUS TAXA – NORTHERN											
Sea Urchin	**2,429**	**2,414**	**99%**		**2,429**	**2,414**	**99%**		-	-	-
FINFISH – CENTRAL											
Australian Salmon	**21,461**	**10,369**	**48%**		**14,171**	**7,450**	**53%**		**7,291**	**4,031**	**55%**
Australian Bass	**5,219**	**3,074**	**59%**		-	-	-		**5,219**	**3,074**	**59%**
Barracuda	**1,193**	**1,191**	**100%**		-	-	-		**1,193**	**1,191**	**100%**
Batfish/butter bream	**1,982**	**1,513**	**76%**		-	-	-		**1,982**	**1,513**	**76%**
Bream	373,302	52,826	14%		86,878	17,978	21%		286,425	43,454	15%
Bullseye	**1,193**	**1,191**	**100%**		**795**	**794**	**100%**		**398**	**397**	**100%**

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
Catfish, eeltail	*1,279*	*831*	*65%*		*-*	*-*	*-*		*1,279*	*831*	*65%*
Catfish, forktail	*1,074*	*1,073*	*100%*		*-*	*-*	*-*		*1,074*	*1,073*	*100%*
Cobia	*973*	*751*	*77%*		*973*	*751*	*77%*		*-*	*-*	*-*
Cod/groupers	*773*	*546*	*71%*		*-*	*-*	*-*		*773*	*546*	*71%*
Dolphinfish	*20,779*	*8,395*	*40%*		*9,523*	*3,765*	*40%*		*11,256*	*5,908*	*52%*
Drummer, Rock Blackfish	*5,012*	*4,806*	*96%*		*2,504*	*2,404*	*96%*		*2,508*	*2,404*	*96%*
Drummer, Silver	*90*	*90*	*100%*		*90*	*90*	*100%*		*-*	*-*	*-*
Eel	*8,233*	*5,419*	*66%*		*2,728*	*2,626*	*96%*		*5,505*	*2,959*	*54%*
Fish, unknown	*227*	*227*	*100%*		*-*	*-*	*-*		*227*	*227*	*100%*
Flathead, Dusky	227,412	36,173	16%		122,064	25,484	21%		105,348	18,464	18%
Flathead, Sand	97,448	25,781	26%		41,875	13,590	32%		55,573	14,762	27%
Flathead, Tiger	*994*	*992*	*100%*		*199*	*198*	*100%*		*795*	*794*	*100%*
Flounder/sole	*11,956*	*3,172*	*27%*		*5,780*	*1,905*	*33%*		*6,176*	*2,105*	*34%*
Garfish	*1,098*	*1,097*	*100%*		*1,098*	*1,097*	*100%*		*-*	*-*	*-*
Gurnard	*273*	*272*	*100%*		*273*	*272*	*100%*		*-*	*-*	*-*
Leatherjacket	*22,525*	*7,827*	*35%*		**14,074**	**6,878**	**49%**		*8,451*	*3,011*	*36%*
Lizardfish/Grinners	*1,106*	*875*	*79%*		*-*	*-*	*-*		*1,106*	*875*	*79%*
Long Tom	*293*	*231*	*79%*		*-*	*-*	*-*		*293*	*231*	*79%*

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Luderick	31,890	24,347	76%		23,105	18,593	80%		8,785	5,882	67%
Mackerel, Narrow-barred	410	408	100%		137	136	100%		273	272	100%
Mackerel, Spotted	90	90	100%		-	-	-		90	90	100%
Marlin, Black	181	180	100%		-	-	-		181	180	100%
Marlin, Blue	181	180	100%		181	180	100%		-	-	-
Marlin, Striped	23	23	100%		-	-	-		23	23	100%
Morwong, Grey	2,844	1,372	48%		2,411	1,304	54%		433	432	100%
Morwong, Red	4,088	2,451	60%		4,088	2,451	60%		-	-	-
Mulloway	6,783	2,805	41%		2,225	854	38%		4,557	2,265	50%
Pigfish	398	397	100%		398	397	100%		-	-	-
Pike	8,645	4,814	56%		6,672	4,679	70%		1,973	1,013	51%
Ray, other	8,899	4,696	53%		-	-	-		8,899	4,696	53%
Ray, Shovelnose	6,896	3,528	51%		2,101	2,100	100%		4,795	1,916	40%
Red Rock Cod	29,861	13,536	45%		10,484	5,497	52%		19,377	8,728	45%
Redfish	189	143	76%		-	-	-		189	143	76%
Sergeant Baker	31,290	20,328	65%		4,870	3,634	75%		26,420	17,095	65%
Shark, Gummy	213	155	73%		-	-	-		213	155	73%
Shark, Mako	1,050	1,050	100%		1,050	1,050	100%		-	-	-

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shark, other	657	552	84%		-	-	-		657	552	84%
Shark, Port Jackson	1,133	615	54%		-	-	-		1,133	615	54%
Shark, Whaler	885	712	80%		700	700	100%		185	130	71%
Shark, Wobbegong	525	525	100%		-	-	-		525	525	100%
Snapper	178,419	35,505	20%		38,620	12,485	32%		139,799	31,430	22%
Surgeonfish	22	22	100%		-	-	-		22	22	100%
Swallowtail Dart	2,472	1,635	66%		181	180	100%		2,292	1,625	71%
Sweep	8,021	6,927	86%		5,777	5,774	100%		2,243	1,588	71%
Tailor	127,182	27,778	22%		42,315	15,783	37%		84,867	19,302	23%
Tarwhine	9,987	3,745	37%		1,472	1,228	83%		8,515	3,551	42%
Teraglin	2,186	2,183	100%		2,186	2,183	100%		-	-	-
Toads/pufferfish	2,322	1,249	54%		290	290	100%		2,031	1,216	60%
Trevally, Silver	20,431	6,770	33%		7,904	3,321	42%		12,526	5,564	44%
Trumpeter/grunters	5,469	2,652	48%		1,455	1,453	100%		4,014	1,766	44%
Tuna, Bonito	27,788	11,564	42%		13,620	4,518	33%		14,167	7,725	55%
Tuna, Skipjack	16,552	15,261	92%		82	82	100%		16,471	15,260	93%
Whiting, Sand	80,881	21,173	26%		27,410	8,697	32%		53,471	15,722	29%
Whiting, Trumpeter	1,475	1,378	93%		-	-	-		1,475	1,378	93%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Wrasse, Maori	2,447	1,532	63%		2,218	1,515	68%		230	229	100%
Wrasse, other	4,776	3,290	69%		3,970	3,254	82%		806	486	60%
Wrasse, unspecified	551	426	77%		-	-	-		551	426	77%
Yellowtail Kingfish	49,953	20,555	41%		26,148	15,859	61%		23,805	8,357	35%
FINFISH – BAITFISHES – CENTRAL											
Blue Mackerel	25,314	12,101	48%		13,219	5,130	39%		12,095	8,425	70%
Mullet	21,007	12,205	58%		11,682	6,543	56%		9,325	6,600	71%
Yellowtail Scad	182,679	86,549	47%		132,158	54,673	41%		50,521	35,967	71%
Other small baitfish	12,721	9,226	73%		12,721	9,226	73%		-	-	-
MOLLUSCS – CENTRAL											
Cuttlefish	115	115	100%		115	115	100%		-	-	-
Octopus	1,806	1,192	66%		525	525	100%		1,281	1,075	84%
Southern Calamari	14,248	6,402	45%		14,248	6,402	45%		-	-	-
Squids	103,386	57,576	56%		96,402	57,149	59%		6,985	3,370	48%
CRABS & LOBSTERS – CENTRAL											
Crab, Blue Swimmer	51,006	21,403	42%		36,793	17,232	47%		14,213	5,211	37%
Crab, Mud	18,164	9,778	54%		14,522	7,196	50%		3,641	2,963	81%
Crab, other	10,504	10,498	100%		10,504	10,498	100%		-	-	-

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Lobster, Rock	*3,983*	*2,558*	*64%*		*1,929*	*1,257*	*65%*		*2,054*	*1,440*	*70%*
PRAWNS & YABBIES – CENTRAL											
Ghost Nippers	*41,138*	*23,918*	*58%*		*33,187*	*17,903*	*54%*		*7,951*	*7,940*	*100%*
Prawns (saltwater)	*30,165*	*24,638*	*82%*		*30,165*	*24,638*	*82%*		-	-	-
MOLLUSCS – CENTRAL											
Cockles	*611*	*610*	*100%*		*611*	*610*	*100%*		-	-	-
FINFISH – SOUTHERN											
Australian Bass	32,584	23,890	*73%*		*246*	*245*	*100%*		32,338	23,888	*74%*
Australian Salmon	*32,258*	*11,725*	36%		*13,426*	*4,335*	32%		*18,832*	*9,077*	48%
Bream	203,012	31,705	16%		47,077	9,722	21%		155,935	27,251	17%
Catfish, eeltail	*881*	*592*	*67%*		-	-	-		*881*	*592*	*67%*
Dolphinfish	*617*	*614*	*99%*		*176*	*175*	*99%*		*441*	*438*	*99%*
Drummer, Rock Blackfish	*6,460*	*2,353*	*36%*		*3,370*	*1,273*	*38%*		*3,090*	*1,816*	*59%*
Drummer, Silver	*959*	*545*	*57%*		*218*	*171*	*78%*		*740*	*521*	*70%*
Eel	*1,103*	*493*	*45%*		-	-	-		*1,103*	*493*	*45%*
Flathead, Dusky	354,306	67,579	19%		104,550	21,418	20%		249,756	50,569	20%
Flathead, Sand	481,128	100,714	21%		204,741	42,163	21%		276,387	62,368	23%
Flathead, Tiger	*47,679*	*22,621*	*47%*		*24,636*	*13,328*	*54%*		*23,043*	*10,168*	*44%*

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Flounder/sole	12,562	3,075	24%		4,798	1,463	30%		7,764	2,408	31%
Garfish	1,468	1,464	100%		1,468	1,464	100%		-	-	-
Gurnard	2,314	1,512	65%		484	409	84%		1,831	1,148	63%
Leatherjacket	21,978	8,418	38%		10,694	4,142	39%		11,284	7,034	62%
Long Tom	177	176	100%		177	176	100%		-	-	-
Luderick	23,139	7,563	33%		10,698	3,745	35%		12,440	5,734	46%
Marlin, Black	2,229	1,311	59%		-	-	-		2,229	1,311	59%
Marlin, Striped	1,436	1,015	71%		115	92	80%		1,321	927	70%
Morwong, Grey	29,276	8,275	28%		22,780	6,549	29%		6,496	3,076	47%
Morwong, Red	3,832	1,858	48%		3,832	1,858	48%		-	-	-
Morwong, unspecified	353	351	99%		-	-	-		353	351	99%
Mulloway	4,337	1,534	35%		2,342	1,125	48%		1,995	1,021	51%
Pearl Perch	5,644	5,613	99%		5,644	5,613	99%		-	-	-
Perch, unspecified	1,173	1,057	90%		1,173	1,057	90%		-	-	-
Pigfish	5,878	4,700	80%		5,714	4,694	82%		164	163	100%
Pike	4,180	1,964	47%		1,820	1,257	69%		2,359	1,512	64%
Ray, other	5,103	2,317	45%		-	-	-		5,103	2,317	45%
Ray, Shovelnose	1,093	658	60%		-	-	-		1,093	658	60%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Red Rock Cod	17,414	5,094	29%		2,968	1,630	55%		14,446	4,553	32%
Redfish	26,851	10,978	41%		15,602	8,493	54%		11,249	6,870	61%
Rock Cale/Kelpfish	246	245	100%		-	-	-		246	245	100%
Sergeant Baker	16,126	7,011	43%		734	732	100%		15,392	6,973	45%
Shark, Gummy	1,759	1,105	63%		1,500	1,082	72%		258	193	75%
Shark, Hammerhead	88	88	99%		-	-	-		88	88	99%
Shark, Mako	353	351	99%		-	-	-		353	351	99%
Shark, other	2,556	2,508	98%		-	-	-		2,556	2,508	98%
Shark, Port Jackson	1,212	1,018	84%		-	-	-		1,212	1,018	84%
Shark, School	666	527	79%		164	163	100%		502	502	100%
Shark, unspecified	104	103	100%		-	-	-		104	103	100%
Shark, Whaler	4,432	2,077	47%		1,575	1,184	75%		2,856	1,707	60%
Shark, Wobbegong	237	235	99%		-	-	-		237	235	99%
Silverbiddy	6,851	6,832	100%		-	-	-		6,851	6,832	100%
Snapper	132,977	25,301	19%		43,238	10,045	23%		89,740	19,293	21%
Swallowtail Dart	1,148	1,145	100%		-	-	-		1,148	1,145	100%
Sweep	31,941	16,065	50%		6,907	4,043	59%		25,033	14,730	59%
Tailor	44,093	13,200	30%		11,011	3,836	35%		33,082	10,321	31%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Tarwhine	8,493	5,281	62%		1,587	1,579	99%		6,906	5,040	73%
Toads/pufferfish	12,987	5,177	40%		-	-	-		12,987	5,177	40%
Trevally, Silver	19,047	6,462	34%		5,301	1,906	36%		13,747	5,388	39%
Trumpeter, Bastard	502	502	100%		502	502	100%		-	-	-
Trumpeter/grunters	2,709	2,229	82%		-	-	-		2,709	2,229	82%
Tuna, Bonito	2,417	1,654	68%		1,814	1,199	66%		603	460	76%
Tuna, Skipjack	958	567	59%		831	525	63%		127	127	100%
Tuna, Yellowfin	619	441	71%		264	263	100%		354	354	100%
Whiting, Sand	59,942	13,845	23%		23,804	6,981	29%		36,138	9,684	27%
Whiting, School	19,078	13,010	68%		10,585	8,013	76%		8,493	5,090	60%
Whiting, Trumpeter	829	825	100%		-	-	-		829	825	100%
Wrasse, Blue Groper	279	199	72%		-	-	-		279	199	72%
Wrasse, Maori	5,477	2,320	42%		1,645	1,147	70%		3,832	1,958	51%
Wrasse, other	30,508	16,266	53%		3,662	2,799	76%		26,846	13,768	51%
Wrasse, unspecified	1,035	757	73%		-	-	-		1,035	757	73%
Yellowtail Kingfish	20,500	10,823	53%		4,130	2,334	57%		16,370	9,004	55%
FINFISH – BAITFISHES – SOUTHERN											
Blue Mackerel	71,350	34,513	48%		59,751	33,802	57%		11,599	5,442	47%

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Mullet	31,702	19,534	62%		13,675	7,578	55%		18,026	16,189	90%
Yellowtail Scad	19,162	8,147	43%		11,611	5,347	46%		7,551	5,007	66%
Other small baitfish	5,938	3,445	58%		3,082	1,931	63%		2,856	2,853	100%
MOLLUSCS – SOUTHERN											
Octopus	1,691	783	46%		519	370	71%		1,171	690	59%
Squids	10,466	4,457	43%		9,386	3,940	42%		1,080	713	66%
CRABS & LOBSTERS – SOUTHERN											
Crab, Blue Swimmer	5,165	1,977	38%		4,586	1,766	38%		579	403	70%
Crab, Mud	2,573	1,579	61%		2,532	1,578	62%		41	41	100%
Lobster, Rock	1,126	730	65%		1,126	730	65%		-	-	-
PRAWNS & NIPPERS – SOUTHERN											
Ghost Nippers	288,839	124,850	43%		272,765	121,954	45%		16,074	9,266	58%
Prawns (saltwater)	235,861	126,813	54%		234,972	126,810	54%		889	887	100%
MOLLUSCS – SOUTHERN											
Abalone	1,631	1,103	68%		1,631	1,103	68%		-	-	-
Blue Mussel	1,428	1,426	100%		1,428	1,426	100%		-	-	-
Pipis	40,087	36,685	92%		40,087	36,685	92%		-	-	-
WORMS – SOUTHERN											

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
Beach worms	*25,925*	*15,045*	*58%*		*25,925*	*15,045*	*58%*		-	-	-
MISCELLANEOUS TAXA – SOUTHERN											
Cunjevoi	*1,065*	*1,059*	*99%*		*1,065*	*1,059*	*99%*		-	-	-
FINFISH – EASTERN											
Australian Bass	204,142	50,884	25%		9,799	5,043	*51%*		194,343	50,447	26%
Bream	*1,998*	*2,000*	*100%*		-	-	-		*1,998*	*2,000*	*100%*
Catfish, eeltail	*6,058*	*4,707*	*78%*		-	-	-		*6,058*	*4,707*	*78%*
Catfish, forktail	*4,774*	*3,798*	*80%*		-	-	-		*4,774*	*3,798*	*80%*
Eel	*1,522*	*934*	*61%*		-	-	-		*1,522*	*934*	*61%*
Flathead, Dusky	*200*	*200*	*100%*		*100*	*100*	*100%*		*100*	*100*	*100%*
Mullet	*6,998*	*5,776*	*83%*		*3,019*	*2,398*	*79%*		*3,979*	*3,463*	*87%*
European Carp	59,251	53,096	*90%*		59,251	53,096	*90%*		-	-	-
Golden Perch	*6,173*	*2,358*	*38%*		*918*	*412*	*45%*		*5,255*	*2,237*	*43%*
Murray Cod	*1,784*	*1,367*	*77%*		-	-	-		*1,784*	*1,367*	*77%*
Silver Perch	*6,293*	*6,149*	*98%*		-	-	-		*6,293*	*6,149*	*98%*
Trout, Brown	*10,101*	*5,970*	*59%*		*304*	*302*	*99%*		*9,798*	*5,824*	*59%*
Trout, Rainbow	*14,311*	*6,779*	*47%*		*2,166*	*1,443*	*67%*		*12,146*	*6,387*	*53%*
PRAWNS & YABBIES – EASTERN											

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shrimp (freshwater)	*36,537*	*35,832*	*98%*		*36,537*	*35,832*	*98%*		-	-	-
Yabbies (freshwater)	*682*	*680*	*100%*		*682*	*680*	*100%*		-	-	-
MISCELLANEOUS TAXA – EASTERN											
Non-fish, other	*24*	*23*	*100%*		-	-	-		*24*	*23*	*100%*
FINFISH – MURRAY-DARLING											
Australian Bass	*1,667*	*905*	*54%*		-	-	-		*1,667*	*905*	*54%*
Catfish, eeltail	*15,153*	*8,513*	*56%*		*1,588*	*1,251*	*79%*		*13,565*	*7,330*	*54%*
Catfish, forktail	*46*	*46*	*99%*		-	-	-		*46*	*46*	*99%*
Bony Bream	2,243	1,576	*70%*		*92*	*91*	*100%*		2,151	1,568	*73%*
Eel	*227*	*227*	*100%*		*227*	*227*	*100%*		-	-	-
European Carp	311,082	72,589	23%		311,082	72,589	23%		-	-	-
Golden Perch	188,065	32,220	17%		78,379	15,086	19%		109,685	22,801	21%
Murray Cod	414,893	54,674	13%		36,434	7,862	22%		378,459	50,752	13%
Redfin Perch	124,571	36,773	30%		108,053	35,429	33%		*16,517*	*7,048*	*43%*
Silver Perch	32,927	8,744	27%		*4,433*	*2,161*	*49%*		28,494	8,111	28%
Spangled Perch	*8,764*	*7,037*	*80%*		-	-	-		*8,764*	*7,037*	*80%*
Trout Cod	*37,762*	*21,060*	*56%*		*2,813*	*2,011*	*71%*		*34,949*	*19,534*	*56%*
Trout, Brown	*38,397*	*15,624*	*41%*		*14,240*	*6,108*	*43%*		*24,157*	*9,962*	*41%*

Appendix 3d – catch by Region	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Trout, Rainbow	31,977	11,556	36%		11,404	4,275	37%		20,573	7,940	39%
CRABS & LOBSTERS – MURRAY-DARLING											
Murray Crayfish	**42,373**	**26,422**	**62%**		**3,967**	**2,507**	**63%**		**38,406**	**24,910**	**65%**
PRAWNS & YABBIES – MURRAY-DARLING											
Shrimp (freshwater)	431,777	150,161	35%		385,489	145,445	38%		**46,288**	**31,233**	**67%**
Yabbies (freshwater)	273,088	101,981	37%		172,854	46,590	27%		**100,234**	**71,272**	**71%**
MISCELLANEOUS TAXA – MURRAY-DARLING											
Non-fish, other	2,992	1,069	36%		-	-	-		2,992	1,069	36%
FINFISH – SOUTH-EAST											
Golden Perch	**521**	**519**	**100%**		-	-	-		**521**	**519**	**100%**
Redfin Perch	**1,041**	**1,037**	**100%**		**1,041**	**1,037**	**100%**		-	-	-
Silver Perch	**705**	**702**	**99%**		**705**	**702**	**99%**		-	-	-
Trout, Brown	41,588	15,964	38%		**23,322**	**9,497**	**41%**		**18,266**	**8,508**	**47%**
Trout, Rainbow	38,912	14,844	38%		15,025	4,280	28%		**23,887**	**12,774**	**53%**
PRAWNS & YABBIES – SOUTH-EAST											
Yabbies (freshwater)	**6,911**	**6,879**	**100%**		**6,911**	**6,879**	**100%**		-	-	-

Appendix 3e. Annual recreational catch (total, kept and released numbers) caught by RFL households in NSW waters during 2017/18 by species/species group and fishing METHOD. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species/species group. Note: estimates are presented by reporting group and fishing Method then sorted by species/group common name.

Appendix 3e – catch by Method	TOTAL			KEPT			RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**	**Number**	**SE**	**RSE**
FINFISH – SALTWATER – LINE & Bait									
Amberjack	*652*	*513*	*79%*	*455*	*453*	*99%*	*196*	*121*	*61%*
Australian Salmon	37,886	10,550	28%	*22,790*	*7,811*	*34%*	*15,096*	*5,594*	*37%*
Barracuda	*1,431*	*1,215*	*85%*	-	-	-	*1,431*	*1,215*	*85%*
Bass Groper	*350*	*350*	*100%*	*350*	*350*	*100%*	-	-	-
Batfish/butter bream	*1,677*	*1,036*	*62%*	-	-	-	*1,677*	*1,036*	*62%*
Bream	613,598	58,846	10%	159,900	23,015	14%	453,698	45,154	10%
Bullseye	*1,193*	*1,191*	*100%*	*795*	*794*	*100%*	*398*	*397*	*100%*
Cobia	*707*	*493*	*70%*	*583*	*444*	*76%*	*125*	*124*	*100%*
Cod/groupers	*6,292*	*2,134*	*34%*	*1,840*	*1,107*	*60%*	*4,453*	*1,681*	*38%*
Dolphinfish	*16,153*	*5,559*	*34%*	*10,093*	*3,630*	*36%*	*6,060*	*2,820*	*47%*
Drummer, Rock Blackfish	*19,211*	*9,554*	*50%*	*6,851*	*3,101*	*45%*	*12,361*	*6,820*	*55%*
Drummer, Silver	*646*	*457*	*71%*	-	-	-	*646*	*457*	*71%*
Flathead, Dusky	323,243	38,438	12%	123,561	15,561	13%	199,682	27,856	14%
Flathead, Sand	497,261	89,867	18%	216,495	38,517	18%	280,766	55,426	20%
Flathead, Tiger	*42,991*	*20,828*	*48%*	*22,086*	*11,913*	*54%*	*20,905*	*9,694*	*46%*

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Flounder/sole	17,972	3,548	20%		8,065	1,944	24%		9,907	2,469	25%
Garfish	*10,306*	*4,654*	*45%*		*8,960*	*4,495*	*50%*		*1,346*	*1,218*	*90%*
Gurnard	*1,523*	*889*	*58%*		*283*	*216*	*76%*		*1,240*	*737*	*59%*
Leatherjacket	43,812	11,283	26%		*24,607*	*8,035*	*33%*		*19,204*	*7,423*	*39%*
Lizardfish/Grinners	*1,106*	*875*	*79%*		-	-	-		*1,106*	*875*	*79%*
Long Tom	*537*	*298*	*56%*		*177*	*176*	*100%*		*360*	*241*	*67%*
Luderick	75,152	27,308	36%		**46,593**	**19,814**	**43%**		28,559	9,246	32%
Mackerel, Narrow-barred	*2,274*	*1,574*	*69%*		*2,031*	*1,466*	*72%*		*243*	*173*	*71%*
Mackerel, Spotted	*1,218*	*837*	*69%*		*1,127*	*833*	*74%*		*90*	*90*	*100%*
Mangrove Jack	*183*	*183*	*100%*		-	-	-		*183*	*183*	*100%*
Marlin, Black	*2,535*	*1,116*	*44%*		-	-	-		*2,535*	*1,116*	*44%*
Marlin, Striped	*1,185*	*836*	*71%*		*58*	*46*	*80%*		*1,127*	*790*	*70%*
Morwong, Grey	25,807	7,379	29%		21,542	6,190	29%		*4,265*	*2,274*	*53%*
Morwong, Red	*1,436*	*1,318*	*92%*		*1,436*	*1,318*	*92%*		-	-	-
Morwong, unspecified	*353*	*351*	*99%*		-	-	-		*353*	*351*	*99%*
Moses Snapper	*2,557*	*1,153*	*45%*		*905*	*478*	*53%*		*1,652*	*975*	*59%*
Mulloway	15,591	3,191	20%		8,225	2,005	24%		*7,366*	*2,129*	*29%*
Parrotfish	*1,982*	*978*	*49%*		*1,477*	*775*	*52%*		*506*	*323*	*64%*

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
Pearl Perch	*6,068*	*2,340*	*39%*		*4,479*	*1,667*	*37%*		**1,589**	**900**	**57%**
Perch, unspecified	**687**	**538**	**78%**		**687**	**538**	**78%**		-	-	-
Pigfish	**6,318**	**4,717**	**75%**		**6,214**	**4,715**	**76%**		**104**	**84**	**82%**
Pike	**7,433**	**3,344**	**45%**		**5,067**	**3,174**	**63%**		*2,366*	*914*	*39%*
Ray, other	15,691	3,904	25%		-	-	-		15,691	3,904	25%
Ray, Shovelnose	12,960	3,628	28%		**1,909**	**1,592**	**83%**		11,050	2,996	27%
Red Rock Cod	48,347	13,912	29%		**10,908**	**5,104**	**47%**		37,439	9,772	26%
Redfish	**25,250**	**10,787**	**43%**		**14,206**	**8,292**	**58%**		**11,043**	**6,832**	**62%**
Rock Cale/Kelpfish	**246**	**245**	**100%**		-	-	-		**246**	**245**	**100%**
Sailfish	**101**	**101**	**99%**		-	-	-		**101**	**101**	**99%**
Sergeant Baker	**38,661**	**20,190**	**52%**		**4,847**	**3,419**	**71%**		33,814	16,969	50%
Shark, Gummy	**1,776**	**1,095**	**62%**		**1,461**	**1,078**	**74%**		**315**	**157**	**50%**
Shark, Hammerhead	**136**	**101**	**75%**		-	-	-		**136**	**101**	**75%**
Shark, Mako	**1,338**	**1,082**	**81%**		**1,050**	**1,050**	**100%**		**287**	**264**	**92%**
Shark, other	**3,274**	**2,588**	**79%**		-	-	-		**3,274**	**2,588**	**79%**
Shark, Port Jackson	**2,531**	**1,190**	**47%**		-	-	-		**2,531**	**1,190**	**47%**
Shark, School	**666**	**527**	**79%**		**164**	**163**	**100%**		**502**	**502**	**100%**
Shark, Tiger	**51**	**50**	**99%**		-	-	-		**51**	**50**	**99%**

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shark, unspecified	265	174	66%		-	-	-		265	174	66%
Shark, Whaler	7,429	2,273	31%		2,247	1,046	47%		5,182	1,969	38%
Shark, Wobbegong	2,535	2,006	79%		-	-	-		2,535	2,006	79%
Silverbiddy	7,039	6,835	97%		-	-	-		7,039	6,835	97%
Snapper	345,589	45,293	13%		109,600	18,000	16%		235,988	36,586	16%
Stargazer	50	50	100%		-	-	-		50	50	100%
Surgeonfish	22	22	100%		-	-	-		22	22	100%
Swallowtail Dart	29,710	9,109	31%		5,247	3,030	58%		24,463	8,136	33%
Sweep	31,540	15,384	49%		8,168	4,546	56%		23,372	14,295	61%
Tailor	99,323	19,357	19%		34,678	8,703	25%		64,646	14,937	23%
Tarwhine	24,640	9,453	38%		12,376	8,396	68%		12,264	4,311	35%
Teraglin	9,922	3,720	37%		8,809	3,560	40%		1,113	818	73%
Toads/pufferfish	16,424	4,272	26%		395	308	78%		16,029	4,261	27%
Trevally, other	40	40	100%		40	40	100%		-	-	-
Trevally, Silver	34,393	7,903	23%		10,322	3,180	31%		24,071	6,762	28%
Trumpeter/grunters	8,710	3,429	39%		1,607	1,460	91%		7,103	2,796	39%
Tuna, Bonito	13,917	7,560	54%		7,742	3,283	42%		6,174	4,853	79%
Tuna, Mackerel	4,838	2,737	57%		2,063	1,286	62%		2,775	1,992	72%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Tuna, Northern Bluefin	53	53	100%		53	53	100%		-	-	-
Tuna, Skipjack	3,414	1,933	57%		1,717	1,578	92%		1,698	1,116	66%
Tuna, Yellowfin	851	539	63%		497	407	82%		354	354	100%
Tuskfish	877	552	63%		812	544	67%		65	65	100%
Wahoo	202	201	99%		202	201	99%		-	-	-
Whiting, Sand	243,925	40,424	17%		100,573	21,479	21%		143,352	23,272	16%
Whiting, School	29,135	15,793	54%		10,867	8,015	74%		18,267	10,296	56%
Whiting, Trumpeter	75,345	63,171	84%		30,299	26,973	89%		45,046	36,340	81%
Wrasse, Blue Groper	1,088	607	56%		470	427	91%		618	431	70%
Wrasse, Maori	7,353	2,479	34%		2,928	1,467	50%		4,425	1,975	45%
Wrasse, other	30,785	16,208	53%		4,851	3,204	66%		25,934	13,634	53%
Wrasse, unspecified	1,686	873	52%		100	100	100%		1,586	868	55%
Yellowtail Kingfish	58,356	20,732	36%		28,158	15,494	55%		30,198	8,840	29%
FINFISH – FRESHWATER – LINE & Bait											
Bony Bream	1,455	998	69%		92	91	100%		1,363	986	72%
Bullrout	40	40	100%		-	-	-		40	40	100%
European Carp	297,427	84,153	28%		297,427	84,153	28%		-	-	-
Golden Perch	83,051	13,555	16%		39,147	8,662	22%		43,904	8,932	20%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Murray Cod	246,512	39,859	16%		20,109	4,010	20%		226,402	38,428	17%
Redfin Perch	26,394	8,288	31%		23,814	8,223	35%		**2,580**	**1,163**	**45%**
Silver Perch	27,011	8,547	32%		**1,580**	**732**	**46%**		25,432	8,515	33%
Spangled Perch	**8,655**	**7,038**	**81%**		-	-	-		**8,655**	**7,038**	**81%**
Trout Cod	**18,841**	**10,523**	**56%**		**1,407**	**1,005**	**71%**		**17,435**	**9,760**	**56%**
Trout, Brown	*4,742*	*1,640*	*35%*		*4,102*	*1,497*	*36%*		**640**	**368**	**57%**
Trout, Rainbow	*10,674*	*3,448*	*32%*		*6,640*	*2,007*	*30%*		**4,034**	**1,963**	**49%**
FINFISH – SALT & FRESH – LINE & Bait											
Australian Bass	*19,468*	*6,070*	*31%*		**2,065**	**1,470**	**71%**		*17,404*	*5,515*	*32%*
Catfish, eeltail	17,181	5,505	32%		**1,080**	**678**	**63%**		*16,101*	*5,459*	*34%*
Catfish, forktail	*7,360*	*2,922*	*40%*		-	-	-		*7,360*	*2,922*	*40%*
Eel	*7,304*	*3,650*	*50%*		*1,940*	*1,840*	*95%*		*5,364*	*2,048*	*38%*
Fish, unknown	**114**	**113**	**100%**		-	-	-		**114**	**113**	**100%**
FINFISH – BAITFISHES – LINE & Bait											
Blue Mackerel	75,559	20,332	27%		52,723	15,928	30%		22,836	9,051	40%
Mullet	*20,264*	*7,412*	*37%*		*15,426*	*5,938*	*38%*		**4,838**	**2,102**	**43%**
Yellowtail Scad	**171,134**	**75,197**	**44%**		112,086	43,036	38%		**59,049**	**36,169**	**61%**
Other small baitfish	**21,499**	**13,840**	**64%**		**20,439**	**13,811**	**68%**		**1,060**	**748**	**70%**

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
CEPHALOPODS – LINE & Bait											
Cuttlefish	121	85	71%		57	57	100%		63	63	99%
Octopus	2,490	1,215	49%		394	281	71%		2,096	1,184	56%
Southern Calamari	5,759	3,551	62%		5,759	3,551	62%		-	-	-
Squids	23,121	10,052	43%		19,278	9,820	51%		3,842	1,645	43%
CRABS & LOBSTERS – LINE & Bait											
Crab, Blue Swimmer	10,969	4,586	42%		7,274	3,834	53%		3,695	1,955	53%
Crab, Mud	2,747	2,166	79%		2,390	2,155	90%		357	218	61%
Murray Crayfish	956	551	58%		-	-	-		956	551	58%
MISCELLANEOUS TAXA – LINE & Bait											
Non-fish, other	2,242	813	36%		-	-	-		2,242	813	36%
FINFISH – SALTWATER – LINE & Lure											
Amberjack	734	425	58%		299	256	86%		436	275	63%
Australian Salmon	22,485	8,558	38%		10,974	4,214	38%		11,511	5,627	49%
Barracuda	239	238	100%		-	-	-		239	238	100%
Batfish/butter bream	1,655	868	52%		-	-	-		1,655	868	52%
Bream	327,147	48,263	15%		65,571	12,030	18%		261,576	41,340	16%
Cobia	531	329	62%		425	311	73%		106	106	100%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Cod/groupers	4,838	1,685	35%		2,023	1,048	52%		2,815	947	34%
Dolphinfish	30,430	12,895	42%		14,622	6,515	45%		15,808	8,128	51%
Drummer, Rock Blackfish	258	187	72%		-	-	-		258	187	72%
Drummer, Silver	95	94	99%		-	-	-		95	94	99%
Eastern Wirrah	212	212	100%		-	-	-		212	212	100%
Flathead, Dusky	561,307	85,236	15%		184,890	30,375	16%		376,417	62,313	17%
Flathead, Sand	147,443	33,743	23%		61,450	15,322	25%		85,993	20,209	24%
Flathead, Tiger	5,902	3,284	56%		2,915	1,865	64%		2,986	1,777	60%
Flounder/sole	13,547	3,250	24%		4,669	1,389	30%		8,878	2,525	28%
Garfish	1,698	1,282	75%		76	76	100%		1,622	1,279	79%
Gurnard	1,064	757	71%		474	338	71%		590	508	86%
Leatherjacket	4,117	1,360	33%		1,365	725	53%		2,752	1,117	41%
Long Tom	290	290	100%		-	-	-		290	290	100%
Luderick	5,546	2,764	50%		1,833	888	48%		3,713	2,378	64%
Mackerel, Narrow-barred	822	376	46%		584	273	47%		238	169	71%
Mackerel, Queensland School	304	302	99%		-	-	-		304	302	99%
Mackerel, Spotted	475	428	90%		475	428	90%		-	-	-
Mangrove Jack	955	758	79%		202	201	99%		752	731	97%

Appendix 3e – catch by Method	TOTAL			KEPT			RELEASED		
Reporting & Species/group	Number	SE	RSE	Number	SE	RSE	Number	SE	RSE
Marlin, Black	5,910	3,166	54%	200	200	100%	5,710	3,147	55%
Marlin, Blue	378	228	60%	181	180	100%	197	140	71%
Marlin, Striped	366	271	74%	58	46	80%	308	247	80%
Morwong, Grey	5,998	2,700	45%	3,173	1,375	43%	2,825	1,492	53%
Morwong, Red	972	799	82%	972	799	82%	-	-	-
Moses Snapper	613	417	68%	63	48	77%	550	413	75%
Mulloway	11,173	3,428	31%	5,007	1,607	32%	6,166	2,089	34%
Parrotfish	1,330	818	62%	979	581	59%	350	304	87%
Pearl Perch	11,419	6,054	53%	9,314	5,808	62%	2,104	1,240	59%
Perch, unspecified	587	528	90%	587	528	90%	-	-	-
Pigfish	184	137	74%	102	73	72%	82	82	100%
Pike	11,351	4,546	40%	4,199	2,510	60%	7,152	3,284	46%
Ray, other	7,440	2,690	36%	-	-	-	7,440	2,690	36%
Ray, Shovelnose	4,833	1,768	37%	525	525	100%	4,307	1,519	35%
Red Rock Cod	18,934	6,796	36%	3,246	1,357	42%	15,687	6,425	41%
Redfish	4,543	2,234	49%	2,811	1,942	69%	1,731	946	55%
Sergeant Baker	14,277	5,942	42%	1,521	942	62%	12,756	5,868	46%
Shark, Gummy	245	128	52%	89	63	71%	157	111	71%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Shark, Hammerhead	44	44	99%		-	-	-		44	44	99%
Shark, Mako	111	91	82%		-	-	-		111	91	82%
Shark, other	364	204	56%		-	-	-		364	204	56%
Shark, Port Jackson	363	233	64%		-	-	-		363	233	64%
Shark, Tiger	51	50	99%		-	-	-		51	50	99%
Shark, unspecified	163	114	70%		-	-	-		163	114	70%
Shark, Whaler	4,503	1,830	41%		822	566	69%		3,681	1,685	46%
Shark, Wobbegong	263	262	100%		-	-	-		263	262	100%
Silverbiddy	849	850	100%		637	637	100%		212	212	100%
Snapper	105,565	17,866	17%		47,934	10,436	22%		57,632	9,179	16%
Swallowtail Dart	3,009	1,794	60%		1,264	884	70%		1,745	934	54%
Sweep	9,737	5,151	53%		4,883	2,963	61%		4,854	2,742	56%
Tailor	127,740	27,220	21%		55,100	17,946	33%		72,640	16,166	22%
Tarwhine	5,988	2,940	49%		-	-	-		5,988	2,940	49%
Teraglin	3,130	1,357	43%		2,554	1,022	40%		576	439	76%
Toads/pufferfish	3,010	2,120	70%		197	196	100%		2,813	2,110	75%
Trevally, Giant	167	120	72%		-	-	-		167	120	72%
Trevally, Golden	100	100	100%		-	-	-		100	100	100%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Trevally, Silver	14,440	3,841	27%		4,569	1,645	36%		9,871	2,831	29%
Trumpeter/grunters	1,815	1,136	63%		152	151	99%		1,664	1,126	68%
Tuna, Bonito	22,191	9,357	42%		10,058	3,515	35%		12,133	6,457	53%
Tuna, Mackerel	7,009	4,598	66%		4,103	2,985	73%		2,906	1,893	65%
Tuna, Northern Bluefin	159	118	74%		159	118	74%		-	-	-
Tuna, Skipjack	18,461	15,304	83%		2,447	1,660	68%		16,014	15,227	95%
Tuna, Yellowfin	2,717	1,670	61%		2,320	1,427	61%		397	395	100%
Tuskfish	369	367	100%		369	367	100%		-	-	-
Wahoo	653	605	93%		653	605	93%		-	-	-
Whiting, Sand	94,936	22,277	23%		18,335	3,849	21%		76,601	20,935	27%
Whiting, School	804	637	79%		65	65	100%		738	620	84%
Whiting, Trumpeter	8,326	7,210	87%		1,263	1,236	98%		7,063	5,984	85%
Wrasse, Blue Groper	103	73	71%		45	45	100%		57	57	100%
Wrasse, Maori	1,669	759	45%		1,134	633	56%		535	340	64%
Wrasse, other	5,647	2,470	44%		2,780	1,731	62%		2,866	1,555	54%
Wrasse, unspecified	183	183	100%		-	-	-		183	183	100%
Yellowtail Kingfish	45,600	11,422	25%		13,724	3,824	28%		31,876	8,632	27%
FINFISH – FRESHWATER – LINE & Lure											

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
Bony Bream	*788*	*587*	*75%*		-	-	-		*788*	*587*	*75%*
European Carp	69,774	18,963	27%		69,774	18,963	27%		-	-	-
Golden Perch	111,707	25,554	23%		40,150	9,697	24%		71,557	19,973	28%
Murray Cod	170,165	30,017	18%		16,325	4,547	28%		153,840	27,474	18%
Redfin Perch	99,218	32,784	33%		85,280	31,360	37%		*13,938*	*6,796*	*49%*
Silver Perch	*12,914*	*4,659*	*36%*		*3,559*	*2,099*	*59%*		*9,356*	*3,400*	*36%*
Spangled Perch	*109*	*108*	*100%*		-	-	-		*109*	*108*	*100%*
Trout Cod	*18,921*	*11,670*	*62%*		*1,407*	*1,005*	*71%*		*17,514*	*10,986*	*63%*
Trout, Brown	85,344	22,763	27%		33,763	10,453	31%		*51,581*	*14,523*	*28%*
Trout, Rainbow	74,526	23,980	32%		21,954	6,219	28%		52,572	19,152	36%
FINFISH – SALT & FRESH – LINE & Lure											
Australian Bass	226,222	61,078	27%		*9,077*	*4,837*	*53%*		217,145	60,807	28%
Catfish, eeltail	*11,112*	*7,770*	*70%*		*614*	*610*	*99%*		*10,498*	*7,170*	*68%*
Catfish, forktail	*4,191*	*2,055*	*49%*		-	-	-		*4,191*	*2,055*	*49%*
Eel	*4,167*	*2,094*	*50%*		788	787	100%		*3,380*	*1,453*	*43%*
Fish, unknown	*114*	*113*	*100%*		-	-	-		*114*	*113*	*100%*
FINFISH – BAITFISHES – LINE & Lure											
Blue Mackerel	**69,670**	**30,442**	**44%**		**60,966**	**29,757**	**49%**		**8,704**	**3,709**	**43%**

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Mullet	8,596	4,725	55%		1,788	1,224	68%		6,808	3,791	56%
Yellowtail Scad	67,491	19,979	30%		60,395	18,678	31%		7,097	2,934	41%
Other small baitfish	5,636	3,428	61%		2,530	1,673	66%		3,106	2,864	92%
CEPHALOPODS – LINE & Lure											
Cuttlefish	57	57	100%		57	57	100%		-	-	-
Octopus	1,215	532	44%		651	440	68%		564	300	53%
Southern Calamari	8,657	3,698	43%		8,657	3,698	43%		-	-	-
Squids	91,182	48,357	53%		86,752	47,990	55%		4,429	2,709	61%
CRABS & LOBSTERS – LINE & Lure											
Crab, Blue Swimmer	1,626	614	38%		1,224	536	44%		402	245	61%
Murray Crayfish	337	336	100%		-	-	-		337	336	100%
MISCELLANEOUS TAXA – LINE & Lure											
Non-fish, other	774	401	52%		-	-	-		774	401	52%
FINFISH – SALTWATER – POT/TRAP											
Bream	275	194	71%		136	136	100%		139	138	100%
Flathead, Dusky	347	249	72%		347	249	72%		-	-	-
Leatherjacket	91	91	100%		91	91	100%		-	-	-
Shark, Whaler	94	94	100%		-	-	-		94	94	100%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Snapper	273	272	100%		-	-	-		273	272	100%
FINFISH - FRESHWATER– POT/TRAP											
European Carp	2,751	2,727	99%		2,751	2,727	99%		-	-	-
FINFISH – SALT & FRESH – POT/TRAP											
Eel	227	227	100%		227	227	100%		-	-	-
FINFISH – BAITFISHES – POT/TRAP											
Mullet	36,896	21,840	59%		14,587	7,605	52%		22,309	17,270	77%
Other small baitfish	6,200	4,973	80%		6,200	4,973	80%		-	-	-
MOLLUSCS – POT/TRAP											
Octopus	40	40	100%		-	-	-		40	40	100%
Squids	1,636	1,635	100%		1,636	1,635	100%		-	-	-
CRABS & LOBSTERS – POT/TRAP											
Crab, Blue Swimmer	71,406	26,130	37%		54,537	20,456	38%		16,869	6,916	41%
Crab, Mud	108,678	56,340	52%		55,822	24,520	44%		52,856	32,365	61%
Lobster, Rock	416	416	100%		119	119	100%		297	297	100%
Murray Crayfish	41,080	26,399	64%		3,967	2,507	63%		37,114	24,885	67%
PRAWNS & YABBIES – POT/TRAP											
Shrimp (freshwater)	421,850	151,540	36%		377,669	146,907	39%		44,180	31,163	71%

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Yabbies (freshwater)	206,126	95,753	46%		116,437	37,116	32%		89,689	70,637	79%
MOLLUSCS – POT/TRAP											
Cockles	206	206	100%		206	206	100%		-	-	-
FINFISH – FRESHWATER – NET											
European Carp	379	377	99%		379	377	99%		-	-	-
FINFISH – BAITFISHES – NET											
Mullet	2,145	2,132	99%		2,145	2,132	99%		-	-	-
PRAWNS & YABBIES – NET											
Prawns (saltwater)	328,698	140,954	43%		327,809	140,951	43%		889	887	100%
Shrimp (freshwater)	46,464	28,139	61%		44,357	27,873	63%		2,107	2,095	99%
Yabbies (freshwater)	72,868	36,272	50%		62,322	29,153	47%		10,546	9,604	91%
FINFISH – SALTWATER – DIVE											
Australian Salmon	185	184	100%		185	184	100%		-	-	-
Bream	2,946	1,737	59%		2,946	1,737	59%		-	-	-
Cobia	1,098	805	73%		1,098	805	73%		-	-	-
Dolphinfish	697	505	72%		697	505	72%		-	-	-
Drummer, Rock Blackfish	3,132	2,098	67%		3,132	2,098	67%		-	-	-
Drummer, Silver	391	266	68%		391	266	68%		-	-	-

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Flathead, Dusky	1,852	1,151	62%		1,852	1,151	62%		-	-	-
Flathead, Sand	3,898	3,511	90%		3,898	3,511	90%		-	-	-
Leatherjacket	5,043	2,547	51%		5,043	2,547	51%		-	-	-
Luderick	2,846	1,496	53%		2,846	1,496	53%		-	-	-
Mackerel, Narrow-barred	205	203	99%		205	203	99%		-	-	-
Morwong, Grey	2,055	1,196	58%		2,055	1,196	58%		-	-	-
Morwong, Red	6,245	2,484	40%		6,245	2,484	40%		-	-	-
Mullet	545	545	100%		545	545	100%		-	-	-
Mulloway	409	407	99%		409	407	99%		-	-	-
Pigfish	202	201	99%		202	201	99%		-	-	-
Red Rock Cod	573	544	95%		573	544	95%		-	-	-
Surgeonfish	2,046	2,033	99%		2,046	2,033	99%		-	-	-
Sweetlip, Grass	202	201	99%		202	201	99%		-	-	-
Tailor	136	136	100%		136	136	100%		-	-	-
Trevally, Silver	424	425	100%		424	425	100%		-	-	-
Trumpeter, Bastard	502	502	100%		502	502	100%		-	-	-
Tuna, Bonito	3,430	2,418	70%		3,430	2,418	70%		-	-	-
Whiting, Sand	1,923	1,095	57%		1,923	1,095	57%		-	-	-

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE		Number	SE	RSE
Yellowtail Kingfish	3,909	3,186	81%		3,909	3,186	81%		-	-	-
CEPHALOPODS – DIVE											
Octopus	302	225	74%		302	225	74%		-	-	-
Southern Calamari	832	830	100%		832	830	100%		-	-	-
Squids	546	543	100%		546	543	100%		-	-	-
CRABS & LOBSTERS – DIVE											
Crab, other	10,504	10,498	100%		10,504	10,498	100%		-	-	-
Lobster, Rock	9,912	5,045	51%		6,373	3,173	50%		3,540	2,069	58%
Lobster, Tropical	409	407	99%		409	407	99%		-	-	-
MOLLUSCS – DIVE											
Abalone	2,094	1,183	56%		2,094	1,183	56%		-	-	-
MISCELLANEOUS TAXA – DIVE											
Sea Urchin	2,429	2,414	99%		2,429	2,414	99%		-	-	-
CRABS & LOBSTERS – OTHER											
Crab, other	1,009	1,005	100%		1,009	1,005	100%		-	-	-
PRAWNS & YABBIES – OTHER											
Ghost Nippers	700,810	166,029	24%		662,210	161,832	24%		38,600	15,160	39%
Yabbies (freshwater)	1,687	1,678	99%		1,687	1,678	99%		-	-	-

Appendix 3e – catch by Method	TOTAL				KEPT				RELEASED		
Reporting & Species/group	**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**		**Number**	**SE**	**RSE**
MOLLUSCS – OTHER											
Blue Mussel	*1,428*	*1,426*	*100%*		*1,428*	*1,426*	*100%*		-	-	-
Cockles	*611*	*610*	*100%*		*611*	*610*	*100%*		-	-	-
Pipis	*144,296*	*80,579*	*56%*		*75,696*	*42,424*	*56%*		*68,601*	*68,507*	*100%*
WORMS – OTHER											
Beach worms	*58,669*	*27,231*	*47%*		*58,669*	*27,231*	*47%*		-	-	-
MISCELLANEOUS TAXA – OTHER											
Cunjevoi	*1,065*	*1,059*	*99%*		*1,065*	*1,059*	*99%*		-	-	-

Appendix 4.   Number of animals released and reasons for release for species/groups caught by RFL households during 2017/18.

Appendix 4. Release reason	Total Released		Too Small	Undersized	Too Many	Over Bag	Catch/Release	Unwanted	Berried Female	Other
Reporting & Species/group	No.	SE	No.	No.	No.	No.	No.	No.	No.	No.
FINFISH – SALTWATER										
Amberjack	632	306	145	46	137	-	102	202	-	-
Australian Salmon	26,607	9,939	1,977	5,691	8,582	-	9,266	1,091	-	-
Barracuda	1,670	1,283	-	-	-	-	-	1,670	-	-
Batfish/butter bream	3,332	1,653	1,170	822	330	-	1,010	-	-	-
Bream	715,412	64,663	91,884	368,790	15,736	769	215,821	22,015	-	398
Bullseye	398	397	-	398	-	-	-	-	-	-
Cobia	231	163	-	-	-	-	106	125	-	-
Cod/groupers	7,267	1,954	850	3,099	584	-	1,314	1,419	-	-
Dolphinfish	21,867	10,256	5,031	7,359	4,756	-	4,523	199	-	-
Drummer, Rock Blackfish	12,619	6,822	508	6,613	4,668	-	653	176	-	-
Drummer, Silver	740	521	-	457	-	-	284	-	-	-
Eastern Wirrah	212	212	-	-	-	-	-	212	-	-
Flathead, Dusky	576,099	73,290	42,413	324,953	60,078	-	140,860	4,564	-	3,230
Flathead, Sand	366,758	64,745	70,384	218,042	44,711	8,268	25,027	326	-	-
Flathead, Tiger	23,891	10,199	795	13,658	8,057	-	-	1,382	-	-
Flounder/sole	18,785	3,750	3,536	6,418	353	-	6,371	2,107	-	-
Garfish	2,968	2,463	-	406	-	-	2,562	-	-	-
Gurnard	1,831	1,148	-	804	-	-	-	1,027	-	-
Leatherjacket	21,956	7,720	2,573	4,789	1,576	-	3,478	9,540	-	-
Lizardfish/Grinners	1,106	875	-	-	-	-	273	833	-	-
Long Tom	650	377	67	-	-	-	290	293	-	-

Appendix 4. Release reason	Total Released		Too Small	Undersized	Too Many	Over Bag	Catch/Release	Unwanted	Berried Female	Other
Reporting & Species/group	No.	SE	No.	No.	No.	No.	No.	No.	No.	No.
Luderick	32,272	9,567	1,017	14,702	7,517	242	8,794	-	-	-
Mackerel, Narrow-barred	481	309	273	207	-	-	-	-	-	-
Mackerel, Queensland School	304	302	-	-	-	-	-	304	-	-
Mackerel, Spotted	90	90	-	90	-	-	-	-	-	-
Mangrove Jack	936	914	-	-	-	-	936	-	-	-
Marlin, Black	8,245	3,468	-	-	383	-	7,582	281	-	-
Marlin, Blue	197	140	-	-	-	-	197	-	-	-
Marlin, Striped	1,436	931	-	-	107	-	1,328	-	-	-
Morwong, Grey	7,090	3,109	-	5,037	380	-	698	975	-	-
Morwong, unspecified	353	351	-	-	-	-	353	-	-	-
Moses Snapper	2,202	1,357	110	700	-	-	1,102	290	-	-
Mulloway	13,533	3,497	474	4,659	609	-	7,421	370	-	-
Parrotfish	856	618	375	421	40	-	20	-	-	-
Pearl Perch	3,693	1,689	943	1,651	-	-	999	100	-	-
Pigfish	186	165	-	164	-	-	-	22	-	-
Pike	9,518	3,528	95	218	2,689	-	2,648	3,869	-	-
Ray, other	23,131	5,742	-	-	-	-	9,255	13,358	-	518
Ray, Shovelnose	15,358	3,824	-	-	-	-	5,487	9,871	-	-
Red Rock Cod	53,127	12,411	3,391	19,271	1,341	-	13,538	15,585	-	-
Redfish	12,775	6,923	5,614	3,472	367	-	178	3,143	-	-
Rock Cale/Kelpfish	246	245	164	-	-	-	-	82	-	-
Sailfish	101	101	-	-	-	-	-	101	-	-
Sergeant Baker	46,570	18,641	312	10,254	16,472	-	5,978	13,554	-	-

Appendix 4. Release reason	Total Released		Too Small	Undersized	Too Many	Over Bag	Catch/Release	Unwanted	Berried Female	Other
Reporting & Species/group	No.	SE	No.	No.	No.	No.	No.	No.	No.	No.
Shark, Gummy	471	248	-	-	-	-	77	395	-	-
Shark, Hammerhead	180	127	-	-	-	-	-	180	-	-
Shark, Mako	398	354	-	-	-	-	-	398	-	-
Shark, other	3,638	2,619	-	47	135	-	305	3,151	-	-
Shark, Port Jackson	2,894	1,255	-	-	-	-	1,568	1,326	-	-
Shark, School	502	502	-	-	-	-	-	502	-	-
Shark, Tiger	101	101	-	-	-	-	-	101	-	-
Shark, unspecified	428	210	-	-	-	-	152	276	-	-
Shark, Whaler	8,958	2,917	500	999	-	-	4,824	2,635	-	-
Shark, Wobbegong	2,797	2,057	237	-	-	1,983	52	525	-	-
Silverbiddy	7,252	6,838	212	-	-	-	6,851	189	-	-
Snapper	293,893	39,277	41,403	180,212	22,697	-	49,108	473	-	-
Stargazer	50	50	-	-	-	-	50	-	-	-
Surgeonfish	22	22	-	-	-	-	22	-	-	-
Swallowtail Dart	26,208	8,256	577	9,968	67	-	11,858	3,739	-	-
Sweep	28,226	14,830	2,243	11,300	3,333	-	627	10,723	-	-
Tailor	137,286	22,912	10,174	82,991	8,219	-	28,864	7,038	-	-
Tarwhine	18,253	6,257	767	6,490	-	-	8,799	2,196	-	-
Teraglin	1,689	941	-	1,689	-	-	-	-	-	-
Toads/pufferfish	18,842	5,614	-	-	-	-	2,233	16,610	-	-
Trevally, Giant	167	120	-	-	-	-	67	100	-	-
Trevally, Golden	100	100	-	-	-	-	100	-	-	-
Trevally, Silver	33,942	8,133	3,448	16,495	857	-	9,348	3,793	-	-

Appendix 4. Release reason	Total Released		Too Small	Undersized	Too Many	Over Bag	Catch/Release	Unwanted	Berried Female	Other
Reporting & Species/group	No.	SE	No.	No.	No.	No.	No.	No.	No.	No.
Trumpeter/grunters	8,767	3,005	3,919	1,908	-	-	2,438	502	-	-
Tuna, Bonito	18,307	8,199	3,426	5,610	1,532	-	6,785	955	-	-
Tuna, Mackerel	5,682	2,748	-	-	4,345	-	202	1,134	-	-
Tuna, Skipjack	17,712	15,283	511	454	310	-	16,204	231	-	-
Tuna, Yellowfin	751	530	354	-	397	-	-	-	-	-
Tuskfish	65	65	65	-	-	-	-	-	-	-
Whiting, Sand	219,953	33,200	10,847	145,507	22,710	-	40,391	497	-	-
Whiting, School	19,006	10,352	693	4,227	4,166	-	9,920	-	-	-
Whiting, Trumpeter	52,109	37,789	35,898	3,051	13,063	-	98	-	-	-
Wrasse, Blue Groper	675	442	-	-	-	397	115	164	-	-
Wrasse, Maori	4,960	2,034	-	260	-	-	652	4,048	-	-
Wrasse, other	28,801	13,796	1,772	1,066	4,686	-	4,491	16,785	-	-
Wrasse, unspecified	1,769	887	-	1,458	-	-	95	217	-	-
Yellowtail Kingfish	62,074	14,265	8,444	36,079	9,311	-	8,240	-	-	-
FINFISH – FRESHWATER										
Bony Bream	2,151	1,568	92	-	322	1,128	126	483	-	-
Bullrout	40	40	-	-	-	-	-	40	-	-
Golden Perch	115,461	22,931	7,370	17,671	15,376	311	71,240	3,050	-	444
Murray Cod	380,242	50,769	15,296	99,634	23,205	18,357	220,763	2,716	-	270
Redfin Perch	16,517	7,048	1,038	2,507	164	-	11,850	959	-	-
Silver Perch	34,787	10,178	454	3,572	542	1,869	22,725	5,627	-	-
Spangled Perch	8,764	7,037	1,649	-	-	-	7,114	-	-	-
Trout Cod	34,949	19,534	502	19,256	-	-	6,761	8,430	-	-

Appendix 4. Release reason	Total Released		Too Small	Undersized	Too Many	Over Bag	Catch/Release	Unwanted	Berried Female	Other
Reporting & Species/group	No.	SE	No.	No.	No.	No.	No.	No.	No.	No.
Trout, Brown	52,221	14,543	3,785	15,222	14,278	411	18,526	-	-	-
Trout, Rainbow	56,606	19,614	1,805	13,468	15,337	-	25,297	699	-	-
FINFISH – SALT & FRESH										
Australian Bass	234,548	61,858	2,639	7,874	273	-	222,875	887	-	-
Catfish, eeltail	26,600	9,083	-	2,456	-	-	16,919	7,225	-	-
Catfish, forktail	11,551	4,573	-	-	-	-	8,263	3,288	-	-
Eel	8,744	3,154	-	-	-	-	2,379	6,365	-	-
Fish, unknown	227	227	-	-	-	-	227	-	-	-
FINFISH – BAITFISHES										
Blue Mackerel	31,540	11,062	4,742	915	13,593	-	4,123	8,166	-	-
Mullet	33,954	17,895	16,196	4,942	6,113	-	6,056	648	-	-
Yellowtail Scad	66,145	36,600	4,237	22,901	37,058	-	730	1,219	-	-
Other small baitfish	4,167	2,980	-	-	500	-	2,856	811	-	-
CEPHALOPODS										
Cuttlefish	63	63	-	-	-	-	63	-	-	-
Octopus	2,700	1,286	-	-	499	-	321	1,880	-	-
Squids	8,272	3,449	1,071	-	4,163	-	2,336	703	-	-
CRABS & LOBSTERS										
Crab, Blue Swimmer	20,966	7,177	552	10,501	-	-	2,896	-	7,017	-
Crab, Mud	53,213	32,365	877	41,629	5,693	-	278	-	4,736	-
Lobster, Rock	3,837	2,091	-	2,728	1,109	-	-	-	-	-
Murray Crayfish	38,406	24,910	171	20,496	1,518	-	169	-	16,052	-

Appendix 4. Release reason	Total Released		Too Small	Undersized	Too Many	Over Bag	Catch/Release	Unwanted	Berried Female	Other
Reporting & Species/group	No.	SE	No.	No.	No.	No.	No.	No.	No.	No.
PRAWNS & YABBIES										
Ghost Nippers	38,600	15,160	-	-	34,230	675	-	3,695	-	-
Prawns (saltwater)	889	887	-	-	-	-	-	-	-	889
Shrimp (freshwater)	46,288	31,233	-	-	44,180	-	-	2,107	-	-
Yabbies (freshwater)	100,234	71,272	6,286	1,012	89,873	-	-	3,063	-	-
MOLLUSCS										
Pipis	68,601	68,507	-	-	-	-	68,601	-	-	-
MISCELLANEOUS TAXA										
Non-fish, other	3,015	1,069	-	-	-	470	1,083	1,462	-	-

Appendix 5. Indicative estimates of recreational harvest weight (tonnes) for key species/group caught by RFL households in NSW waters during 2017/18 compared with harvest weights for the commercial fisheries sector.

Appendix 5. WEIGHT estimates Species/group	ESTUARINE				OCEANIC				TOTAL				
	Mean Weight (grams)	Rec. Harvest Estimate (number)	Rec. Harvest Estimate (tonnes)	Comm. Harvest (tonnes)	Mean Weight (grams)	Rec. Harvest Estimate (number)	Rec. Harvest Estimate (tonnes)	Comm. Harvest (tonnes)	Rec. Harvest Estimate (number)	Rec. Harvest Estimate (tonnes)	Comm. Harvest (tonnes)	Grand Total Harvest (tonnes)	% Rec.
Abalone	278.0	286	0.08		278.0	1809	0.50	114.40	2094	0.58	114.40	114.99	0.5
Australian Salmon	2870.0	9038	25.94	14.30	2282.5	24910	56.86	836.88	33948	82.80	851.18	934.97	8.9
Australian Sardine	-	-	-	6.31	-	-	-	503.21	-	-	509.52	509.52	-
Bass Grouper	12840.0	-	-	-	12840.0	350	4.49	6.58	350	4.49	6.58	11.07	40.6
Beach Worms	10.0	-	-	0.11	10.0	54046	0.54	6.36	54046	0.54	6.47	7.01	7.7
Blue Mackerel	267.5	6809	1.82	0.05	369.5	106880	39.49	392.62	113689	41.32	392.70	434.02	9.5
Blue-eye Trevalla	-	-	-	-	-	-	-	24.32	-	-	24.32	24.32	-
Cockle	12.0	818	0.01		12.0	-	-	7.53	818	0.01	7.53	7.54	0.1
Crab, Blue Swimmer	225.3	63034	14.20	86.12	225.3	-	-	7.31	63034	14.20	94.26	108.46	13.1
Crab, Mud	671.4	56549	37.97	149.07	671.4	1663	1.12	1.61	58212	39.08	150.67	189.76	20.6
Eel	800.0	2626	2.10	15.71	800.0	102	0.08	0.34	2955	2.18	16.05	18.23	12.0
Flathead, Dusky	593.3	297929	176.76	121.96	1022.8	12622	12.91	2.14	310650	189.67	124.18	313.85	60.4
Flathead, Sand	408.7	21719	8.88	0.57	462.4	260125	120.29	133.01	281844	129.16	135.37	264.93	48.8
Flathead, Tiger	-	-	-	0.09	521.1	25001	13.03	96.36	25001	13.03	96.62	109.65	11.9
Garfish	140.5	7113	1.0	1.62	140.5	1923	0.27	23.03	9036	1.27	24.66	25.92	4.9
Gemfish	-	-	-	-	-	-	-	4.12	-	-	4.12	4.12	-
Ghost Nipper	3.0	662210	1.99	3.88	3.0	-	-	0.46	662210	1.99	4.33	6.32	31.4
Hapuku	-	-	-	-	-	-	-	2.07	-	-	2.07	2.07	-
Lobster, Rock	703.0	99	0.07		703.0	6393	4.49	164.37	6492	4.56	164.37	168.93	2.7

Appendix 5. WEIGHT estimates Species/group	ESTUARINE				OCEANIC				TOTAL				
	Mean Weight (grams)	Rec. Harvest Estimate (number)	Rec. Harvest Estimate (tonnes)	Comm. Harvest (tonnes)	Mean Weight (grams)	Rec. Harvest Estimate (number)	Rec. Harvest Estimate (tonnes)	Comm. Harvest (tonnes)	Rec. Harvest Estimate (number)	Rec. Harvest Estimate (tonnes)	Comm. Harvest (tonnes)	Grand Total Harvest (tonnes)	% Rec.
Luderick	582.3	43637	25.41	230.10	638.2	7635	4.87	11.12	51272	30.28	241.22	271.50	11.2
Morwong, Grey	815.0	3916	3.19	0.10	815.0	22853	18.63	24.08	26770	21.82	24.60	46.42	47.0
Mulloway	6654.8	6907	45.97	47.46	6472.3	6733	43.58	24.29	13641	89.55	71.75	161.30	55.5
Perch, unspecified	294.0	-	-	0.24	294.0	1273	0.37	19.10	1273	0.37	19.42	19.80	1.9
Pink Ling	-	-	-	-	-	-	-	57.25	-	-	57.25	57.25	-
Pipis	14.8	-	-	2.57	14.8	75696	1.12	144.91	75696	1.12	149.84	150.96	0.7
Redfish	258.1	2083	0.54		258.1	14935	3.86	5.97	17018	4.39	5.97	10.36	42.4
Sea Urchins	420.0	-	-	-	420.0	2429	1.02	85.70	2429	1.02	85.70	86.72	1.2
Snapper	564.1	36209	20.43	1.59	710.3	121324	86.17	165.57	157534	106.60	175.73	282.33	37.8
Spanner Crab	518.4	-	-	0.48	1395.1	-	-	129.95	-	-	130.43	130.43	-
Spotted Mackerel	2424.2	-	-	0.39	2424.2	1602	3.88	14.57	1602	3.88	15.01	18.90	20.6
Tailor	498.6	44608	22.24	23.32	593.4	45306	26.88	64.51	89914	49.13	87.84	136.97	35.9
Teraglin	1612.4	-	-	0.08	1612.4	11363	18.32	19.87	11363	18.32	19.96	38.28	47.9
Trevally, Silver	543.2	8446	4.59	10.10	557.8	6869	3.83	58.96	15315	8.42	69.65	78.07	10.8
Tuna, Bonito	1411.0	8713	12.29	1.42	1607.8	12517	20.13	164.14	21231	32.42	165.58	198.00	16.4
Turban Shell	220.0	-	-	-	220.0	-	-	-	-	-	-	-	-
Whiting, Sand	278.0	81477	22.65	68.41	278.0	39353	10.94	9.66	120831	33.59	78.48	112.07	30.0
Whiting, School	76.9	130	0.01	8.13	141.7	10802	1.53	1256.23	10933	1.54	1333.20	1334.75	0.1
Yellowfin Bream	524.5	170679	89.52	237.54	589.1	57875	34.10	27.15	228553	123.62	264.70	388.32	31.8
Yellowtail Kingfish	3223.1	23034	74.24	1.82	2408.0	22757	54.80	90.69	45791	129.04	93.09	222.13	58.1
Yellowtail Scad	99.6	80631	8.03	7.60	239.0	91849	21.95	418.14	172480	30.98	437.83	467.81	6.4

Appendix 6a. Annual recreational TOTAL catch (kept plus released numbers) for species/groups caught by RFL households during 2013/14 compared with 2017/18. Note: values for 2017/18 do not include estimates from Queensland RFL households. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species.

Appendix 6a – TOTAL catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
FINFISH – SALTWATER							
Amberjack	-	-			**_272_**	**_231_**	**_85%_**
Australian Salmon	102,860	26,472	26%		60,556	16,958	28%
Barracuda	**_358_**	**_258_**	**_72%_**		**_1,670_**	**_1,283_**	**_77%_**
Bass Grouper	-	-	-		**_350_**	**_350_**	**_100%_**
Batfish/butter bream	**_1,823_**	**_1,112_**	**_61%_**		**_3,332_**	**_1,653_**	**_50%_**
Bream	1,199,343	132,735	11%		902,380	79,554	9%
Bullseye	-	-	-		**_1,193_**	**_1,191_**	**_100%_**
Cobia	-	-	-		**_2,150_**	**_987_**	**_46%_**
Cod/groupers	_20,098_	_7,418_	_37%_		_10,792_	_2,884_	_27%_
Dolphinfish	**_89,039_**	**_42,563_**	**_48%_**		_44,708_	_17,354_	_39%_
Drummer, Rock Blackfish	**_12,725_**	**_5,232_**	**_41%_**		**_22,602_**	**_9,866_**	**_44%_**
Drummer, Silver	**_7,615_**	**_4,990_**	**_66%_**		**_1,131_**	**_581_**	**_51%_**
Eastern Wirrah	**_147_**	**_146_**	**_99%_**		**_212_**	**_212_**	**_100%_**
Flathead, Dusky	797,824	98,261	12%		855,311	98,288	11%
Flathead, Sand	1,075,932	188,869	18%		644,013	106,098	16%
Flathead, Tiger	_43,198_	_16,020_	_37%_		**_48,893_**	**_22,643_**	**_46%_**
Flounder/sole	28,319	4,858	17%		31,519	5,260	17%
Garfish	**_22,866_**	**_13,192_**	**_58%_**		**_9,407_**	**_4,422_**	**_47%_**
Gurnard	_5,358_	_1,948_	_36%_		**_2,587_**	**_1,536_**	**_59%_**
Leatherjacket	129,305	32,278	25%		52,960	12,113	23%
Lizardfish/Grinners	-	-	-		**_1,106_**	**_875_**	**_79%_**
Long Tom	**_1,752_**	**_747_**	**_43%_**		**_828_**	**_416_**	**_50%_**
Luderick	181,109	42,998	24%		82,140	27,647	34%
Mackerel, Narrow-barred	**_5,859_**	**_2,945_**	**_50%_**		**_2,793_**	**_1,671_**	**_60%_**
Mackerel, Spotted	**_1,898_**	**_1,084_**	**_57%_**		**_764_**	**_501_**	**_66%_**
Mangrove Jack	**_34_**	**_34_**	**_100%_**		**_936_**	**_914_**	**_98%_**

Appendix 6a – TOTAL catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Marlin, Black	*413*	*198*	*48%*		*5,308*	*1,745*	*33%*
Marlin, Blue	-	-	-		*378*	*228*	*60%*
Marlin, Striped	*390*	*350*	*90%*		*1,551*	*1,020*	*66%*
Morwong, Grey	49,992	12,276	25%		33,859	8,464	25%
Morwong, Red	*4,364*	*1,429*	*33%*		*8,247*	*3,235*	*39%*
Morwong, unspecified			0%		*353*	*351*	*99%*
Moses Snapper	*2,671*	*1,659*	*62%*		*3,069*	*1,489*	*49%*
Mulloway	45,719	11,535	25%		25,034	5,240	21%
Parrotfish	*2,319*	*1,047*	*45%*		*2,200*	*1,455*	*66%*
Pearl Perch	*5,874*	*3,530*	*60%*		*16,626*	*6,901*	*42%*
Perch, unspecified	*1,828*	*1,307*	*71%*		*1,273*	*1,062*	*83%*
Pigfish	*5,131*	*1,983*	*39%*		*6,297*	*4,717*	*75%*
Pike	*20,172*	*7,116*	*35%*		*18,683*	*6,339*	*34%*
Ray, other	30,343	7,991	26%		22,125	5,704	26%
Ray, Shovelnose	22,458	6,693	30%		17,542	4,840	28%
Ray, unspecified	*3,597*	*1,708*	*47%*		-	-	-
Red Rock Cod	107,512	25,778	24%		67,190	16,371	24%
Redfish	**81,901**	**36,827**	**45%**		*29,792*	*11,067*	*37%*
Rock Cale/Kelpfish	*258*	*257*	*100%*		*246*	*245*	*100%*
Sergeant Baker	57,006	22,266	39%		**52,938**	**21,661**	**41%**
Shark, Gummy	*3,043*	*1,120*	*37%*		**2,022**	**1,117**	**55%**
Shark, Hammerhead	*236*	*235*	*100%*		*180*	*127*	*70%*
Shark, Mako	*444*	*259*	*58%*		*1,449*	*1,108*	*76%*
Shark, other	*1,201*	*809*	*67%*		*3,469*	*2,613*	*75%*
Shark, Port Jackson	*9,694*	*3,014*	*31%*		*2,894*	*1,255*	*43%*
Shark, School	*226*	*160*	*71%*		*666*	*527*	*79%*
Shark, unspecified	*2,025*	*1,111*	*55%*		*394*	*208*	*53%*
Shark, Whaler	*2,036*	*1,316*	*65%*		*11,124*	*3,323*	*30%*
Shark, Wobbegong	*2,801*	*1,536*	*55%*		*814*	*578*	*71%*
Silverbiddy	*625*	*449*	*72%*		*7,888*	*6,887*	*87%*

Appendix 6a – TOTAL catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Snapper	534,123	92,809	17%		430,480	50,942	12%
Stargazer	-	-	-		50	50	100%
Surgeonfish	-	-	-		22	22	100%
Swallowtail Dart	32,114	9,339	29%		22,862	7,772	34%
Sweep	96,784	32,558	34%		41,277	17,511	42%
Tailor	143,080	24,104	17%		209,333	34,042	16%
Tarwhine	16,290	4,628	28%		29,827	10,470	35%
Teraglin	23,678	9,548	40%		10,971	3,886	35%
Toads/pufferfish	37,778	14,856	39%		19,434	5,626	29%
Trevally, Giant	-	-	-		167	120	72%
Trevally, Golden	-	-	-		100	100	100%
Trevally, other	-	-	-		40	40	100%
Trevally, Silver	73,376	16,007	22%		47,672	9,686	20%
Trumpeter, Bastard	-	-	-		502	502	100%
Trumpeter/grunters	2,715	1,229	45%		10,121	3,596	36%
Tuna, Albacore	697	695	100%		-	-	-
Tuna, Bonito	11,852	4,929	42%		39,368	12,635	32%
Tuna, Mackerel	24,643	20,861	85%		4,767	2,673	56%
Tuna, Northern Bluefin	5,354	3,922	73%		212	149	70%
Tuna, Skipjack	12,264	5,594	46%		21,743	15,585	72%
Tuna, Yellowfin	4,081	1,797	44%		527	374	71%
Tuskfish	246	244	99%		1,246	842	68%
Wahoo	737	733	99%		46	45	99%
Whiting, Sand	326,473	69,951	21%		295,649	40,866	14%
Whiting, School	57,956	23,464	40%		29,938	15,831	53%
Whiting, Trumpeter	404,459	394,101	97%		80,714	64,327	80%
Wrasse, Blue Groper	5,337	2,324	44%		794	478	60%
Wrasse, Maori	32,039	13,181	41%		9,022	2,840	31%
Wrasse, other	28,962	8,862	31%		36,296	16,611	46%
Wrasse, unspecified	1,414	892	63%		1,869	892	48%

Appendix 6a – TOTAL catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Yellowtail Kingfish	**227,689**	**115,734**	**51%**		98,339	25,002	25%
FINFISH - FRESHWATER							
Atlantic Salmon	*1,453*	*821*	*57%*		-	-	-
Bony Bream	15,205	4,836	32%		*2,243*	*1,576*	*70%*
Eastern Cod	*5,465*	*4,554*	*83%*		-	-	-
European Carp	864,062	306,697	35%		369,910	88,696	24%
Golden Perch	257,273	37,660	15%		187,168	32,063	17%
Murray Cod	255,734	30,834	12%		397,941	53,471	13%
Redfin Perch	**332,191**	**142,087**	**43%**		124,794	36,868	30%
Silver Perch	**177,593**	**153,290**	**86%**		36,238	10,116	28%
Spangled Perch	*61*	*61*	*100%*		*8,764*	*7,037*	*80%*
Trout Cod	*14,409*	*4,036*	*28%*		*37,762*	*21,060*	*56%*
Trout, Brown	75,311	28,063	37%		84,671	23,017	27%
Trout, Rainbow	61,217	14,370	23%		78,048	24,140	31%
FINFISH –SALT & FRESH							
Australian Bass	203,614	71,579	35%		240,703	62,139	26%
Bullrout	-	-	-		*40*	*40*	*100%*
Catfish, eeltail	47,320	14,314	30%		19,539	5,737	29%
Catfish, forktail	*8,692*	*3,067*	*35%*		*11,551*	*4,573*	*40%*
Catfish, unspecified	*1,662*	*1,653*	*99%*		-	-	-
Eel	17,503	4,396	25%		*11,699*	*5,532*	*47%*
Fish, unknown	*1,790*	*988*	*55%*		*227*	*227*	*100%*
FINFISH – BAITFISHES							
Blue Mackerel	**184,280**	**78,760**	**43%**		143,634	39,738	28%
Herring	*34,100*	*18,205*	*53%*		-	-	-
Mullet	**187,243**	**82,159**	**44%**		68,446	24,260	35%
Other small baitfish	*15,291*	*11,193*	*73%*		*33,335*	*15,159*	*45%*
Yellowtail Scad	*124,516*	*42,478*	*34%*		231,946	88,241	38%
CEPHALOPODS							
Cuttlefish	*1,611*	*987*	*61%*		*178*	*131*	*73%*

Appendix 6a – TOTAL catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Octopus	7,104	2,168	31%		3,845	1,437	37%
Southern Calamari	**80,426**	**55,940**	**70%**		**15,247**	**6,479**	**42%**
Squids	**13,933**	**5,890**	**42%**		116,278	57,751	50%
CRABS & LOBSTERS							
Crab, Blue Swimmer	95,009	35,213	37%		84,000	26,714	32%
Crab, Mud	**60,823**	**24,833**	**41%**		55,856	13,741	25%
Crab, other	**16,268**	**16,226**	**100%**		**11,513**	**10,546**	**92%**
Lobster, Rock	**4,765**	**2,188**	**46%**		**10,126**	**5,058**	**50%**
Murray Crayfish	48,914	17,088	35%		42,373	26,422	62%
PRAWNS & YABBIES							
Ghost Nippers	786,560	230,352	29%		631,441	162,188	26%
Prawns (saltwater)	**461,516**	**214,324**	**46%**		328,698	140,954	43%
Shrimp (freshwater)	254,175	68,776	27%		463,678	153,487	33%
Yabbies (freshwater)	**351,273**	**141,369**	**40%**		279,308	102,206	37%
MOLLUSCS							
Abalone	**3,928**	**2,081**	**53%**		**2,094**	**1,183**	**56%**
Blue Mussel	-	-	-		**1,428**	**1,426**	**100%**
Cockles	-	-	-		**818**	**643**	**79%**
Pipis	61,267	21,492	35%		120,424	78,023	65%
WORMS							
Beach worms	**148,841**	**78,577**	**53%**		50,041	19,644	39%
Worms, unspecified	**34,861**	**34,770**	**100%**		-	-	-
MISCELLANEOUS TAXA							
Cunjevoi	-	-	-		**1,065**	**1,059**	**99%**
Non-fish, other	-	-	-		3,015	1,069	35%

Appendix 6b. Annual recreational KEPT catch for species/groups caught by RFL households during 2013/14 compared with 2017/18. Note: values for 2017/18 do not include estimates from Queensland RFL households. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species.

Appendix 6b – KEPT catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
FINFISH - SALTWATER							
Amberjack	*-*	*-*	-		*46*	*45*	-
Atlantic Salmon	*755*	*449*	*59%*		-	-	-
Australian Salmon	**34,373**	**14,377**	**42%**		33,948	10,800	32%
Barracuda	-	-	-		-	-	-
Bass Grouper	-	-	-		*350*	*350*	*100%*
Batfish/butter bream	*364*	*363*	*100%*		-	-	-
Bream	282,873	33,912	12%		219,671	27,735	13%
Bullseye	-	-	-		*795*	*794*	*100%*
Cobia	-	-	-		*1,920*	*958*	*50%*
Cod/groupers	*2,456*	*1,480*	*60%*		*3,559*	*1,786*	*50%*
Dolphinfish	**28,696**	**11,722**	**41%**		**24,054**	**9,636**	**40%**
Drummer, Rock Blackfish	**9,188**	**4,690**	**51%**		*9,983*	*3,951*	*40%*
Drummer, Silver	*2,211*	*1,321*	*60%*		*391*	*266*	*68%*
Eastern Wirrah	-	-	-		-	-	-
Flathead, Dusky	328,244	46,436	14%		303,519	37,292	12%
Flathead, Sand	416,195	69,315	17%		280,064	46,339	17%
Flathead, Tiger	*19,117*	*6,572*	*34%*		**25,001**	**13,330**	**53%**
Flounder/sole	13,419	2,965	22%		12,735	2,702	21%
Garfish	**22,092**	**12,679**	**57%**		**6,439**	**3,681**	**57%**
Gurnard	**2,025**	**1,094**	**54%**		**756**	**491**	**65%**
Leatherjacket	62,987	15,991	25%		31,106	8,854	28%
Lizardfish/Grinners	-	-	-		-	-	-
Long Tom	*85*	*86*	*101%*		*177*	*176*	*100%*
Luderick	108,620	29,909	28%		**49,868**	**20,049**	**40%**
Mackerel, Narrow-barred	*5,480*	*2,926*	*53%*		*2,413*	*1,531*	*63%*

Appendix 6b – KEPT catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Mackerel, Spotted	1,597	956	60%		674	493	73%
Mangrove Jack	34	34	100%		-	-	-
Marlin, Black	59	59	100%		200	200	100%
Marlin, Blue	-	-	-		181	180	100%
Marlin, Striped	-	-	-		115	92	80%
Morwong, Grey	42,631	10,293	24%		26,770	6,777	25%
Morwong, Red	4,048	1,277	32%		8,247	3,235	39%
Morwong, unspecified	-	-	-		-	-	-
Moses Snapper	1,680	989	59%		901	477	53%
Mulloway	19,319	6,554	34%		12,135	2,744	23%
Parrotfish	1,949	961	49%		1,445	880	61%
Pearl Perch	4,910	2,879	59%		12,933	6,275	49%
Perch, unspecified	761	758	100%		1,273	1,062	83%
Pigfish	4,367	1,756	40%		6,112	4,711	77%
Pike	8,943	6,013	67%		9,165	4,891	53%
Ray, other	-	-	-		-	-	-
Ray, Shovelnose	606	594	98%		2,218	2,101	95%
Ray, unspecified	-	-	-		-	-	-
Red Rock Cod	8,275	3,274	40%		14,727	5,780	39%
Redfish	40,067	19,324	48%		17,018	8,550	50%
Rock Cale/Kelpfish	-	-	-		-	-	-
Sergeant Baker	3,473	1,663	48%		6,368	3,746	59%
Shark, Gummy	1,723	887	51%		1,550	1,083	70%
Shark, Hammerhead	-	-	-		-	-	-
Shark, Mako	92	72	78%		1,050	1,050	100%
Shark, other	47	47	100%		-	-	-
Shark, Port Jackson	318	231	73%		-	-	-
Shark, School	226	160	71%		164	163	100%
Shark, unspecified	549	550	100%		-	-	-

Appendix 6b – KEPT catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Shark, Whaler	502	373	74%		2,967	1,428	48%
Shark, Wobbegong	-	-	-		-	-	-
Silverbiddy	-	-	-		637	637	100%
Snapper	131,726	31,464	24%		145,137	22,815	16%
Stargazer	-	-	-		-	-	-
Surgeonfish	-	-	-		-	-	-
Swallowtail Dart	9,895	4,995	50%		4,506	2,713	60%
Sweep	37,205	13,903	37%		13,051	7,058	54%
Tailor	52,107	11,511	22%		78,368	19,551	25%
Tarwhine	3,617	1,830	51%		12,376	8,396	68%
Teraglin	17,372	6,912	40%		10,185	3,752	37%
Toads/pufferfish	-	-	-		592	365	62%
Trevally, Giant	-	-	-		-	-	-
Trevally, Golden	-	-	-		-	-	-
Trevally, other	-	-	-		40	40	100%
Trevally, Silver	33,018	8,274	25%		15,214	3,962	26%
Trumpeter, Bastard	-	-	-		502	502	100%
Trumpeter/grunters	-	-	-		1,455	1,453	100%
Tuna, Albacore	465	464	100%		-	-	-
Tuna, Bonito	5,944	2,692	45%		21,061	5,933	28%
Tuna, Mackerel	2,129	1,889	89%		1,009	554	55%
Tuna, Northern Bluefin	4,207	3,728	89%		212	149	70%
Tuna, Skipjack	4,231	1,667	39%		4,032	3,193	79%
Tuna, Yellowfin	2,173	1,332	61%		172	123	71%
Tuskfish	246	244	99%		1,180	836	71%
Wahoo	737	733	99%		46	45	99%
Whiting, Sand	172,941	55,760	32%		103,929	19,141	18%
Whiting, School	21,152	9,303	44%		10,933	8,016	73%
Whiting, Trumpeter	401,813	393,852	98%		29,450	26,977	92%

Appendix 6b – KEPT catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Wrasse, Blue Groper	*3,401*	*1,801*	*53%*		*515*	*434*	*84%*
Wrasse, Maori	*6,238*	*4,171*	*67%*		*4,062*	*1,904*	*47%*
Wrasse, other	*10,369*	*5,977*	*58%*		*7,631*	*4,292*	*56%*
Wrasse, unspecified	*99*	*99*	*100%*		*100*	*100*	*100%*
Yellowtail Kingfish	*45,578*	*19,419*	*43%*		41,241	16,450	40%
FINFISH - BAITFISHES							
Blue Mackerel	**157,617**	**71,327**	**45%**		112,094	36,289	32%
Herring	**33,311**	**18,198**	**55%**		-	-	
Mullet	**111,178**	**60,755**	**55%**		*34,491*	*10,927*	*32%*
Yellowtail Scad	**61,070**	**25,885**	**42%**		165,801	56,119	34%
Other small baitfish	*3,999*	*2,855*	*71%*		*29,169*	*14,797*	*51%*
FINFISH - FRESHWATER							
Bony Bream	*257*	*135*	*53%*		*92*	*91*	*100%*
Bullrout	-	-	-		-	-	-
Eastern Cod	-	-	-		-	-	-
European Carp	863,528	306,698	36%		369,910	88,696	24%
Golden Perch	100,176	16,451	16%		75,604	14,859	20%
Murray Cod	19,782	6,103	31%		33,158	7,317	22%
Redfin Perch	184,207	65,508	36%		109,095	35,537	33%
Silver Perch	*75,692*	*71,842*	*95%*		*3,297*	*1,346*	*41%*
Spangled Perch	-	-	-		-	-	-
Trout Cod	*282*	*259*	*92%*		*2,813*	*2,011*	*71%*
Trout, Brown	34,094	9,500	28%		37,562	11,294	30%
Trout, Rainbow	33,504	8,081	24%		27,995	6,774	24%
FINFISH - SALT & FRESH							
Australian Bass	*5,001*	*1,959*	*39%*		**11,074**	**5,111**	**46%**
Catfish, eeltail	*2,813*	*1,947*	*69%*		*466*	*295*	*63%*
Catfish, forktail	*942*	*938*	*100%*		-	-	-
Catfish, unspecified	*1,662*	*1,653*	*99%*		-	-	-

Appendix 6b – KEPT catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Eel	*1,024*	*518*	*51%*		*2,955*	*2,636*	*89%*
Fish, unknown	-	-	-		-	-	-
CEPHALOPODS							
Cuttlefish	*1,611*	*987*	*61%*		*115*	*115*	*100%*
Octopus	*1,877*	*1,365*	*73%*		*1,145*	*650*	*57%*
Southern Calamari	*79,819*	*55,926*	*70%*		*15,247*	*6,479*	*42%*
Squids	*13,087*	*5,695*	*44%*		*108,213*	*57,289*	*53%*
CRABS & LOBSTERS							
Crab, Blue Swimmer	*77,239*	*30,787*	*40%*		63,034	21,011	33%
Crab, Mud	*38,165*	*14,846*	*39%*		34,908	8,502	24%
Crab, other	*16,268*	*16,226*	*100%*		*11,513*	*10,546*	*92%*
Lobster, Rock	*3,854*	*1,748*	*45%*		*6,289*	*3,169*	*50%*
PRAWNS & YABBIES							
Ghost Nippers	733,601	220,862	30%		595,203	158,237	27%
Murray Crayfish	*9,925*	*3,626*	*37%*		*3,967*	*2,507*	*63%*
Prawns (saltwater)	*459,278*	*214,330*	*47%*		*327,809*	*140,951*	*43%*
Shrimp (freshwater)	*235,808*	*63,592*	*27%*		*419,498*	*148,926*	*36%*
Yabbies (freshwater)	*259,115*	*107,596*	*42%*		*180,129*	*47,099*	*26%*
MOLLUSCS							
Abalone	*3,928*	*2,081*	*53%*		*2,094*	*1,183*	*56%*
Blue Mussel	-	-	-		*1,428*	*1,426*	*100%*
Cockles	-	-	-		*818*	*643*	*79%*
Pipis	*55,121*	*19,546*	*35%*		*51,823*	*37,342*	*72%*
WORMS							
Beach worms	*148,841*	*78,577*	*53%*		*50,041*	*19,644*	*39%*
Worms, unspecified	*26,262*	*26,193*	*100%*		-	-	-
MISCELLANEOUS TAXA							
Cunjevoi	-	-	-		*1,065*	*1,059*	*99%*
Non-fish, other	-	-	-		-	-	-

Appendix 6c. Annual recreational RELEASED catch for species/groups caught by RFL households during 2013/14 compared with 2017/18. Note: values for 2017/18 do not include estimates from Queensland RFL households. Values in bold indicate a relative standard error >40% and values in italics indicate fewer than 30 households recorded catches of the species.

Appendix 6c – RELEASED catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
FINFISH - SALTWATER							
Amberjack	-	**-**	**-**		**226**	**187**	**83%**
Atlantic Salmon	*698*	*695*	*100%*		-	-	-
Australian Salmon	68,487	17,604	26%		*26,607*	*9,939*	*37%*
Barracuda	*358*	*258*	*72%*		*1,670*	*1,283*	*77%*
Bass Grouper	-	-	-		-	-	-
Batfish/butter bream	*1,459*	*964*	*66%*		*3,332*	*1,653*	*50%*
Bream	916,470	118,835	13%		682,709	63,852	9%
Bullseye	-	-	-		*398*	*397*	*100%*
Catfish, unspecified	-	-	-		-	-	-
Cobia	-	-	-		*231*	*163*	*71%*
Cod/groupers	**17,642**	**7,254**	**41%**		*7,234*	*1,954*	*27%*
Dolphinfish	**60,343**	**32,077**	**53%**		**20,653**	**10,205**	**49%**
Drummer, Rock Blackfish	**3,538**	**1,716**	**49%**		**12,619**	**6,822**	**54%**
Drummer, Silver	**5,404**	**3,805**	**70%**		**740**	**521**	**70%**
Eastern Wirrah	**147**	**146**	**99%**		**212**	**212**	**100%**
Flathead, Dusky	469,579	59,811	13%		551,792	71,798	13%
Flathead, Sand	659,736	130,719	20%		363,949	64,714	18%
Flathead, Tiger	**24,080**	**10,326**	**43%**		**23,891**	**10,199**	**43%**
Flounder/sole	14,900	3,006	20%		18,785	3,750	20%
Garfish	**775**	**712**	**92%**		**2,968**	**2,463**	**83%**
Gurnard	**3,333**	**1,575**	**47%**		**1,831**	**1,148**	**63%**
Leatherjacket	66,318	20,506	31%		21,854	7,720	35%
Lizardfish/Grinners	-	-	-		**1,106**	**875**	**79%**
Long Tom	**1,667**	**701**	**42%**		**650**	**377**	**58%**
Luderick	72,489	18,122	25%		32,272	9,567	30%

Appendix 6c – RELEASED catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Mackerel, Narrow-barred	379	218	58%		380	292	77%
Mackerel, Spotted	301	207	69%		90	90	100%
Mangrove Jack	-	-	-		936	914	98%
Marlin, Black	353	189	54%		5,108	1,710	33%
Marlin, Blue	-	-	-		197	140	71%
Marlin, Striped	390	350	90%		1,436	931	65%
Morwong, Grey	7,361	3,047	41%		7,090	3,109	44%
Morwong, Red	316	315	100%		-	-	-
Morwong, unspecified	-	-	-		353	351	99%
Moses Snapper	992	942	95%		2,168	1,356	63%
Mulloway	26,400	6,825	26%		12,900	3,466	27%
Parrotfish	369	270	73%		755	610	81%
Pearl Perch	964	751	78%		3,693	1,689	46%
Perch, unspecified	1,068	1,064	100%		-	-	-
Pigfish	764	554	73%		186	165	89%
Pike	11,229	3,701	33%		9,518	3,528	37%
Ray, other	30,343	7,991	26%		22,125	5,704	26%
Ray, Shovelnose	21,852	6,667	31%		15,324	3,824	25%
Ray, unspecified	3,597	1,708	47%		-	-	-
Red Rock Cod	99,237	24,301	24%		52,463	12,402	24%
Redfish	41,833	19,352	46%		12,775	6,923	54%
Rock Cale/Kelpfish	258	257	100%		246	245	100%
Sergeant Baker	53,532	22,140	41%		46,570	18,641	40%
Shark, Gummy	1,319	684	52%		471	248	53%
Shark, Hammerhead	236	235	100%		180	127	70%
Shark, Mako	352	247	70%		398	354	89%
Shark, other	1,153	800	69%		3,469	2,613	75%
Shark, Port Jackson	9,376	3,001	32%		2,894	1,255	43%
Shark, School	-	-	-		502	502	100%

Appendix 6c – RELEASED catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Shark, unspecified	*1,475*	*965*	*65%*		*394*	*208*	*53%*
Shark, Whaler	*1,534*	*1,249*	*81%*		*8,156*	*2,873*	*35%*
Shark, Wobbegong	*2,801*	*1,536*	*55%*		*814*	*578*	*71%*
Silverbiddy	*625*	*449*	*72%*		*7,252*	*6,838*	*94%*
Snapper	402,397	78,037	19%		285,343	38,858	14%
Stargazer	-	-	-		*50*	*50*	*100%*
Surgeonfish	-	-	-		*22*	*22*	*100%*
Swallowtail Dart	*22,220*	*7,501*	*34%*		*18,356*	*7,053*	*38%*
Sweep	*59,579*	*28,930*	*49%*		*28,226*	*14,830*	*53%*
Tailor	90,972	17,775	20%		130,964	22,675	17%
Tarwhine	*12,673*	*3,976*	*31%*		*17,451*	*6,238*	*36%*
Teraglin	*6,306*	*2,846*	*45%*		*786*	*489*	*62%*
Toads/pufferfish	37,778	14,856	39%		18,842	5,614	30%
Trevally, Giant	-	-	-		*167*	*120*	*72%*
Trevally, Golden	-	-	-		*100*	*100*	*100%*
Trevally, other	-	-	-		-	-	-
Trevally, Silver	40,358	11,230	28%		32,458	7,999	25%
Trumpeter, Bastard	-	-	-		-	-	-
Trumpeter/grunters	*2,715*	*1,229*	*45%*		*8,666*	*3,003*	*35%*
Tuna, Albacore	*232*	*232*	*100%*		-	-	-
Tuna, Bonito	*5,908*	*3,103*	*53%*		*18,307*	*8,199*	*45%*
Tuna, Mackerel	*22,514*	*18,973*	*84%*		*3,758*	*2,228*	*59%*
Tuna, Northern Bluefin	*1,147*	*911*	*79%*		-	-	-
Tuna, Skipjack	*8,033*	*4,770*	*59%*		*17,712*	*15,283*	*86%*
Tuna, Yellowfin	*1,908*	*1,063*	*56%*		*354*	*354*	*100%*
Tuskfish	-	-	-		*65*	*65*	*100%*
Wahoo	-	-	-		-	-	-
Whiting, Sand	153,532	32,405	21%		191,720	29,876	16%
Whiting, School	*36,804*	*18,889*	*51%*		*19,006*	*10,352*	*54%*

Appendix 6c – RELEASED catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Whiting, Trumpeter	*2,646*	*1,392*	*53%*		*51,264*	*37,780*	*74%*
Wrasse, Blue Groper	*1,936*	*1,034*	*53%*		*279*	*199*	*72%*
Wrasse, Maori	*25,801*	*11,687*	*45%*		*4,960*	*2,034*	*41%*
Wrasse, other	18,593	4,852	26%		*28,665*	*13,796*	*48%*
Wrasse, unspecified	*1,315*	*887*	*67%*		*1,769*	*887*	*50%*
Yellowtail Kingfish	**182,111**	**98,636**	**54%**		57,098	13,774	24%
FINFISH - FRESHWATER							
Bony Bream	*14,948*	*4,834*	*32%*		*2,151*	*1,568*	*73%*
Bullrout	-	-	-		*40*	*40*	*100%*
Eastern Cod	*5,465*	*4,554*	*83%*		-	-	-
European Carp	*535*	*474*	*89%*		-	-	-
Golden Perch	157,097	25,742	16%		111,565	22,827	20%
Murray Cod	235,952	28,941	12%		364,784	49,858	14%
Redfin Perch	**147,984**	**86,803**	**59%**		**15,699**	**7,001**	**45%**
Silver Perch	**101,900**	**81,524**	**80%**		32,942	10,036	30%
Spangled Perch	*61*	*61*	*100%*		*8,764*	*7,037*	*80%*
Trout Cod	*14,127*	*3,994*	*28%*		*34,949*	*19,534*	*56%*
Trout, Brown	*41,217*	*26,094*	*63%*		*47,109*	*14,089*	*30%*
Trout, Rainbow	*27,713*	*8,515*	*31%*		50,052	18,839	38%
FINFISH - SALT & FRESH							
Australian Bass	198,613	71,167	36%		229,629	61,782	27%
Catfish, eeltail	44,506	14,145	32%		19,073	5,723	30%
Catfish, forktail	*7,750*	*2,947*	*38%*		*11,551*	*4,573*	*40%*
Eel	16,479	4,367	27%		*8,744*	*3,154*	*36%*
Fish, unknown	*1,790*	*988*	*55%*		*227*	*227*	*100%*
FINFISH - BAITFISHES							
Blue Mackerel	*26,663*	*10,407*	*39%*		*31,540*	*11,062*	*35%*
Herring	*789*	*511*	*65%*		-	-	-
Mullet	*76,065*	*43,909*	*58%*		*33,954*	*17,895*	*53%*

Appendix 6c – RELEASED catch comparisons	Survey Year 2013/14				Survey Year 2017/18		
Reporting & Species/group	Number	SE	RSE		Number	SE	RSE
Yellowtail Scad	63,446	28,211	44%		66,145	36,600	55%
Other small baitfish	11,292	10,822	96%		4,167	2,980	72%
CEPHALOPODS							
Cuttlefish	-	-	-		63	63	99%
Octopus	5,227	1,690	32%		2,700	1,286	48%
Southern Calamari	607	343	57%		-	-	-
Squids	846	519	61%		8,065	3,443	43%
CRABS & LOBSTERS							
Crab, Blue Swimmer	17,771	5,216	29%		20,966	7,177	34%
Crab, Mud	22,658	10,420	46%		20,948	7,077	34%
Crab, other	-	-	-		-	-	-
Lobster, Rock	911	642	70%		3,837	2,091	54%
Murray Crayfish	38,990	14,154	36%		38,406	24,910	65%
PRAWNS & YABBIES							
Ghost Nippers	52,959	22,285	42%		36,239	14,978	41%
Prawns (saltwater)	2,238	2,235	100%		889	887	100%
Shrimp (freshwater)	18,367	8,877	48%		44,180	31,163	71%
Yabbies (freshwater)	92,158	56,197	61%		99,178	71,265	72%
MOLLUSCS							
Abalone	-	-	-		-	-	-
Blue Mussel	-	-	-		-	-	-
Cockles	-	-	-		-	-	-
Pipis	6,146	4,916	80%		68,601	68,507	100%
WORMS							
Beach worms	-	-	-		-	-	-
Worms, unspecified	8,599	8,577	100%		-	-	-
MISCELLANEOUS TAXA							
Cunjevoi	-	-	-		-	-	-
Non-fish, other	-	-	-		3,015	1,069	35%

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