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TASMANIAN RECREATIONAL ROCK LOBSTER AND ABALONE FISHERIES: 2023/24 FISHING SEASON

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Executive Summary

This report provides an assessment of the 2023/24 recreational rock lobster and abalone fishing season and continues the time series monitoring trends since the mid-1990s.

The number of licence holders during the 2023/24 season was slightly lower compared to 2022/23. During 2023/24, 17,555 persons held at least one recreational rock lobster licence, a 3.1% decrease compared with 2022/23. During the same period, 11,452 persons held a recreational abalone licence, a decrease of 2% compared with 2022/23.

The assessment was conducted using a survey involving a random sample of licence-holders who were contacted by telephone prior to the start of the 2023/24 fishing season and invited to participate in a phone-diary survey to monitor their rock lobster and abalone fishing activity between November 2023 and April 2024. A total of 327 respondents completed the survey, resulting in 65% effective response rate. Respondents provided detailed catch and effort information for each fishing trip reported. Data were scaled up to represent the activity of all licence-holders.

Rock Lobster

The 2023/24 rock lobster season for all waters outside the East Coast Stock Rebuilding Zone (ECSRZ) opened on 4 November 2023 and closed on 1 May 2024 in the eastern region. In the western region, it closed on 1 September 2024 in the western region. The ECRSZ opened on 2 December 2023, marking the eleventh year that a split season opening has been applied in the eastern region. The split season has operated since November 2013, initially only two weeks apart, then extended to 4–5 weeks apart since December 2018.

Fishing activity was monitored until the end of April, which meant complete coverage of the fishery in the eastern region but only partial coverage in the western region. By the end of April, licenced recreational fishers were estimated to have harvested 83,850 rock lobster (95% CI: 72,276–95,304) across 78,624 fisher days (95% CI: 66,999–90,485). Potting accounted for 75% of the effort (days fished) and contributed 58% of the total harvest. Dive collection accounted for 25% of the effort and 41% of the harvest, while ring usage contributed less than 1% of the effort and 1% of the harvest. The statewide average catch rate was 1.09 lobster per fishing day. By method, catch rates for dive collection, potting, and ring fishing were 1.80, 0.82, and 4 lobsters, respectively.

The east coast accounted for 77% of the rock lobster harvest by number. Catches from the north and west coasts accounted for 11% and 12% of the harvest by number, respectively. Conversion of lobster numbers to total harvest weight produced a statewide estimate of 107.8 tonnes for the survey period, with the east coast accounting for 77%, the north coast 13%, and the west coast 10% of the harvest by weight.

During the survey period, 75% of licence holders fished for lobster. Of those, 11.9% of fishers harvested no lobsters, 47.6% harvested five or fewer lobsters, and 12.5% harvested 16 or more lobsters. The statewide proportional breakdown was similar for the east coast fishery.

Overall, the recreational catch represented 63.4% of the Total Allowable Recreational Catch (TARC) of 170 tonnes and 8.8% of the 2023/24 Total Allowable Catch (TAC) of 1,221 tonnes, which includes the Total Allowable Commercial Catch (TACC) of 1,051 tonnes.

A key component of the East Coast Stock Rebuilding Strategy (ECSRS) has been the implementation of an east coast catch cap and resource sharing arrangement. The ECSRS has now expired, but the previous allocation of the total catch was set at 79% for commercial and 21% for recreational fishing in the ECSRZ. The ECSRS continues to guide the management of this area whilst the Rock Lobster Harvest Strategy is developed. If the ECSRS proportional allocations were implemented during this season, it would result in a notional catch allocation of 35 tonnes for the recreational fishery in the ECSRZ. Licenced recreational fishers were estimated to have harvested 59,768 rock lobster (95% CI: 48,545– 70,561) across 61,177 fisher days (95% CI: 49,697– 72,764) from the ECSRZ for the 2023/24 season. As a result, the estimated recreational catch for this zone (78.0 tonnes) exceeded the share by 43.0 tonnes, or 123%. This over-catch exceeds that of all preceding seasons (Table ES1). While effort has decreased slightly in the ECSRZ, the increase in catch is mainly driven by higher catch rates and larger average lobster size.

Table ES1. East Coast Stock Rebuilding Zone recreational catches relative to notional catch allocations.

Season	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Notional catch allocation	42 t	42 t	42 t	41 t	40 t	35 t	35 t	35 t	35 t	35 t
Catch estimate	55.6 t	35.7 t	50.2 t	40.4 t	48.6 t	33.6 t	51.1 t	46.5 t	71.7 t	78.0 t
Over/under catch	+13.6 t	- 6.3 t	+ 8.2 t	- 0.6 t	+ 8.6 t	-1.4 t	+ 16.1	+ 11.5	+ 36.7	+ 43.0
% over/ under catch	+ 32%	- 15%	+ 19%	- 1%	+ 21%	- 4%	+ 46%	+ 32%	+ 104%	+ 123%

Abalone

The recreational abalone harvest up to the end of April 2024 was estimated at 48,740 individuals (95% CI: 33,277–66,910), across 12,726 diver days (95% CI: 9,522–16,073). Blacklip Abalone accounted for 90% of the statewide catch, while Greenlip Abalone made up 10%. In total, 74% of the abalone catch (by number) was taken from the east coast, 17% from the north coast, and 9% from the west coast. The daily bag limit of 10 abalone was caught on 12% of dives on the east coast and 18% on the west coast. The average daily harvest rate across both regions was 3.8 abalone per day.

By converting the number of individuals to weight, the recreational harvest was estimated at 27.2 tonnes, equivalent to 3.5% of the 2024 TACC (773.5 tonnes). It is important to note that the survey only accounts for recreational harvest up to April, not the full year. Currently, there are no performance indicators or a TARC for the Tasmanian recreational abalone fishery.

Fisher's Observations

Fishers were asked a range of questions about the rock lobster and abalone fisheries, key findings include:

- Eighty percent of respondents who fished for rock lobster in 2023-24 reported that the overall quality of the fishery was about the same or better than in the previous season, with 78% being at least "quite satisfied" with their rock lobster catch rates.

- Rock lobster dive fishers were more likely to be at least “quite satisfied” with catch rates (88%) compared to pot fishers (75%).
- Sixty-six percent of respondents who fished for abalone in 2023/24 reported that the overall quality of the fishery was about the same or better than in the previous season, and 69% of abalone fishers were at least “quite satisfied” with abalone catch rates.

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1 INTRODUCTION

- Rock lobster and abalone have long been an important food source for the local Aboriginal population, as well as being highly prized by recreational fishers in Tasmania.
- Southern Rock Lobster (*Jasus edwardsii*) and, occasionally, the Eastern Rock Lobster (*Sagmariasus verreauxi*) are caught through potting, ring net fishing, and dive collection.
- Blacklip Abalone (*Haliotis rubra*) and Greenlip Abalone (*H. laevigata*) are targeted by recreational divers. The former species is harvested statewide and dominates overall catch, while *H. laevigata* is generally restricted to the north coast and Bass Strait Islands. Rock lobster and abalone also support major commercial fisheries in Tasmania, both of which are subject to catch quotas.
- Recreational licences (first introduced in the late 1970s) are required to harvest rock lobster and abalone in Tasmania.
- Recreational licences are issued annually, with the licensing year extending from 1st of November to the following 31st of October. Recreational fishers may hold up to three categories of lobster licence (pot, ring and/or dive) and/or an abalone licence. For licence and fishery limits, refer to: https://fishing.tas.gov.au/recreational-fishing
- A sharp fall in licence numbers occurred in 2015/16 and 2017/18, largely influenced by early-season closures of parts of the east coast due to harmful algal blooms.
- A decline in licence sales in 2019/20 was partly due to the impact of the COVID-19 pandemic (Lyle et al., 2020b). However, during the 2020/21 season, licence numbers recovered to levels comparable to the mid-2010s, and abalone licence sales followed a similar trend (Lyle et al., 2021).
- Concerns about declining rock lobster stocks in Tasmania were identified in the late 2000s, and in 2011/12, east coast stocks were assessed to have hit historically low levels. This decline is attributed to prolonged impaired recruitment and heavy fishing pressure (Hartmann et al., 2013, 2019).
- To prioritise additional management for the areas of most concern, the fishery was split into two regions in 2011 (Figure 1). In the eastern region, bag and possession limits were reduced from 5 to 3 and from 10 to 6, respectively. These were further reduced to a bag and possession limit of 2 and 4 in November 2015.
- The East Coast Stock Rebuilding Strategy (ECSRS) was implemented in 2013 with the goal to rebuild east coast stocks to greater than 20% of the unfished stock level by 2023 (DPIPWE 2013). A key element of this strategy was to limit annual total catch (recreational and commercial) off the east coast, which was initially set at 200 tonnes. In 2016, the catch limit for the ECSRZ (Figure 1) was divided, with 79% allocated to the commercial sector and 21% to the recreational sector, reflecting the historic proportion of commercial and recreational catches from the zone. In 2019/20, catch limits were further reduced, with 113 tonnes allocated to the commercial fishery and 42 tonnes to the recreational sector. This was further reduced to 35 tonnes for the recreational sector for the 2019/20 season where it currently remains.
- Since 2013, a split season opening has been applied for the eastern region, with waters outside the ECSRZ opening on the same date as the western region (4th November 2023) while opening of the ECSRZ was delayed by four weeks (2nd December 2023) as a measure to help constrain recreational catches.

- Rule changes in November 2019 included a reduction in the statewide possession limit to 10 abalone and, for the eastern region, a reduction in the daily bag limit to 5 abalone and the introduction of a boat limit of 25 abalone. However, these rules were repealed on 9th of November 2021, and a statewide bag limit of 10 and possession limit of 20 abalone now apply, with no boat limit.
- For the 2022/23 rock lobster season, new size limits were implemented. A 120 mm size limit for females and 110 mm for males was expanded to areas north of Cape Pillar (43° 13' 18" S) on the east coast and north of the Henty River on the west coast (43° 00' S). Bag, boat, and possession limits remained unchanged. New size limits south of Cape Pillar and Henty River consisted of 105 mm for females and 110 mm for males.

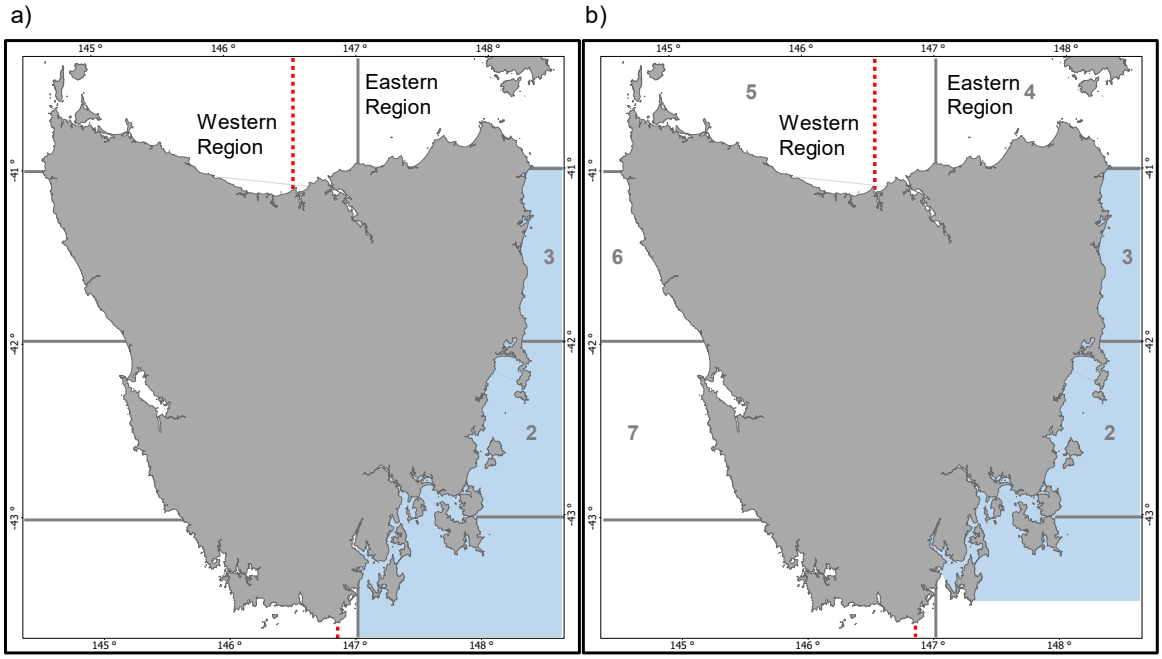

Figure 1. Map of Tasmania showing assessment areas (numbered), stock rebuilding zone (ECSRZ; shaded) and the Eastern and Western Region boundary (red dotted line). Showing the a) ECSRZ that applied between 2013/14 and 2016/17, and b) the adjusted ECSRZ that applied from 2017/18.

This survey is the 19th in a series for rock lobster and the 18th for abalone, undertaken since 1996. Key objectives include characterisation of the 2023/24 rock lobster and abalone fisheries in terms of participation, fishing effort and catch, with a particular focus on the east coast fishery.

2 METHODS

The survey applied the same methodology used in previous recreational rock lobster and abalone surveys. Please refer to Lyle & Morton 2004, 2006; Lyle & Tracey 2010, 2012, 2014, 2016a,b, 2017; Lyle et al. 2008, 2019a, 2020b, 2021, Graba-Landry et al. 2022, Tracey et al. 2023, this methodology was independently reviewed by Pollock (2010). The design involves two stages: 1) an initial telephone interview to profile licence-holders, establish eligibility for the second stage, and recruit participants, and 2) a telephone-diary survey in which fishing activity is monitored in detail over the diary period. This period included the licensing year up to the closure of the eastern region rock lobster fishery (1st November to 30th April).

3 RESULTS

3.1 Rock Lobster

3.1.1 2023/24 Catch and Effort

Information reported in this and the following sections relates to diary survey data provided by fully responding licence holders (participants who completed the full survey period) and is presented as expanded estimates representative of the activities of all recreational rock lobster licence holders between November 2023 and April 2024, inclusive.

An estimated 75% (SE 2.4%) of licence holders fished for rock lobster at least once during the fishing season, with 66% (SE 2.6%) harvesting at least one lobster during the diary period. Specifically, out of the 17,555 licence-holders, 13,148 fished for lobster, with 11,578 retaining at least one rock lobster for the period.

Overall, total fishing effort was estimated to be 78,624 fisher days[1] from November to April, yielding a total harvest of 83,850 lobster (Table 1). This represents an average harvest rate of 1.07 lobster per day. Pots were the most popular fishing method, accounting for 58% of the total harvest, followed by dive collection (41%) and rings (1%) (Table 1). Approximately three times as many fisher days were spent using pots (75.3%) compared with diving (24.5%). However, the total pot catch (58%) was only 1.5 times the number of lobsters taken by divers (41%). This difference reflects the higher average catch rate for divers (1.8 lobster per day) compared to potters (0.82 lobster per day). Although ring usage is comparatively uncommon (and typically limited to the west coast), recreational fishers are permitted to use up to four rings, with an average reported catch rate of 4 lobster per day.

[1] A fisher day is defined as a day in which lobster was a nominated target species and/or lobster were caught.

Table 1. Rock lobster effort, harvest, and harvest rates for the 2023/24 season up to 30 April. Values in parentheses represent the 95% confidence intervals. Note: since multiple methods can be used on a day, total fishing days may be less than the sum of the method totals.

Method	Harvest (no.)	Effort (days)	Mean harvest rate (no. day^{-1})
Pot	48,479 (39,334–57,726)	59,167 (48,226–70,718)	0.82
Dive	34,703 (26,616–43,466)	19,290 (15,286–24,654)	1.80
Ring	667 (0–1492)	167 (0–382)	4.00
Total	**83,850 (72,276–95,304)**	**78,624 (66,999–90,485)**	**1.07**

3.1.2 Regional Catch and Effort

Catch, effort, and catch rates by fishing areas are summarised in Table 2 and Figure 2 and indicate that the fishery was primarily concentrated on the east coast (Areas 1–3). This combined region accounted for 77% of the total estimated harvest and attracted 86% of the total effort during the survey period. Area 1 was the most heavily fished and accounted for 40% of the statewide harvest and 43% of the total effort. The north coast (Areas 4–5) accounted for 11% of the harvest and 8% of effort, while the west coast (Areas 6–8) contributed 12% of the total harvest and 6% of total effort.

Marked regional differences were evident in the proportion of the rock lobster harvest taken by different fishing methods (Figure 3). Pots accounted for the bulk of the harvest in Areas 1 (59%), 3 (90%), 6 (49%), and 7 (83%), while dive collection was the primary capture method in Areas 2 (60%), 4 (79%), 5 (90%) and 8 (100%). Ring fishing was only recorded in Areas 5, 6 and 7.

Mean daily lobster harvest rates were highly variable around the state, ranging from 0.25 in Area 8 to 2.83 in Area 7 (Table 2). Stock abundance, differing regional bag limits, and the relative mix of fishing methods used (Figure 3) are key factors accounting for regional variability.

Table 2. Recreational rock lobster effort, harvest and harvest rates for all fishing methods pooled by fishing area for 2023/24. Values in parentheses represent the 95% confidence intervals.

Area	Harvest (no.)	Effort (fisher-days)	Harvest rate (no. per fisher-day)
1	33,303 (25,080–41,808)	34,067 (26,420–42,073)	0.98
2	14,555 (10,290–18,887)	11,400 (8,461–14,689)	1.28
3	16,890 (10,348–23,963)	21,992 (13,177–32,135)	0.77
4	4,516 (2,570–6,884)	4,291 (2,761–6,088)	1.05
5	4,740 (1,783–8,588)	2,069 (1,114–3,180)	2.29
6	5,098 (1,779–9,183)	2,909 (1,130–5,093)	1.75
7	4,688 (1,761–8,049)	1,657 (791–2,693)	2.83
8	60 (0–185)	240 (0–739)	0.25

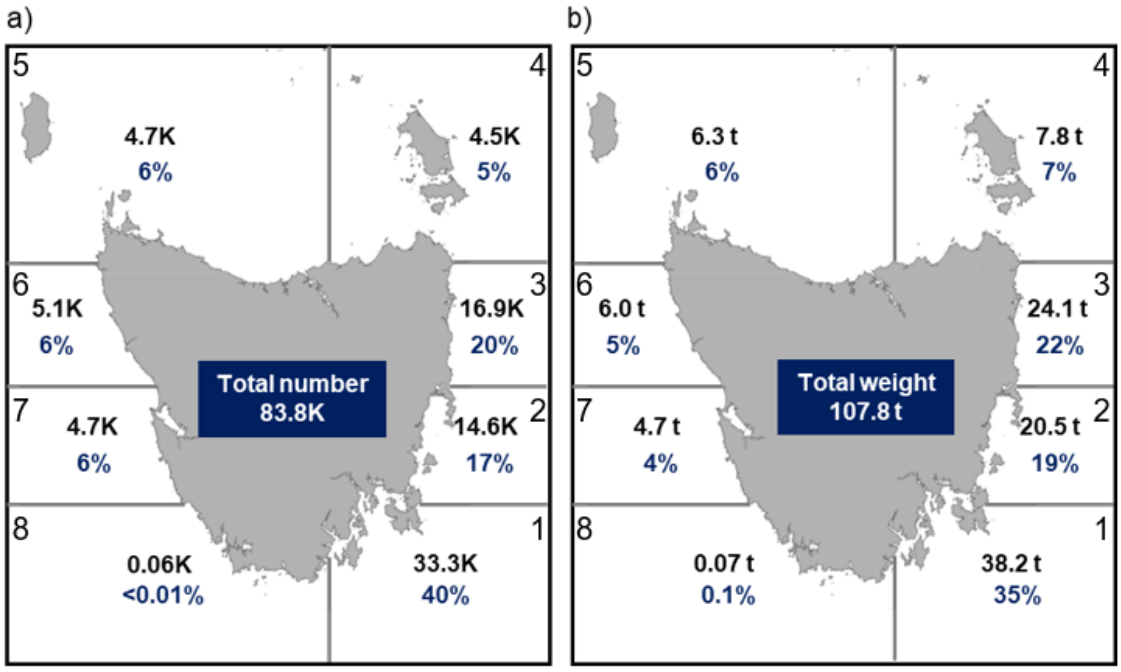

Figure 2. Recreational harvest of rock lobster by assessment area: a) Numbers harvested (in 1000s or K) and proportion (%) of total number; b) Estimated harvest weight (in tonnes) and proportion (%) of total weight.

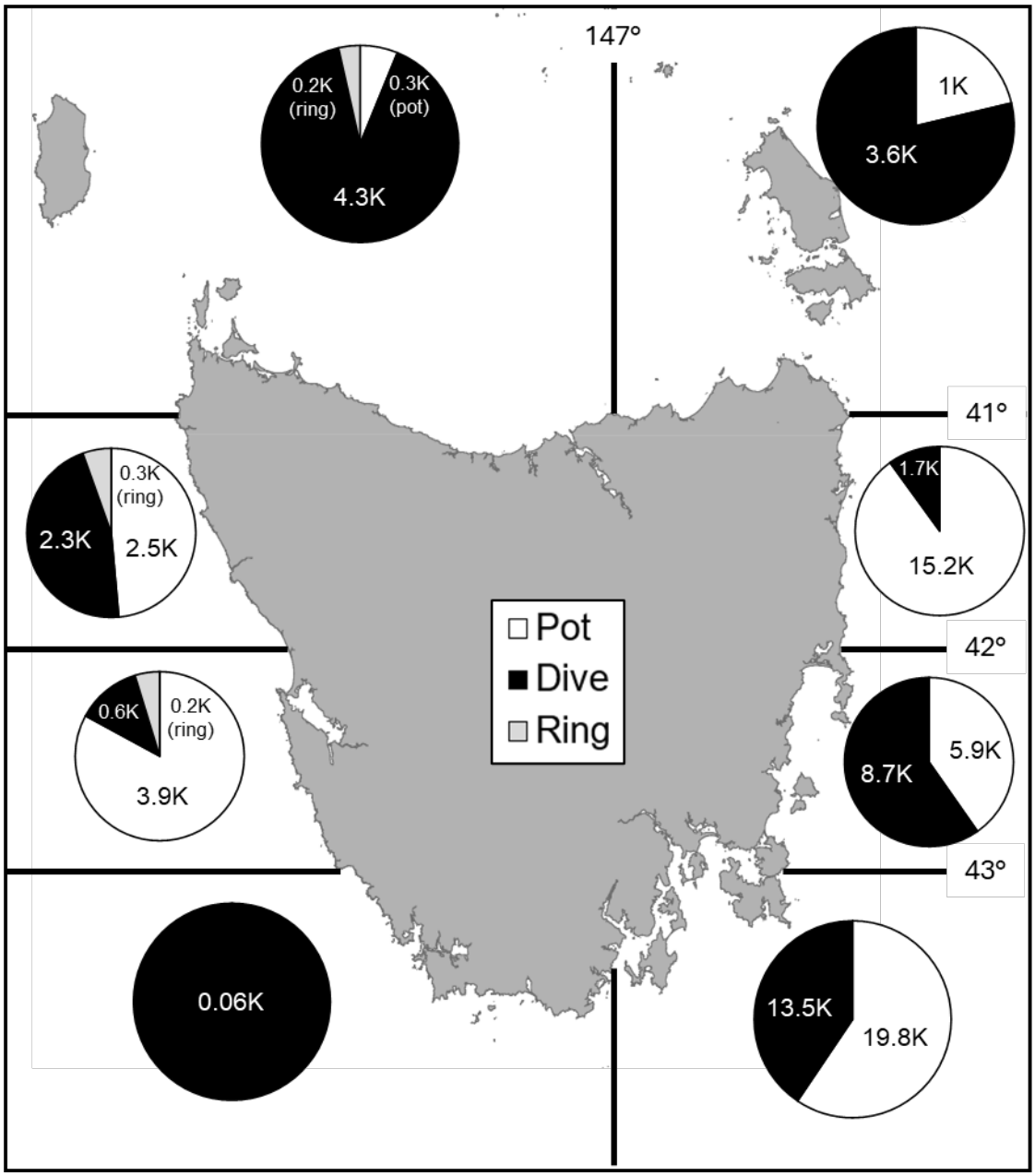

Figure 3. Proportion of regional harvest by fishing method (pie charts).

3.1.3 Southeast Coast

Catch data for Area 1 have been disaggregated into five sub-areas to better describe the spatial characteristics of the fishery in the southeast (Figure 4). Waters surrounding the Tasman Peninsula and Storm Bay (including eastern Bruny Island) accounted for 60% of the harvest by number, with the area to the south of Bruny Island contributing a further 16%. Norfolk and Frederick Henry Bays and the Derwent Estuary accounted for 16% and 5%, respectively, while comparatively lower catches (4%) were reported from the D'Entrecasteaux Channel.

There were also marked regional differences in the proportion of rock lobster taken by different fishing methods in Area 1 (Figure 4). Dive catches dominated in the Derwent, Norfolk and Frederick Henry Bays, and D'Entrecasteaux Channel, whereas pots accounted for most of the harvest taken from other sub-areas.[2]

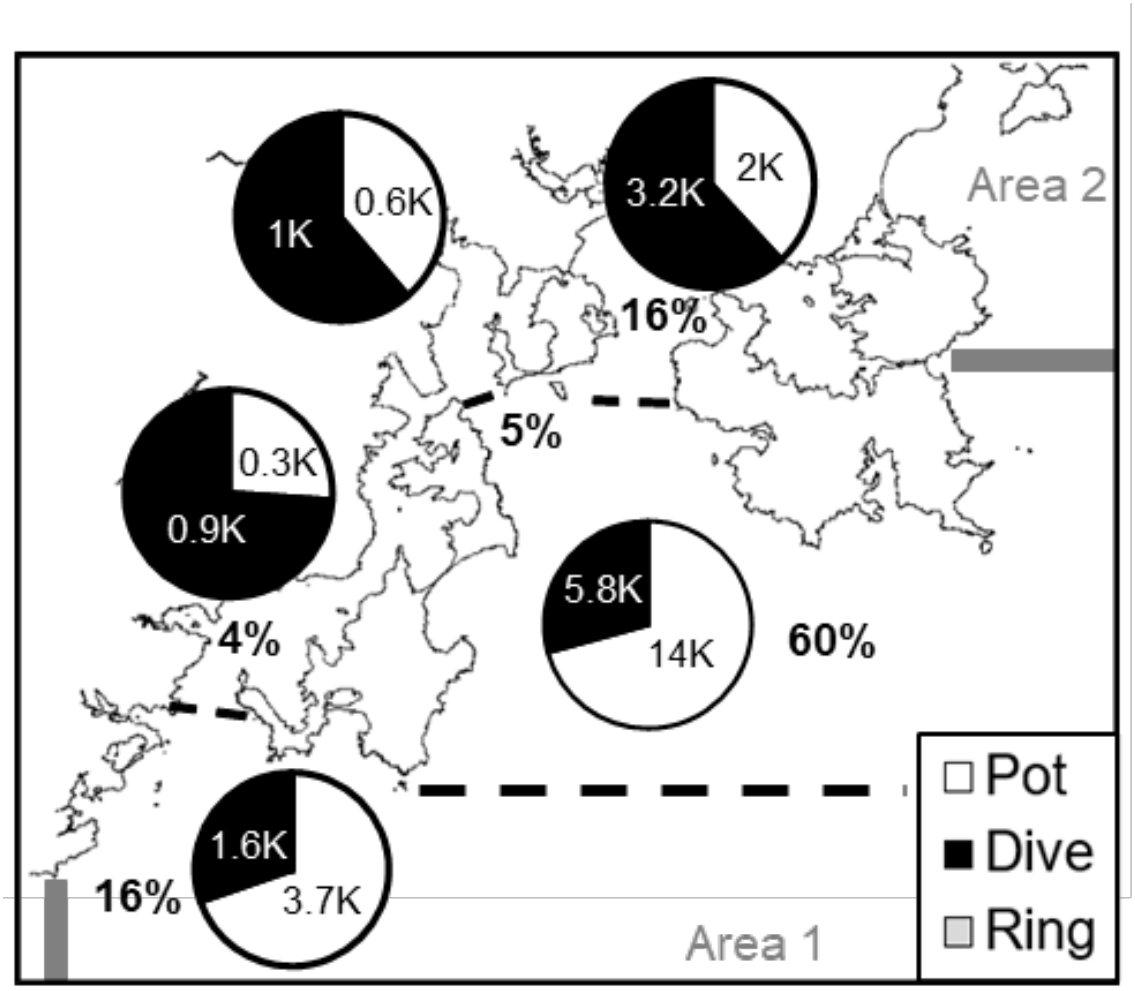

Figure 4. Regional distribution of Area 1 harvest (%) and proportion of harvest by method (pie charts).

3.1.4 Seasonal Catch and Effort

Waters outside the ECSRZ were opened during the first weekend in November, while waters within the ECSRZ opened on 2 December. The delay in opening the ECSRZ is reflected in the peak in fishing activity occurring in December (Figure 5). Catch and effort levels fell sharply thereafter.

[2] Note: The Recreational Rock Lobster and Abalone Survey uses a different area for the D'Entrecasteaux channel than the legislated area. For this survey, the D'Entrecasteaux Channel is considered from Southern Esperance Bay directly across to North Satellite Island and from Dennes point and a line to Pearson's Point (includes Dover, and the inside of Bruny Island).

Seasonal variation in catch and effort was largely driven by pot fishing activity, with most potting catch (76%) and effort (64%) occurring between December and January. Following a sharp decline in fishing activity in February, there was a slight increase associated with the Easter holiday period in March, a pattern that is typical for this fishery. Dive activity followed a similar pattern to pot fishing during the December–January period, and total fishing across both methods in this period accounted for 68% of the total harvest (Figure 5).

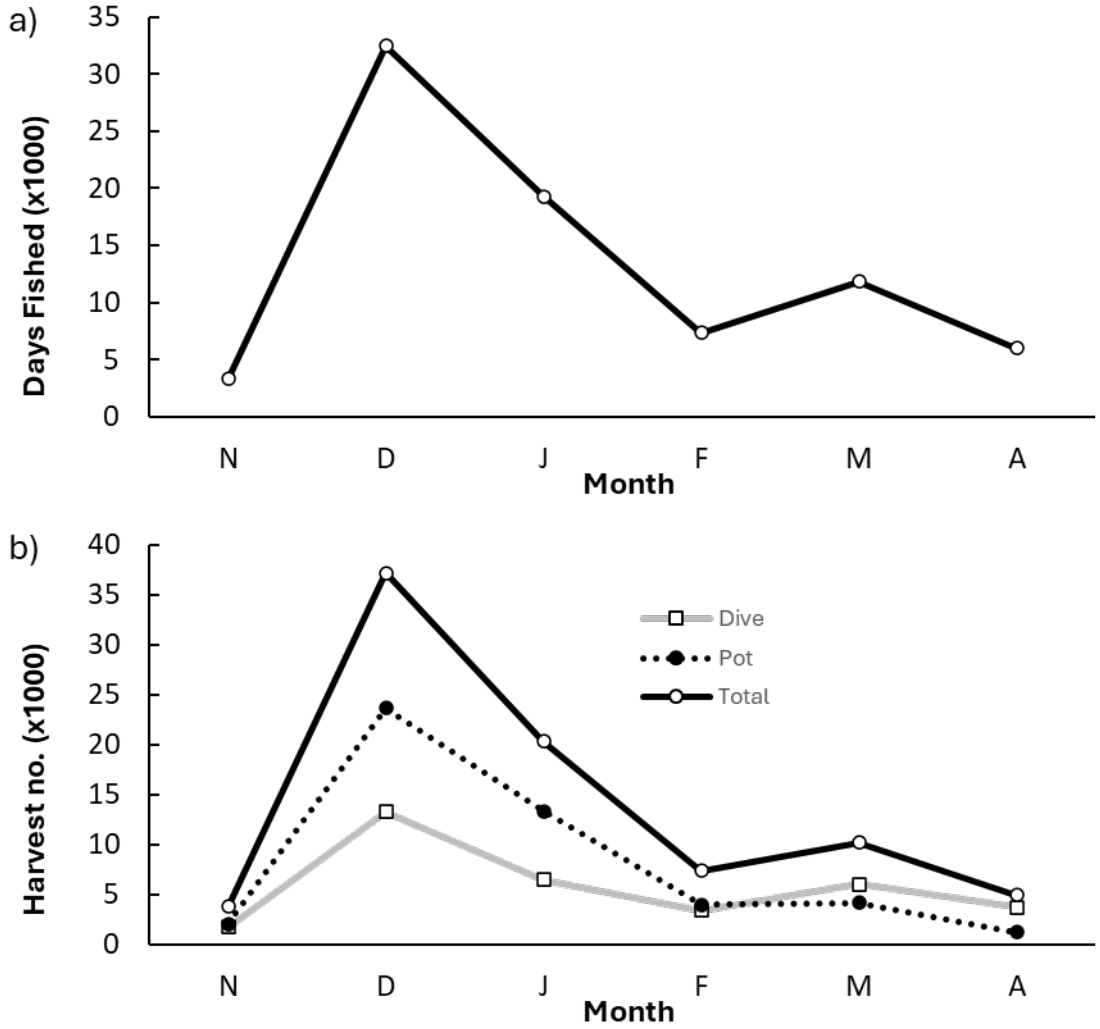

Figure 5. Recreational rock lobster harvest (numbers) and effort (days fished) by month and method for the 2023–24 fishing season.

3.1.5 Daily Harvest

Daily catch distributions differed markedly by fishing method and between management regions (Figure 6). For example, potting days resulting in no retained catch were 47% and 36% of total pot fishing days in the eastern (Areas 1–4) and western (Areas 5–8) regions, respectively. In the eastern region, the daily bag limit of two lobsters was achieved on 23% of pot-days fished, whereas in the western region, 38% of pot-days resulted in catches of at least two lobsters, with 6% of pot-days resulting in the western region bag limit of five lobsters caught. By contrast, divers had higher success rates, with 87% of all dives in the eastern region and 80% of all dives in the western region resulting in the harvest of at least one lobster. The daily bag limit of two lobster was achieved in 70% of the eastern region dives, whereas in the western region, divers took at least two lobsters in 66% of dives and the daily bag limit of five lobsters in 28% of dives.

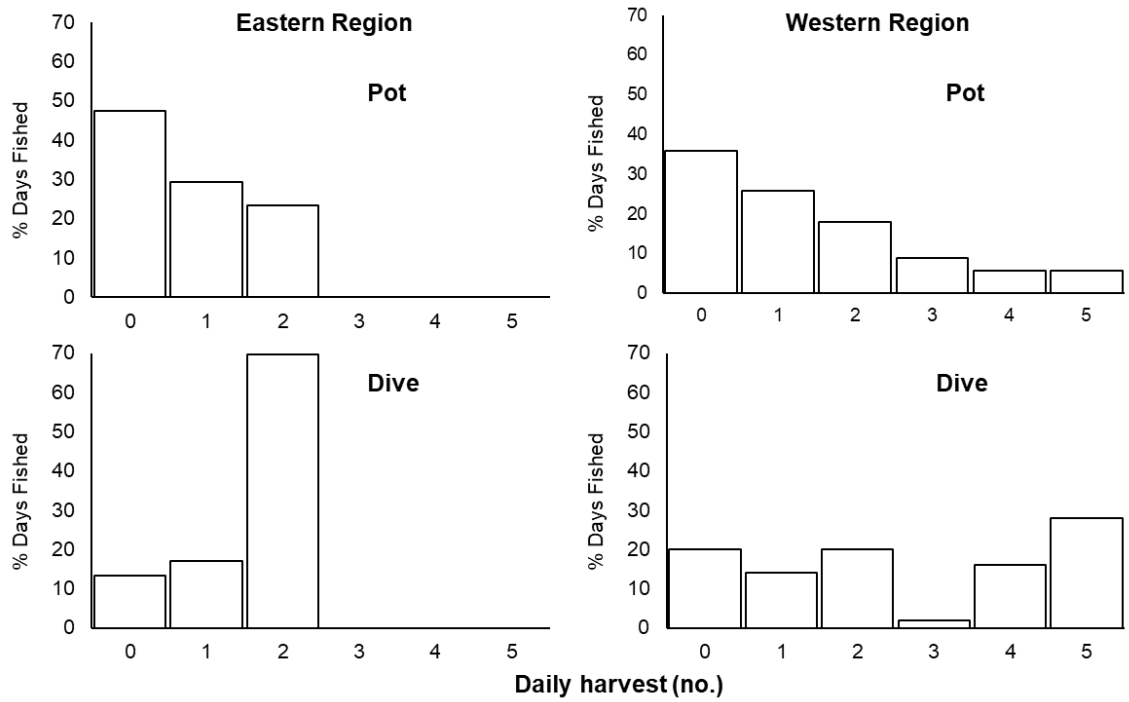

Figure 6. Distribution of daily rock lobster harvest by fishing method and management region.

3.1.6 Individual Seasonal Harvest

Individual season limits for recreational fishers have been flagged as a potential management option to constrain the overall recreational harvest and share catches more equitably between fishers. It is, therefore, worthwhile to report on the numbers of rock lobster retained by individual fishers up to the end of April (Figure 7). Statewide, 11.9% of the active fishers harvested no legal sized lobsters, 47.6% harvested five or fewer lobsters and 12.5% took 16 or more lobsters during the survey period. The proportional breakdown was similar when limited to the east coast fishery.

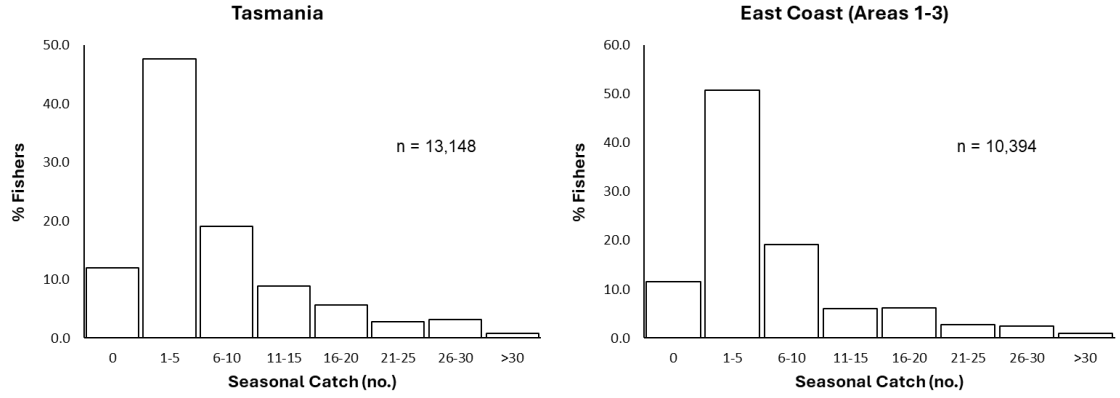

Figure 7. Seasonal harvest of rock lobster for fishers who were active within the east coast (Areas 1–3) and for the whole fishery. n is the estimated number of active licence-holders.

3.1.7 Released Catch

A total of 46,356 rock lobster were estimated to have been released from pots, equivalent to 1.05 for every retained lobster (48,479). About 78% of pot releases were due to the capture of undersized rock lobster, 21% were due to over catch limit, and 1% were discarded dead, damaged, or 'in berry'. Although divers release some rock lobster, much of this 'sorting' occurs underwater and therefore a similar analysis of reasons for release by divers was not attempted.

3.1.8 Size Composition

Diarists reported lengths for 613 pot-caught, 386 dive-caught, and 10 ring-caught rock lobster. Pot-caught lobsters ranged between 105–285 mm carapace length; when converted to weight this equated to an average of 1285 g per lobster. Dive-caught lobsters had a size range of 106–215 mm and were heavier on average (1,350 g). The male-to-female sex ratios were 1.0:0.51 for pot-caught lobster and 1.0:0.36 for dive-caught lobster. Length frequency distributions by region are presented in Figure 8. Apart from the east coast (Areas 1–3), data were limited and may therefore not be broadly representative.

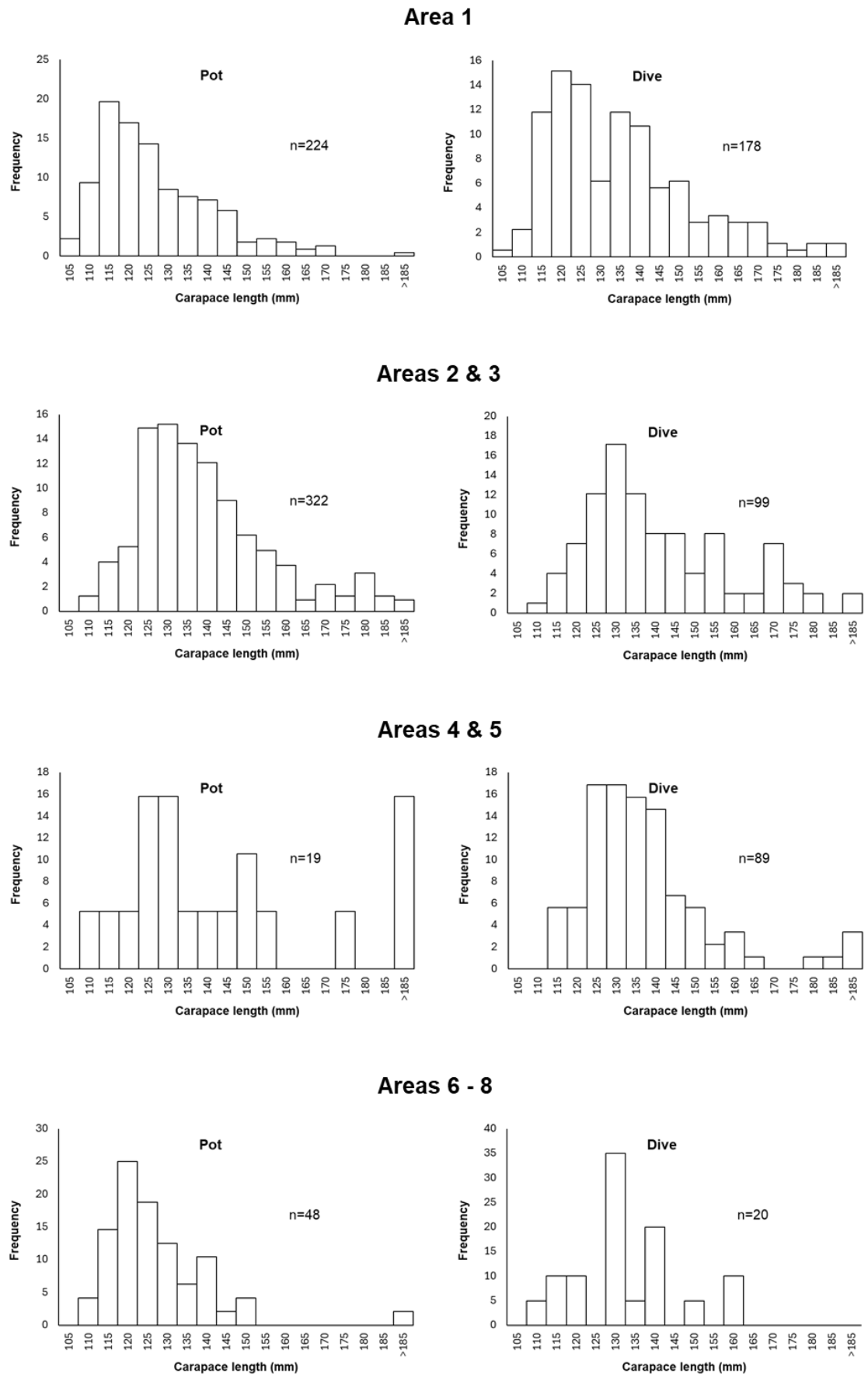

Figure 8. Length frequency distributions by 5 mm size class for recreationally caught rock lobster taken by pot and dive fishing methods by assessment area(s). n is sample size.

3.1.9 Harvest Weights

The weight of the 2023/24 recreational harvest was estimated by multiplying average lobster weights by the number of lobsters harvested by method and area. Average weights by area and method used to determine harvest weights are presented in Table 3.

The statewide harvest was estimated to be 107.8 tonnes[3], equivalent to 63% of the TARC (170 tonnes). Regional harvest estimates ranged from 35.4 tonnes (Area 1) to less than one tonne (Area 8) (Figure 2b, Table 3). As a proportion of the statewide recreational harvest by total weight, the east coast (Areas 1–3) accounted for 76.8%, the north coast (Areas 4 & 5) for 13.2%, and the west coast (Areas 6–8) for 10.0%.

Table 3. Average rock lobster weight (g) by method and estimated harvest (kg) by area.

	Av. weight (g)			%
Area	**Pot/Ring**	**Dive**	**Harvest (kg)**	**total**
1	1040	1302	38,171	35.4
2	1388	1424	20,513	19.0
3	1410	1570	24,091	22.4
4	3097	1389	7,913	7.3
5	1367	1317	6,267	5.8
6	1130	1227	5,988	5.6
7	983	1227	4,751	4.4
8	983	1227	74	0.1
Total			**107,768**	

[3] Any illegal harvest taken by recreational fishers, whether due to fishing whilst unlicensed or catches in excess of legal limits, is not included in the harvest estimates.

3.2 Abalone

3.2.1 2023/24 Catch and Effort

Information reported in this and the following sections relates to diary survey data provided by fully responding licence holders and is presented as expanded estimates representative of the activities of recreational abalone licence holders between November 2023 and April 2024, inclusive.

During the survey period, an estimated 38.2% (SE 3.2%) of abalone licence holders (i.e., 4,375 out of the 11,452 licence holders) fished for abalone, with 34.6% (SE 3.2%; 3,967 persons) harvesting at least one abalone.

The total harvest was estimated to be 48,740 abalone (95% CI: 33,277–66,910), caught across 12,726 fisher days[4]. This represents an average harvest rate of 3.8 abalone per day. Blacklip Abalone and Greenlip Abalone accounted for 90% (43,683 individuals) and 10% of the statewide total catch (5,057 individuals), respectively (Table 4).

Table 4. Abalone harvest, effort, and harvest rates by fishing area for 2023/24. Values in parentheses represent the 95% confidence intervals. * indicates average weight based on commercial catch sampling data.

	Harvest (no.)					
Area	**Blacklip Abalone**	**Greenlip Abalone**	**Effort (fisher days)**	**Harvest rate (no. per fisher day)**	**Av. weight (g)***	**Harvest (kg)**
1	18,125 (10,905–26,675)	-	5,473 (3,529–7,409)	3.3	567	10,277
2	7,532 (3,326–13,553)	105 (0–323)	2,527 (1,458–3,646)	3.0	567**	4,330
3	6,980 (3,098–11,667)	-	1,480 (765–2,296)	4.7	563	3,930
4	4,499 (452–9,809)	4,425 (1,272–9,049)	1,538 (660–2,588)	5.8	480	4,284
5	2,469 (508–4,902)	-	619 (249–1,142)	4.0	445	1,099
6	2,265 (239–4,736)	526 (0–1,578)	640 (102–1,327)	4.4	687	1,918
7	1,655 (0–3,879)	-	239 (34–521)	6.9	732	1,212
8	158 (0–491)	-	210 (0–654)	0.8	695	110
Total	**43,683** (29,360–59,747)	**5,057** (1,532–10,091)	**12,726** (9,522–16,073)	**3.8**		**27,158**

**No commercial data was available for Area 2 so Area 1 average weights were substituted.

[4] A fishing day was defined as one in which Abalone was a nominated target species and/or Abalone were caught.

3.2.2 Regional Catch and Effort

Regional catch, effort, and harvest rates for abalone are presented in Table 4. The recreational fishery was concentrated off eastern Tasmania, particularly on the southeast coast (Area 1), which accounted for 56% of the total harvest (Figure 9a). Blacklip Abalone were taken from all areas, whereas Greenlip Abalone were reported only from Areas 2, 4 and 6. Regional harvest rates varied between 0.8 and 6.9 abalone per day, the highest catch rates were in the west (Area 7).

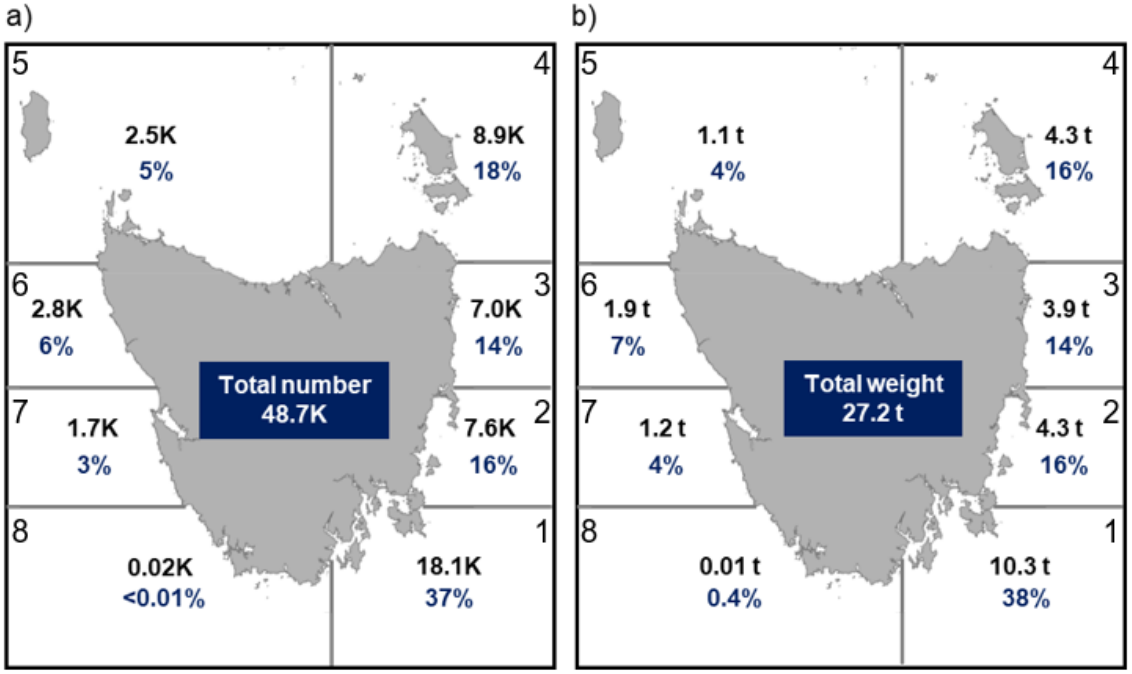

Figure 9. Recreational harvest of abalone by assessment area: a) Numbers harvested (in 1000s or K) and proportion (%) of total number; b) Estimated harvest weight and proportion (%) of total weight.

3.2.3 Seasonal Catch and Effort

The abalone fishery exhibited a strong seasonal pattern, with effort peaking in December and catch having two peaks, in December-January and in March (Figure 10), coinciding with summer holidays and the Easter holiday, respectively. A traditional peak during November was not evident in 2023 (also absent in 2020, 2021, and 2022). This is likely due to the delayed rock lobster season opening for the ECSRZ in recent years, as most abalone dive fishers also target rock lobster.

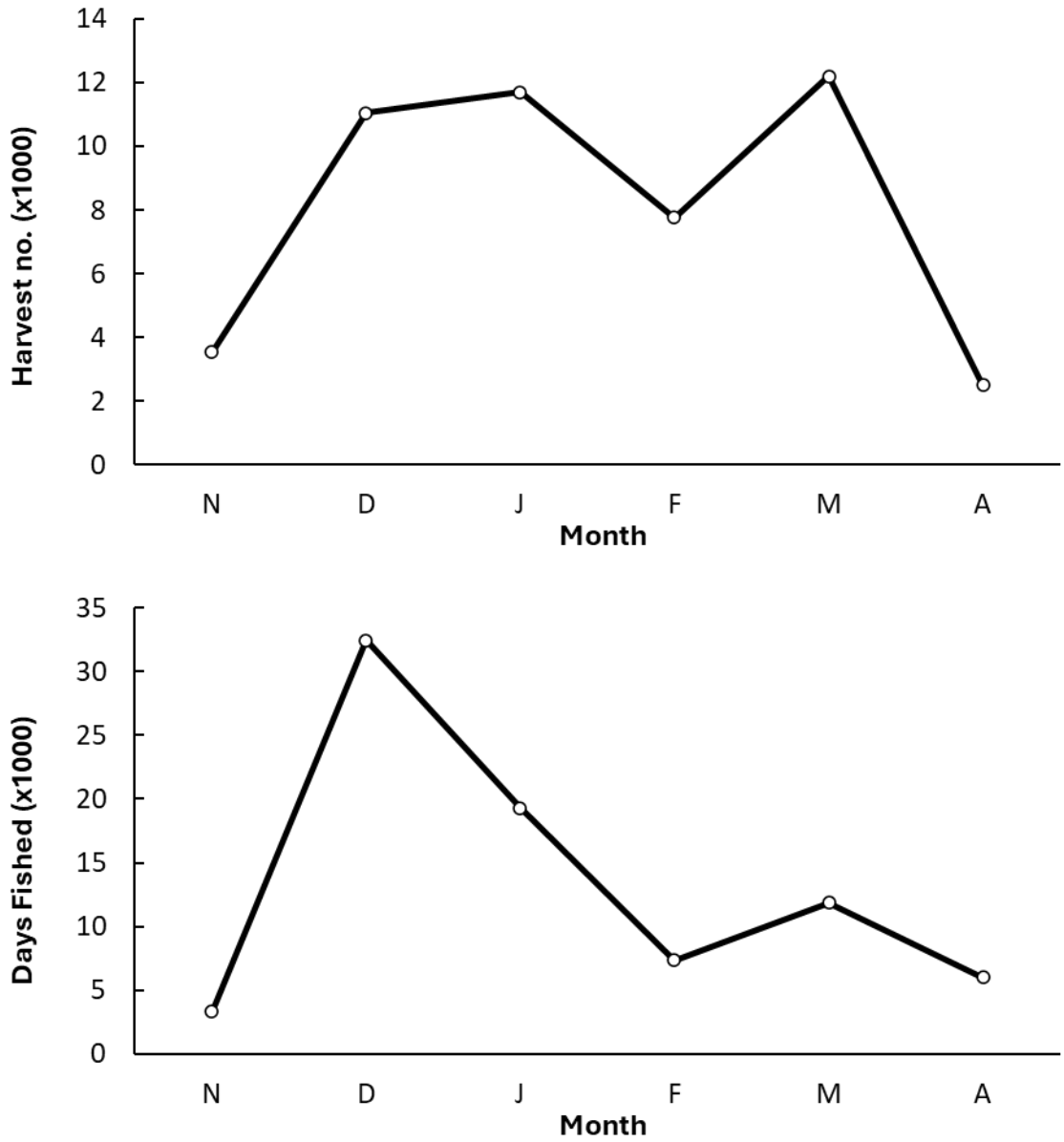

Figure 10. Recreational abalone harvest (numbers) and effort (days fished) by month during the 2023–24 fishing season.

3.2.4 Daily Harvest

The daily bag limit of 10 abalone was achieved in the eastern region in 12% of targeted dives and in 18% of dives in the western region (Figure 11). However, the sampling strategy was weighted towards respondents likely to fish off the east coast. Consequently, expansion of data for the western region was limited due to sample size, and the variance around the estimate is less precise and should be treated with caution.

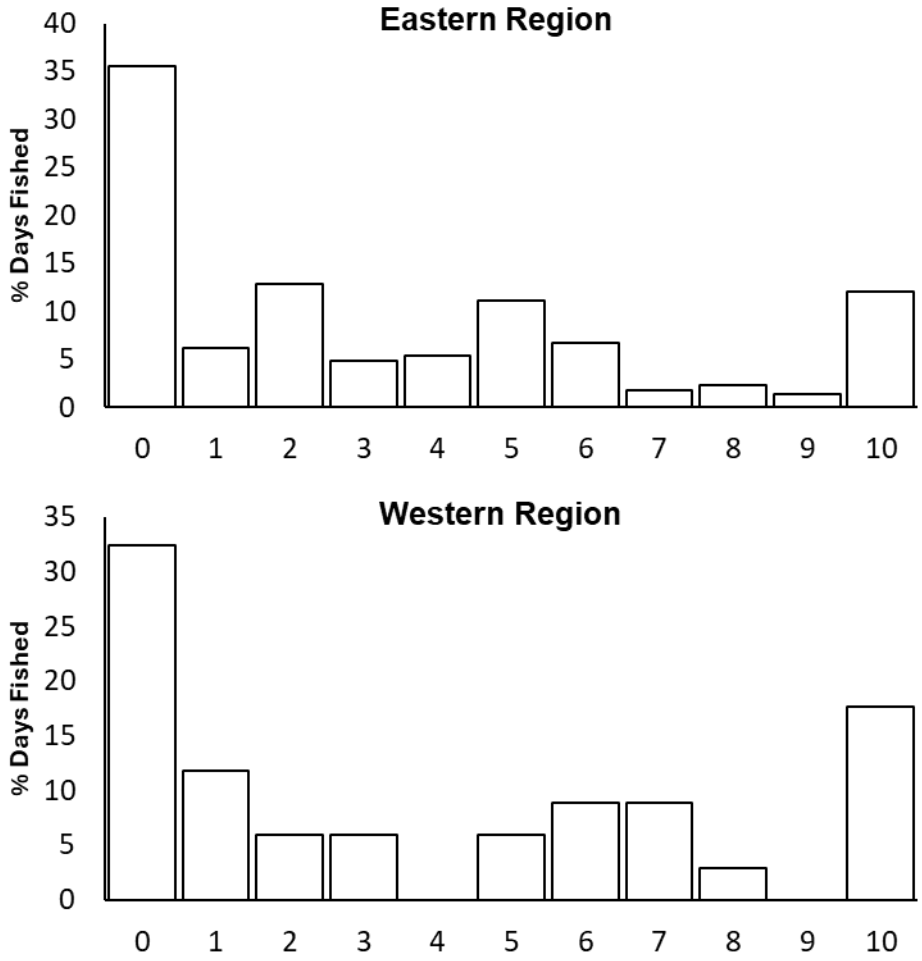

Figure 11. Distribution of daily abalone harvest by management zone for 2023–24 licence holders.

3.2.5 Individual Seasonal Harvest of Abalone

During the survey period, 9% of active fishers harvested no abalone, 26% harvested five or fewer, and 21% harvested 16 or more (Figure 12).

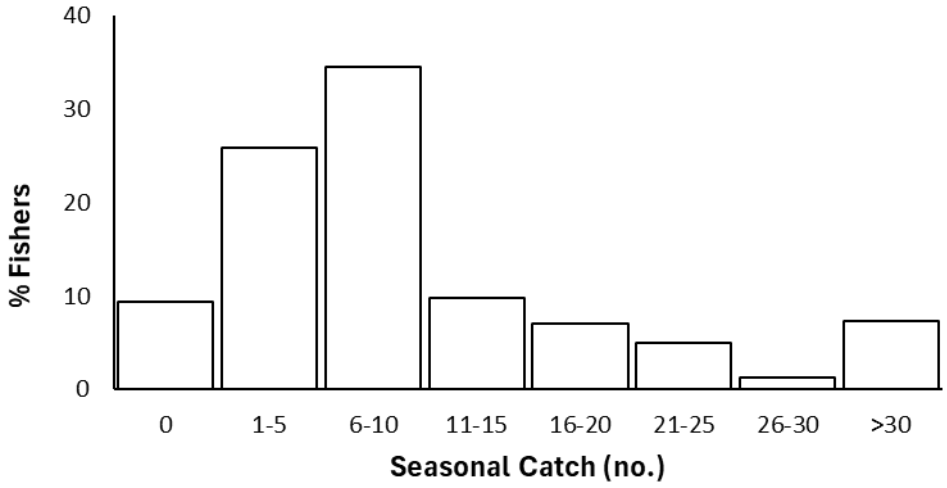

Figure 12. Seasonal harvest of abalone for fishers who were active within the whole fishery (*n* = 4,375).

3.2.6 Harvest Weights

Size composition information was not available for recreationally caught abalone. However, based on commercial catch sampling, the average legal-sized abalone was between 445 g (Area 5) and 732 g (Area 7, Table 4). Using these values, the total statewide recreational harvest between November and April was estimated to be about 27.2 tonnes. Regionally, harvest estimates ranged from 10.3 tonnes in Area 1 to less than one tonne in Area 8 (Table 4, Figure 9b). The catch for the combined east coast (Areas 1–3) was 18.5 tonnes, the north coast (Areas 4 and 5) 5.4 tonnes, and the west coast (Areas 6–8) 3.2 tonnes.

3.3 Wash-up survey

3.3.1 General

Of the 327 respondents who completed the diary survey, 257 (78.6%) also completed the wash-up survey.

3.3.2 Constraints to Fishing

Diarists who did not report any lobster or abalone fishing activity were asked why they did not fish during the season. A lack of time due to work and/or family commitments was the most cited reason, followed by injury/health issues (Figure 13).

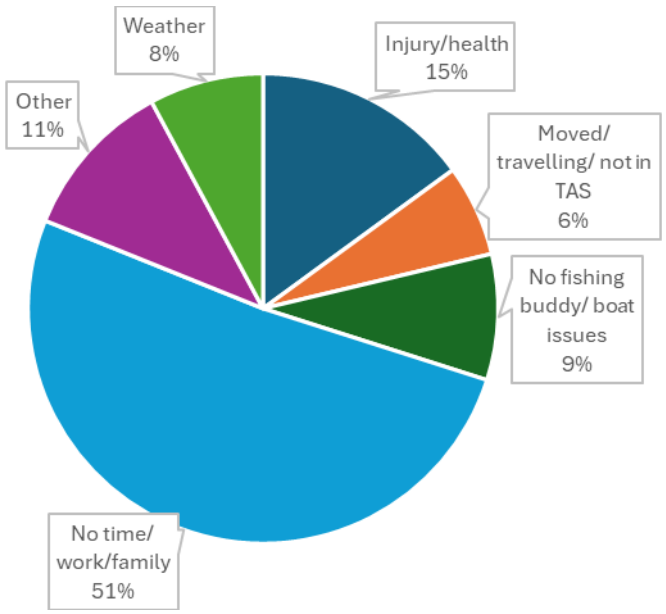

Figure 13. Main reason for not fishing for rock lobster or abalone during 2023-24 season (*n* = 127).

3.3.3 Fishing Quality

3.3.3.1 Rock Lobster

About 80% of respondents who fished for rock lobster during the 2023/24 season indicated that the overall quality of the fishery was about the same or better than in the previous season (Figure 14). This is a decrease of approximately 5% compared to responses to the same question asked at the end of the 2022/23 season. Fifteen percent of respondents indicated that the current season was worse than the previous one, almost double the responses to the same question in 2022/23.

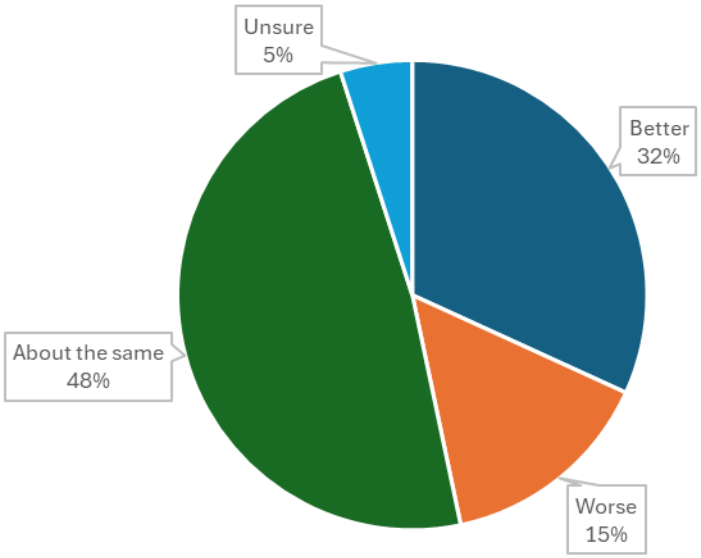

Figure 14. Perceptions about the quality of the rock lobster fishery in 2023/24 relative to respondent's experience in 2021-22 (*n* = 242).

Diarists who fished for lobster during 2023/24 were asked whether the proportion of trips in which they caught at least one legal-sized lobster was higher, lower, or about the same as during the previous season (Figure 15). About 70% of respondents indicated that the proportion of successful trips was about the same or better than in the previous year, while 27% reported lower success rates in 2023/24.

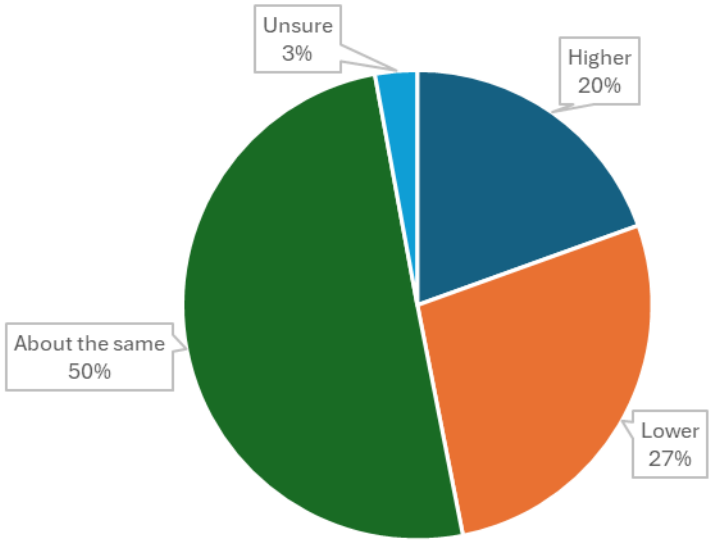

Figure 15. Proportion of respondents who indicated greater rock lobster fishing success (in terms of trips where at least at least one legal-sized lobster was caught) in 2023/24 compared with 2022/23 (*n* = 241).

Respondents who had reported fishing for rock lobster were asked whether they were satisfied with their catch rates (number of lobsters kept per day fished) during the 2023–24 season. Overall, 78% indicated that they were at least “quite satisfied” (Figure 16). Based on main fishing method however, divers were more likely to be satisfied (88%; Figure 17) than pot fishers (75%; Figure 18). This was an increase in satisfaction of dive fishers from the previous season (82% in 2022/23), but a decrease for pot fishers (79% in 2022/23).

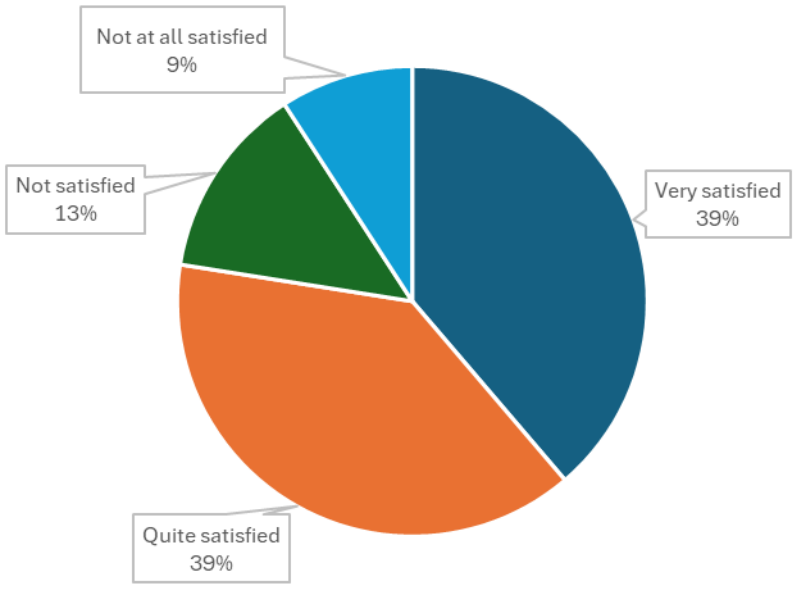

Figure 16. Fisher satisfaction with rock lobster catch rates achieved during the 2023/24 season (*n* = 240).

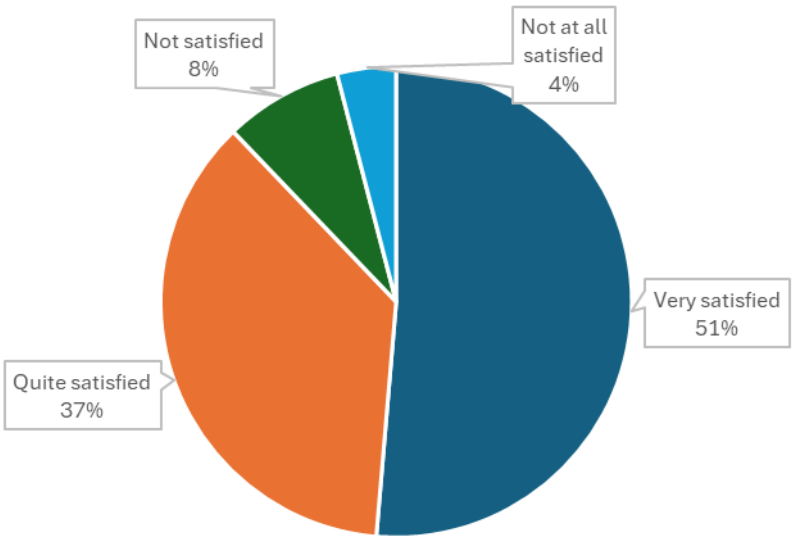

Figure 17. Diver satisfaction with rock lobster catch rates achieved during the 2022/23 season (*n* = 74).

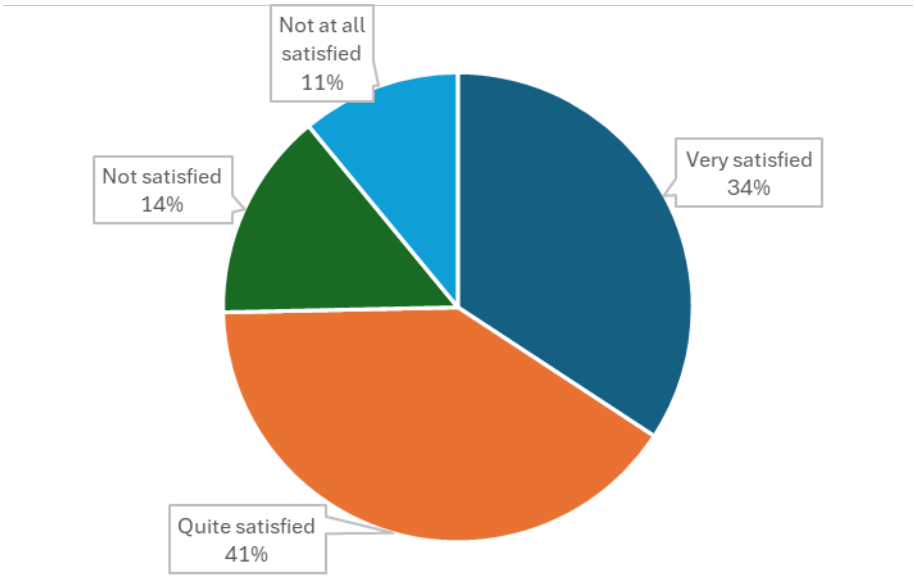

Figure 18. Pot fisher satisfaction with rock lobster catch rates achieved during the 2023/24 season (*n* = 146).

3.3.3.2 Abalone

Abalone fishers provided their perceptions of the quality of the fishery in 2023/24 compared with the previous season.

Sixty-six percent of respondents indicated that it was about the same or better, while 27% indicated that the 2023/24 season was worse.

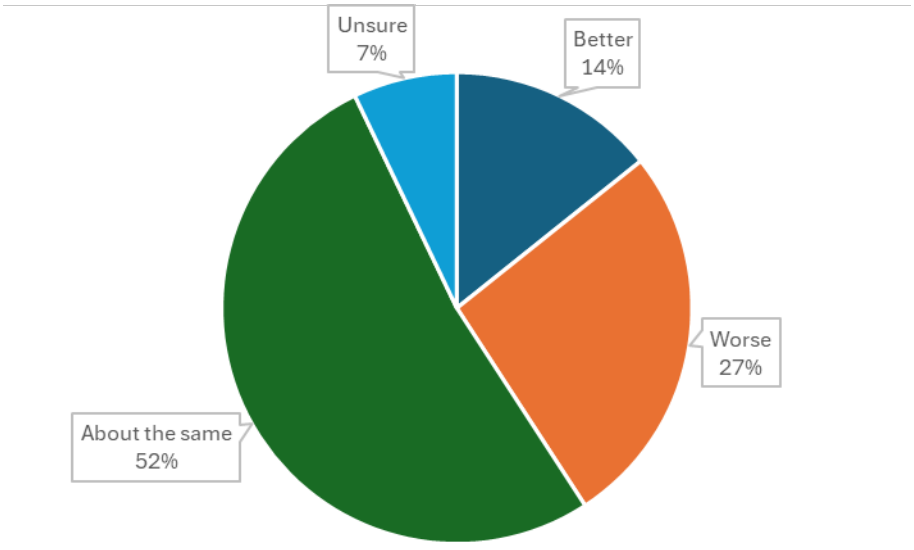

Figure 19. Perceptions of the quality of the abalone fishery in 2023/24 season compared with the 2022/23 season (*n* = 98).

Abalone fishers were also asked whether they were satisfied with their 2023/24 catch rates (average number of abalone kept per day fished). Overall, 69% indicated that they were at least “quite satisfied” (Figure 20).

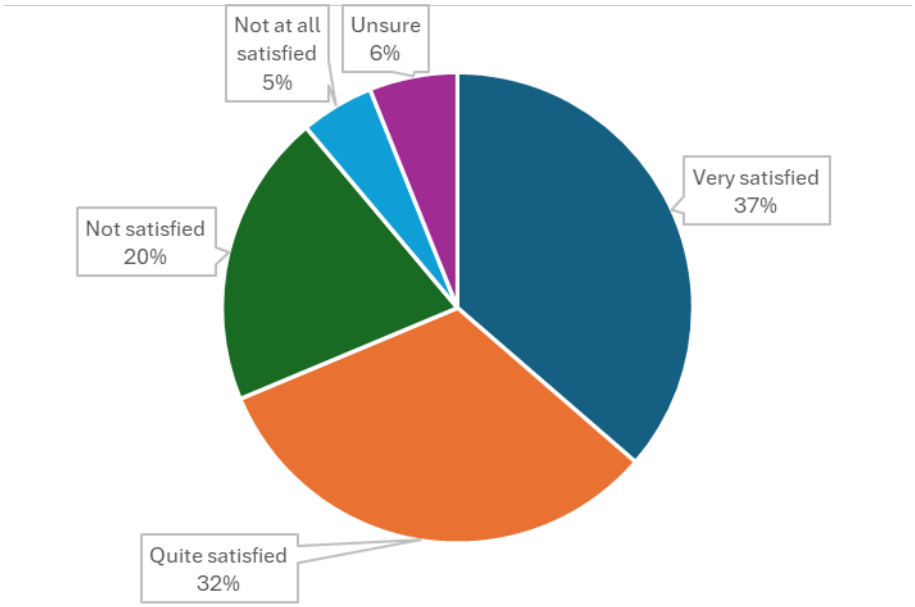

Figure 20. Fisher satisfaction with abalone catch rates during 2023/24 season (*n* = 99).

3.3.4 Policing, enforcement and compliance

Of 257 active fishers who responded to questions about policing, 73 (28%) indicated that they had been checked by Marine Police whilst fishing for lobster during the survey period, 29 (40%) of whom were checked on multiple occasions. Inspections happened almost equally on-water (41%) and off-water (43%). Some respondents were subject to both on-water and off-water checks (16%).

Respondents were asked about their perceptions of how common several different illegal activities were in the recreational rock lobster and abalone fisheries (Figure 21). The most common illegal activity thought by respondents to be commonly occurring (excluding those respondents that were unsure) was ‘pulling other people’s pots and taking their catch’. Around 40% of people stated that this was ‘very or quite common’, 18% were unsure, and the remainder thought that it was ‘not very common’ or ‘not at all common’ (Figure 21). The least common illegal activity that respondent’s thought was occurring was the ‘taking of undersize lobster’, with 71% thinking this was ‘not very or not at all common’, 17% were unsure, and the remaining 12% thinking this was at least ‘quite common’. This was followed by ‘retaining more than the daily boat limit’ with 61% thinking this was ‘not very or not at all common’, 19% unsure, and the remaining 20% thinking this was at least ‘quite common’ (Figure 21). It was a similar result for retaining more than the bag limit for lobster, with 56% thinking this was ‘not very or not at all common’ and 23% thinking this was at least ‘quite common’.

The questions relating to the abalone fishery had a high proportion of respondents (39 –42%) that were unsure of how common the issues in question were, this is because there were a high number of respondents that do not fish for abalone. Of those that provided a response, 31% felt that it was at least quite common for people to catch abalone for others in their party, with 30% thinking that it was at least not very likely (Figure 21). The majority that provided responses thought that it was at least ‘not very likely’ that abalone fishers were taking undersize (43%), or over the bag limit (46%), with 16% and 12% respectively thinking these offences were at least ‘quite common’ (Figure 21).

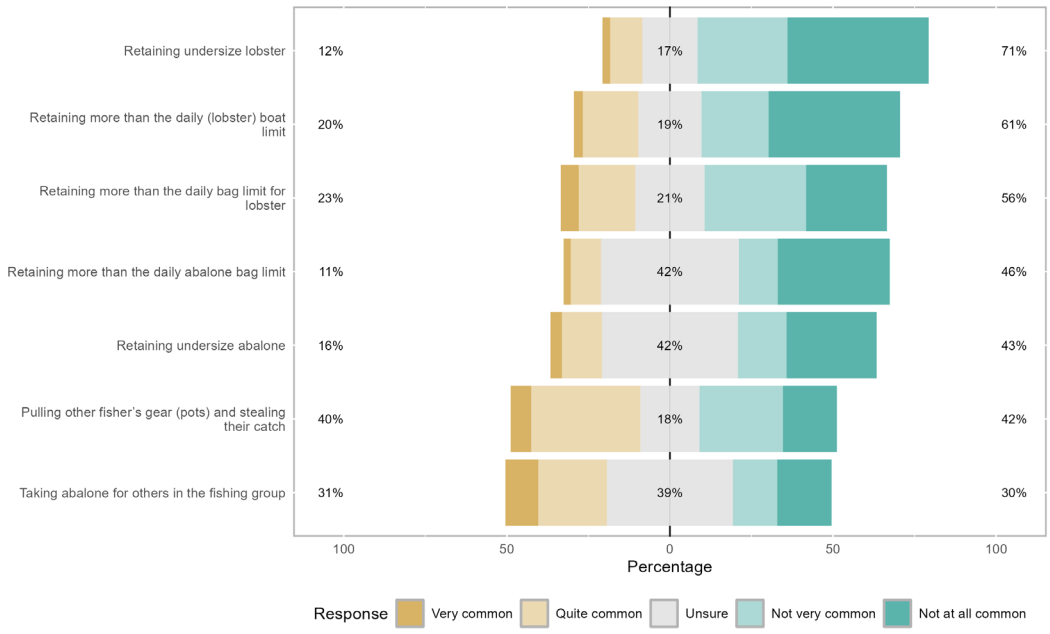

Figure 21. The response profile for a series of questions asked relating to perception on non-compliance in the recreational Rock Lobster and Abalone fisheries.

3.3.5 Recent management changes

3.3.5.1 Female size limit changes

Since the 2022/23 rock lobster fishing season, the size limit for female lobsters increased from 105 mm to 120 mm from the Henty River on the West Coast across the north coast to Cape Pillar on the East Coast (northern zone).

Respondents who fished for rock lobster were asked how these changes have changed their catch rate during the 2023/24 season (Figure 22). Most respondents indicated that their catch rate had not changed (43%), while 13% indicated it had decreased, and 2% indicated it had increased. Of those that responded, 38% had not fished in the area where the new size limits were implemented.

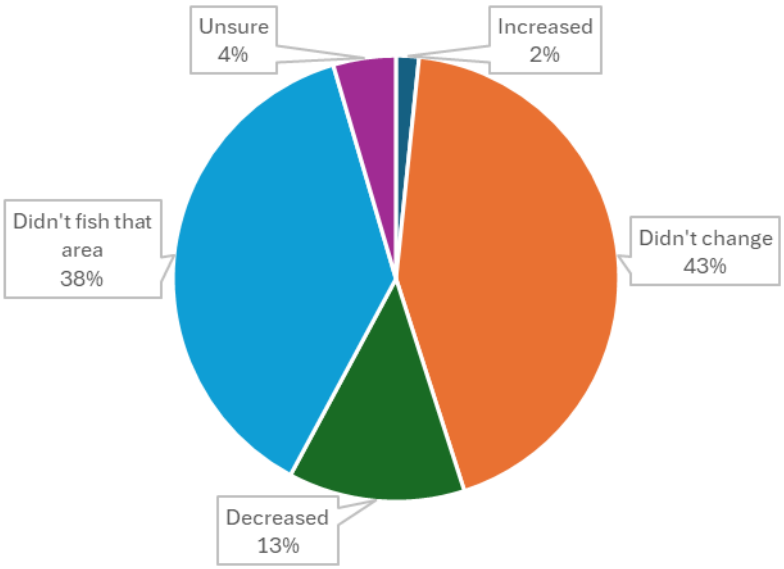

Figure 22. Fisher catch rate changes during the 2023/24 season after the implementation of the female size limit changes (*n* = 242).

Respondents were also asked if the changes in lobster size limits had impacted their fishing satisfaction compared with the previous season (Figure 23). Again, most respondents that fished in the new size limit zone indicated that their fishing satisfaction did not change (47%), with 5% experiencing decreased satisfaction, and 5% experiencing increased satisfaction.

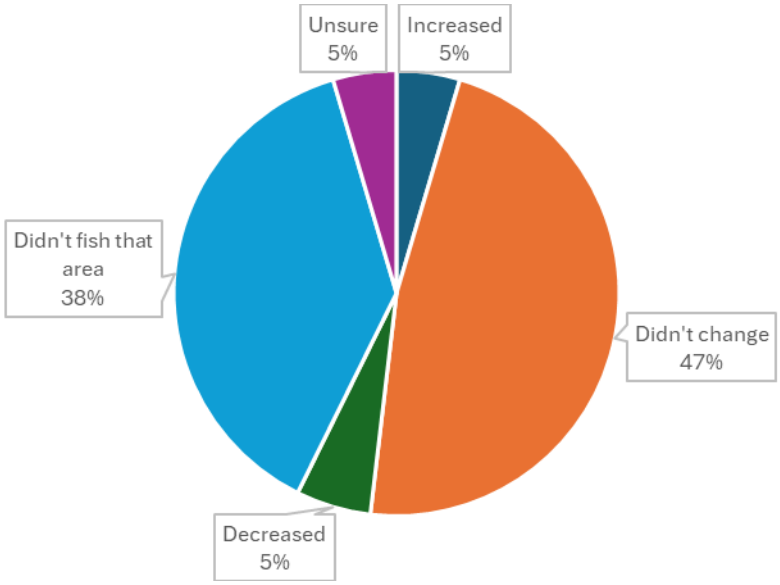

Figure 23. Fisher satisfaction with rock lobster catch rates during 2023/24 season after the implementation of the female size limit changes (*n* = 239).

Additionally, respondents were asked if the changes in size limits had impacted the amount of lobster handling (i.e., the handling of more fish due to increased number released as undersize) required compared to the previous season (Figure 24). Of the respondents that fished in the areas where the size limit had changed, 35% indicated their handling rates had not changed, 20% indicated their handling had increased, and 1% that indicated their handling had decreased.

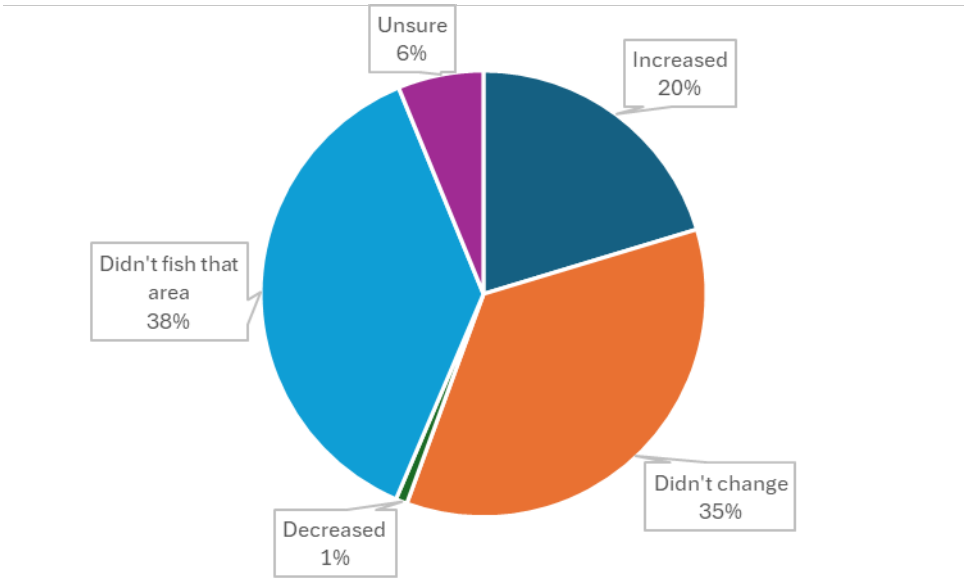

Figure 24. Fisher handling rate changes in the 2023/24 season in response to the female size limit changes (*n* = 241).

3.3.5.2 Opening of Elephant Rock and North Bay research areas to recreational potting

In December 2023, two areas previously closed to fishing for research were reopened as recreational potting only areas: Elephant Rock near St Helens, and North Bay near Marion Bay. Respondents who fished for rock lobster were asked about these areas, including if they were aware they had been reopened for recreational potting, their thoughts on the value of reopening these areas to the recreational fishing experience, if they fished in these areas and over how many days, or why if they did not fish these areas.

Half of the respondents were aware these areas had reopened, 47% were not aware, and 3% were unsure (Figure 25). When asked whether reopening these areas added to the recreational fishing experience (Figure 26), 45% indicated that it did, 14% that it did not, and 41% were unsure.

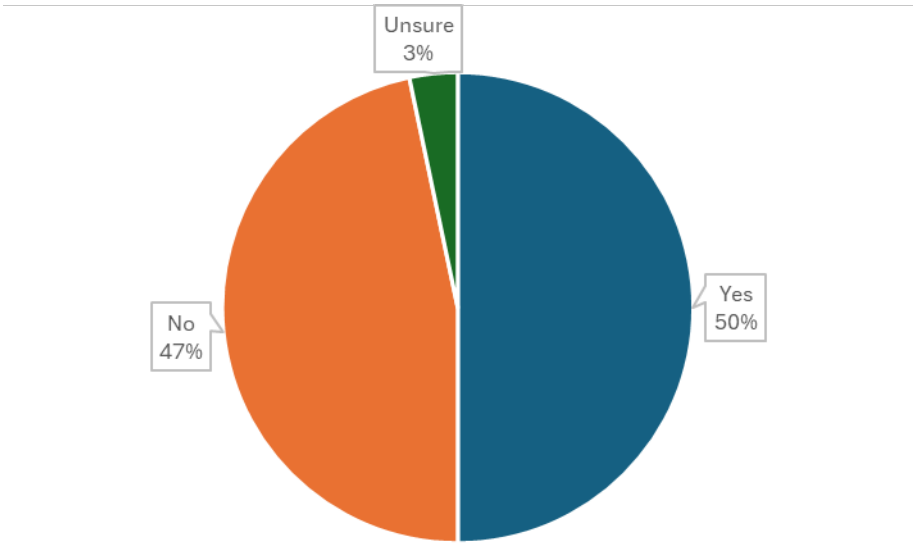

Figure 25. Response of whether respondents were aware of the reopening of the research areas as recreational only areas in 2023 (*n* = 242).

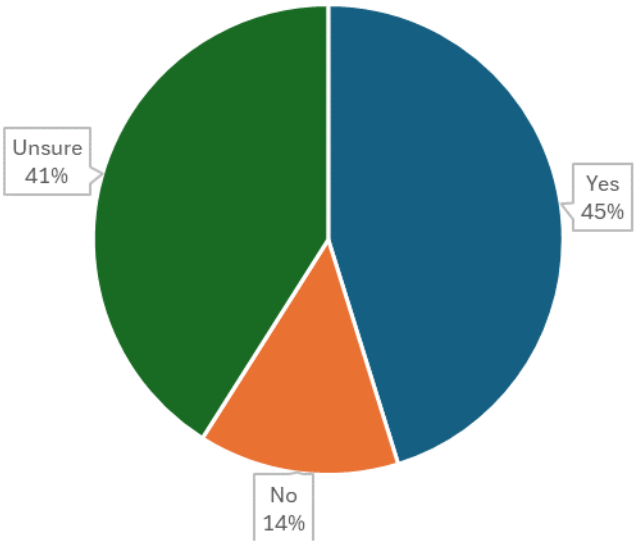

Figure 26. Responses of respondents on whether reopening the research areas as recreational only areas adds to the recreational fishing experience (*n* = 239).

Of the respondents, 94% indicated that they had not fished in either area since reopening in December 2023 (Figure 27). Five percent had fished these areas, and 1% were unsure. Of those who fished in either area, 42% had only fished one day, 42% for 2-10 days, and 17% for more than 10 days. The main reason respondents did not fish in either area was because they had their own fishing spot they normally go to, followed by too far to travel (16%), they chose not to or they should have been left shut (8%), and the areas were too busy (7%) (Figure 28). The 'other' category included answers such as areas were potting-only so divers could not access them, weather, and 'not worth it for the daily bag limit of one lobster'.

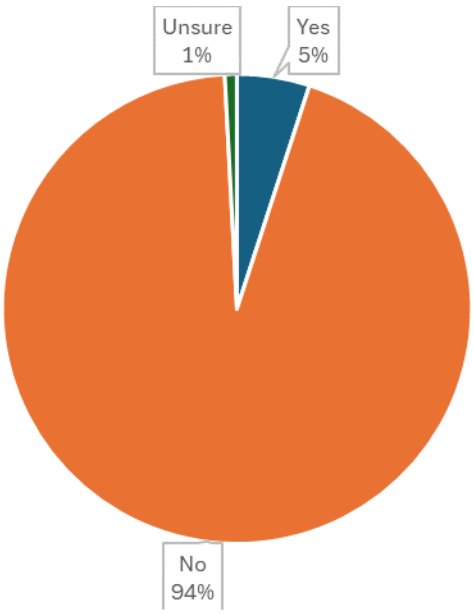

Figure 27. Number of respondents who fished in either of the research areas from December 2023 (*n* = 240).

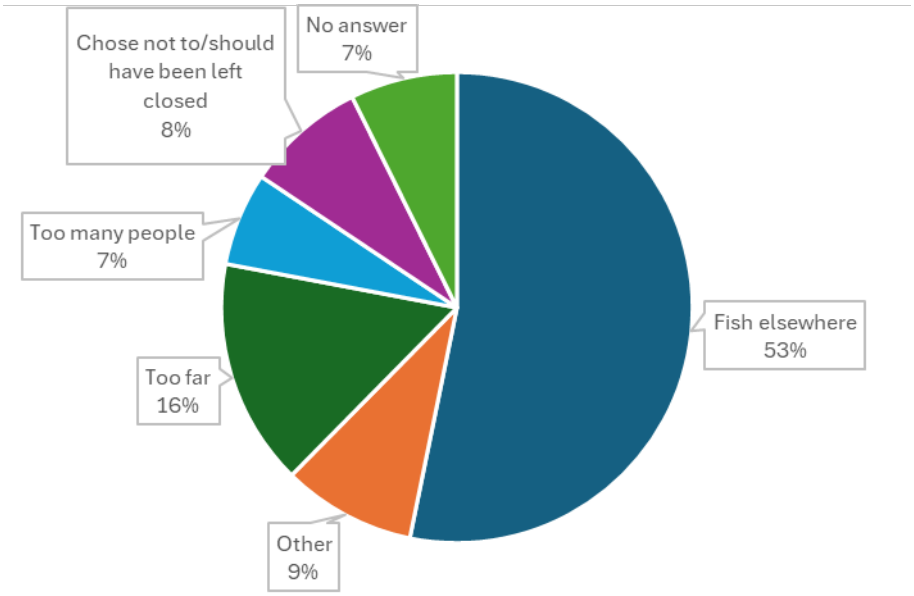

Figure 28. Reasons why respondents did not fish in either of the research areas from December 2023 (*n* = 109).

3.3.5.3 Rock lobster catch monitoring app

Since December 2023, recreational rock lobster fishers have been required to report their catch either through the Fishing Tas App or via a telephone reporting service. This has been applied to collect real-time catch data to better understand the total recreational rock lobster catch.

Respondents who fished for rock lobster were asked if they used the app at least once to report their catch during the season. Most respondents indicated they had used the app at least once (73%), with some indicating they had not used the app (26%), or were unsure (0.4%).

Respondents were also asked if they missed any reporting of their catch and why (Figure 29). Sixty-nine percent indicated they had not missed any reporting, with 29% indicating they had missed reporting at least one trip, and 1% were unsure. The reasons for not reporting using the app were forgetting (25%), issues with the app (11%), and using telephone reporting (10%). The 'other' category included reasons such as fishing before the app was implemented in December, no catch to report, reporting completed by another fisher, and lack of phone reception.

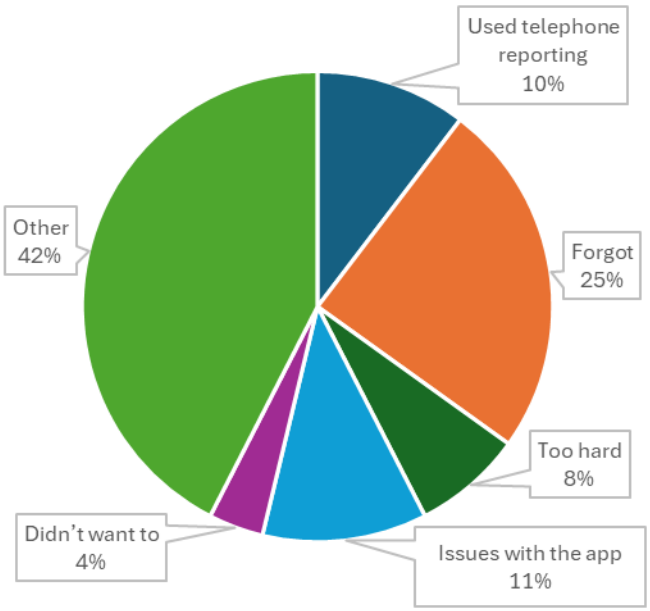

Figure 29. Reasons for why respondents did not use the catch reporting app to report their fishing catches in the 2023/24 season (*n* = 104)

Respondents were then asked about their perceptions of others using the rock lobster catch reporting app (Figure 30). There was a high proportion of respondents who were unsure about others use of the app (24-30%), with an almost even split with respondents thinking fishers were correctly reporting their catch 'all or most of the time' (40%), and 'some or none of the time' (36%). For not reporting their catch, 13% of respondents indicated they thought fishers were not reporting 'most or all the time' compared to 60% not reporting 'some or none of the time'. For intentionally mis-reporting catch, only 8% of respondents think fishers are doing this 'all or most of the time', whereas 62% of respondents think fishers are intentionally mis-reporting 'some or none of the time'.

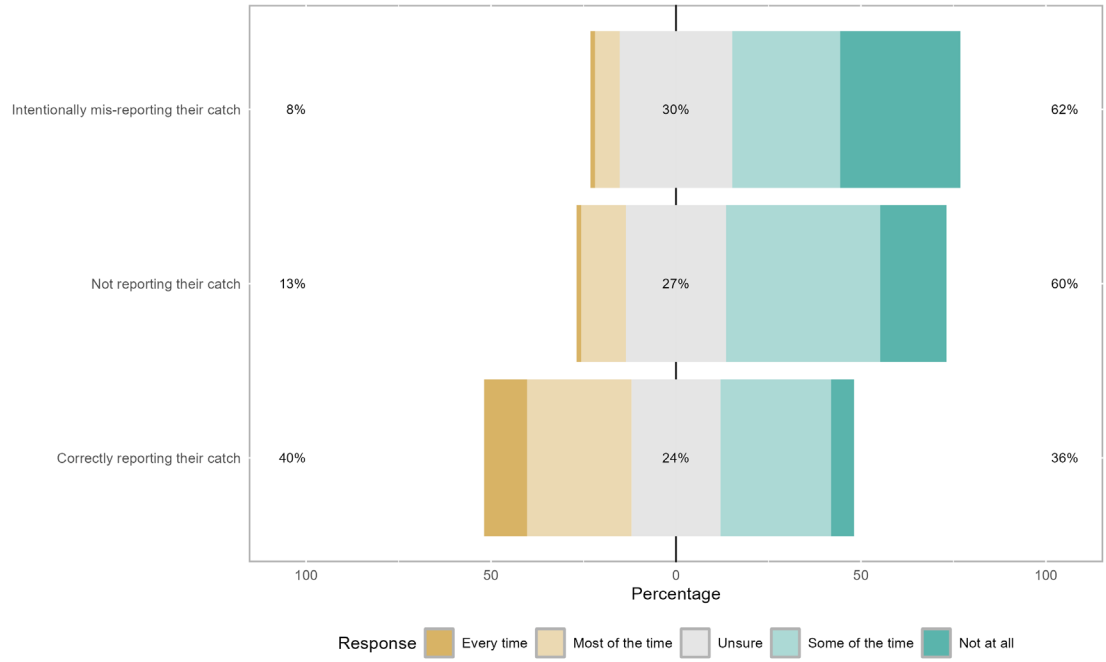

Figure 30. The response profile for a series of questions asked relating to catch reporting in the rock lobster fishery.

Respondents were asked to put aside their personal feeling about the mandatory reporting and were asked if they thought the app was a reliable way to estimate the size of the recreational catch of the lobster fishery (Figure 31). Most respondents thought it was at least a somewhat reliable method to estimate catch (68%), with 26% indicating it was not very or not at all reliable, and 5% unsure.

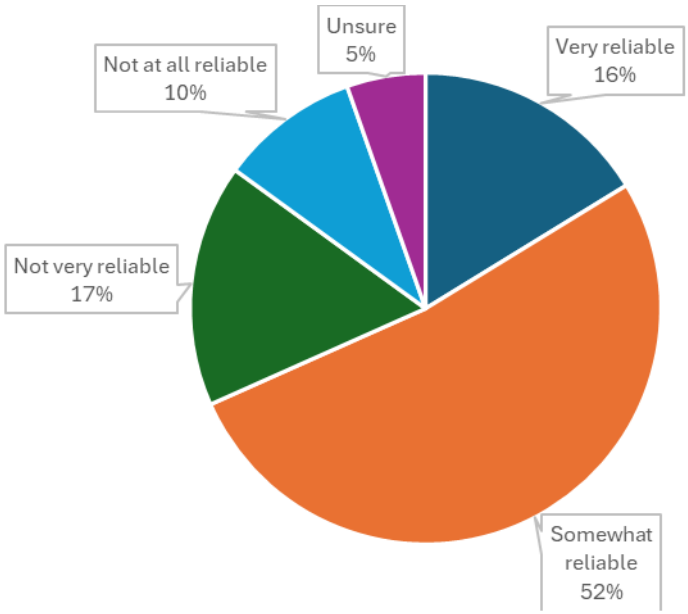

Figure 31. Respondent opinion on whether app reporting is a reliable way to estimate the size of the recreational catch for rock lobster (*n* = 240).

Respondents were also asked if they thought there were any major issues with mandatory reporting in Tasmania (Figure 32), with 54% indicating yes, 41% indicating no, and 5% remaining unsure.

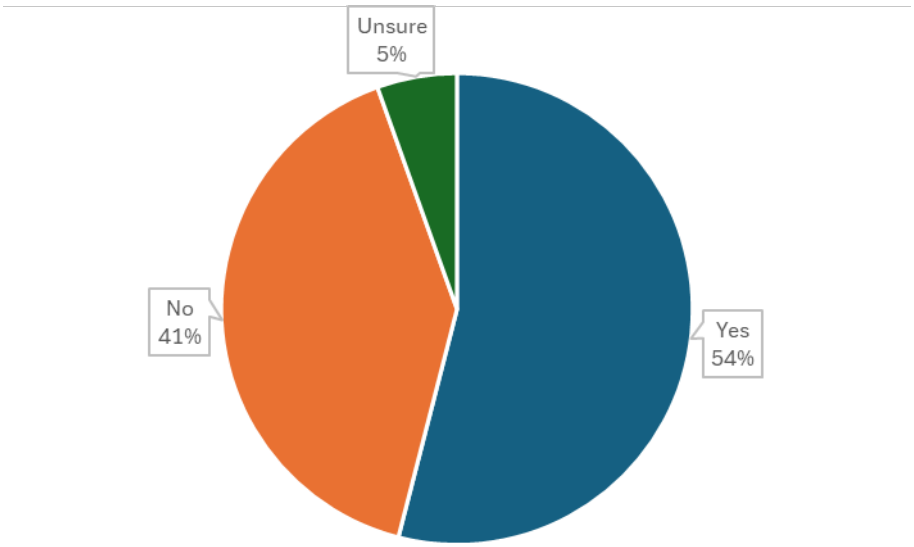

Figure 32. Respondent opinion on whether there are any major issues with mandatory reporting in Tasmania (*n* = 237)

The issues listed by fishers were varied (Figure 33), with compliance as the biggest issue for mandatory reporting (36%), followed by lack of reception at fishing locations (16%), app issues (11%), and remembering to report their catch (7%).

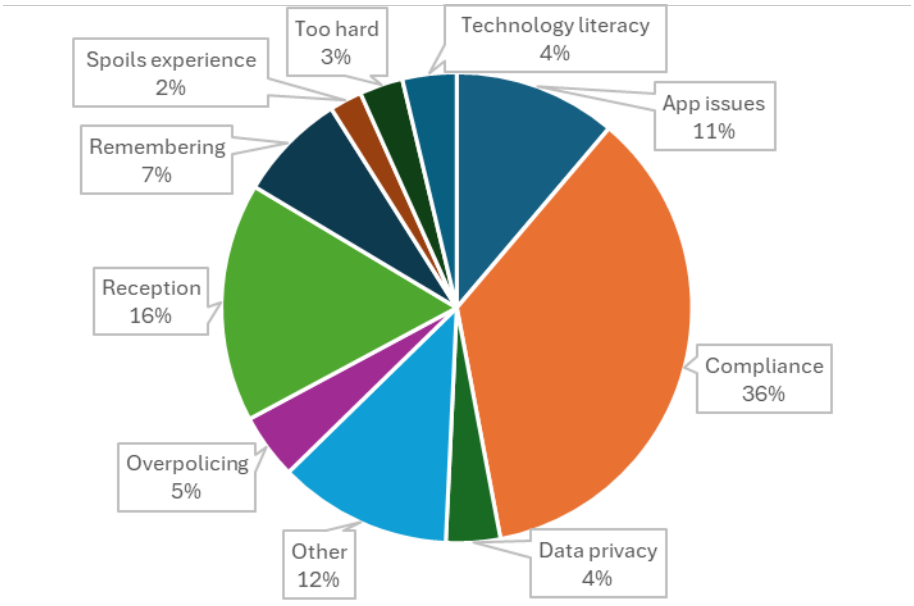

Figure 33. Perceived major issues with mandatory reporting (*n* = 134).

3.3.5.4 Abalone catch monitoring app

Respondents who fished for abalone were asked if they would use a catch app to record fishing details and catch for abalone. Of the 114 diarists asked, around 82% said yes, 15% said no, and 3% were unsure.

3.3.6 Information sources

When asked about where they sourced their fishing information from, respondents were asked to provide all sources of information they utilised (Table 5), as well as, ranking the top three sources of information they use for their fishing activities (Figure 34). The Fisheries Tas Phone App was used by most respondents in the survey (50.6%), followed by the Sea Fishing Guide (print version, 47.5%), and friends and family (41.6%).

Table 5. Information sources where respondents get their fishing information from.

Information source	Number respondents	Percentage respondents
Fisheries Tas Phone App	130	50.6
Sea fishing guide (print version)	122	47.5
Friends/family	107	41.6
NRE website	94	36.6
Fishing News email alerts (NRE)	67	26.1
Fisheries Tas Facebook page	40	15.6
Facebook	33	12.8
TARFish	25	9.7
IMAS Fisheries Research website	24	9.3
TV	24	9.3
Newspaper	17	6.6
IMAS Fishbites Newsletter	14	5.4
Other	13	5.1
Youtube	12	4.7
Unsure	5	1.9

Respondents were also asked to rank their three most useful information sources (Figure 34). The Fisheries Tas telephone app was the most useful information source for most fishers (29%), followed by the print version of the Sea fishing guide, and the NRE website.

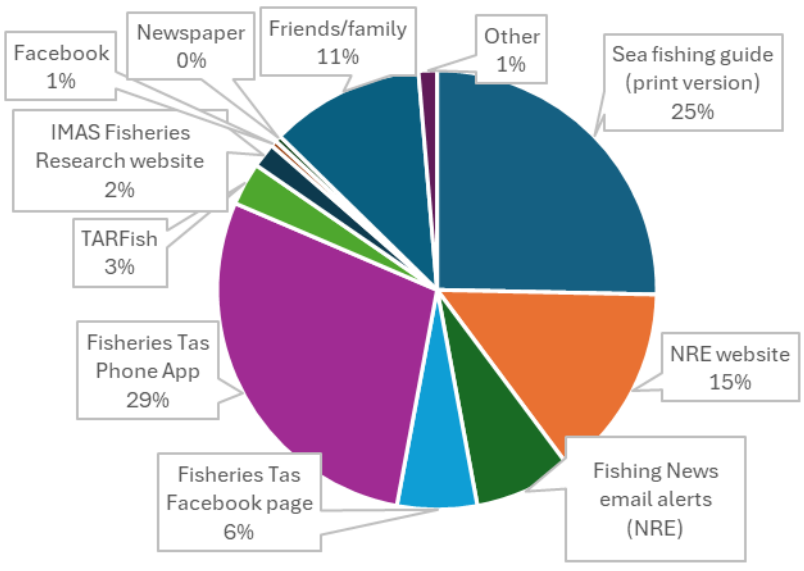

Figure 34. Sources of information for fisheries information respondents found most useful (*n* = 221).

4 DISCUSSION

4.1 Catch and Effort

4.1.1 General Trends

The recreational fishery has been monitored using fisher surveys since the mid-1990s. During this time, rock lobster stock abundance has declined in some areas prompting several management changes, particularly on the east coast. Statewide recreational catch, effort, and catch rates for rock lobster have declined since the early 2000s, from a peak catch of almost 150 tonnes in 2002/03 to a low of under 55 tonnes in 2019/20, before increasing again to 107.8 tonnes in 2023/24 (Figure 35). The initial decline occurred alongside a steady increase in licence numbers (refer Lyle et al., 2021) and corresponded with a general decline in overall stock abundance (Hartmann et al., 2019) and subsequent changes to management settings introduced as a component of the ECSRS. Overall, the statewide harvest has not exceeded the TARC allocation of 170 tonnes in any year for which there is survey data. Estimated catches since 2015/16 have been equivalent to half or less of the TARC, though this season was the highest at 63.4%.

Abalone catches have also declined since the early 2000s (Figure 36) though licence numbers continued to grow up until 2008/09 (Lyle et al., 2021). The 2023/24 harvest number (48,740) was similar to the previous season (48,439). However, likely due to the relatively larger size of abalone caught in the commercial fishery (used to estimate weight in this survey), statewide harvest weight increased by approximately 14%.

Social (e.g., motivations, availability of time, access), biological (e.g., stock size, catch rates), and environmental (weather) factors all play a role in influencing fisher behaviour, particularly participation in a fishery. The proportion of licence-holders who utilised their licences (i.e., fished) has varied between 88% (2002/03) to only 68% (2015/16) for lobster, and 64% (2002/03) to only 31% (2017/18, 2021/22) for abalone (Table 6). In the season's most impacted by biotoxin closures (2015/16 and 2017/18) and COVID/19 lockdowns (2019/20, 2020/21), about 30% of rock lobster licence-holders did not fish for lobster. For the 25% of licence holders who did not fish in the 2023/24 season, lack of time (due work and/or family commitments) and health were the most cited reasons for not fishing.

Over time, there has been a general decline in the average number of days fished per season by active fishers for lobster, from nine days in 2000/01 to six days in 2023/24. A similar trend was evident for abalone down from more than four to less than three days in the same period. This has corresponded with a decline in the average daily harvest per fisher (Table 6). Daily harvest rates for lobster have declined since the early 2000s (Lyle et al., 2021). This decline is particularly influenced by pot catch rates which fell from 1.0 in 2002/03 to below 0.7 lobster per day in 2015/16 and 2019/20 (Table 6). However, there was a small increase in pot catch rates in 2020/21 at 0.82 lobster per day, and an increase during the 2022/23 season to 0.90 lobster per day – the highest catch rate for pot fishing since 2006/07 (Table 6). This season's pot catch rate was slightly lower, back to 0.82 lobster per day as seen in 2020/21.

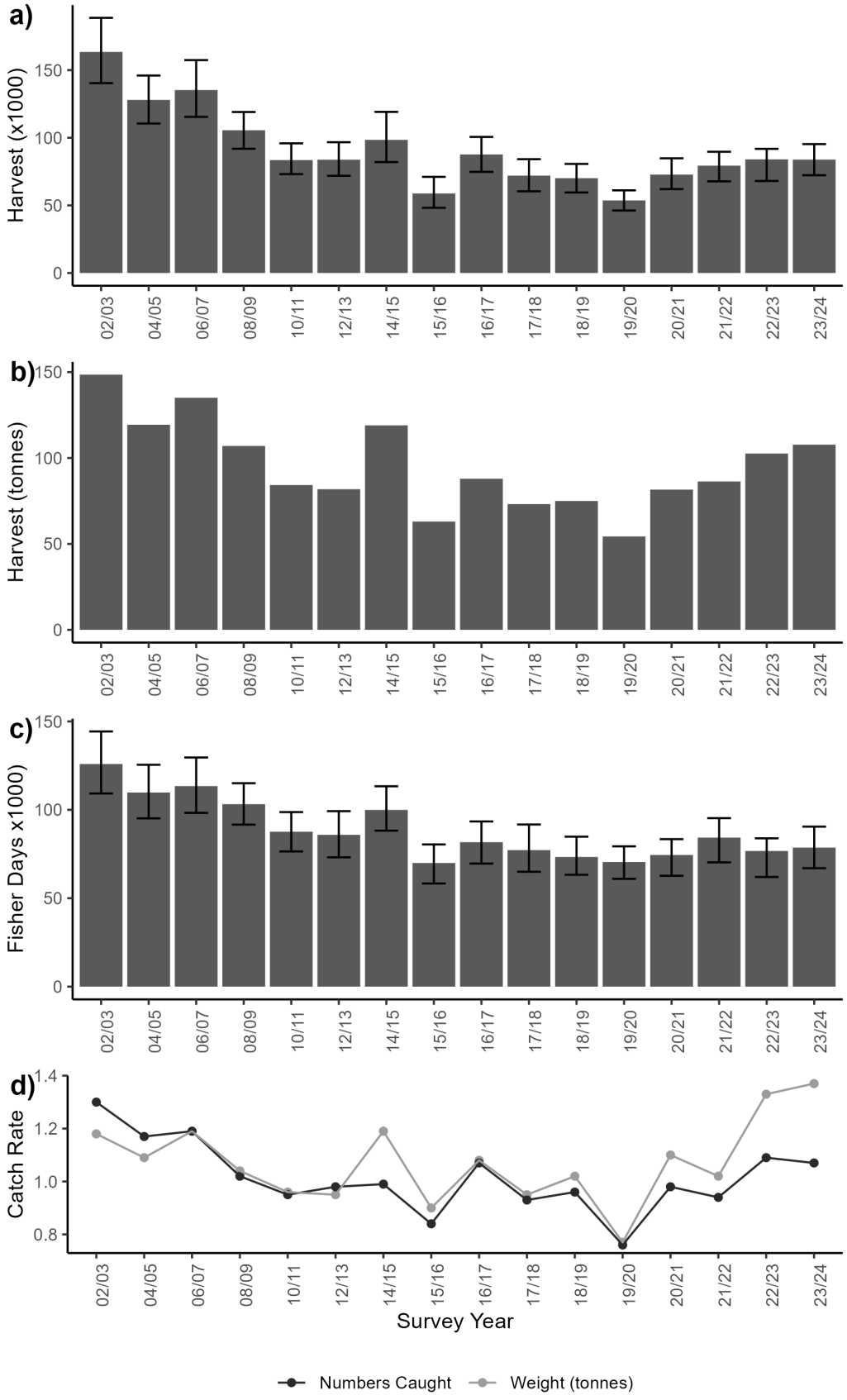

Figure 35. Tasmanian recreational rock lobster fishery: a) estimated statewide harvest (numbers); b) estimated statewide harvest (tonnes); c) effort (fisher days) by fishing season; d) and average catch rate (number per fisher-day). Error bars indicate 95% confidence intervals.

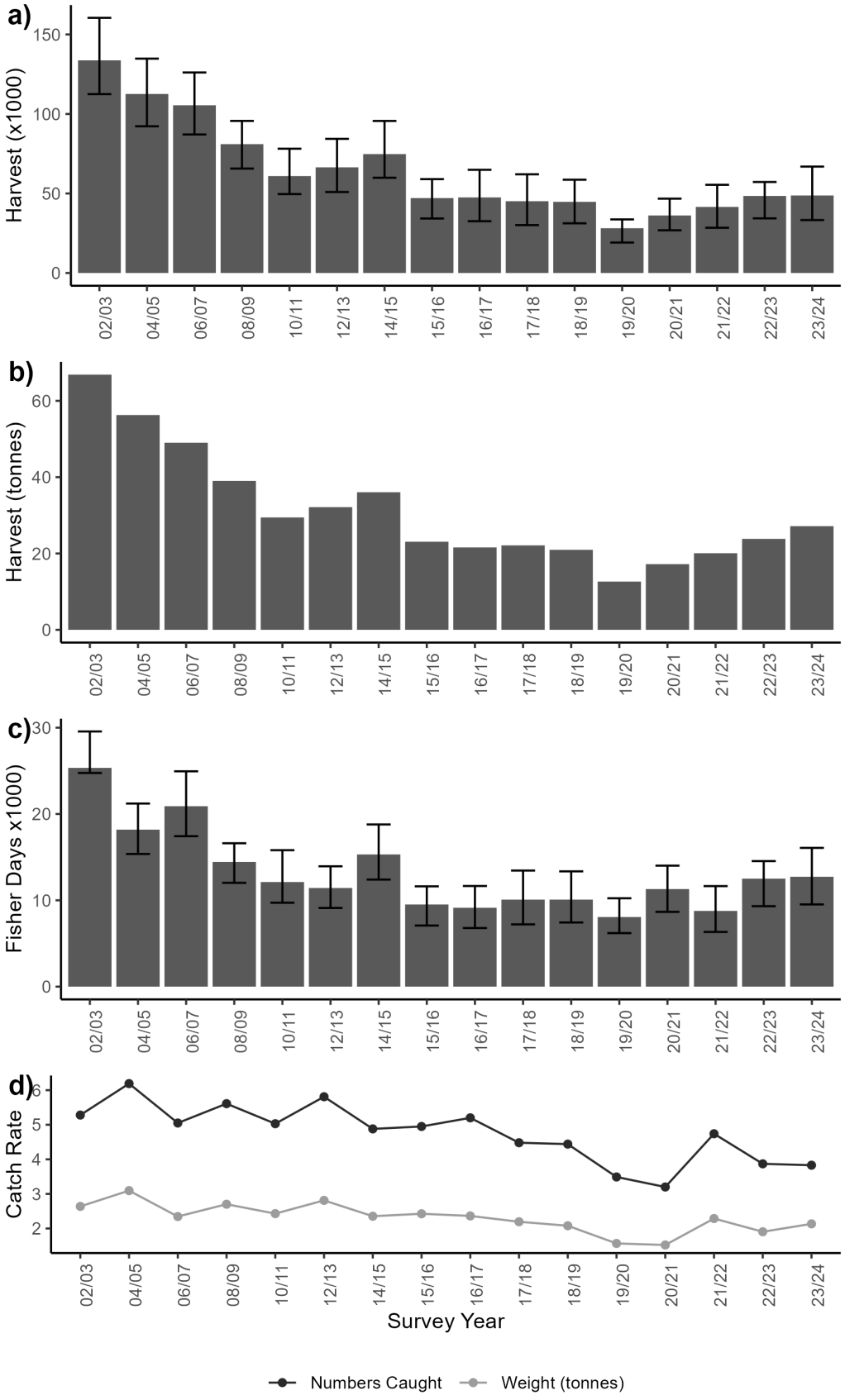

Figure 36. Recreational abalone fishery: a) estimated statewide harvest (numbers); b) estimated statewide harvest (tonnes); c) effort (fisher days) by fishing season; d) and average catch rate (number per fisher-day). Error bars indicate 95% confidence intervals.

Table 6. Number of rock lobster and abalone licence holders, estimated number and proportion who fished, total and average harvest and effort per fisher by year and average daily harvest rates.

	Licence year																
	2000-01	2002-03	2004-05	2006-07	2008-09	2010-11	2012-13	2014-15	2015-16*	2016-17*	2017-18*	2018-19*	2019-20*	2020-21*	2021-22*	2022-23*	2023-24
Rock lobster																	
No. licence holders	13,265	15,580	16,710	20,008	21,351	19,519	18,185	19,306	16,810	18,009	17,162	18,080	17,182	18,520	18,226	18,114	17,555
% fished	86.5	88.4	81.9	78.4	75.2	71.7	76.0	75.4	68.4	76.0	69.9	73.2	70.4	71.1	77.6	75.7	74.9
No. active fishers	11,408	14,308	13,679	15,687	16,050	13,997	13,814	14,552	11,500	13,686	12,004	13,239	12,090	13,168	14,143	13,712	13,148
Harvest (no.)	128,219	163,454	127,987	135,592	105,538	83,472	83,772	98,442	58,805	87,650	72,009	70,100	53,655	72,751	79,365	84,005	83,850
Harvest (kg)	116,509	148,526	119,354	135,067	107,027	84,261	81,849	118,996	63,022	87,941	73,187	74,982	54,345	81,606	86,338	102,608	107,768
Av. no. per active fisher	11.2	11.4	9.4	8.6	6.6	6.0	6.1	6.8	5.1	6.4	6.0	5.3	4.4	5.5	5.6	6.1	6.4
Fisher days	100,866	125,898	109,788	124,305	103,985	87,617	85,849	101,699	69,920	81,690	77,209	73,327	70,473	74,453	82,945	76,741	78,624
Av. days per active fisher	8.8	8.8	8.0	7.9	6.5	6.3	6.2	7.0	6.1	6.0	6.4	5.5	5.8	5.7	5.9	5.6	6.0
Av. daily harvest (no.)	1.27	1.30	1.17	1.09	1.01	0.95	0.98	0.97	0.84	1.07	0.93	0.96	0.76	0.98	0.96	1.09	1.07
Av. daily pot-harvest (no.)	0.87	1.00	0.90	0.94	0.75	0.68	0.78	0.71	0.65	0.87	0.74	0.74	0.62	0.82	0.77	0.90	0.82
Av. daily dive-harvest (no.)	2.61	2.30	2.31	2.15	2.27	2.36	1.83	1.92	1.61	1.90	1.59	1.67	1.27	1.49	1.77	1.52	1.80
Abalone																	
No. licence holders		9,272	10,133	12,514	12,976	11,972	11,157	12,084	10,509	11,035	10,797	11,127	10,600	11,742	11,781	11,658	11,452
% fished		63.5	55.8	52.3	38.8	36.3	42.0	42.4	37.9	33.5	30.7	35.9	31.5	37.7	31.1	43.5	38.2
No. active fishers		5,853	5,653	6,542	5,033	4,349	4,682	5,126	3,896	3,695	3,313	3,990	3,341	4,420	3,664	5,071	4,375
Harvest (no.)		133,711	112,571	105,515	81,021	60,943	66,438	74,769	47,113	47,522	45,142	44,740	28,150	36,168	41,552	48,439	48,740
Harvest (kg)		66,857	56,283	49,022	39,024	29,438	32,138	36,047	23,081	21,590	22,124	20,963	12,642	17,212	20.601	23,829	27,158
Av. no. per active fisher		22.8	19.9	16.1	16.1	14.0	14.2	14.6	12.1	12.9	13.6	11.2	8.4	8.2	11.3	9.6	11.1
Fisher days		25,342	18,185	23,201	14,445	12,117	11,428	15,110	9,548	9,136	10,079	10,081	8,064	11,302	8,772	12,509	12,726
Av. days per active fisher		4.3	3.2	3.5	2.9	2.8	2.4	2.9	2.5	2.5	3.0	2.5	2.4	2.6	2.4	2.5	2.9
Av. daily harvest (no.)		5.28	6.19	4.55	5.61	5.03	5.81	4.95	4.93	5.20	4.48	4.44	3.49	3.20	4.74	3.87	3.83

4.1.2 Fishing Methods

Pots have consistently been the main fishing method for rock lobster and have accounted for 55–67% of the total harvest numbers in each of the years surveyed (Figure 37). Dive methods have typically accounted for about a third (29–44%) of the harvest in all seasons. Lobster rings account for a relatively small proportion of overall catch (0.8–6.1%).

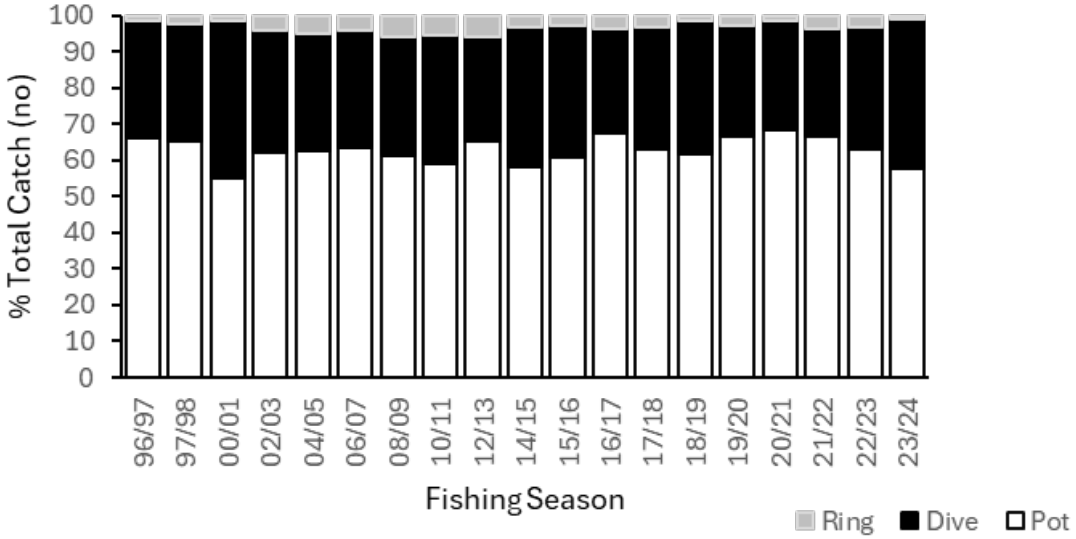

Figure 37. Proportion of the rock lobster harvest by method and fishing season.

4.1.3 Catch Rates

Catch per unit effort is an important metric to assess fishery performance, as an indicator of stock biomass, economic performance in commercial fisheries, and as indicator of recreational satisfaction against which fishery performance could be assessed (Lyle et al., 2014, 2016a,b, 2017, 2019a, 2020b). Pot catch rates (i.e., kg of lobster per pot lift) vary with lobster availability and catchability (behaviour). Therefore, the trend in pot catch rates over the past decade has been consistent with changes in rock lobster population biomass (Hartmann et al., 2019, Lyle et al., 2021).

The average daily harvest rate during 2023/24 for pots (0.82 lobster) was higher than most years catch rates reported since 2006/07, despite higher daily bag limits prior to the 2015/16 season (Lyle et al., 2021). This suggests that pot harvest rates have remained largely insensitive to these bag limit changes, confirmed by two decades of survey data indicating that daily catches of two or more lobster per pot day are relatively rare (Table 6).

The 2023/24 average daily harvest number for divers was 1.80 lobsters per day—slightly higher than the 2022/23 season of 1.53 lobsters per day and is the highest since 2016/17 (Table 6). Divers actively search for lobsters and can maintain harvest rates by increasing search times such that a relatively high proportion of trips achieve the bag limits. Dive harvest rates for lobster have tended to fluctuate without an obvious trend, apart from the reduction in catch rate to below 2 lobsters per day since 2012/13 corresponding with the reduction in the eastern region bag limit.

Apart from 2020/21 and 2021/22, abalone catch rates have fluctuated without obvious trend through time, reflecting the fact that many divers regularly attain the bag limit (Table 6). The 2023/24 average daily harvest rate (3.8 abalone) was similar to the 2022/23 season (also 3.8).

Bag limits represent a key management strategy to constrain recreational rock lobster and abalone catches. Bag limits have a limited impact on harvest rates, with only a small proportion of pot fishing days resulting in bag limits being achieved (i.e., 23% and 6% of fishing days in the eastern and western regions respectively for the 2023/24 season). By contrast, bag limits had a greater impact on constraining dive catches, with 69% of the dive days in the Eastern region and 28% of the dive days in the Western region resulting in the bag limits being achieved.

4.1.4 Regional Patterns

The recreational rock lobster and abalone fisheries are concentrated off the southeast and east coasts of Tasmania, with Areas 1–3 accounting for 77% of the lobster catch and 74% of the abalone catch (by harvest number). Fishing intensity off the southeast and east coasts reflects a combination of factors, including sheltered and accessible waters and proximity to major population and holiday centres.

Catches from the north coast (Areas 4 & 5) were higher than off the west coast (Areas 6–8) for abalone (17% from the north coast, and 9% from the west coast), but this trend was not consistent for rock lobster (11% from the north coast and 12% from the west coast). Due to the relatively low effort in the north and west coasts compared to the east coast, factors such as accessibility of suitable reef habitat off the north coast (apart from the Bass Strait islands), exposure to unfavourable sea conditions, and limited access points off the west coast, contribute to the lower levels of recreational fishing pressure observed in those regions. Despite this, this region represents a very significant area for both commercial rock lobster and abalone fisheries (Hartmann et al., 2019, Mundy & McAllister 2019).

There is considerable regional variability in the relative importance of the various rock lobster fishing methods. Pot catches dominate the harvest off the southeast and east coasts, whereas dive collection is the dominant method off the northwest coast. Pots, dive collection, and rings are all important in the west coast areas. Such method-based regional differences are consistent with patterns observed in previous seasons (Graba-Landry et al. 2022 and references within).

4.2 Management Implications

Statewide, the 2023/24 recreational rock lobster harvest estimate of 107.8 tonnes represented 63% the TARC (170 tonnes) and was equivalent to 8.8% of the 2023/24 TAC[5] (1,220.7 tonnes). Although this survey did not cover fishing activity that may have occurred between May and August (noting that the eastern region is closed during that period), previous surveys have consistently indicated that recreational effort during the winter months is low and catches generally account for less than 5% of seasonal totals.

[5] Total Allowable Catch: TACC plus TARC

The east coast (Areas 1–3) catch of 82.8 tonnes exceeds estimates for the past eight years, which have ranged from 35.7 tonnes in 2015/16 to 76.1 tonnes in 2022/23. It is relevant to note that the 82.8 tonnes in 2023/24 is greater than in Table 7 as it accounts for the whole of Area 1, whereas the table reflects the reduced area of the ECSRZ. In 2017 the ECSRZ was amended to exclude waters south of Bruny Island, thereby re-focusing the rebuilding strategy to where stocks were in the poorest condition (DPIPWE 2018).

In 2023/24, the total estimated catch in the ECSRZ was 78.0 tonnes, 43.0 tonnes (123%) greater than the notional catch allocation (Table 7). During the 2023/24 season, recreational fishing effort was not affected by COVID restrictions or biotoxin closures. This was coupled with an increase in available biomass within the region[6].

Recreational catches in the ECSRZ have exceeded the notional catch allocation in most years since 2014/15, except for 2015/16, 2017/18 and 2019/20. (Table 7). However, for these years, external factors resulted in marked reductions in recreational effort (and catch), suggesting that management settings alone have been insufficient to constrain east coast catches to within recreational catch targets (Graba-Landry et al. 2022).

Table 7. East Coast Stock Rebuilding Zone recreational catches relative to notional catch allocations.

Season	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Notional catch allocation	42 t	42 t	42 t	41 t	40 t	35 t	35 t	35 t	35 t	35 t
Catch estimate	55.6 t	35.7 t	50.2 t	40.4 t	48.6 t	33.6 t	51.1 t	46.5 t	71.7t	78.0 t
Over/under catch	+13.6 t	- 6.3 t	+ 8.2 t	- 0.6 t	+ 8.6 t	-1.4 t	+ 16.1 t	+11.5t	+36.7t	+ 43.0
% over/under catch	+ 32%	- 15%	+ 19%	- 1%	+ 21%	- 4%	+ 46%	+ 32%	+ 104%	+ 123%

Since being established, the retained catch in the ECSRZ has trended upwards, with the largest increase in the 2022/23 fishing season (Figure 38). Effort (days fished) has decreased slightly over time while the catch per unit of effort (from retained catch) has increased. The increase in catch rates is not unexpected as the stock rebuilds. In the absence of additional management restrictions, the combined effects of higher catch rates and effort were predicted to lead to an increase in the east coast catch of between 57 and 125% above 2018/19 levels by 2023 (Lyle et al. 2020a). If the 2014/15 data point is removed, due to being an anomalous year with high effort, catch increases at a greater rate and effort changes from declining to a modest increase.

Monitoring this fishery through time has revealed that recreational fishing activity is highly responsive to changing lobster abundance (refer Table 6). This relationship is more pronounced for the number of active fishers than for the number of licenced fishers and fishing activity per individual. As lobster abundance is expected to continue increasing in the ECSRZ, lobster catch rates and fishing activity are also likely to increase. This is further likely to amplify existing management challenges to constrain the recreational catch within the east coast stock rebuilding zone notional catch allocation.

[6] Rock Lobster Assessment Model (tasfisheriesresearch.org) accessed 20/10/2023.

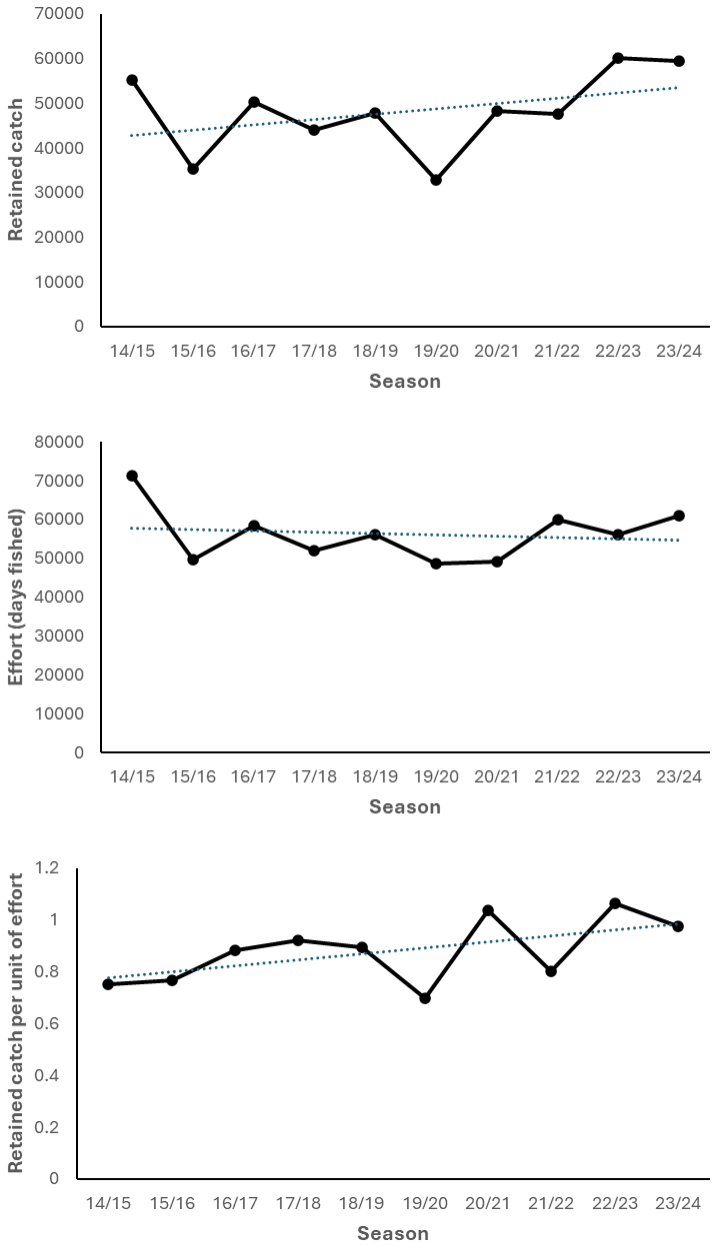

Figure 38. Catch, effort and CPUE (retained catch per day fish) for the East Coast Stock Rebuilding Zone, defined by the current spatial boundary (including assessment areas one [limited to the bottom of Bruny Island], two and three).

The recreational abalone harvest estimate of 27.2 tonnes was about 3.5% of the 2024 TACC (773.5 tonnes). Despite being a minor component of statewide catches, most of the recreational catch is taken from sheltered inshore areas of the east and south-east coasts, where the impacts of recreational abalone fishing can be significant. While there are no management performance indicators utilised for the recreational abalone fishery, there is a need to explicitly include recreational catches into annual stock assessments and future management of the fishery. This is particularly important since recreational fishers may continue to fish areas even when abalone densities are low, risking localised depletion (Lyle et al., 2021).

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