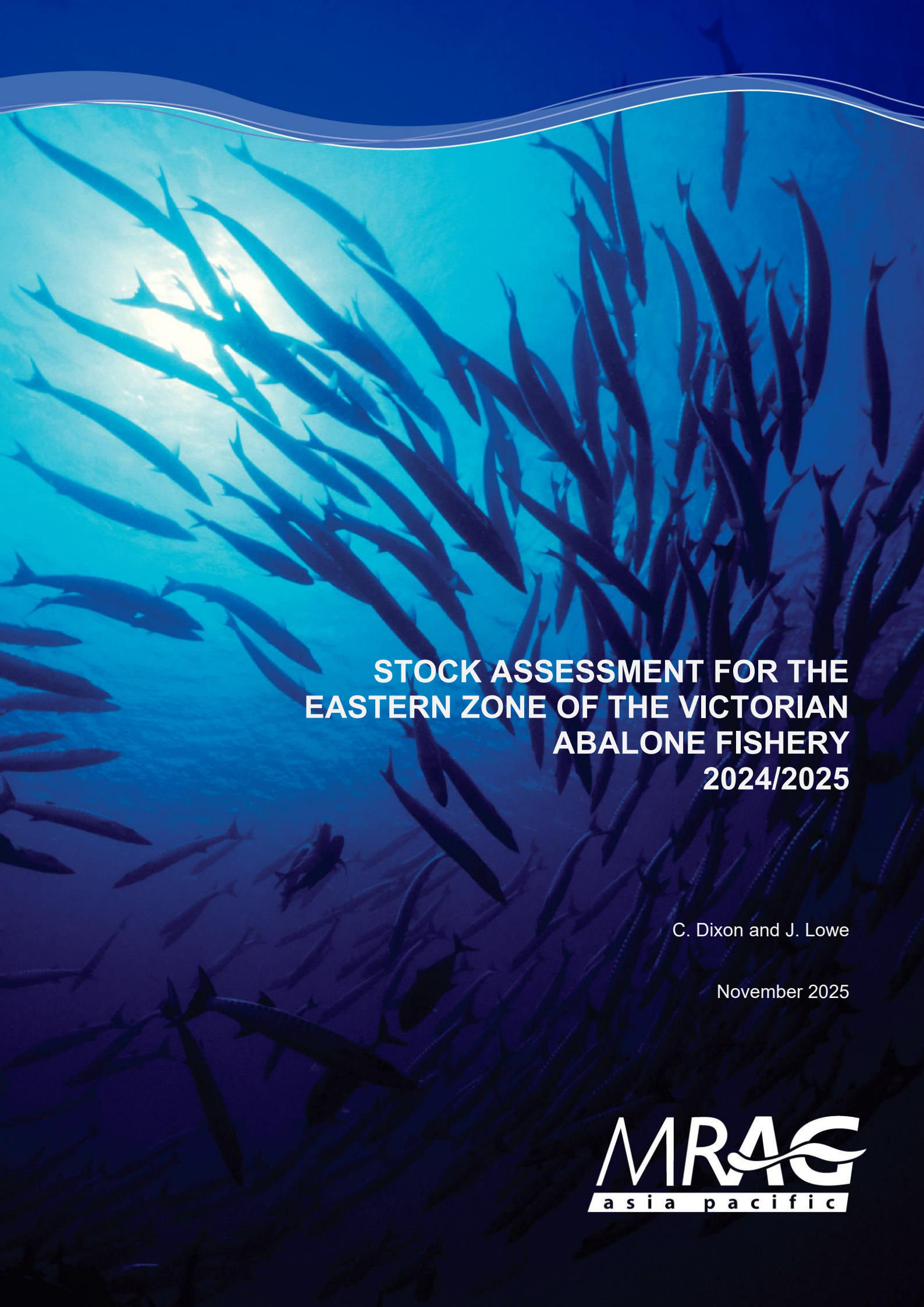

STOCK ASSESSMENT FOR THE EASTERN ZONE OF THE VICTORIAN ABALONE FISHERY 2024/2025

C. Dixon and J. Lowe

November 2025

MRAG asia pacific

About MRAG Asia Pacific

MRAG Asia Pacific is an independent fisheries and aquatic resource consulting company dedicated to the sustainable use of natural resources through sound, integrated management practices and policies. We are part of the global MRAG group with sister companies in Europe, North America and the Asia Pacific.

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Executive Summary

This report assesses the status of the Eastern Zone blacklip abalone stock by analysing fishery-dependent catch and effort data up to 30 September 2025. Catch, effort, and catch-per-unit-effort (CPUE) data are presented in various manners to assess stock status in a weight of evidence approach at the Zone level and for each Spatial Management Unit (SMU). Data from 2003 for the 12 highest catch reefocdes are also presented, as are results from the Eastern Zone Harvest Strategy. Fishery Independent Survey (FIS) data from new FIS sites are currently being gathered from the Eastern Zone, and these will be included in future assessments. This report should be read in conjunction with the report "EZ Historical Stock Assessment and Current Methods 2025" (Dixon and Lowe 2025) which documents the methods used for stock assessment, along with historical data from FIS and commercial catch sampling, analyses examining CPUE and FIS trends, and abundance data on sea urchins.

The current Status of Australian Fish Stocks (SAFS) assessment (Mundy et al. 2024) classifies the Eastern Zone stock as 'depleting'. While the assessment is based on data that are several years old, it is likely too soon to determine whether the substantial reductions in catch in the last two years have slowed or halted the overall decline. Some declining trends in CPUE were observed in recent data, however the interpretation of these CPUE data has been further complicated by recent targeting of abalone within specific size ranges to meet market demands. With no clear evidence to the contrary, the classification of 'depleting' stock should remain.

This stock assessment is based entirely on catch and effort data, with CPUE as a key performance measure. In recent years, industry has voluntarily implemented closures and large reductions in Optimal Target (OT) at Mallacoota West, Marlo and Mallacoota Small because of poor stock performance despite there being no clear signals of decline in the CPUE trends at these reefs. Thus, while the Mallacoota Co-op has provided information to explain some of the recent declines in CPUE, a precautionary approach should be applied for the determination of OTs and the total allowable commercial catch (TACC). In addition, an improved understanding of the impact of targeting specific size classes of abalone is needed. Until the data for the assessment of stock status is improved, the observations of divers on the performance of each reefcode remains critical.

Over the past few years, there has been a large shift in the temporal and spatial distribution of the catch. A higher proportion is being harvested at the end of the quota year from January to March and much of it is harvested from areas that have previously been given a "rest" at that time of year. It is unclear whether these shifts will have a detrimental effect on the stock in the medium or long term.

The rationale for setting sustainable OTs at the reefcode level is to determine a sustainable TACC using a bottom-up approach. The process of "shifting catch" at the end of the season, as occurred from Marlo in 2024/25, undermines this approach by placing additional catch on some reefs over and above what was initially considered sustainable, increasing the risk of localised depletion. Shifting catch late in the season may exacerbate the recent trend of higher catches at the end of the season. It is concerning that this was also associated with decreasing seasonal CPUE, particularly from January to March 2025. While the declines in CPUE appear to have been impacted by targeting abalone of a specific size, it may also reflect some extent of further stock decline.

While the industry has borne significant reductions in catch in recent years, there is no clear evidence that these reductions have been sufficient to prevent further declines in biomass. To ensure precautionary management, it should be considered whether further reductions in OT are required for some reefcodes and SMUs, particularly areas showing late-season declines in CPUE or recent high catches due to "catch shifting" late in the season.

1. General Introduction

This Stock Assessment Report analyses fishery-dependent catch and effort data up to 30 September 2025 to assess the status of the Eastern Zone blacklip abalone stock. Catch, effort, and CPUE data are presented in various manners for assessment of stock status in a weight of evidence approach at the Zone level and for each Spatial Management Unit (SMU). Data are also presented for the 12 highest catch reefocdes from 2003. Summary results from the Eastern Zone Draft Harvest Strategy 2024 are provided and discussed for each SMU. New FIS data will be presented in future reports.

This is the seventh Stock Assessment Report prepared by MRAG Asia Pacific (MRAG AP) for the Eastern Zone. It should be read in conjunction with the report "EZ Historical Stock Assessment and Current Methods 2025" (Dixon and Lowe 2025) which documents the methods used for stock assessment, along with historical data from FIS and commercial catch sampling, analyses examining CPUE and FIS trends, and abundance data on sea urchins.

2. Methods

Dixon and Lowe (2025) document detailed methods used for analyses in this report. These include:

- Catch and effort data
- CPUE standardisation
- Assessment against Performance Indicators
- Weight of evidence assessment
- Harvest Strategy

The following lists improvements made since the previous stock assessment (Dixon and Lowe 2024):

- Inclusion of six months of current season data i.e. 1 April to 30 September 2025
- Updated CPUE standardisation model that includes a quarterly term
- Inclusion of data presented for the 12 highest producing reefcodes in the EZ
- Comparison of standardised and original nominal reference points for the Harvest Strategy.

3. Results

3.1 Eastern Zone Blacklip Assessment

3.1.1. Catch and effort

The Eastern Zone fishery commenced in 1962 (Gorfine et al 2008), however data here are shown from 1978 onward (Figure 1). Catches were around 550 tonne (t) in 1979 before declining to around 400 t in 1982. Catches remained around 550 t from 1983 to 1987 before the introduction of quota in 1988. Catches remained relatively stable until 2002 before an increase in quota led to slightly higher catches until 2008. Thereafter, catches (and quotas) have generally declined. The total catch in 2024/25 was 208.6 t, which was marginally above the TACC (208.45 t). This corresponds to a 27% reduction relative to the 2023/24 catch (284.5 t) and TACC (284.6 t).

Dive effort fluctuated until the introduction of quota in 1988. Thereafter, effort has generally declined, reaching a historic low in 2024/25 of 1,976 hours. Currently, reported effort is around 21% of 1979 levels (9,318 hours).

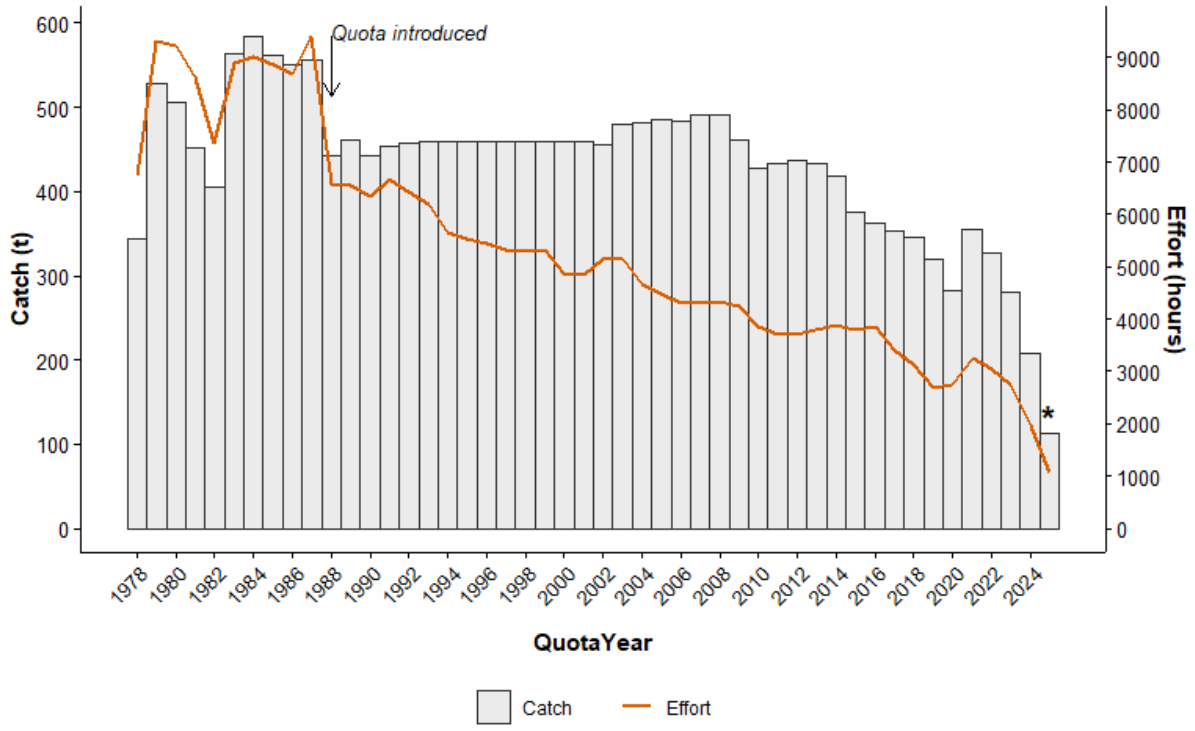

Figure 1: Historic catch (t) and effort (minutes) from 1968 to 2025. Quota was introduced in 1988 with the quota year running from April to March. Data are reported in quota years, with 2025 up to 30 September only.

Standardised mean daily catches were relatively stable from 2003 to 2012, then declined from 394 kg per day in 2012 to 326 kg per day in 2015, before increasing to 381 kg per day in 2018 and 2019 (Figure 2). Mean daily catch reached a low in 2020 (242 kg per day) due to the impacts from Covid-19 on abalone markets. Mean daily catch recovered in 2021 and 2022 but has declined thereafter. Abalone markets have been impacted by aquacultured abalone product in recent years, with substantial declines in price influencing fishing activity in recent years, as reported by the Mallacoota Co-op.

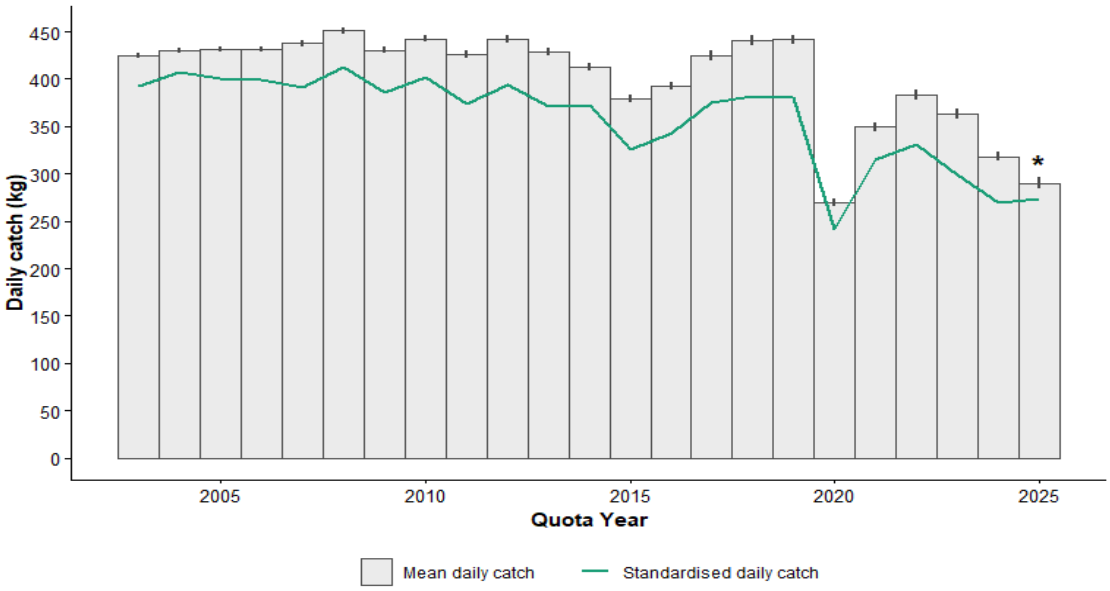

Figure 2: Nominal mean daily catch (vertical bars, kg per fishing day +/- SE) and standardised (line) from 2003 to 2025. Data are reported in quota years, with 2025 up to 30 September only.

The number of active divers in the fishery has declined from 27 in 1978 to 19 in 2024 (Figure 3). There have also been 19 active divers in the first half of the 2025 quota year. The average catch per diver was around 10 t in 1978 before increasing to 20-25 t just prior to the introduction of quota. Mean catch per diver was relatively stable around 15-25 t from 1988 to 2016 before declining to around 10 t currently.

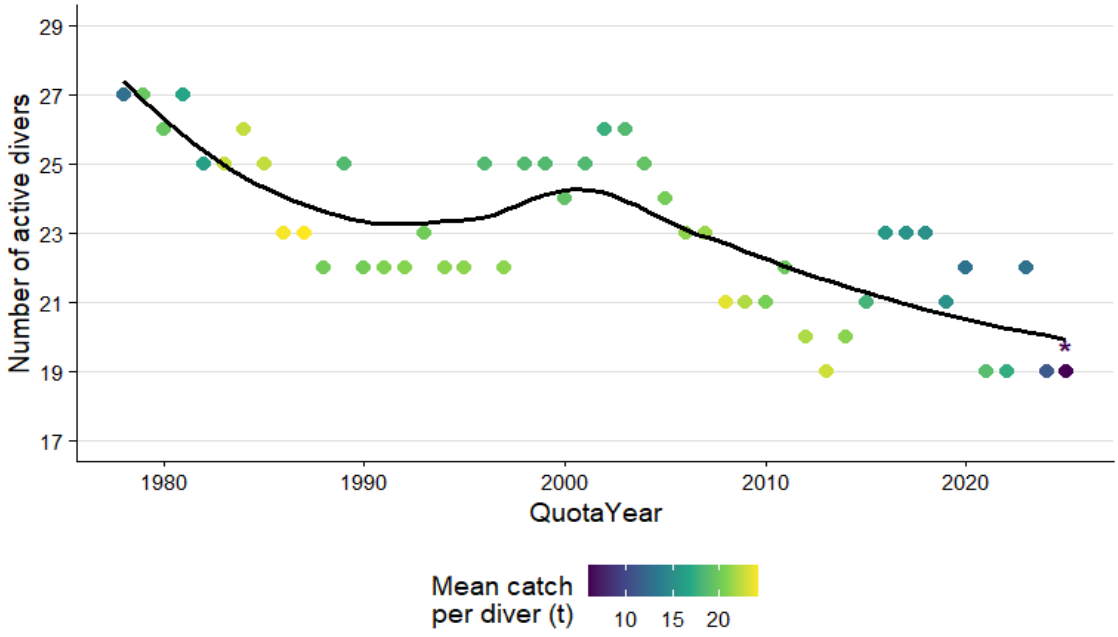

Figure 3: Number of active divers in the Eastern Zone Abalone Fishery, 1978 to 2025, and mean annual catch per diver. Black line is a LOESS curve. Data are reported in quota years, with 2025 up to 30 September only.

3.1.2. Catch per unit effort (CPUE)

Nominal CPUE generally increased from 1992 to 2012, declined from 2012 to 2016 and then increased again from 2016 to 2019. It then declined in 2020 and has varied without trend thereafter (Figure 4). Standardised CPUE followed similar trends to the nominal, however has declined slightly relative to nominal trends over time, particularly in the last five years. In Figure 4, green dots show seasonal trends in CPUE around the annual means. The 2025 results are based only on the first six months of the quota year.

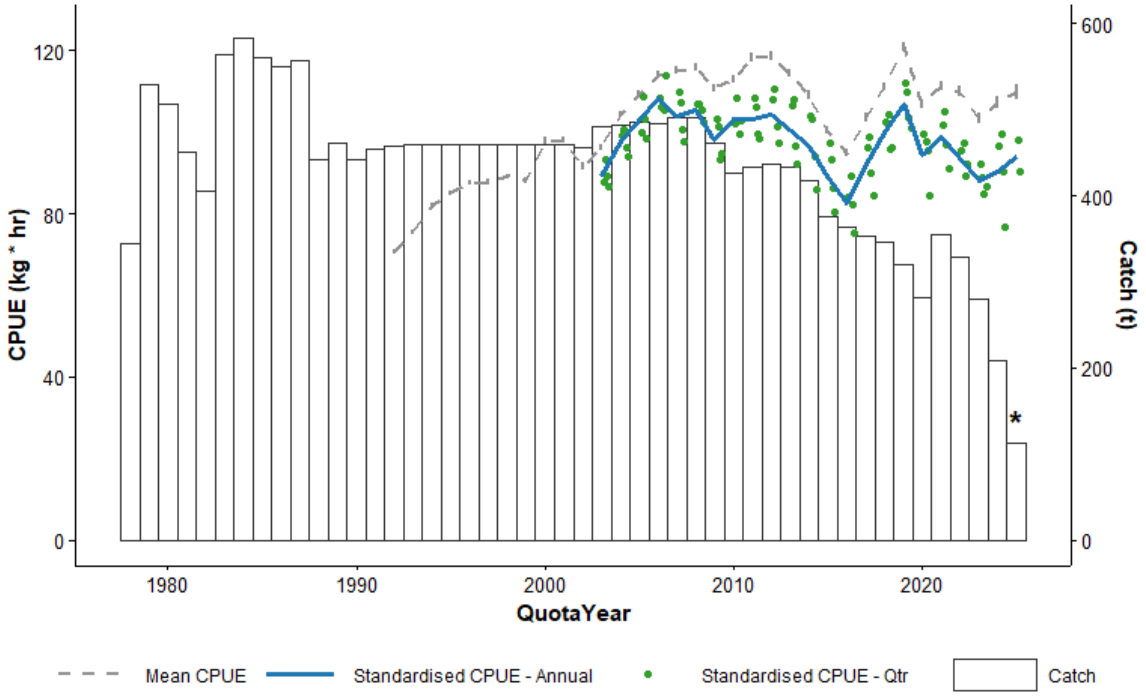

Figure 4: Eastern Zone catch and CPUE (nominal and standardised) from 1992 – 2025. Catch = bars, nominal CPUE = grey dashed series (+/- SE), standardised annual series = blue solid, standardised quarterly series = green dots. Data are reported in quota years, with 2025 up to 30 September only.

Trends in the proportion of catch taken throughout the year (Figure 5) show that 30-40% of the catch is harvested in each of the first two quarters (Q1 and Q2), with 20-30% harvested from October to December (Q3) and 5-25% of the catch harvested in the last quarter of the quota year (Q4, January-March). The most obvious and concerning trend from these data is the increase in the proportion of the catch harvested in the last quarter. From 2003 to 2013, less than 10% of the annual catch was harvested during this period. Since 2020, between 10 and 25% of the annual catch has been harvested in the final quarter.

Trends in quarterly standardised CPUE indicate seasonal shifts, particularly in recent years (Figure 6). Catch rates in the early part of the year (Q1 and Q2) have remained relatively high and stable, consistently above the long-term mean with minimal interannual variation (~5%). In contrast, the latter part of each quota year, particularly Q4, shows a pronounced decline, with quarterly CPUE values around 15% below the annual mean in 2024/25 (Figure 6). The Mallacoota Co-operative (Co-op) has reported that these declines are related to changes in fishing behaviour, with specific size classes of abalone targeted to meet market demands. Trends in quarterly CPUE should continue to be monitored in coming years, particularly at the end of the quota year.

In recent years, a higher proportion of the annual catch has been harvested during Q4. Noting the impacts on the abalone market, higher proportions of catch late in the season combined with lower catch rates may also imply that the resource has been subjected to greater fishing pressure in recent years.

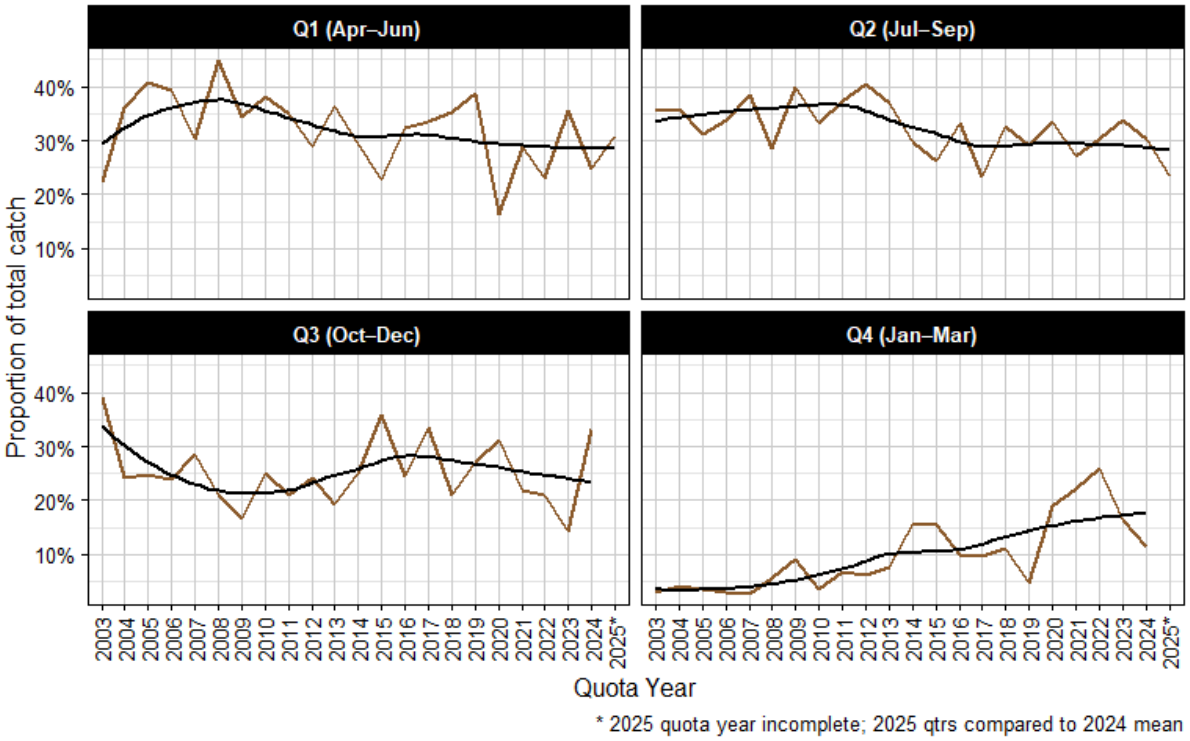

Figure 5: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025. Each panel shows the proportion of total annual catch taken in each quarter, black lines are LOESS trends over time.

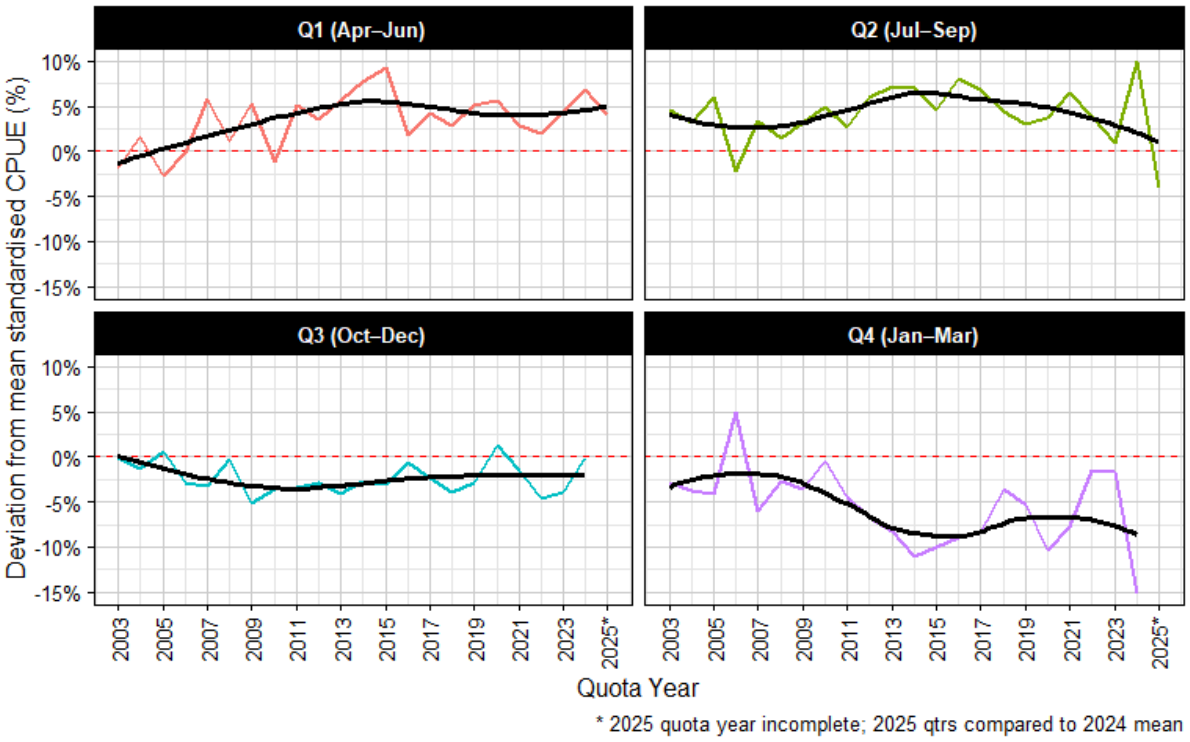

Figure 6: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

3.1.3. Eastern Zone Performance Measures

Catch in 2024/25 was 208.6 t, which was 100.1% of the TACC (208.45 t, Table 1). Catch has declined by 57% since 2003/04, 55% since 2009/10 and by 26% since 2020/21. Standardised mean daily catch in 2024/25 was 269.3 kg/h, which was 31% lower than 2003/04, 30% lower than 2009/10, and 11% higher than 2020/21. Nominal CPUE in 2024/25 was 107.2 kg/h, which was 11% higher than 2003/04, 3% lower than 2009/10, and similar to 2020/21. Standardised CPUE in 2024/25 was 90.4 kg/h, which was 1% higher than 2003/04, 8% lower than 2009/10, and 4% lower than 2020/21.

Table 1: Performance measures used in the assessment of the Eastern Zone abalone fishery.

Measure	2024/25	Long term (since 2003/04)	Medium term (since 2009/10)	Short term (since 2020/21)
Nominal CPUE (kg/hr)	107.2	96.3 (↑11%)	110.8 (↓3%)	106.8 (0%)
Standardised CPUE (kg/h)	90.4	89.3 (↑1%)	98.1 (↓8%)	94.3 (↓4%)
Standardised mean daily catch (kg/day)	269.3	392.4 (↓31%)	386.1 (↓30%)	242.2 (↑11%)
Catch (t)	208.6	480.7 (↓57%)	460.4 (↓55%)	282.5 (↓26%)
2024/25 TACC t, (% TACC)	208.45 t, (100.1%)			

3.2 Spatial management unit (SMU) blacklip assessment

3.2.1. SMU Performance Measures

Assessing SMUs on an individual basis provides a more detailed picture of spatial trends against the performance measures and distributions of catch and effort within the Zone. In 2024/25, the distribution of catches did not reflect the OTs established for several SMUs (Table 2). As for other recent years, the catch at Marlo (48.0 t) was 34% below the OT (35.75 t). Catches from Mallacoota West (16.3 t) were 36% over the OT (12.0 t) and catches from Mallacoota East (25.4 t) were 29% over the OT. Catches were within 10% of their OT at the Airport, Mallacoota Central, Mallacoota large and Mallacoota Small SMUs.

In the medium- and short-terms, declines in standardised CPUE were observed at the Zone scale and most SMUs. Comparing over the long-term, CPUE was the same or higher at all SMUs except Marlo, which showed a significant 13% decline. The Marlo SMU showed the greatest declines in CPUE at each of the three temporal scales, including a 15% decline in the last four years. Small short-term declines were observed at all other SMUs (ranging from 1-7%), except for Mallacoota East, which showed a 4% increase.

Table 2 also defines SMUs by the size of the catch relative to the TACC (VFA 2018). Large SMUs are defined as those where total catches accounted for > 15% of the TACC, medium SMUs are defined as those where total catches accounted for 10-15% of the TACC, and small SMUs are defined as those where total catches accounted for <10% of the TACC.

In 2024/25, the Airport contributed 37.5% of the total catch, which was the highest proportional contribution of any SMU in the fishery's history. Mallacoota Central was the second highest contributor (18.2%) followed by Mallacoota East (12.2%) and then Marlo (11.3%), which continues to decline in its contribution. The Mallacoota Large, Mallacoota West and Mallacoota Small SMUs contributed 20.7% of the catch combined. The following sections of the report present data and assessments of each SMU, ranked in order from the largest to the smallest contributors to catch.

Table 2: Performance measures used in the assessment of the Eastern Zone abalone fishery at the SMU scale (Zone totals repeated for reference).

Spatial Management Unit (SMU)	Catch					Standardised CPUE		
	Catch 2024/25		OT (t)	% OT	SMU category	Long-term (2003/04)	Medium-term (2009/10)	Short-term 4 years (2020/21)
	(t)	% catch						
Airport	78.3	37.5	80.0	97.8	L	7	-1	-4
Mallacoota Central	38.0	18.2	34.8	109.3	L	4	-7	-1
Mallacoota East	25.4	12.2	19.65	129.2	M	11	0	3
Marlo	23.5	11.3	35.75	65.6	M	-13	-21	-15
Mallacoota Large	19.3	9.2	18.5	104.1	S	0	-9	-1
Mallacoota West	16.3	7.8	12.0	136.2	S	0	-10	-3
Mallacoota Small	7.8	3.7	7.75	100.1	S	2	-6	-7
Eastern Zone	208.6	100.1	208.45			1	-8	-4

Notes: Coloured shading indicates whether catch has been caught within the OT, Threshold or exceeded the Limit. Green (within OT range) indicates catch was <±15% of the OT, Yellow (within threshold range) indicates catch was ±15-30% OT, Red (exceeding limit range) indicates catch was >±30% of the OT for the 2018/19 quota year. SMU catch categories (% of zone catch): Large ≥ 15%, Medium 10-15%, Small < 10%.

3.2.2. Distribution of the catch

The distribution of catch by SMU in the Eastern Zone was relatively stable until recent years (Figure 7). The greatest contributions have historically come from the Airport and Marlo SMUs, however the catch has reduced dramatically from the Marlo SMU in recent years. Mallacoota West was also a significant contributor to total catch during the 2000s, however recent catches have also reduced dramatically. The Mallacoota Large and Mallacoota Small SMUs have always been the lowest contributors, with total catches variable over time.

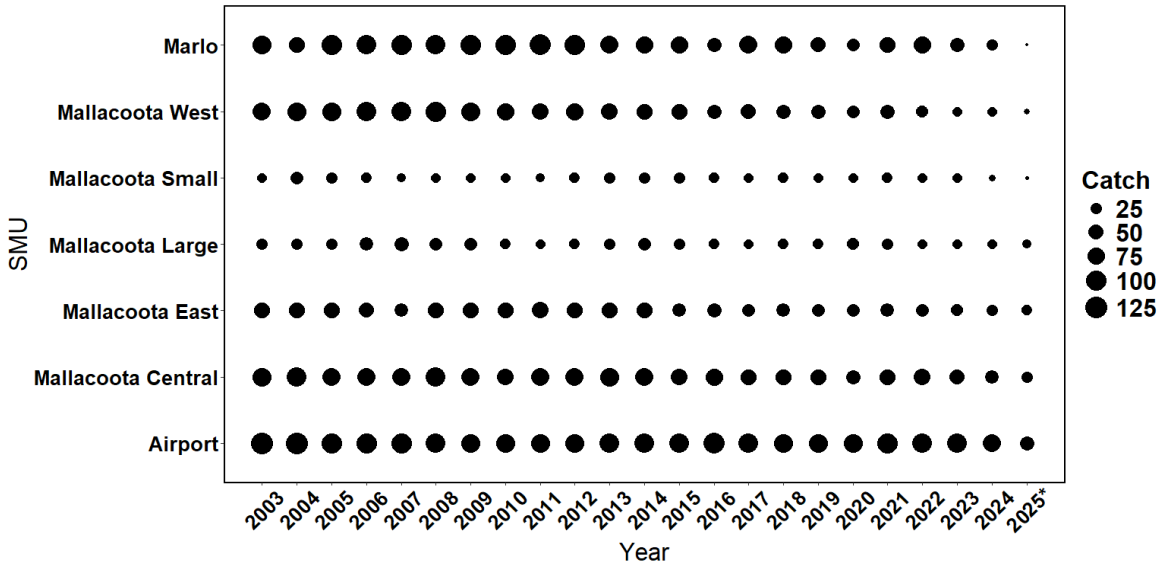

Figure 7: Relative distribution of catch at each SMU in the Eastern Zone by quota year, with 2025 up to 30 September only.

3.2.3. Harvest Strategy outputs

Tables 3 and 4 provide results of the Harvest Strategy for the Eastern Zone to inform the TACC setting process. The methods for the calculations underpinning the Harvest Strategy are documented in Dixon and Lowe (2025). The key elements to understand for the interpretation of results are:

- The reference points used are the original reference points in the 2016 Draft Harvest Strategy;
- The CPUE measure uses the current CPUE standardisation model with data from 2003/04 to 2024/25. The CPUE values are shown in the following sections for each SMU along with nominal values, displayed against the reference points; and
- There is no tertiary indicator.

The 2024/25 values of standardised CPUE were between the Threshold and Target levels at all Eastern Zone SMUs (Table 3). The CPUE has been above the Threshold level at all SMUs since 2003 (when the standardised series begins). Catch Control Rule (CCR) 1 applies for all SMUs.

The gradient of the recent 4-year CPUE trend provides the basis for the Primary Category (Table 4). All gradients are negative, however they are all <5% ranging from -1.44 to -4.09%. On this basis, all Primary Categories are considered Stable. The Secondary Indicator is based on the ratio of CPUE in the last two years. The Secondary Indicator at the Airport, Mallacoota Central and Marlo SMUs were Increasing, with all other ratios Stable. On this basis, the Final Categories for all Eastern Zone SMUs were assessed as Stable.

The current quota from the combined OTs for 2025/26 was 182.55 t. The suggested total catch range for the Eastern Zone for 2026/27 is 173.42 to 191.68 t.

Table 3: Reference points for Eastern Zone SMUs, mean annual CPUE from 2020 - 2024 and applicable catch control rules (CCR).

SMU	Limit RP	Threshold RP	Target RP	2020	2021	2022	2023	2024	Current Status	Years above Threshold	CCR
Airport	50	80	110	99.6	98.8	93.6	94.5	100.8	Above Threshold	>22	1
Mallacoota Central	50	70	110	98.8	94.1	90.7	92.9	98.7	Above Threshold	>22	1
Mallacoota East	50	70	110	103.9	98.1	91.6	101.1	103.4	Above Threshold	>22	1
Mallacoota Large	50	70	110	89.8	85.2	83.1	85.4	83.5	Above Threshold	>22	1
Mallacoota Small	50	70	100	98.1	90.9	85.5	87.0	90.5	Above Threshold	>22	1
Mallacoota West	50	70	120	102.9	95.9	92.4	94.9	96.8	Above Threshold	>22	1
Marlo	50	70	120	113.9	107.9	93.9	91.6	100.5	Above Threshold	>22	1

Table 4: Harvest Strategy results for Eastern Zone SMUs, with suggested target catch ranges.

SMU	4yr gradient	Primary Indicator	2yr ratio (% change)	Secondary Indicator	Primary Category	Tertiary Indicator	Final Category	2025/26 Target Catch (OT, t)	Total catch, Lower (t)	Total catch, Upper (t)
Airport	-1.47	Stable	6.6	Increasing	Stable	NA	Stable	80.00	76.00	84.00
Mallacoota Central	-1.44	Stable	6.3	Increasing	Stable	NA	Stable	34.80	33.06	36.54
Mallacoota East	-2.62	Stable	2.3	Stable	Stable	NA	Stable	21.25	20.19	22.31
Mallacoota Large	-1.49	Stable	-2.2	Stable	Stable	NA	Stable	19.00	18.05	19.95
Mallacoota Small	-3.32	Stable	4.1	Stable	Stable	NA	Stable	5.50	5.23	5.78
Mallacoota West	-2.22	Stable	2.0	Stable	Stable	NA	Stable	12.00	11.40	12.60
Marlo	-4.09	Stable	9.7	Increasing	Stable	NA	Stable	10.00	9.50	10.50
Total								182.55	173.42	191.68

3.2.4. Airport SMU (Large SMU)

The Airport SMU continued to be the most important Eastern Zone SMU in terms of total catch with 78.3 t harvested in 2024/25, representing 37.5% of the zone catch (Table 5). The total catch for 2024/25 was close to the OT (80 t). Standardised CPUE in 2024/25 was 7% higher than 2003/04, 1% lower than 2009/10 and 4% lower than 2020/21. Standardised mean daily catch in 2024/25 was 31% lower than 2003/04, 28% lower than 2009/10 and 16% higher than 2020/21.

Table 5: Summary of Catch, Optimum Targets and Performance Indicators for the Airport SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
78.3	37.5	85.0	80.0	80.0	7%	-1%	-4%	-31%	-28%	16%

The Airport has been the most important contributor to the Eastern Zone TACC since 2003 (and prior) with an average catch of 97 t. The catch of 126 t taken during 2003 was also the historical peak catch for this SMU since logbook records were kept (Figure 9). The catch of 106.6 t in 2021/22 was the second highest catch since 2004/05. The 2024/25 catch of 78.3 t was the lowest in the last 22 years and was almost 20 t lower than the average catch over that period. The OT for 2025/26 was maintained at 80.0 t and just over half of this has been harvested in the first six months of the 2025/26 quota year.

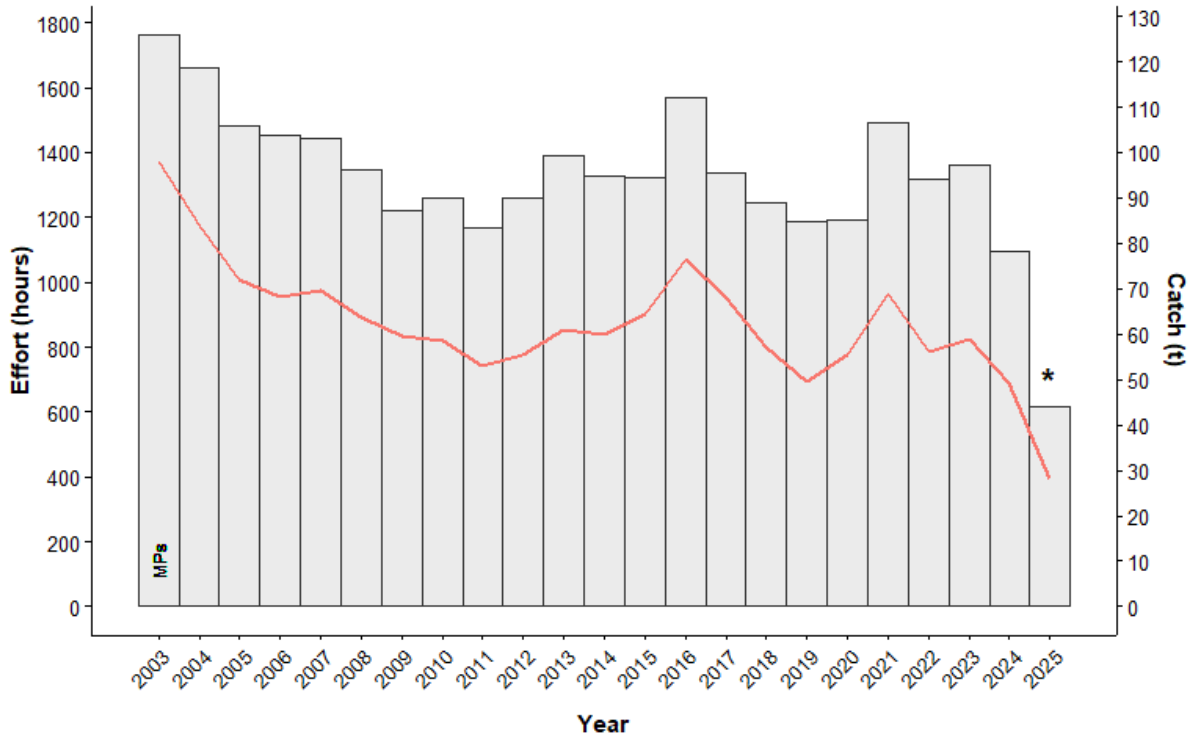

Figure 9: Total catch and mean daily catch for the Airport SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE has been relatively stable since 2003, averaging 97 kg/h with a range from 87 to 106 kg/h (Figure 10). Standardised CPUE has ranged between the Threshold and Target Reference Points of the Harvest strategy since 2003.

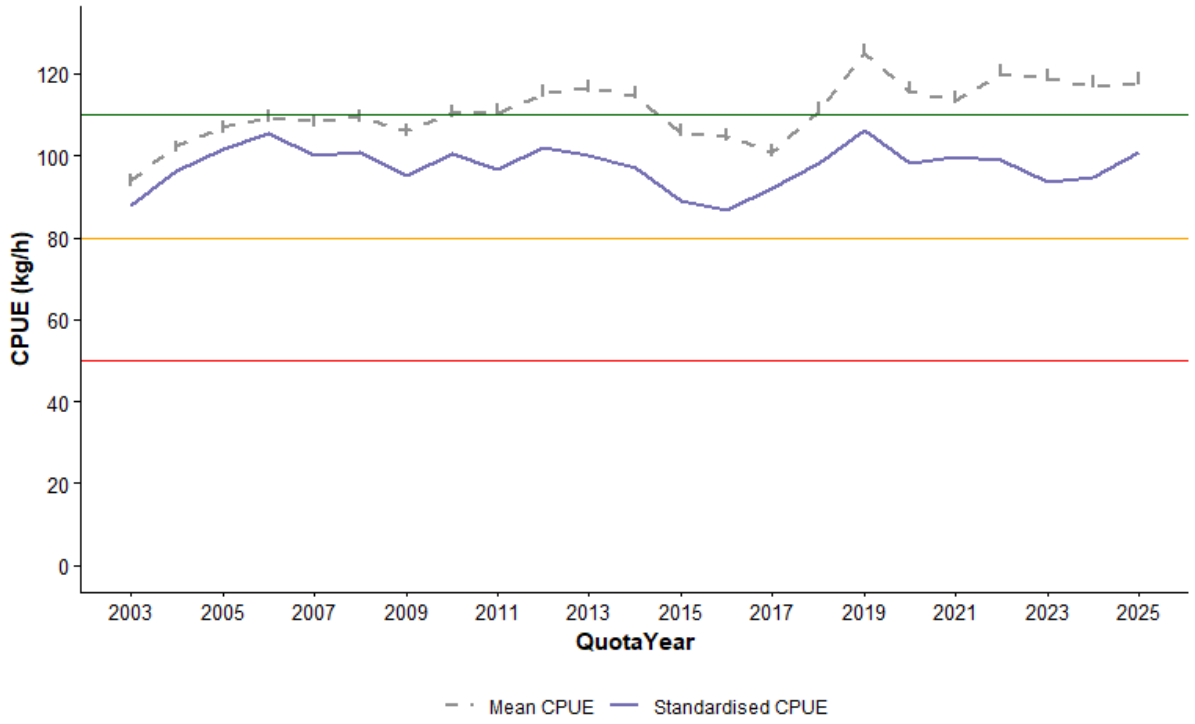

Figure 10: Airport SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

The difference between standardised CPUE measures at the annual and quarterly scale showed similar trends at the Airport SMU to the Zone level, with lower CPUE estimates at the end of the quota year (Q4, Figure 12) coinciding with increasing proportions of SMU catch (Q4, Figure 11).

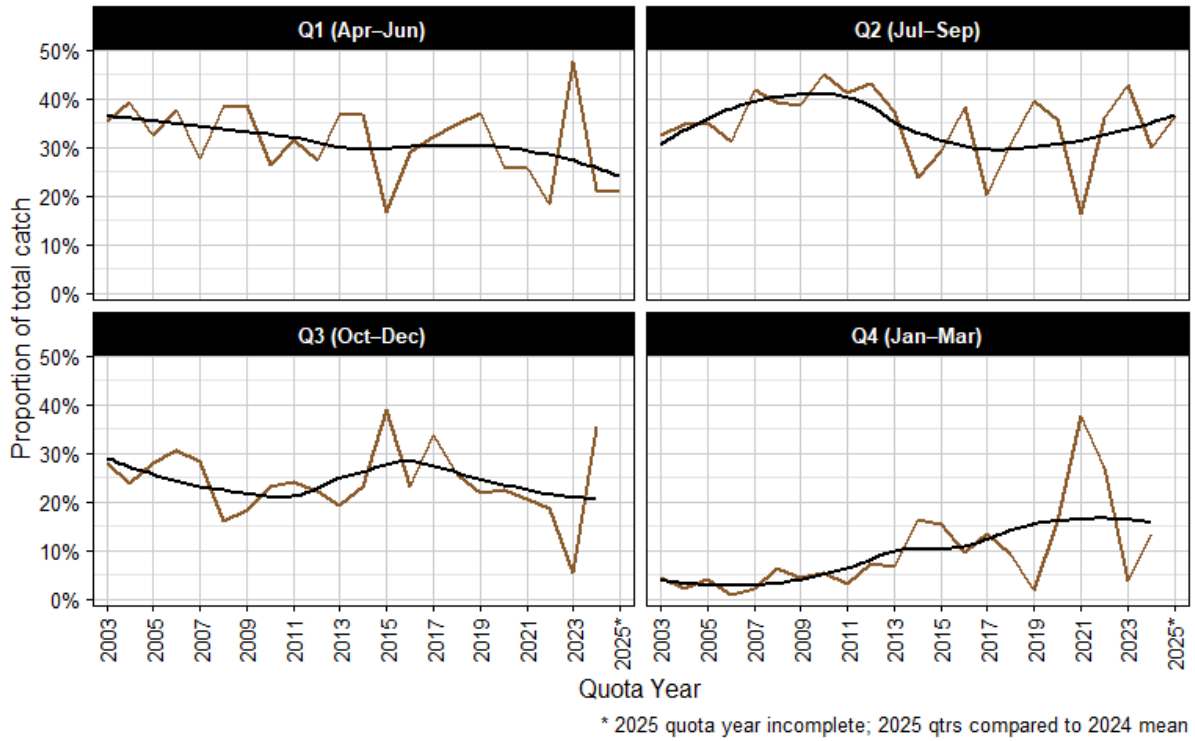

Figure 11: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Airport SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

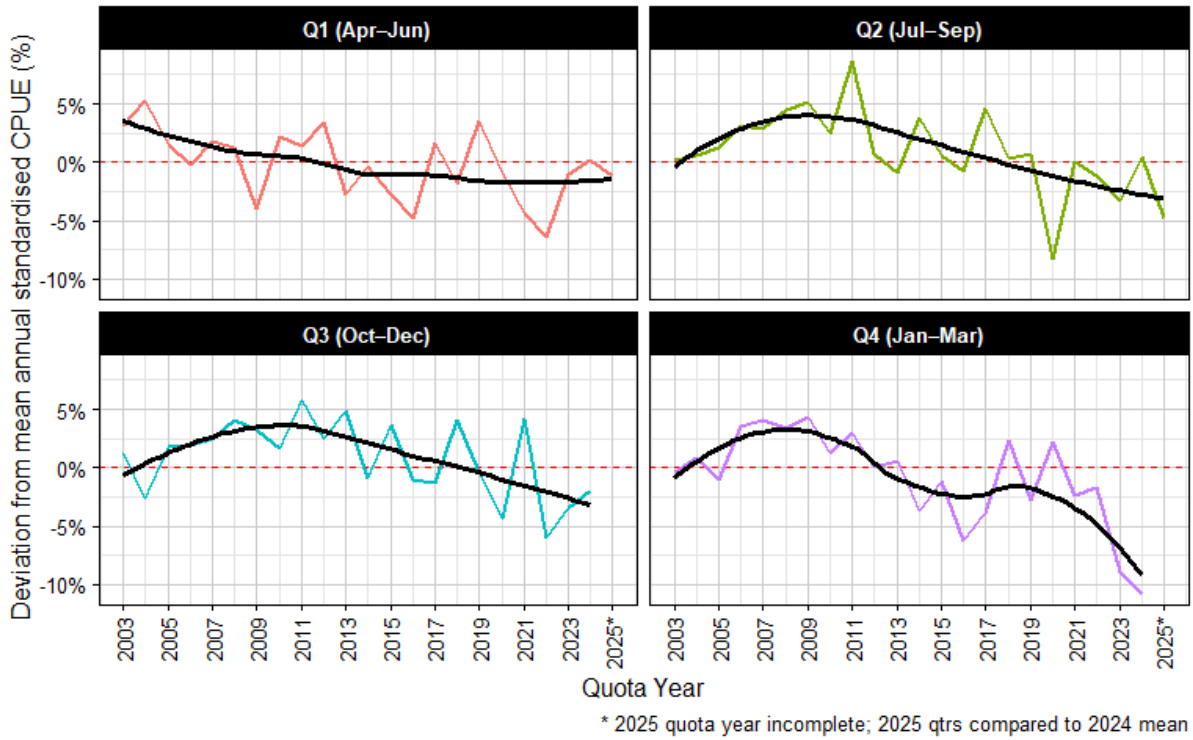

Figure 12: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Airport SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 13). Standardised mean daily catch has declined by 17% from 330 to 274 kg per day between 2022/23 and 2024/25.

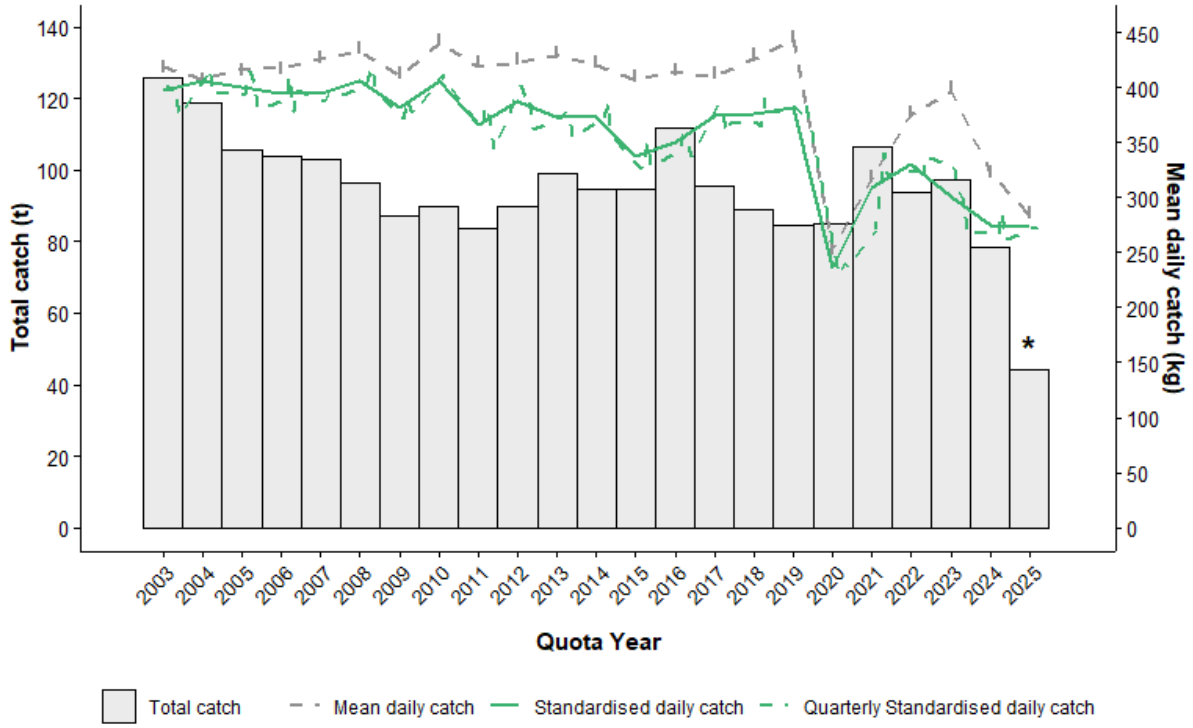

Figure 13: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Airport SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Airport SMU comprises five reefcodes, each of which have contributed substantially to the Airport SMU catch in the recent years (Figure 14). In 2024/25, catches at Tullaberga Island (24.15/25.15) were above the OT upper limit, while catches at Little Rame Lee (24.10/25.10) were below the lower threshold. In the first six months of 2025/26, catches from Tullaberga Island have already exceeded the upper threshold.

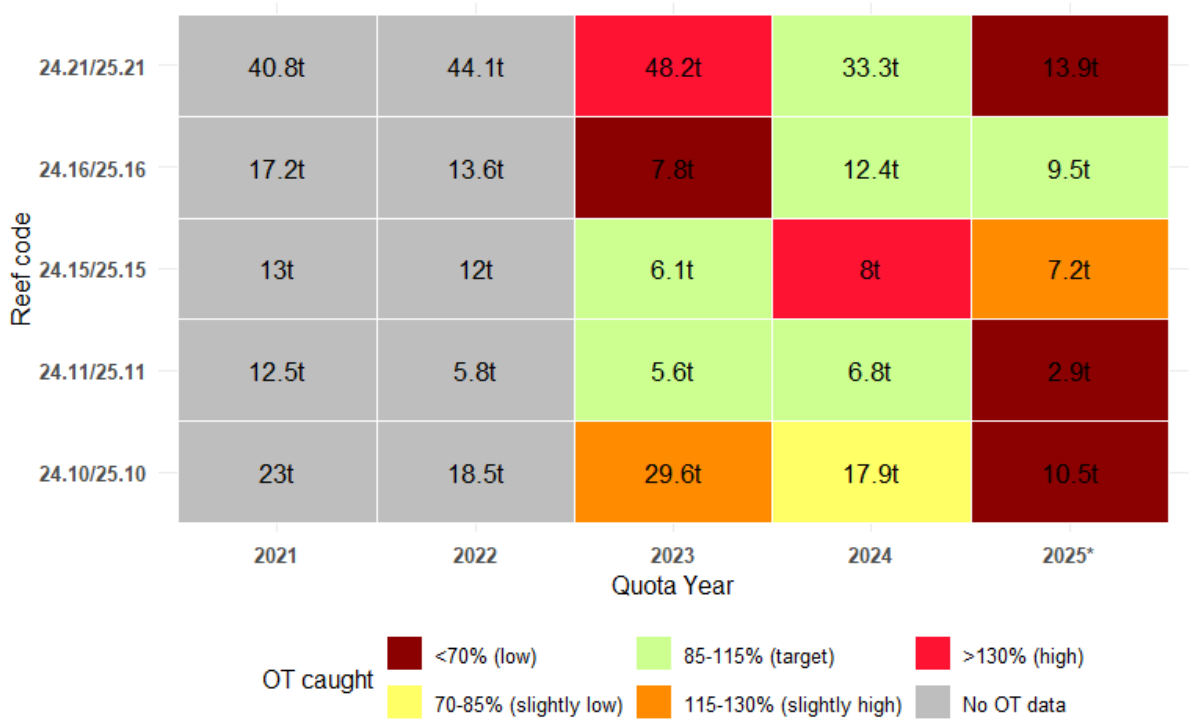

Figure 14: Total catch by reefcode for the Airport SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

The Airport SMU remains the highest producing SMU in the Eastern Zone. The 2024/25 catch (78.3 t) was just below the OT (80.0 t). The catch from Tullaberga Island in 2024/25 was above the upper limit and the catch in the first six months has already exceeded the threshold level for 2025/26. Catches at Little Rame Lee (24.10/25.10) were below the lower threshold in 2024/25. Standardised CPUE has been relatively stable the last few years, however there has been an increasing proportion of the catch harvested in the last 3 months of the quota year and this has coincided with decreasing CPUE. Mean daily catch has also decreased for the last three years. The OT for 2025/26 has been maintained at 80.0 t. Harvest strategy outcomes are Stable, suggesting an OT ranging from 76 to 84 t.

Catches at the Airport SMU remain high. While CPUE has been stable in recent years, trends of increasing proportions of catch are associated with declining CPUE at the end of the season. The Mallacoota Co-op has reported that this is likely the result of impacts from a changing abalone market. Diver observations will be critical in determining the OT for the Airport SMU. While the Harvest strategy suggests stable OT, seasonal CPUE trends suggest that a precautionary reduction in OT should be considered.

3.2.5. Mallacoota Central (Large SMU)

The Mallacoota Central SMU was the second highest SMU in terms of total catch with 38.0 t harvested in 2024/25 representing 18.2% of the zone catch (Table 6). The 2024/25 catch was 9% above the OT of 34.8 t. Standardised CPUE in 2024/25 was 4% higher than 2003/04, 7% lower than 2009/10 and 1% lower than 2020/21. Standardised mean daily catch in 2024/25 was 31% lower than 2003/04, 32% lower than 2009/10 and 13% higher than 2020/21.

Table 6: Summary of Catch, Optimum Targets and Performance Indicators for the Mallacoota Central SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
38.0	18.2	46.4	34.8	34.8	4%	-7%	-1%	-31%	-32%	13%

The Mallacoota Central SMU is an important contributor to the Eastern Zone TACC, with an average catch of 70 t since 2003 (Figure 15). Catches generally declined from 98 t in 2004 to 59 t in 2017 before a period of relative stability up until 2023. The 2024/25 OT was reduced from 46.4 to 34.8 t and it remains at 34.8 t for the 2025/26 quota year. Notably, around 26 t has been harvested from Mallacoota Central in the first six months of 2025/26.

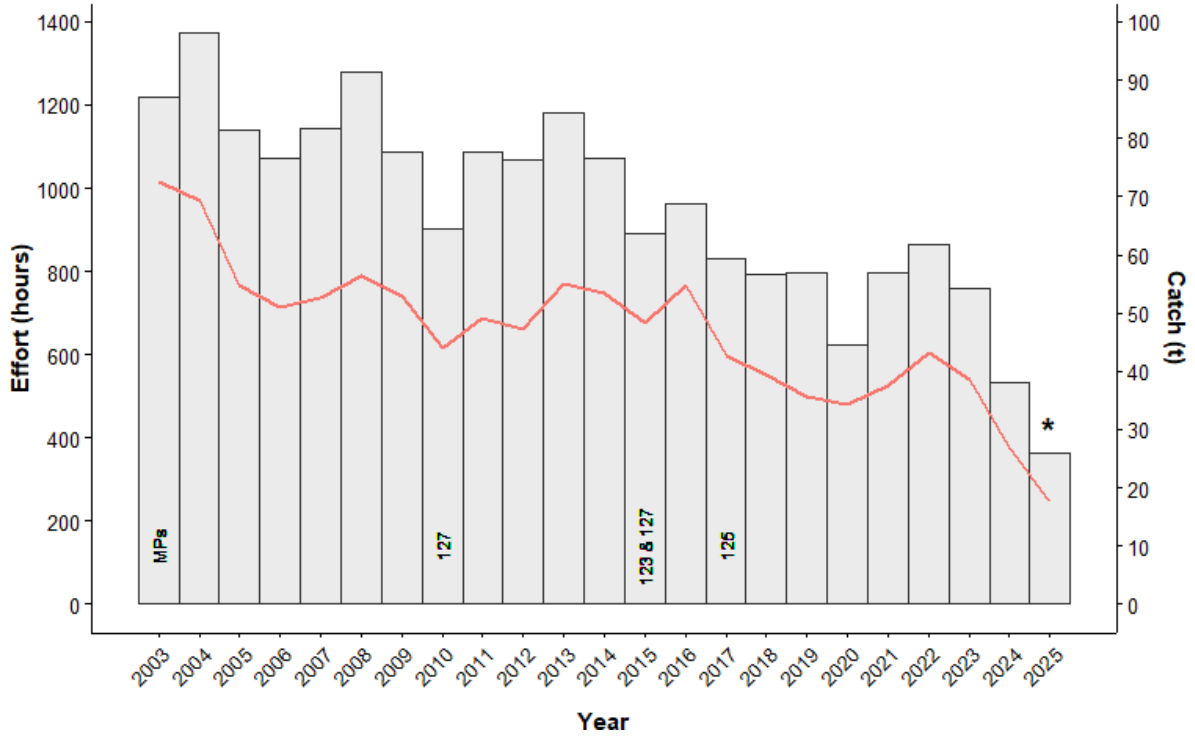

Figure 15: Total catch and mean daily catch for the Mallacoota Central SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE has fluctuated without a clear trend since 2003, averaging 89 kg/h with a range from 84 to 109 kg/h (Figure 16). Standardised CPUE has ranged between the Threshold and Target Reference Points of the Harvest strategy since 2003, being close to Target levels in 2006, 2008 and 2019.

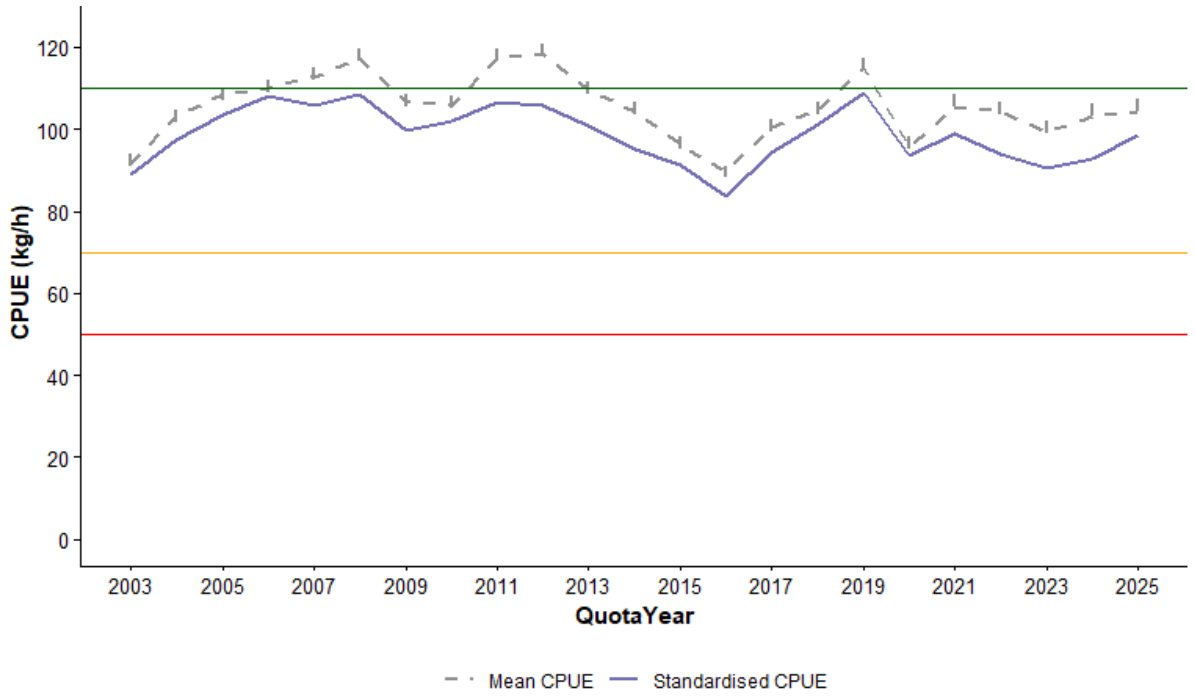

Figure 16: Mallacoota Central SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

Over the last decade, the proportion of catch in the last quarter has exceeded 20% on three occasions (Figure 17). Seasonal trends in standardised CPUE relative to annual mean appear more stable for Mallacoota Central than trends at the Zone level, with differences generally <5% (Figure 18).

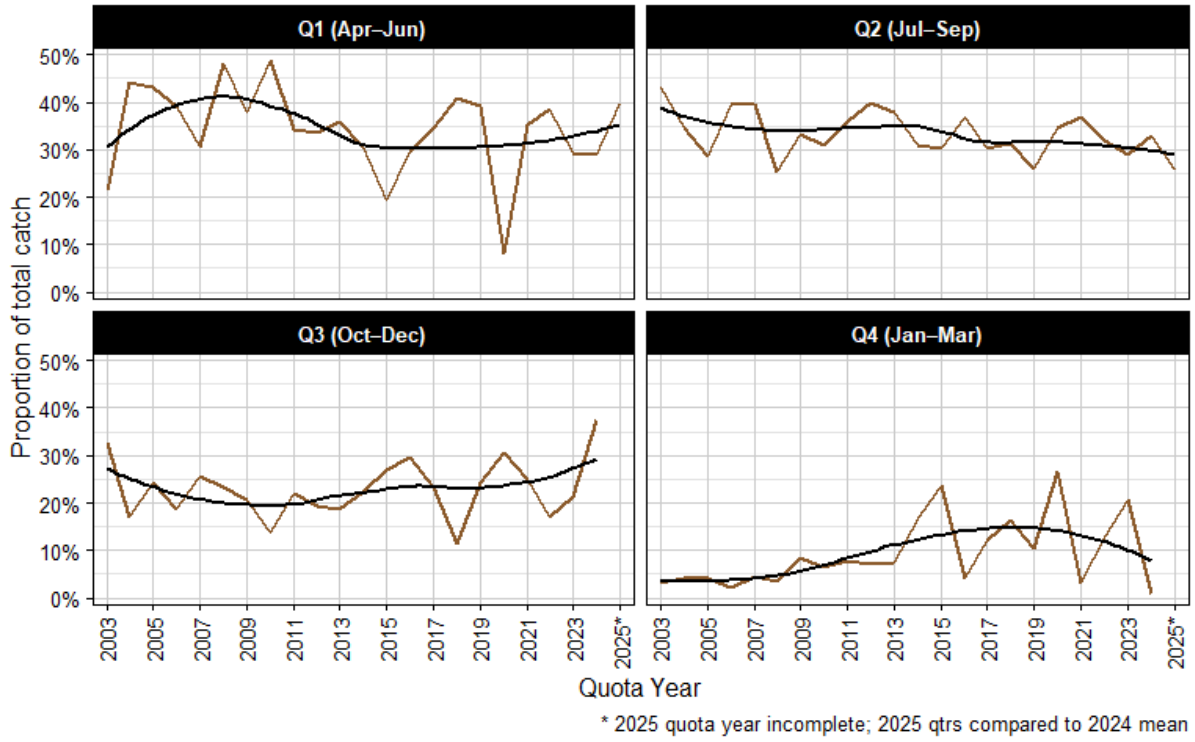

Figure 17: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Mallacoota Central SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

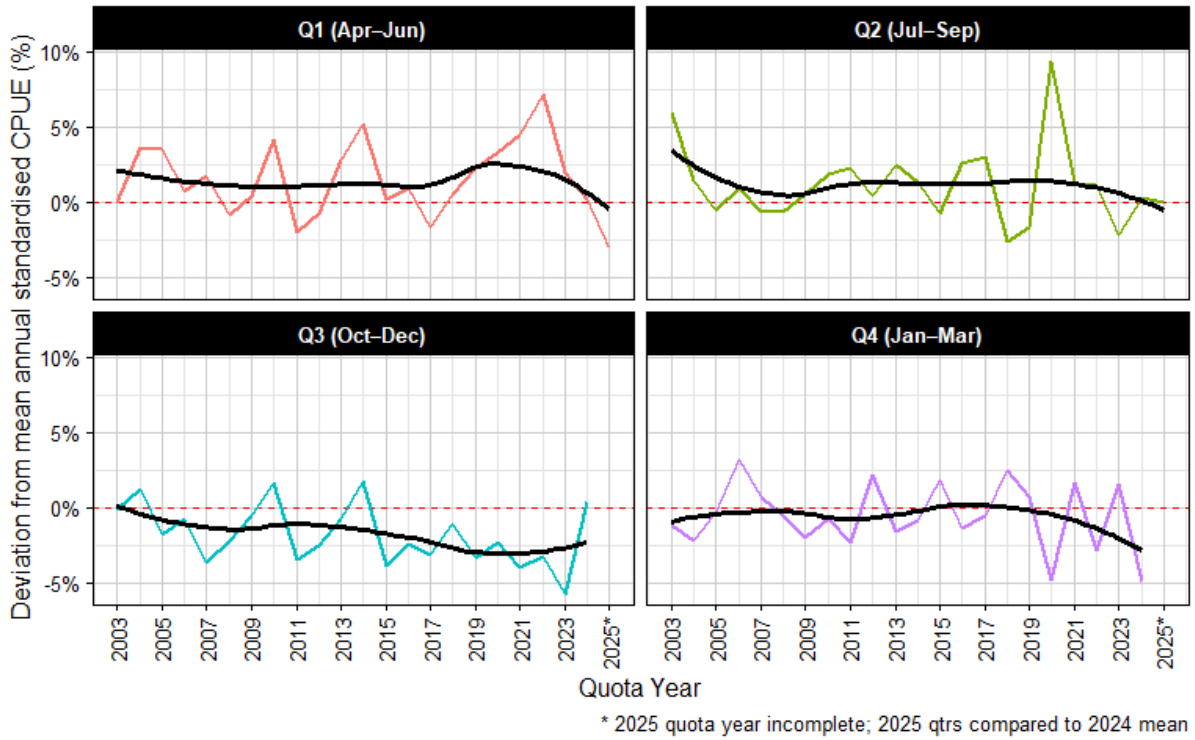

Figure 18: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Mallacoota Central SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 19), with a decline of 18% from 340 to 280 kg per day between 2022/23 and 2024/25.

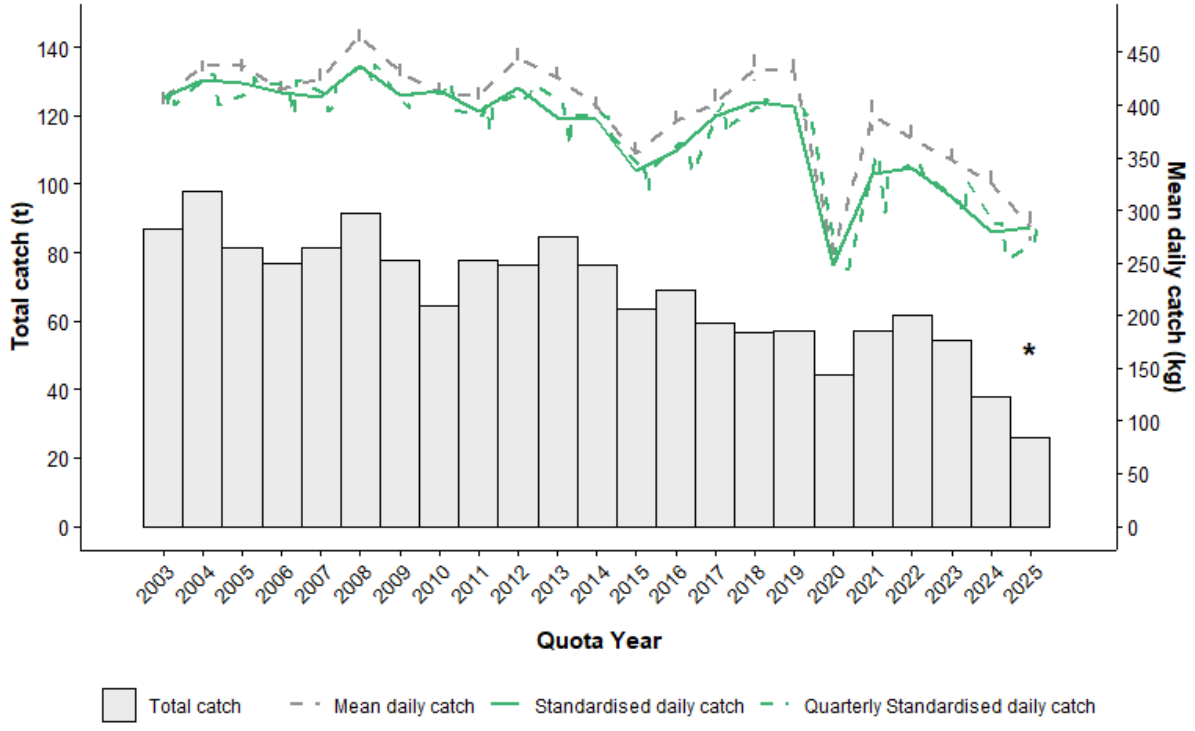

Figure 19: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Mallacoota Central SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Mallacoota Central SMU comprises four reefcodes that have contributed to the catch since 2021, however only three account for the majority of the catch (Figure 20). Sandpatch Lee (24.07) produces the highest catch, with Sandpatch Point (24.06) around half of that catch and Benedore (24.08) half of that catch again. In 2024/25, catches were around or just below the OT levels at all reefcodes. The majority of the OT has already been caught at Sandpatch Lee and Benedore in the first six months of the 2025/26 quota year.

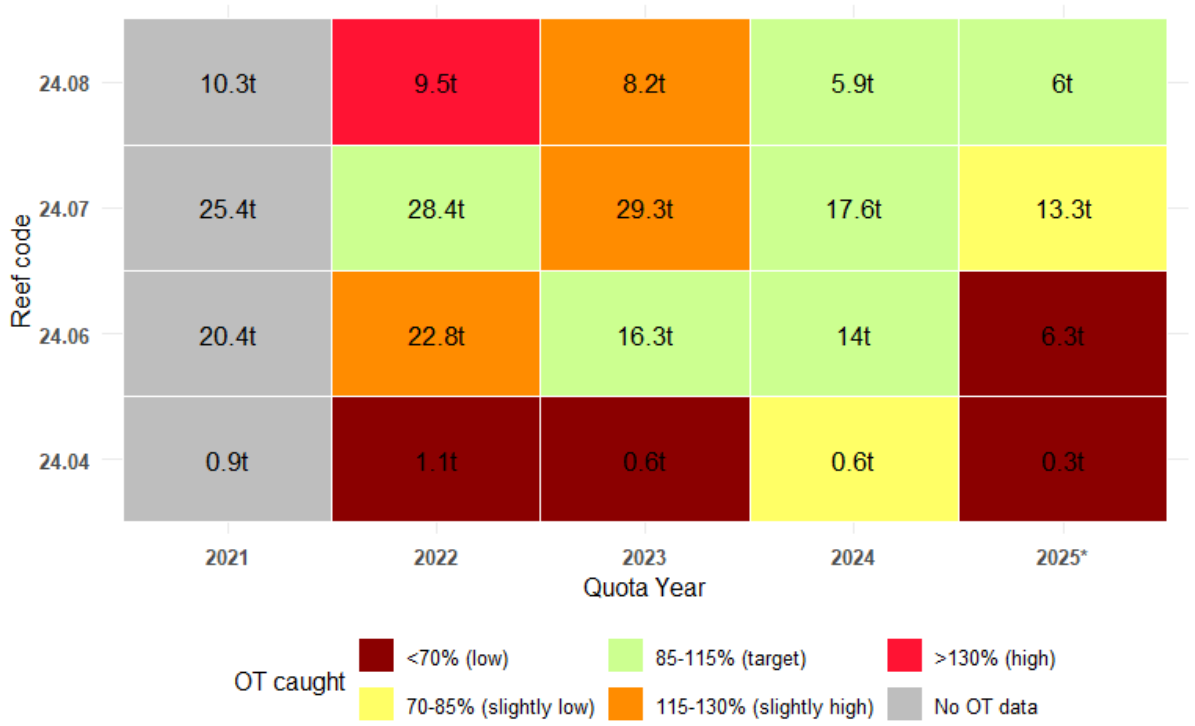

Figure 20: Total catch by reefcode for the Mallacoota Central SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

While the 2024/25 catch at Mallacoota Central (38.0 t) exceeded the OT (34.8 t) by 9%, the OT was reduced from 46.4 t in 2023/24. Catches were within the target range at all reefcodes. Most of the OT has already been caught at Sandpatch Lee and Benedore in the first six months of the 2025/26 quota year. Standardised CPUE has been relatively stable the last few years, and there are no strong seasonal CPUE trends apparent. Also, the seasonal distribution of the catch has also been relatively stable. As for all SMUs, mean daily catch has decreased for the last three years. The OT for 2025/26 was maintained at 34.8 t. Harvest strategy outcomes are Stable, suggesting an OT ranging from 33.1 to 36.5 t.

Available data for the Mallacoota Central SMU appear relatively stable following reductions in OT and catch in 2024/25. CPUE has been stable in recent years and there are no concerning seasonal CPUE trends. Reefcode level catches have generally been around the OTs. The Harvest strategy suggests stable OT, and this would appear to be an appropriate outcome although diver observations at the reefcode level will be important.

3.2.6. Mallacoota East (Medium SMU)

The Mallacoota East SMU contributed 25.4 t in 2024/25 representing 12.2% of the zone catch (Table 7). The 2024/25 catch was 29% over the OT of 19.7 t. Standardised CPUE in 2024/25 was 11% higher than 2003/04, equal to 2009/10 levels and 3% higher than 2020/21. Standardised mean daily catch in 2024/25 was 31% lower than 2003/04, 29% lower than 2009/10 and 15% higher than 2020/21.

Table 7: Summary of Catch, Optimum Targets and Performance Indicators for the Mallacoota East SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
25.4	12.2	26.2	19.7	21.25	11%	0	3%	-31%	-29%	15%

The Mallacoota East SMU has contributed an average catch of 47 t since 2003 (Figure 21). The catch of 25 t in 2024/25 was the lowest catch recorded, however it was 29% above the OT. The OT was increased in 2025/26 to 21.25 t, and the catch in the first six months of the quota year has already reached 20.6 t.

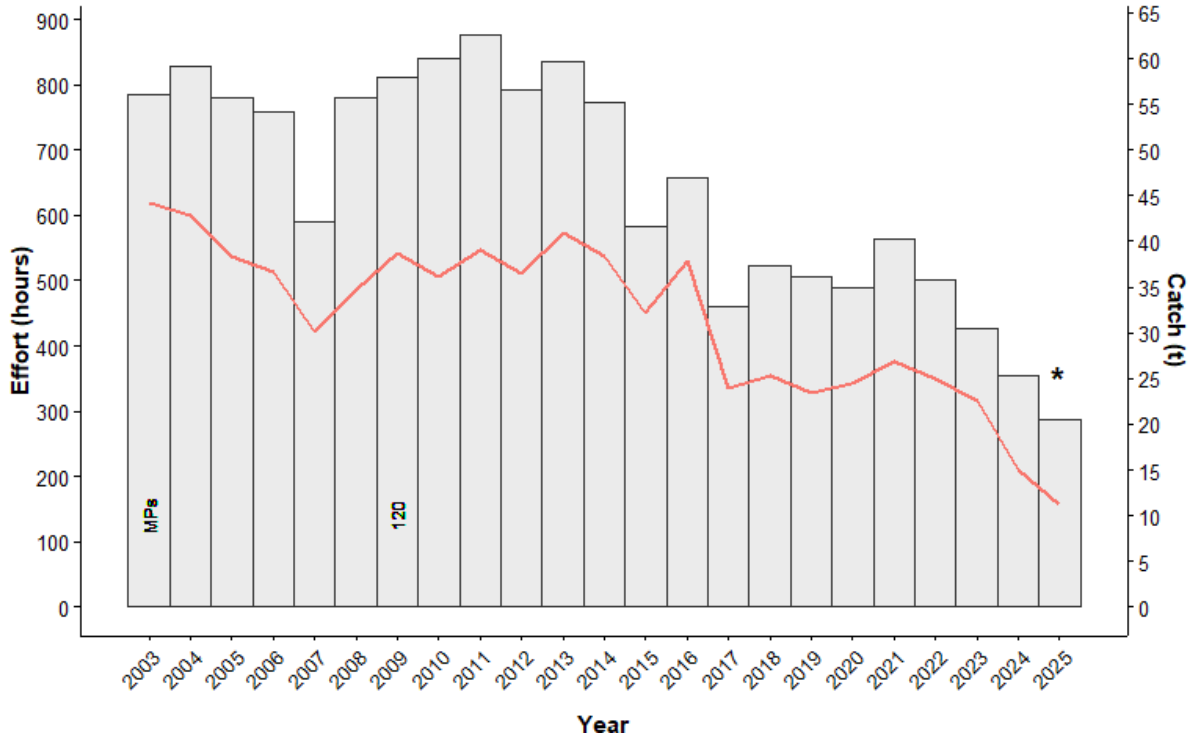

Figure 21: Total catch and mean daily catch for the Mallacoota East SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE has been relatively stable since 2003, generally remaining around or just below target levels (Figure 22).

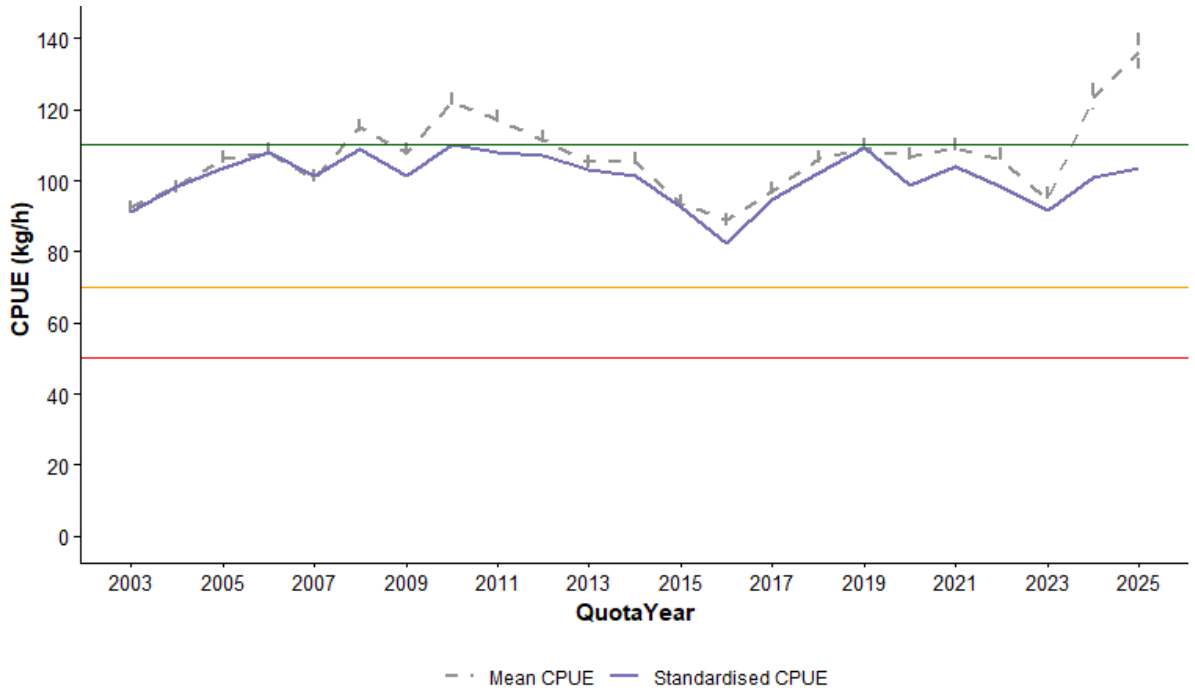

Figure 22: Mallacoota East SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

The proportion of catch in the last quarter has remained below 15% of the annual catch at the Mallacoota East SMU for the last decade (Figure 23). Most of the OT has already been harvested in the first six months of the 2025/26 quota year (Figure 21) and it is noted that the relative CPUE declined marginally from July 2025 to September 2025 (7.5% Figure 24). While CPUE also declined from January 2025 to March 2025, there was very little catch harvested at that time so the trend is not meaningful.

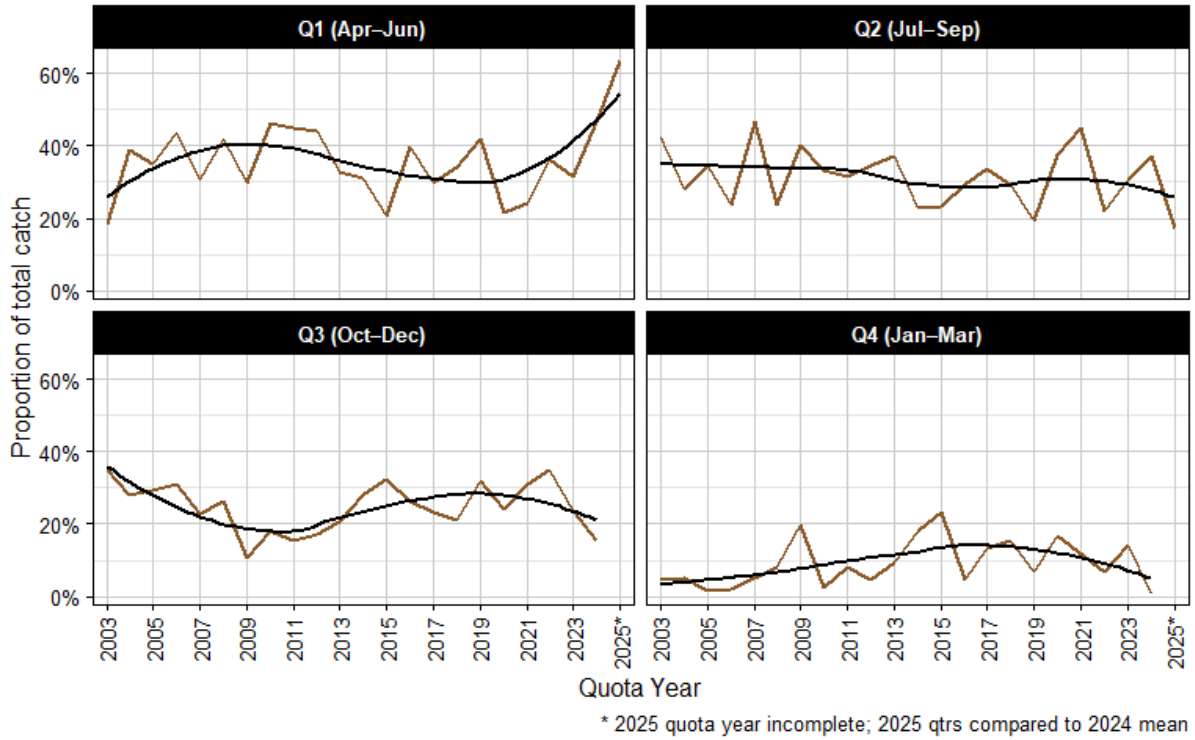

Figure 23: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Mallacoota East SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

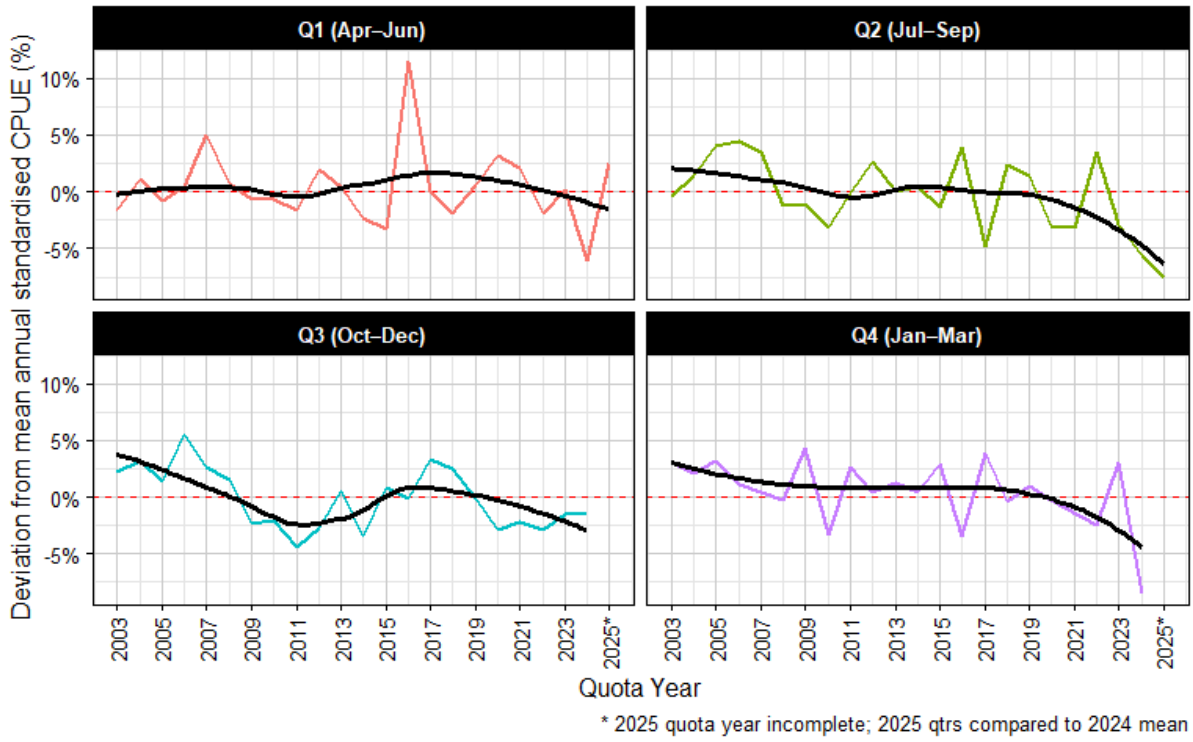

Figure 24: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Mallacoota East SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 25). Standardised mean daily catch has declined by 18% from 349 to 287 kg per day between 2022/23 and 2024/25.

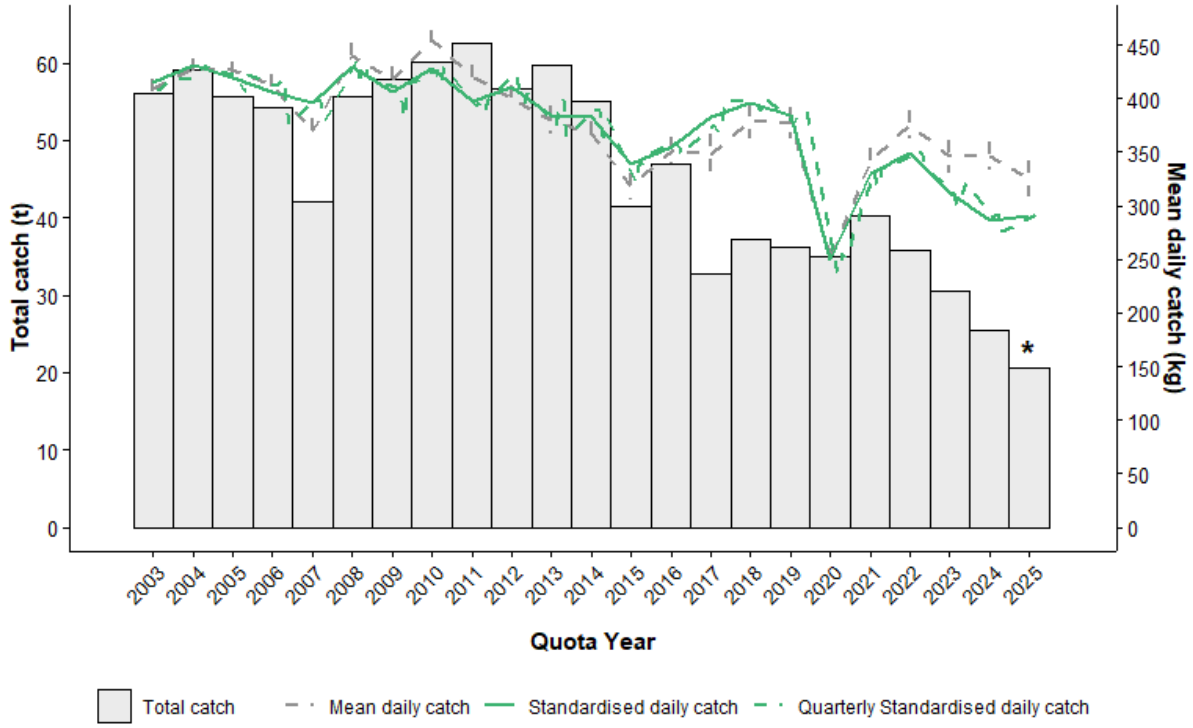

Figure 25: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Mallacoota East SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Mallacoota East SMU comprises three reefcodes with Gabo Island (24.17) the key contributor (Figure 26). The catch from Gabo Island has exceeded the OT limit the last three years and has exceeded the threshold already in the first six months of 2025/26. Reefcode level analysis (see Section 4.1) suggests that CPUE has been increasing at the Gabo Island reefcode, so this unlikely to be a sustainability concern.

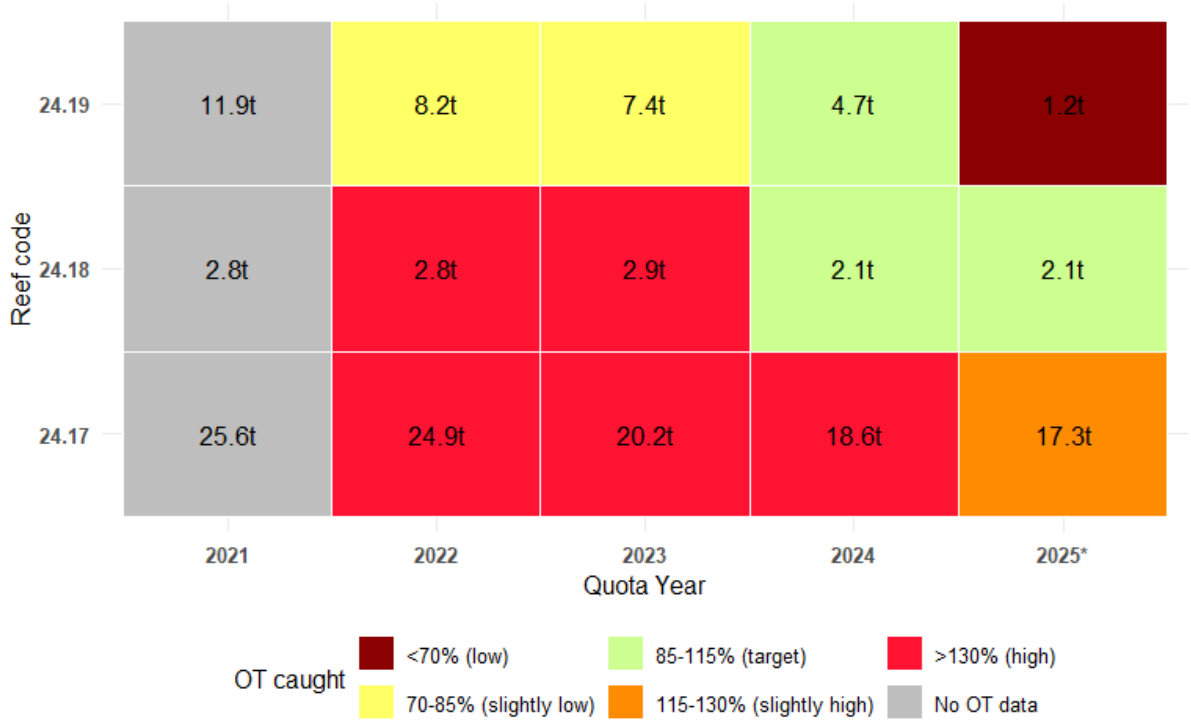

Figure 26: Total catch by reefcode for the Mallacoota East SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

The 2024/25 catch of 25.4 t again exceeded the OT of 19.7 t (by 29%). While the upper limit of the OT has been exceeded at the Gabo Island reefcode for three consecutive years with 2025/26 looking much the same, standardised CPUE has increased recently at this reefcode. Standardised CPUE for the SMU have been relatively stable the last few years, and there are no concerning seasonal CPUE trends apparent. As for all SMUs, mean daily catch has decreased for the last three years. The OT for 2025/26 was increased to 21.25 t. Harvest strategy outcomes are Stable, suggesting an OT ranging from 20.2 to 22.3 t.

While catches have been maintained above the OT in recent years, the available data do not indicate sustainability concerns. A stable OT for 2026/27, as suggested by the Harvest Strategy, seems an appropriate outcome.

3.2.7. Marlo (Large SMU)

The Marlo SMU was the fourth highest contributor to the Eastern Zone total catch with 23.5 t harvested in 2024/25 representing 11.3% of the zone catch (Table 8). The catch was 34% below the Optimal Target of 35.8 t. Standardised CPUE in 2024/25 was 13% lower than 2003/04, 21% lower than 2009/10 and 15% lower than 2020/21. Standardised mean daily catch in 2024/25 was 31% lower than 2003/04, 31% lower than 2009/10 and 15% higher than 2020/21.

Table 8: Summary of Catch, Optimum Targets and Performance Indicators for the Marlo SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
23.5	11.3	71.5	35.8	10.0	-13%	-21%	-15%	-31%	-31%	15%

The Marlo SMU was a historically important contributor to the Eastern Zone TACC, with an average catch of 96 t from 2003 to 2012 (Figure 27). Catch has declined thereafter, with the 2024/25 catch of 23.5 t the lowest recorded, following a halving of the OT from 71.5 to 35.8 t. The OT has been further reduced to 10 t for 2025/26, with only 1.6 t harvested in the first six months.

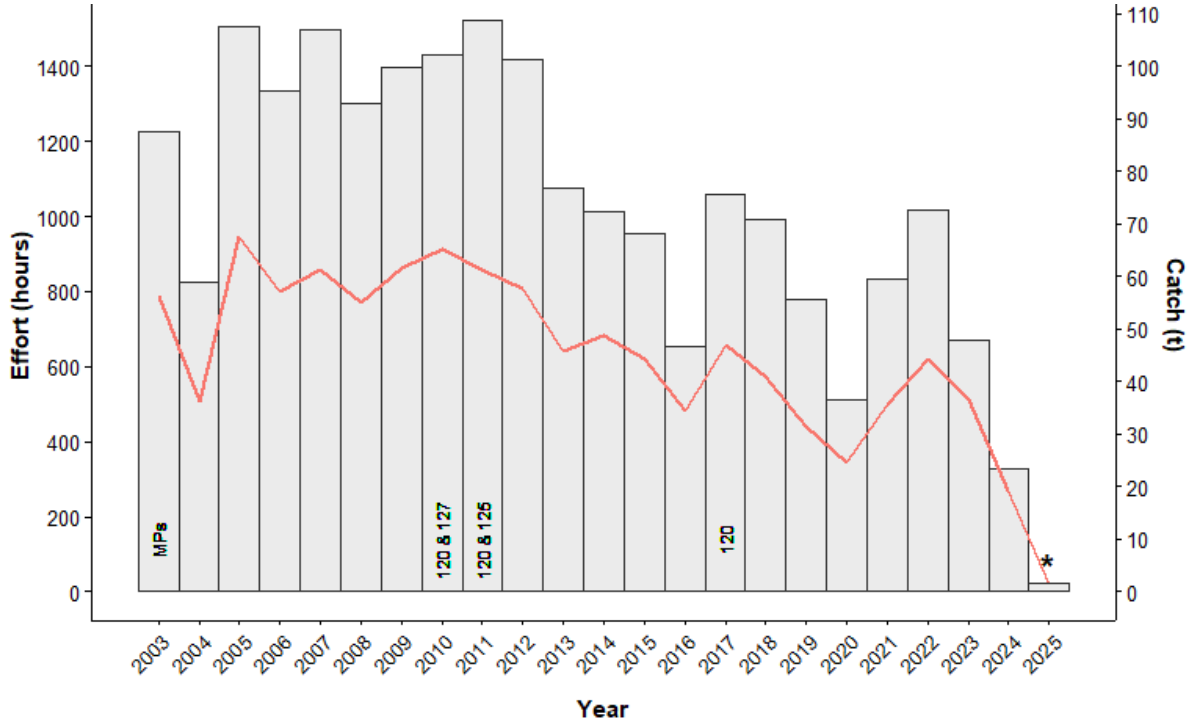

Figure 27: Total catch and mean daily catch for the Marlo SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE remained at or just below target levels in most years from 2003 to 2022 (Figure 18). Standardised CPUE declined substantially from 2019/20 to 2024/25, however the decline remained just within the "Stable" definition of the Harvest Strategy. Despite the poor state of Marlo stocks, CPUE remains well above the threshold level of the Harvest Strategy.

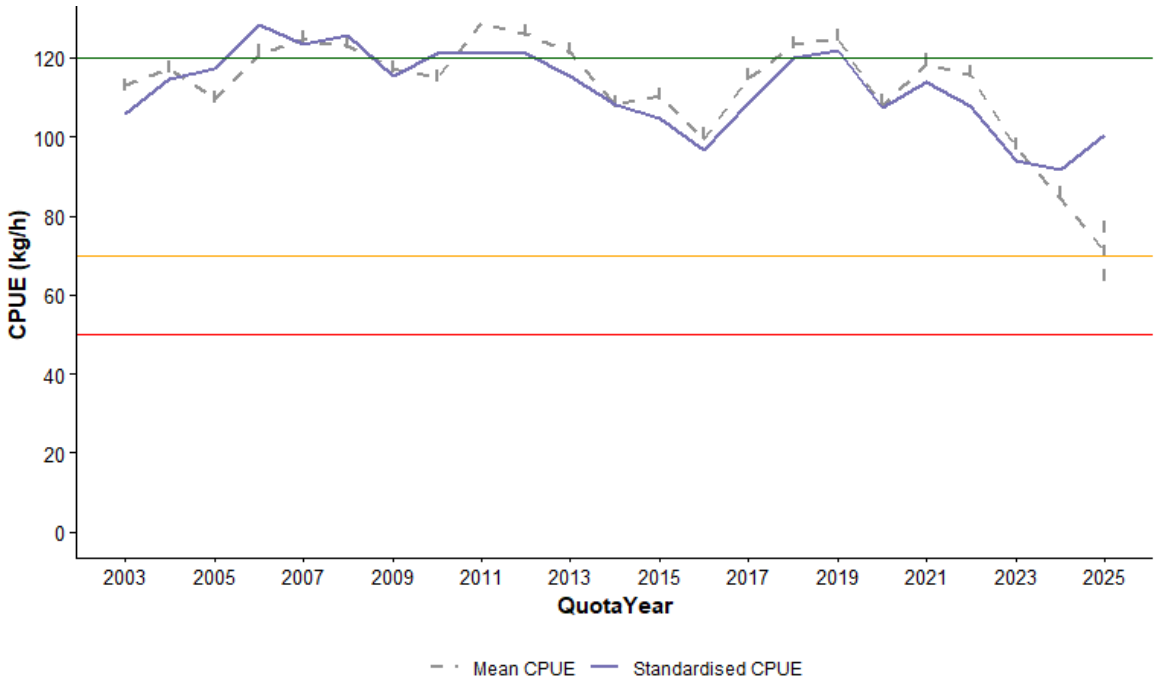

Figure 28: Marlo SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

Marlo was regularly fished early in the season in most years prior to 2020 (Figure 29). Since then, the proportion of the catch harvested from Marlo in the first six months of each quota year has reduced substantially, with a very high proportion of the catch harvested at the end of the quota year. In these last few years, the seasonal CPUE estimates have been higher than the annual estimate resulting in a positive departure from the annual in most quarters (Figure 30). The reasons for these seasonal trends are unclear.

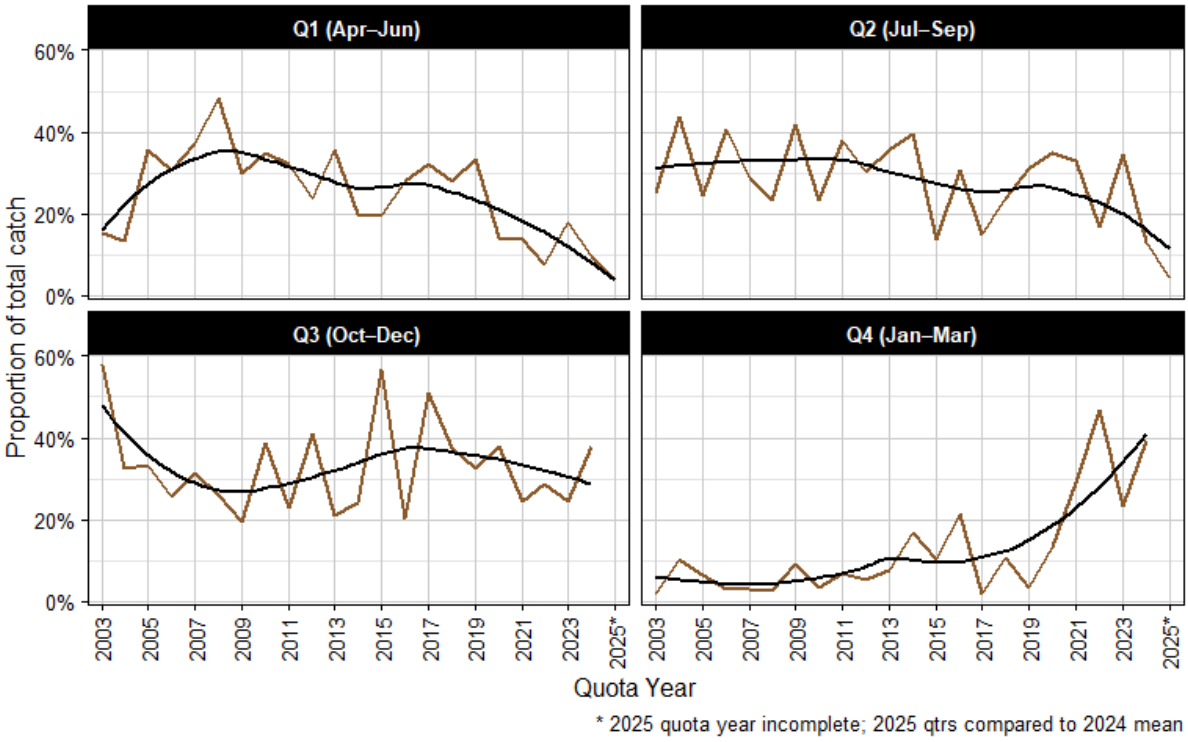

Figure 29: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Marlo SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

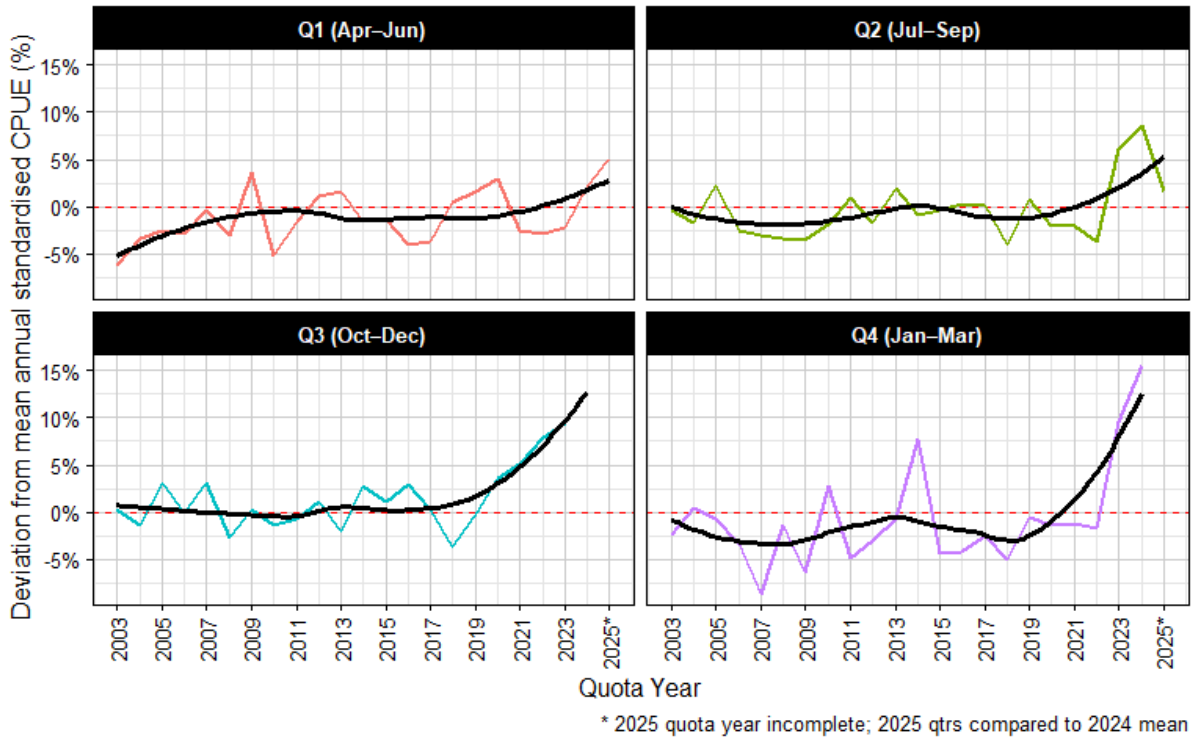

Figure 30: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Marlo SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 31). Standardised mean daily catch has declined by 19% from 396 to 322 kg per day between 2022/23 and 2024/25.

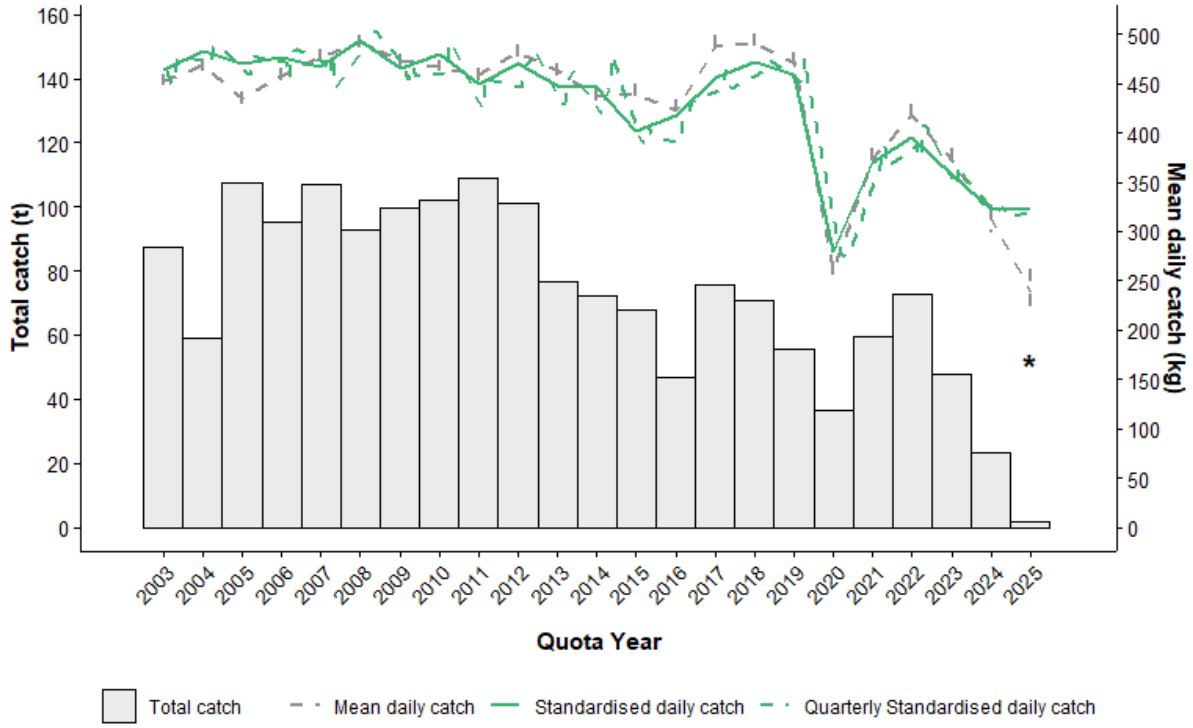

Figure 31: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Marlo SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Marlo SMU comprises ten reefcodes however only six reefcodes contributed meaningfully since 2021 (Figure 32). Catches were well below the OT in all reefcodes except Cape Conron (22.04) during 2024/25.

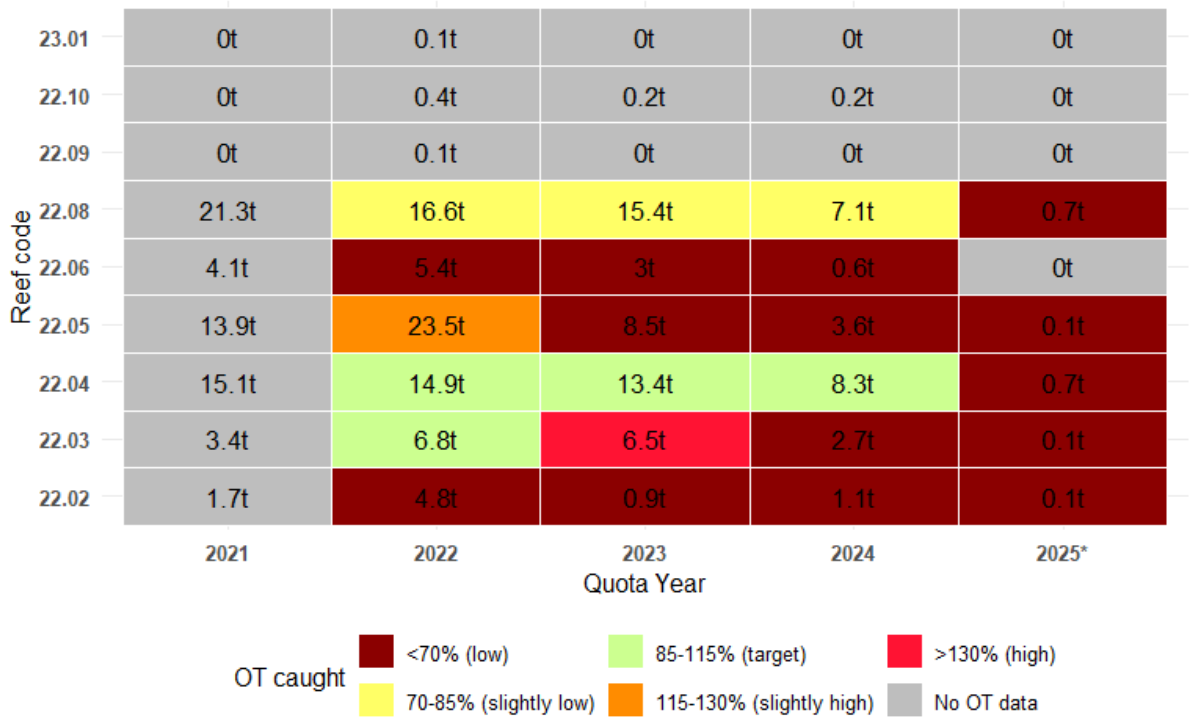

Figure 32: Total catch by reefcode for the Marlo SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

Only 23.5 t of the 35.8 t OT was caught at Marlo in 2024/25, with the shortfall being distributed across other SMUs. The OT was reduced to 10 t for 2025/26 and only 1.6 t has been harvested in the first six months. The Marlo SMU showed the highest decline in CPUE, however it was just above the "Decreasing" threshold in the Harvest Strategy. There has been a substantial shift in the seasonal distribution of the catch, with higher proportions of catch harvested in the last quarter. Mean daily catch has declined in the last three years.

Industry strongly suggests that environmental factors have affected both the fishing activity and productivity of the Marlo stocks in recent years. In response to poor stock status, the OT has been reduced from 71.5 to 10.0 t in two years. More time is required to determine whether these cuts are sufficient to improve stock status.

3.2.8. Mallacoota Large (Small SMU)

The Mallacoota Large SMU contributed 19.3 t in 2024/25 representing 9.2% of the zone catch (Table 9). This was just above the OT (18.5 t). Standardised CPUE in 2024/25 was the same as 2003/04, 9% lower than 2009/10 and 1% lower than 2020/21. Standardised mean daily catch in 2024/25 was 34% lower than 2003/04, 31% lower than 2009/10 and 2% higher than 2020/21.

Table 9: Summary of Catch, Optimum Targets and Performance Indicators for the Mallacoota Large SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
19.3	9.2	18.5	18.5	19.0	0	-9%	-1%	-34%	-31%	2%

The Mallacoota Large SMU has maintained one of the most stable catch profiles in the Eastern Zone since 2003, with catches ranging from 19 to 25 t in most years and a peak catch of 42.6 t in 2007/08 (Figure 33). The catch of 19.3 t in 2024/25 was just above the OT of 18.5 t. The OT for 2025/26 was increased to 19.0 t, with 14.3 t harvested in the first six months of the quota year.

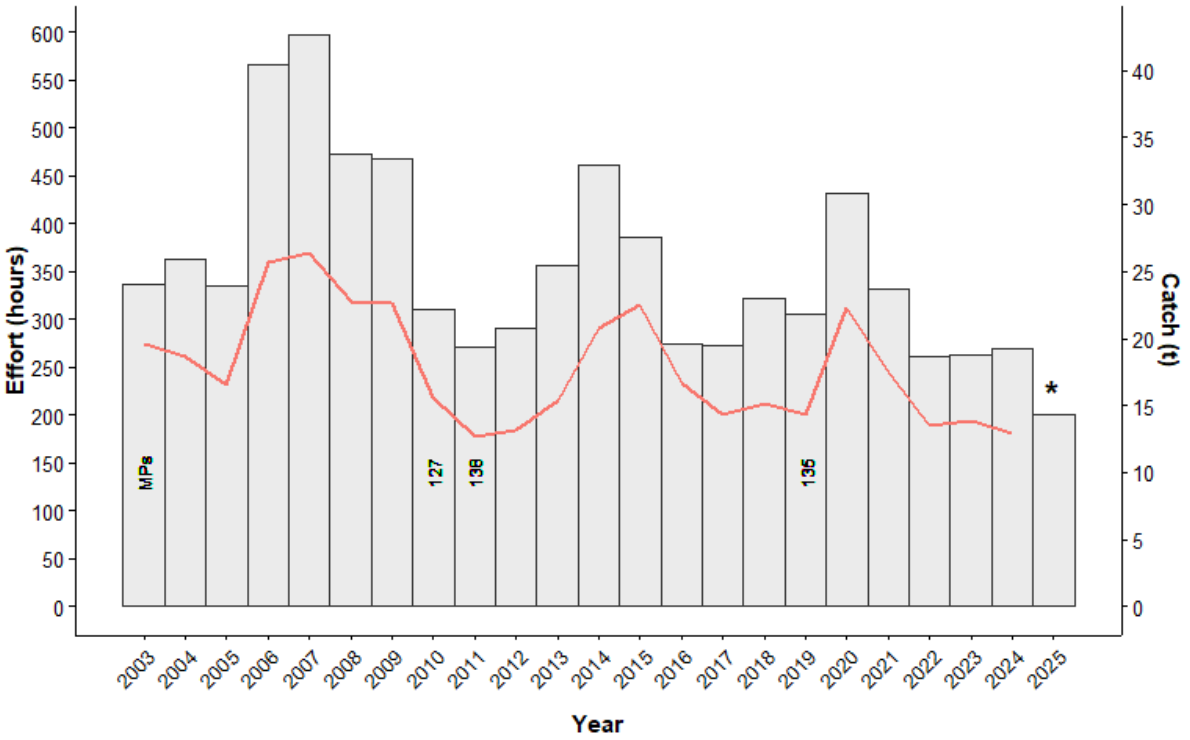

Figure 33: Total catch and mean daily catch for the Mallacoota Large SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE fluctuated without trend from 2003 to 2020 and has been stable thereafter (Figure 34). Standardised CPUE has always remained between the threshold and target levels.

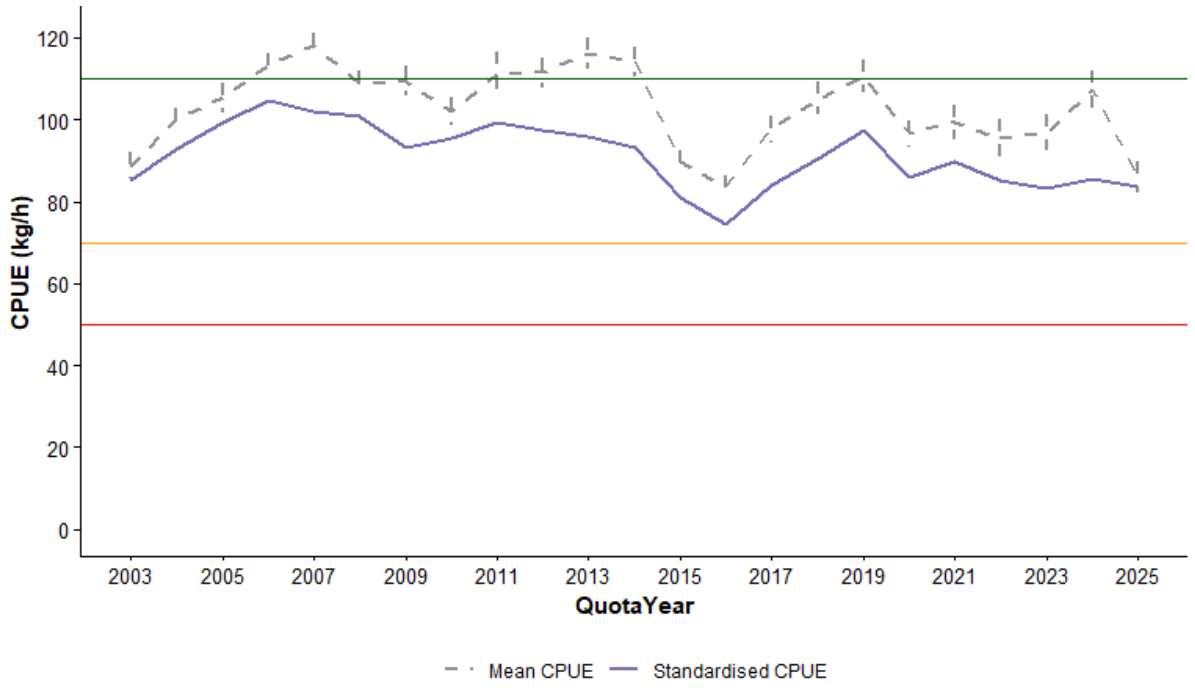

Figure 34: Mallacoota Large SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

Over the last decade, the proportion of catch in the last quarter has not exceeded 15% of the annual catch (Figure 35). In recent years, between 40 and 65% of the catch has been harvested in the first quarter. Seasonal trends in standardised CPUE relative to annual trends appear more stable for Mallacoota Large than trends at the zone level, with differences generally <5% (Figure 36).

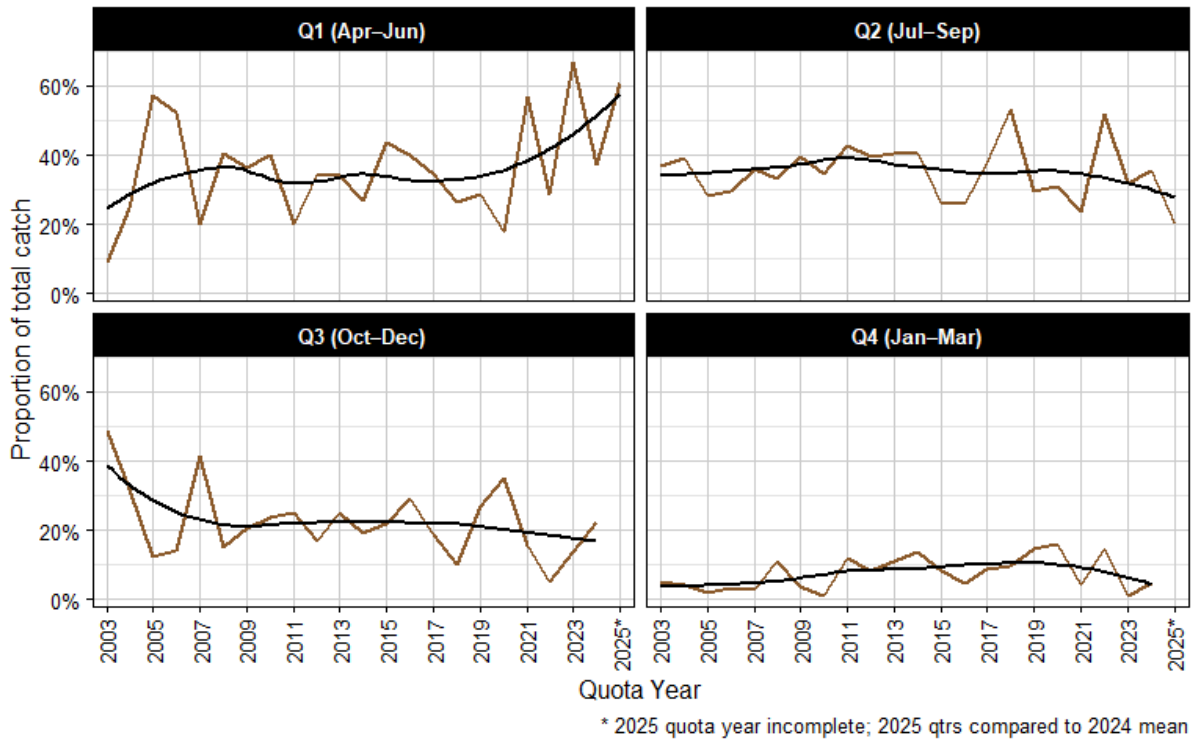

Figure 35: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Mallacoota Large SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

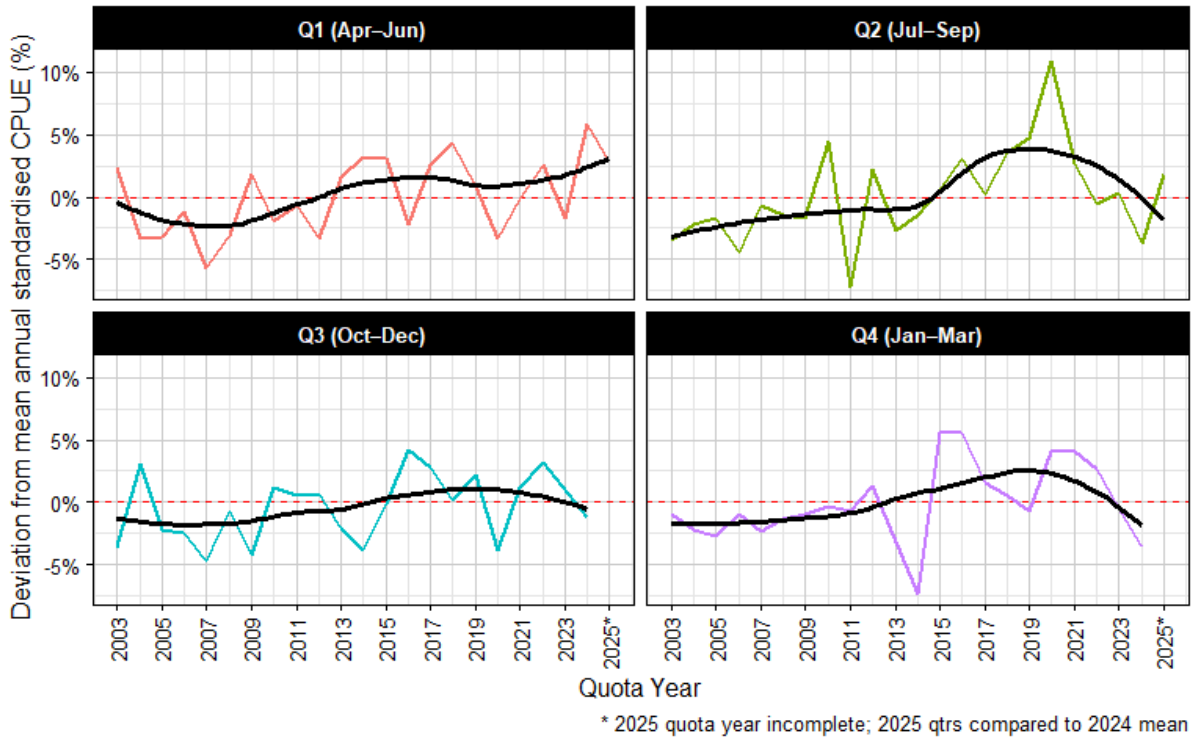

Figure 36: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Mallacoota Large SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 37). Standardised mean daily catch has declined by 19% from 337 to 272 kg per day between 2022/23 and 2024/25.

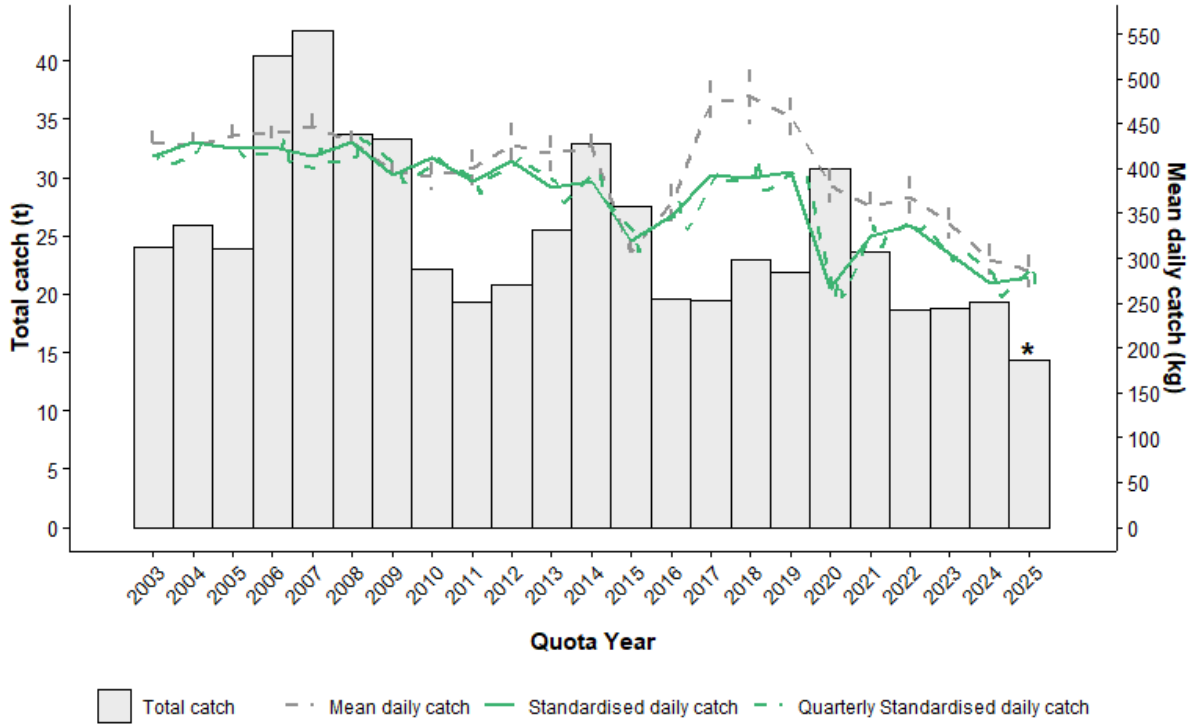

Figure 37: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Mallacoota Large SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Mallacoota Large SMU comprises three reefcodes, with Big Rame the highest contributor followed by The Skerries (Figure 38). Catches were above the threshold at The Skerries (24.00) in 2024/25 but have been close to OT in all other year / reefcode combinations.

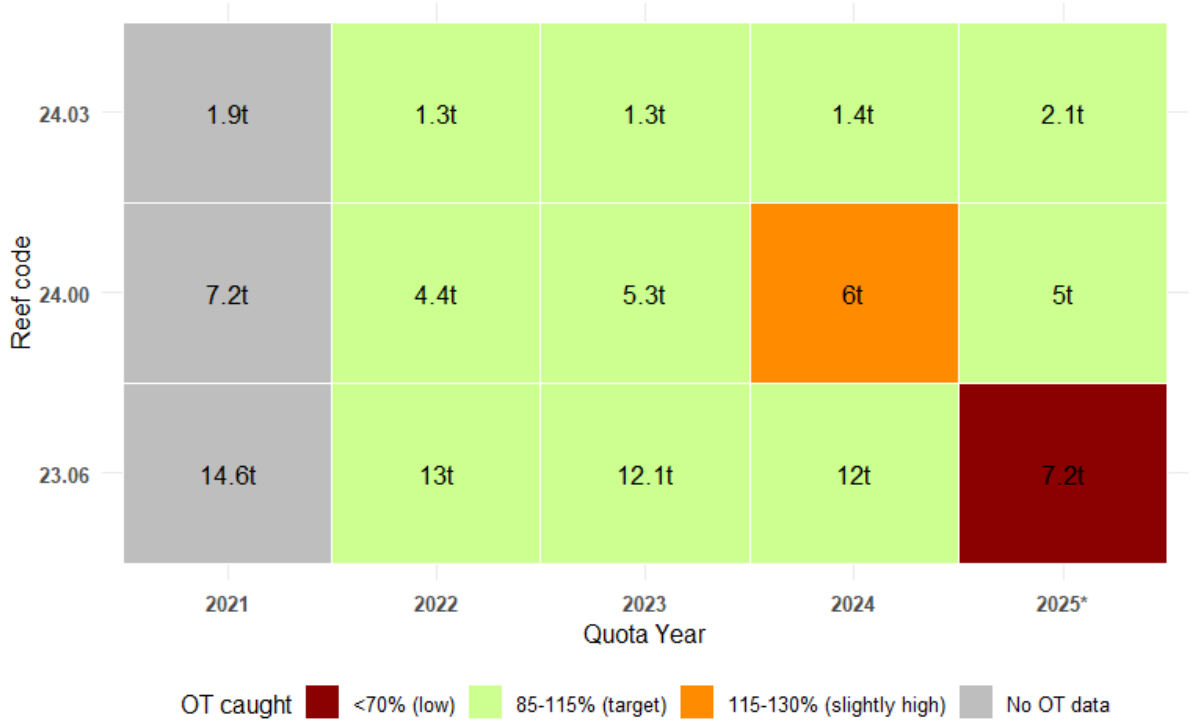

Figure 38: Total catch by reefcode for the Mallacoota Large SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

The 2024/25 catch of 19.3 t was just above the OT of 18.5 t. The OT for 2025/26 was increased to 19.0 t, and 14.3 t has been harvested in the first six months of the quota year. Standardised CPUE has been relatively stable the last few years, and there are no concerning seasonal CPUE trends apparent. As for all SMUs, mean daily catch has decreased for the last three years. Harvest strategy outcomes are Stable, suggesting an OT ranging from 18.0 to 20.0 t.

In recent years a much higher proportion of the catch has been harvested in the first three months. The available data do not indicate sustainability concerns. A stable OT for 2026/27, as suggested by the Harvest Strategy, seems an appropriate outcome.

3.2.9.Mallacoota West (Small SMU)

The Mallacoota West SMU contributed 16.3 t in 2024/25 representing 7.8% of the zone catch (Table 10). This catch was 36% above the OT of 12.0 t. Standardised CPUE in 2024/25 was the same as 2003/04, 10% lower than 2009/10 and 3% lower than2020/21. Standardised mean daily catch in 2024/25 was 31% lower than 2003/04, 30% lower than 2009/10 and 8% higher than 2020/21.

Table 10: Summary of Catch, Optimum Targets and Performance Indicators for the Mallacoota West SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
16.3	7.8	21.5	12.0	12.0	0	-10%	-3%	-31%	-30%	8%

Catches from the Mallacoota West SMU increased from 2003/04 to a peak of 101.9 t in 2008/09, however they have declined substantially thereafter (Figure 39). The catch of 16.3 t in 2024/25 was the lowest recorded, however it was 36% above the OT of 12.0 t. The OT was maintained at 12.0 for 2025/26, with 5.4 t harvested in the first six months.

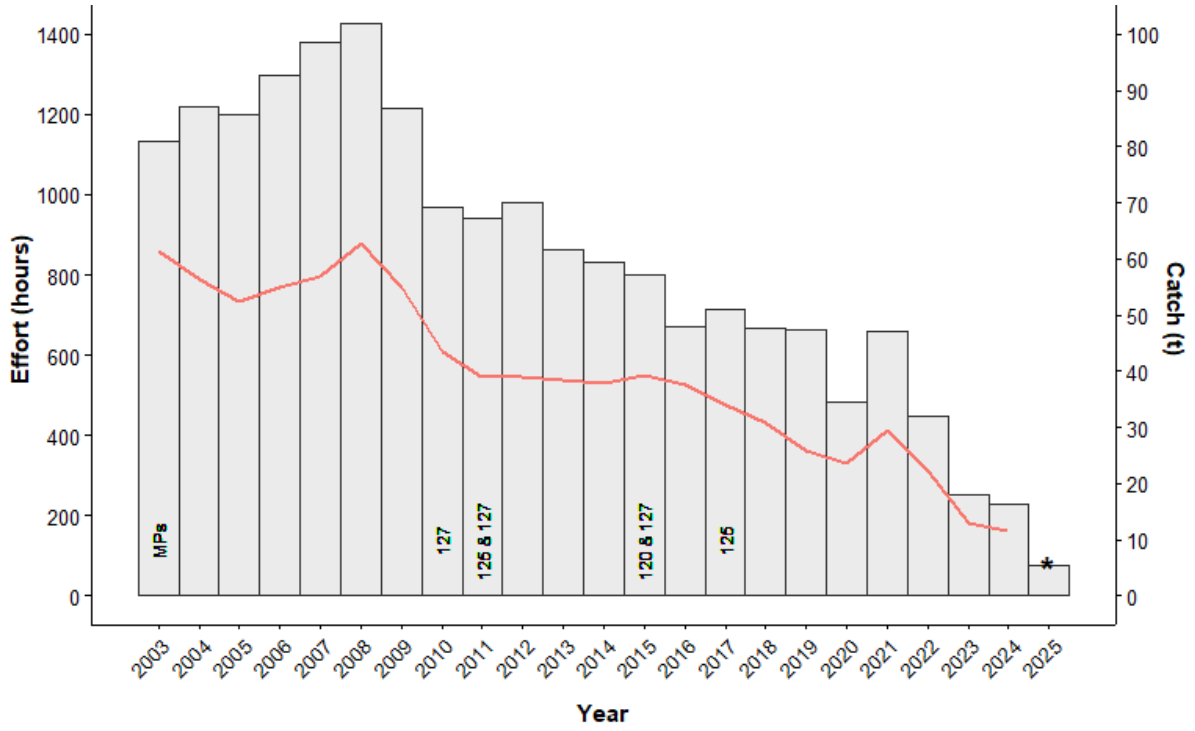

Figure 39: Total catch and mean daily catch for the Mallacoota West SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE has fluctuated between the threshold and target levels since 2003 with several peaks and troughs (Figure 40). Standardised CPUE has been relatively stable since 2020/21, likely maintained due to large reductions in catch.

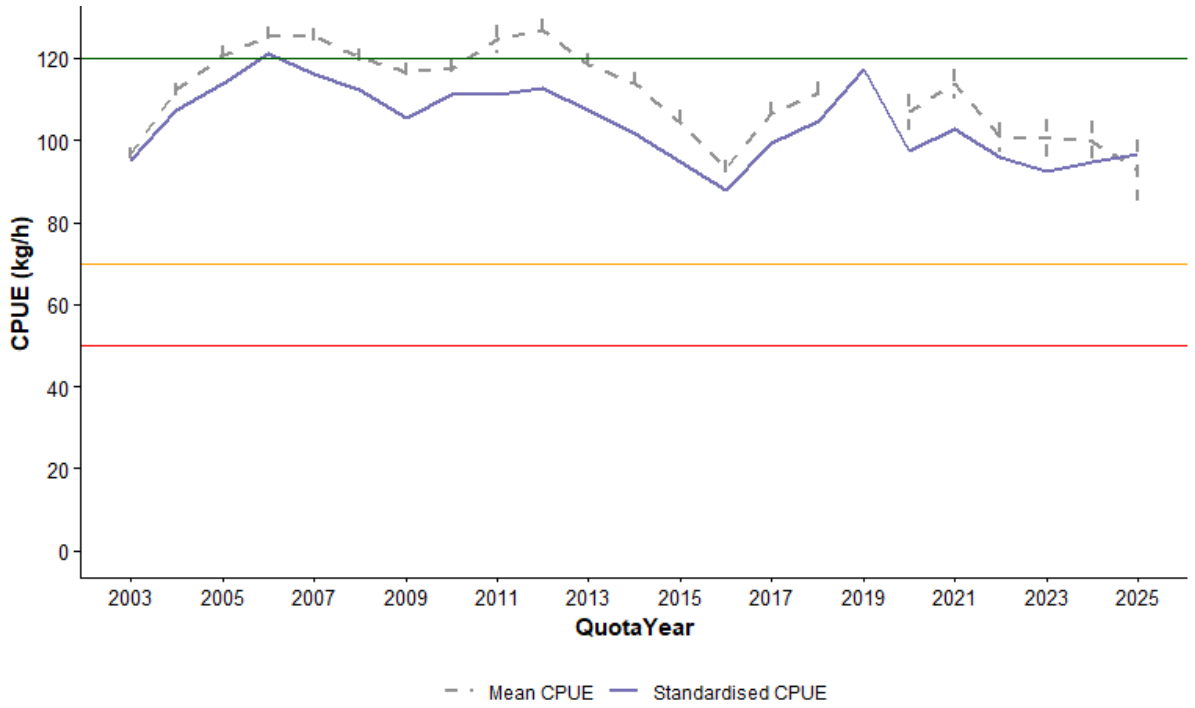

Figure 40: Mallacoota West SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

The time of year when Mallacoota West SMU has been harvested has been quite variable since 2003 (Figure 42). There has been an increasing trend toward higher catches at the end of the season over the last decade or more. Standardised quarterly CPUE has generally remained within 5% of the annual CPUE on most occasions, with no clear trends among seasons (Figure 43).

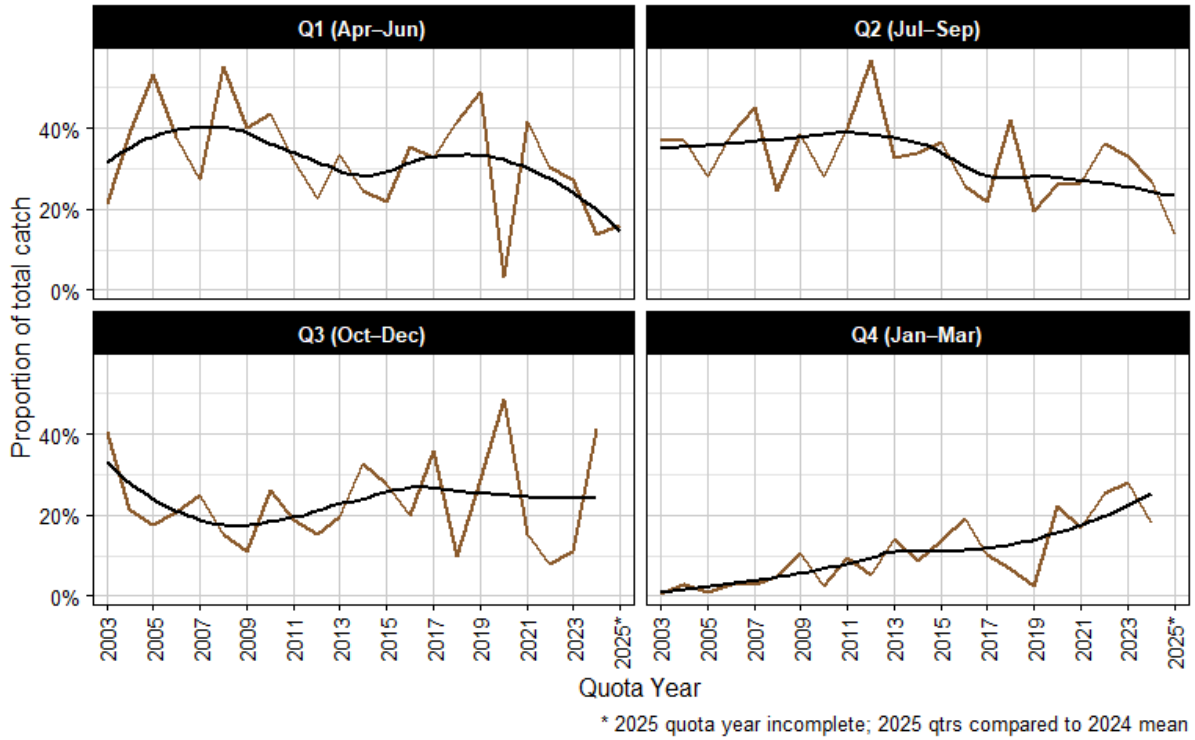

Figure 42: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Mallacoota West SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

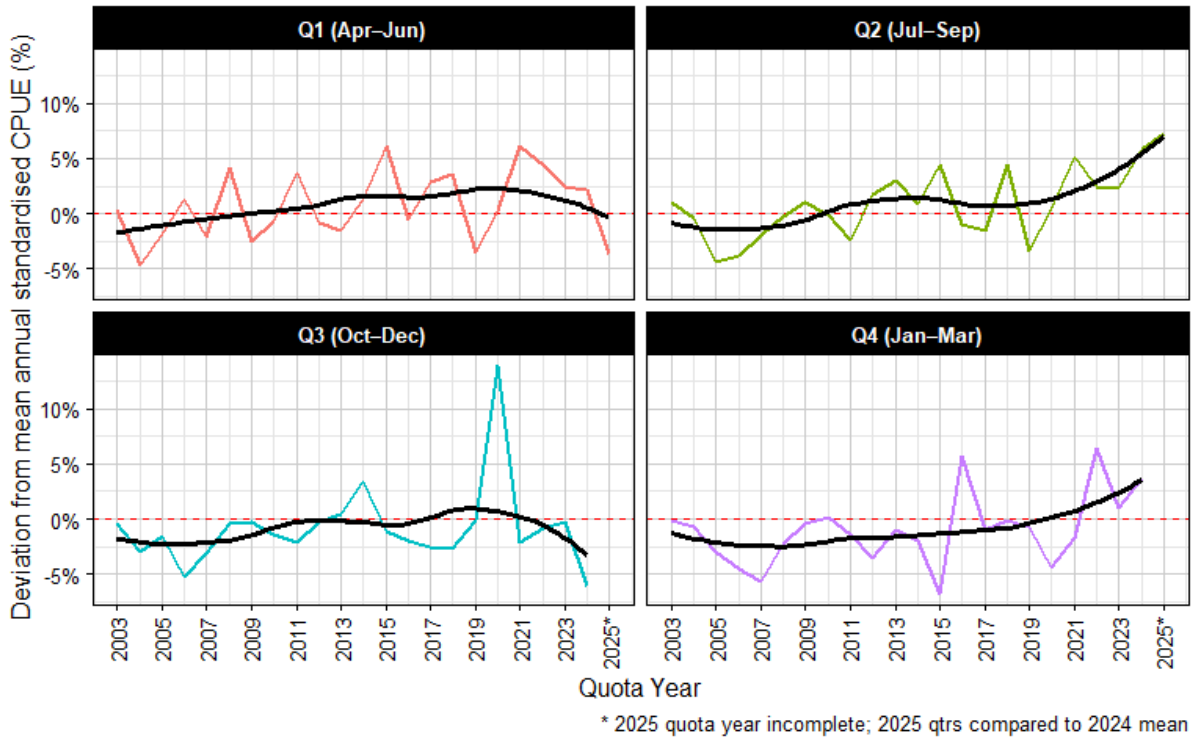

Figure 41: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Mallacoota West SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 43). Standardised mean daily catch has declined by 19% from 386 to 312 kg per day between 2022/23 and 2024/25.

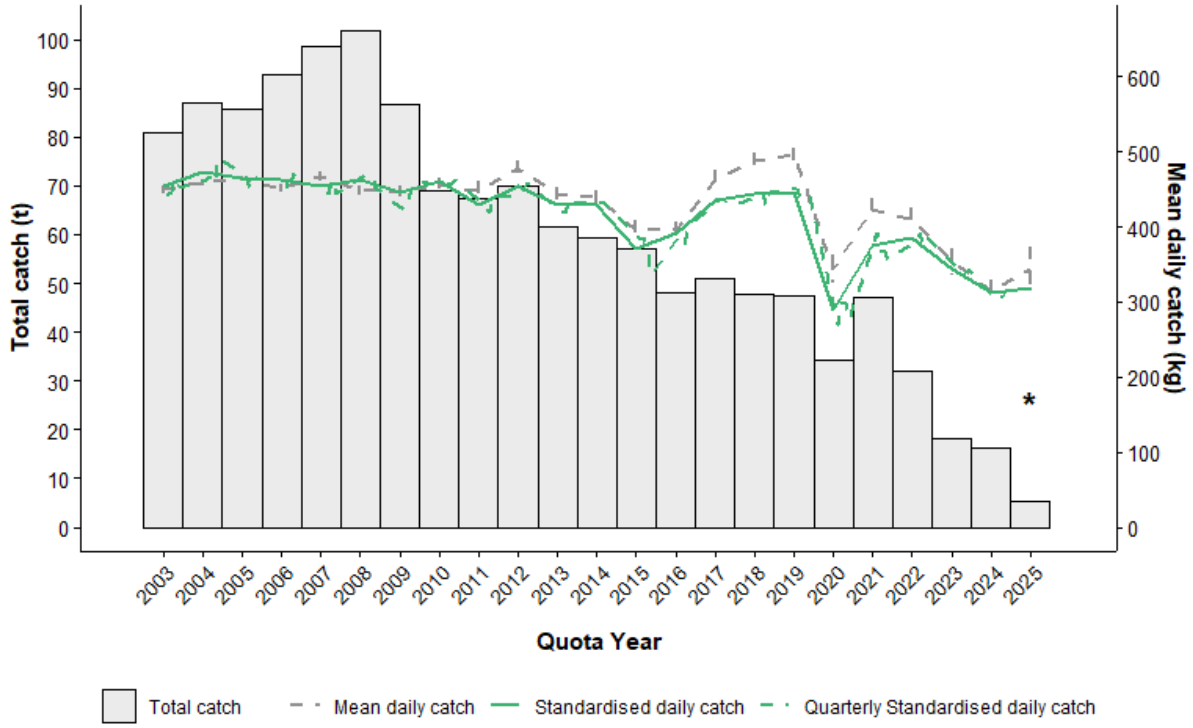

Figure 43: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Mallacoota West SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Mallacoota West SMU comprises four reefcodes (Figure 44). The catch in 2024/25 was above the limit at Petrel Point (23.04) and Island Point (23.05) and above the threshold at Whaleback (23.02). The OT has been reached at Petrel Point in 2025/26 in the first six months.

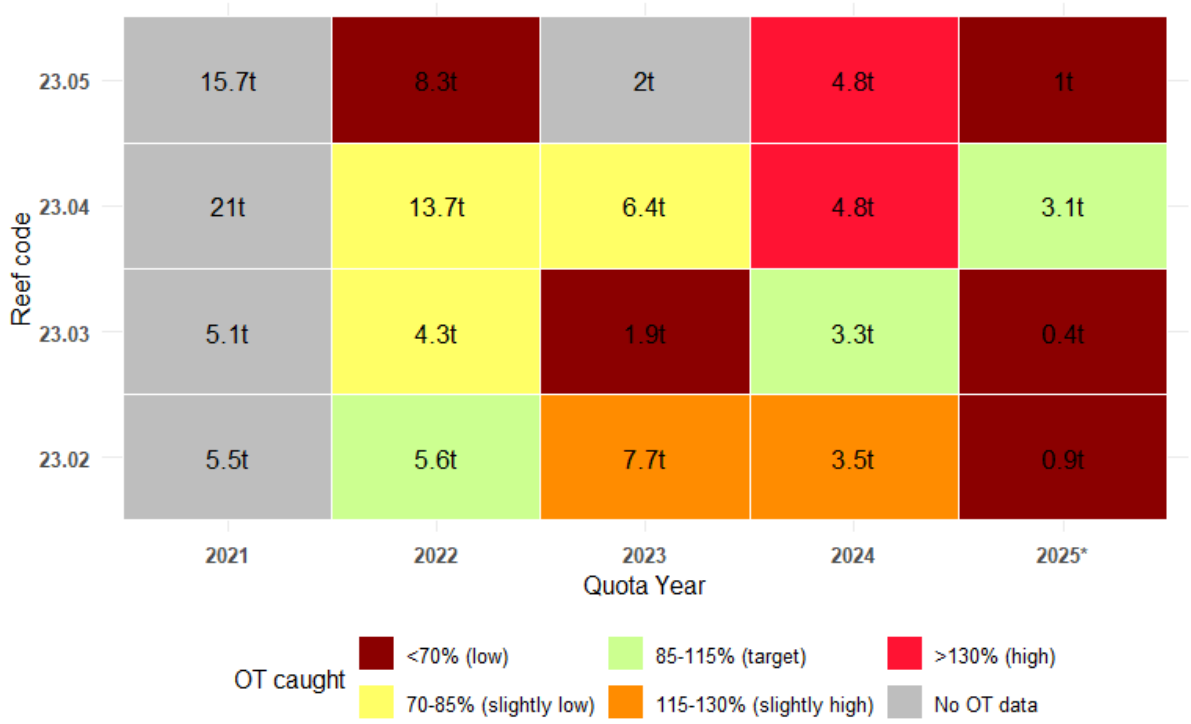

Figure 44: Total catch by reefcode for the Mallacoota West SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

The 2024/25 catch of 16.3 t was 36% above the OT of 12.0 t, with catches at Island Point and Petrel Point exceeding their upper limits. The OT was maintained at 12.0 for 2025/26, and 5.4 t has been harvested in the first six months. Standardised CPUE has stabilised following recent reductions in OT, and there are no concerning seasonal CPUE trends apparent. As for all SMUs, mean daily catch has decreased for the last three years. Harvest strategy outcomes are Stable, suggesting an OT ranging from 11.4 to 12.6 t.

The OT for the Mallacoota West SMU has been reduced from 44 t in 2022/23 to 12 t in 2024/25. The OT was exceeded by 36% in 2024/25, due to the need to shift catch from the Marlo region. It is unknown whether the higher than planned catches have affected stock recovery, particularly for Island Point, which was briefly closed to fishing due to sustainability concerns. Diver observations will be critical in determining the OT for 2024/25.

3.2.10. Mallacoota Small (Small SMU)

The Mallacoota Small SMU catch of 7.8 t in 2024/25 represented 3.7% of the total catch for the Eastern Zone (Table 11). The catch was at the OT (7.8 t). Standardised CPUE in 2024/25 was 2% higher than 2003/04, 6% lower than 2009/10 and 7% lower than 2020/21. Standardised mean daily catch in 2024/25 was 30% lower than 2003/04, 31% lower than 2009/10 and 11% higher than 2020/21.

Table 11: Summary of Catch, Optimum Targets and Performance Indicators for the Mallacoota Small SMU.

Catch					CPUE %change			Mean Daily Catch %change		
2024/25		OT (t)			long	med	short	long	med	short
(t)	(%)	23/24	24/25	25/26	03/04	09/10	20/21	03/04	09/10	20/21
7.8	3.7	15.5	7.8	5.5	2%	-6%	-7%	-30%	-31%	11%

Catches from the Mallacoota Small SMU were quite stable from 2003/04 to 2023/24 (Figure 45). In 2024/25 the OT was halved to 7.8 t following concerns regarding stock status, with the full OT caught. The OT was further reduced to 5.5 t in 2025/26, with 1.8 t harvested in the first six months.

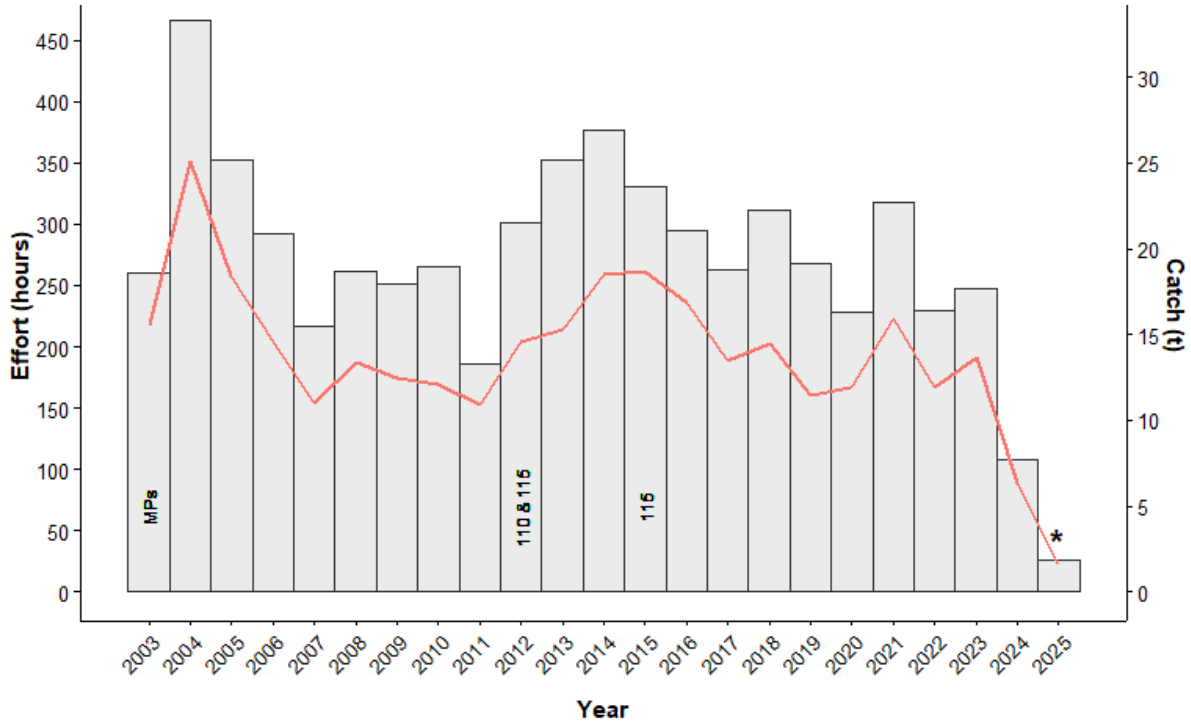

Figure 45: Total catch and mean daily catch for the Mallacoota Small SMU from 2003 to 2025, with 2025 up to 30 September only.

Standardised CPUE has remained at or just below target levels since 2003/04 (Figure 46). While CPUE did decline from 2019/20 to 2023/24 when the OT was halved, standardised CPUE remained above previous low levels and was well above the threshold level.

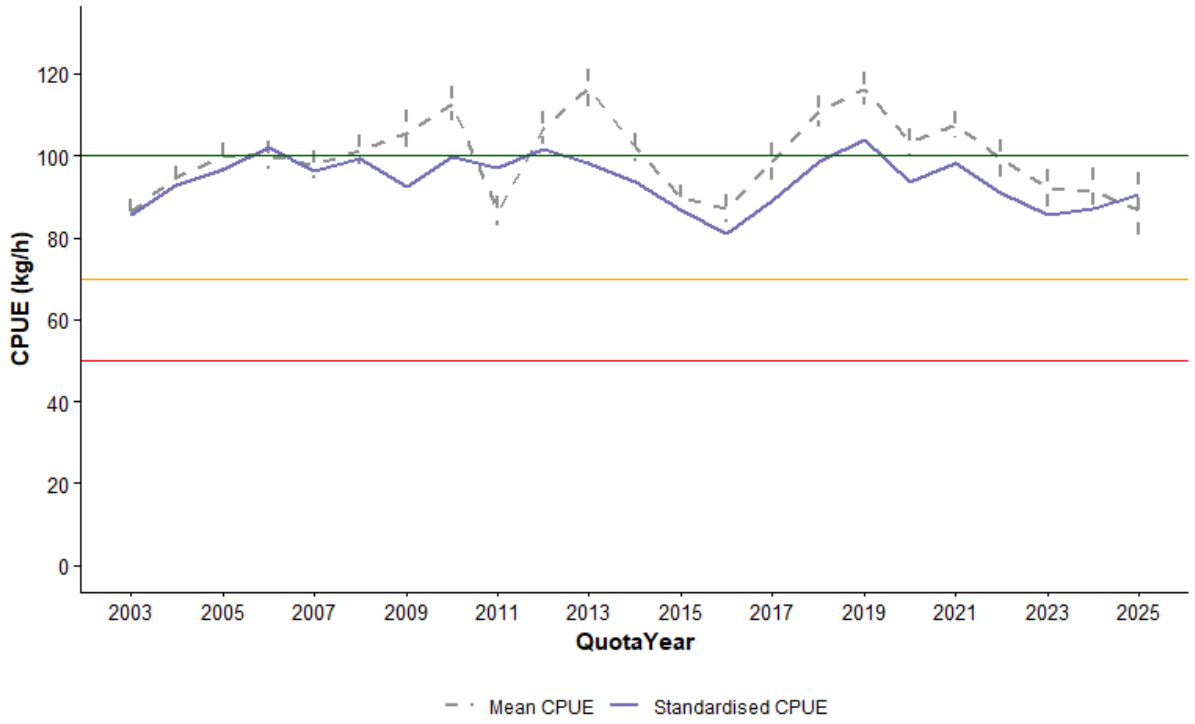

Figure 46: Mallacoota Small SMU CPUE from 2003 – 2025 with Harvest Strategy Reference Points. Nominal CPUE = grey series (+/- SE), standardised series = blue line. 2025 up to 30 September only.

Trends in the seasonal catch distribution show a clear decline over time in the catch harvested during the first quarter and an increase in catches harvested in the last quarter (Figure 48). Despite these changes, the difference between seasonal and annual CPUEs have generally been small (<3% difference).

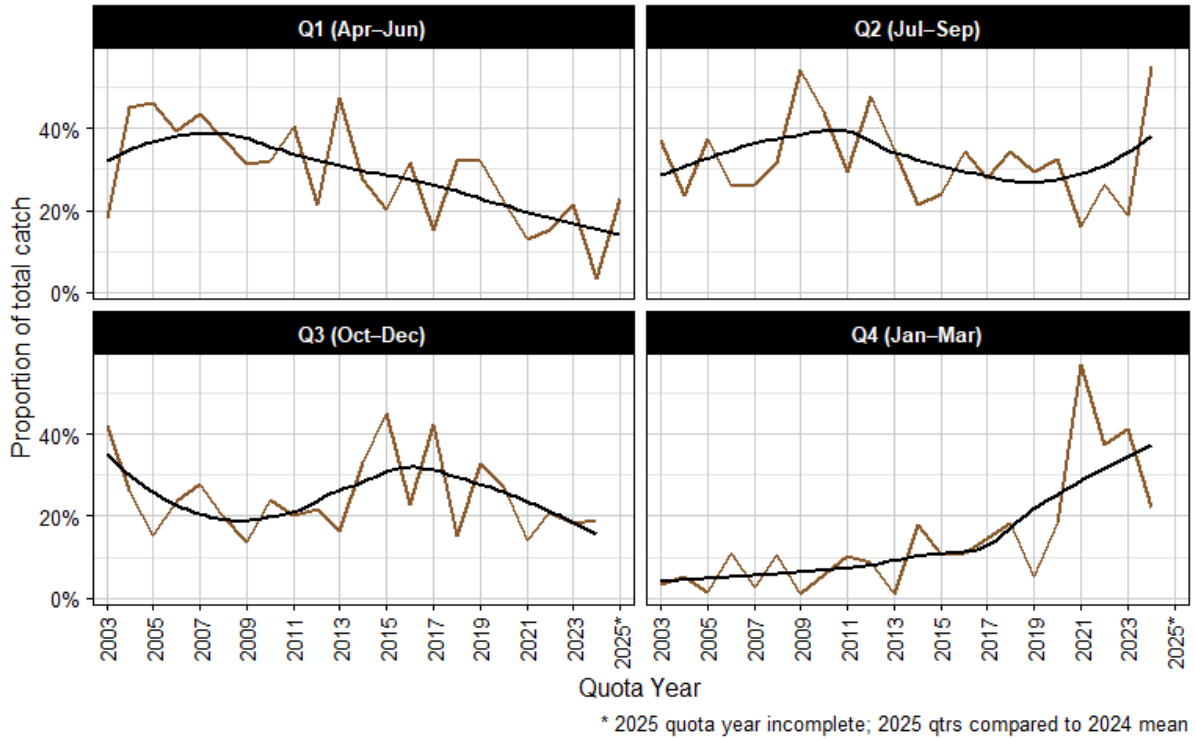

Figure 48: Seasonal distribution of total catch by quarter (Q1–Q4) from 2003–2025 for the Mallacoota Small SMU. Each panel shows the proportion of total annual catch taken in each quarter., black lines are LOESS trends over time.

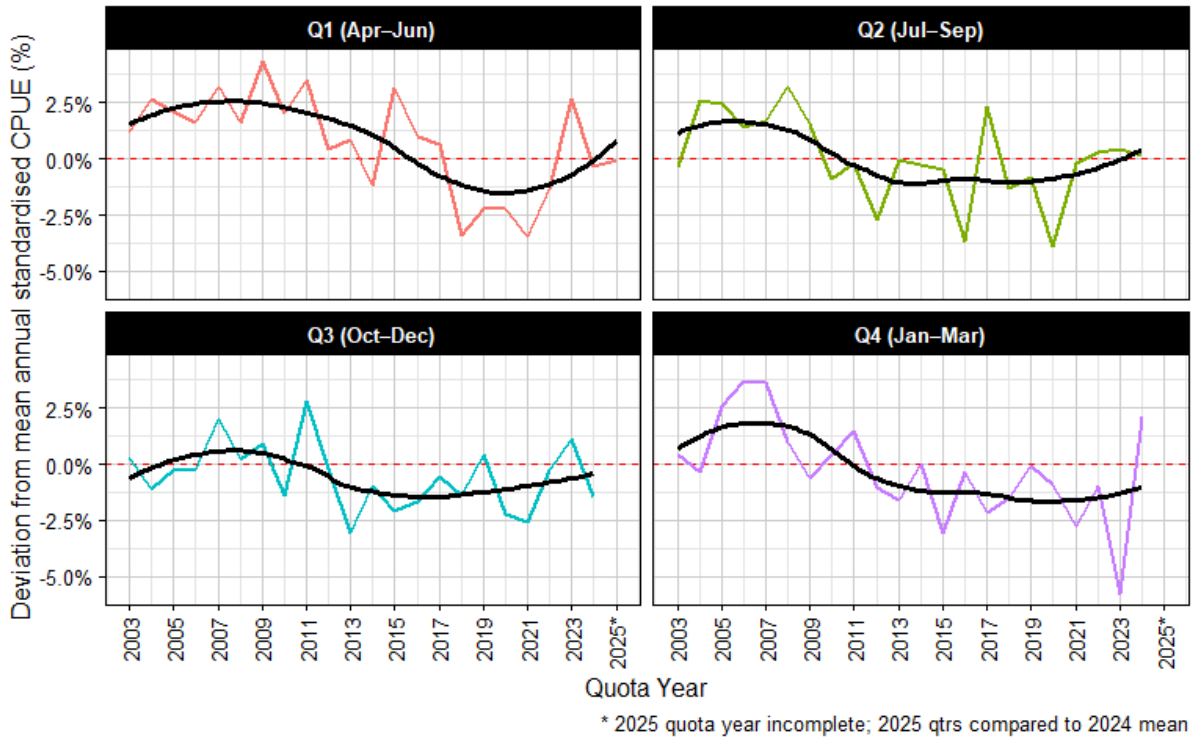

Figure 47: Seasonal variation in standardised CPUE by quarter (Q1–Q4) from 2003–2025 for the Mallacoota Small SMU. Each panel shows percentage deviation from the annual mean CPUE. Coloured lines represent quarterly estimates of standardised CPUE, and black lines show smoothed loess fits through time. The red dotted line provides a baseline (values above this were higher than average for the year, values below are lower than average for the year).

Standardised mean daily catch has generally declined since 2003 (Figure 49). Standardised mean daily catch has declined by 21% from 308 to 242 kg per day between 2022/23 and 2024/25.

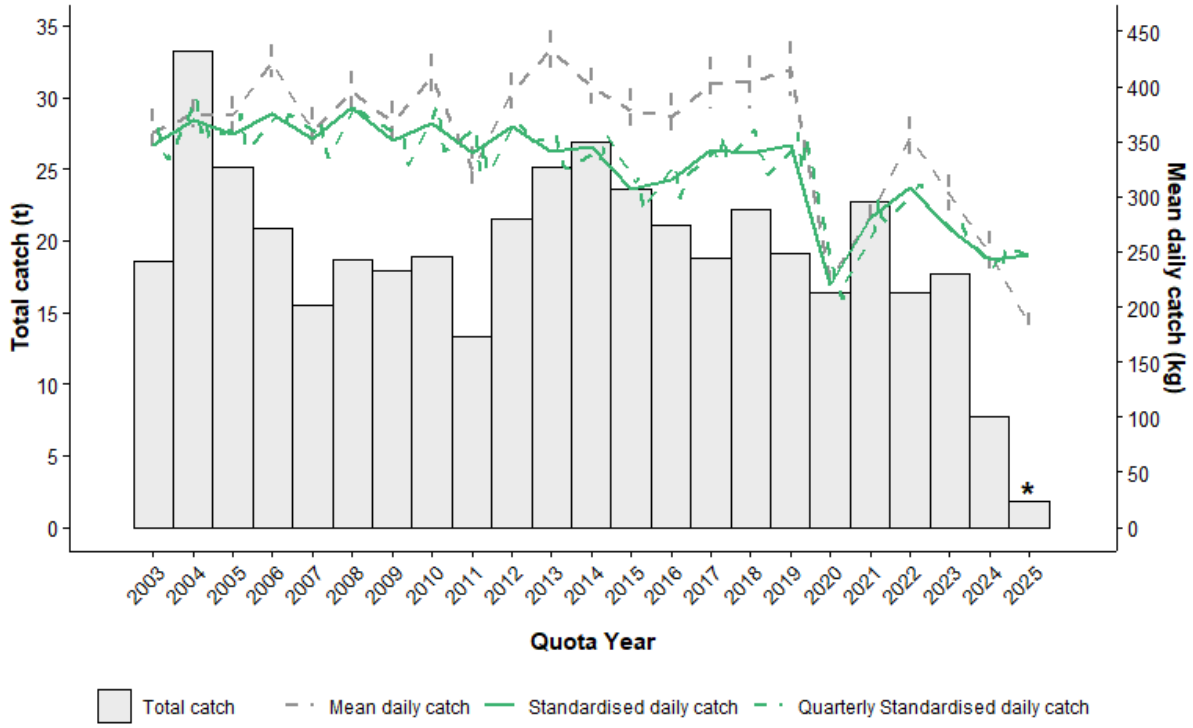

Figure 49: Total catch, nominal mean daily catch (grey line, kg per fishing day +/- SE) and standardised (green line) from 2003 to 2025 for the Mallacoota Small SMU. Data are reported in quota years, with 2025 up to 30 September only.

The Mallacoota Small SMU comprises two reefcodes, with the majority of catch harvested from Little Rame (24.09, Figure 50). The catch at Little Rame exceeded the limit in 2023/24 but was close to the OT at both reefcodes in 2024/25. Only 0.4 t has been harvested from Little Rame in the first six months of 2025/26.

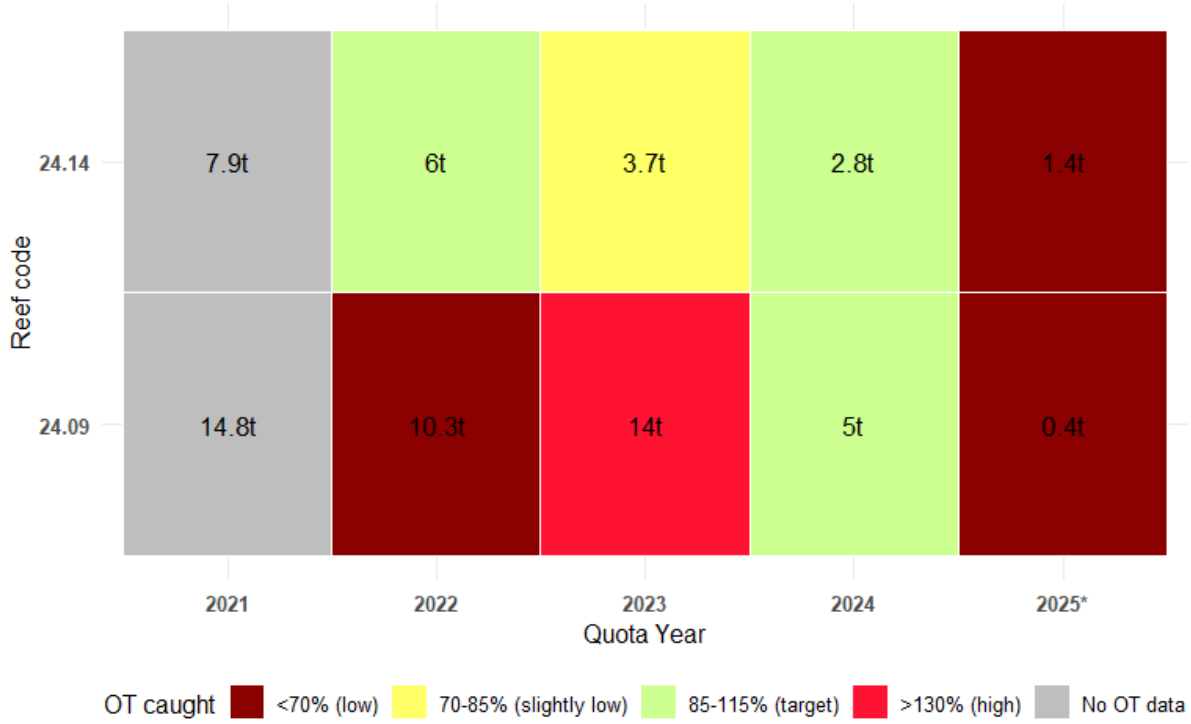

Figure 50: Total catch by reefcode for the Mallacoota Small SMU from 2021 to 2025, with 2025 up to 30 September only. Colours reflect limit (< or >30%) and threshold (< or >15%) levels with respect to OTs.

Summary

The Mallacoota Small 2024/25 catch of 7.8 t was equal to the OT. The OT was further reduced to 5.5 t for 2025/26, and 1.8 t has been harvested in the first six months. Standardised CPUE declined over recent years but stabilised in 2024/25. While the proportion of catch harvested in the last quarter of the quota year has increased in recent years, there are no concerning seasonal CPUE trends apparent. As for all SMUs, mean daily catch has decreased for the last three years. Harvest strategy outcomes are Stable, suggesting an OT ranging from 5.2 to 5.8 t.

The OT for the Mallacoota Small SMU has been reduced from 21 t to 5.5 t in three years. It is too soon to determine whether the stock has responded to these large reductions in OT. Diver observations will be important in determining whether further reductions are required.

3.3 Reefcode level blacklip assessment

The following figures 51-54, show catch, CPUE and mean daily catch for the twelve highest producing reefcodes in the Eastern Zone in 2024/25.

Five of these reefcodes are from the Airport SMU (Little Rame Lee, Shipwreck, Gabo Harbour, Quarry Beach/Betka and Tullaberga Island). These reefcodes are fished at two different minimum size limits (110 and 120 mm) throughout the year, which contributes to higher variability in nominal CPUE and a greater divergence between nominal and standardised CPUE values (Figures 51 and 52).

In the standardisation model, reefcode was included as a random effect nested within SMU, with additional random intercepts for year, quarter, and diver to account for spatial, temporal, and operator-level variation in catch rates. This structure allows for differences among reefcodes while estimating broader CPUE trends across years and regions. For the purposes of the plots shown here—designed to illustrate overall trends across the undersize and legal-size Airport reefcodes—the model-standardised CPUE values for the relevant reefcodes were averaged, and catches were summed to produce a combined series. This approach provides a simplified representation of CPUE dynamics across both size-limit categories within Airport SMU reefcodes. In future assessment reports, we intend to separate each minimum size-limit series within the Airport SMU to better illustrate differences in fishing dynamics to the reader.

In general, nominal CPUE has become more variable in recent years across most reefcodes, whereas standardised CPUE has remained relatively stable, with only minor declines apparent at some sites (e.g. Cape Conron). Nominal and standardised CPUE values align closely for most SMUs, except at the Skerries, which has historically been the lowest producing of the twelve reefcodes.

Trends in standardised mean daily catch (Figures 53 and 54) are quite consistent among the key reefcodes which all show a general decline since 2021.

The coloured bars show catches relative to the OT for each reefcode in years where OT data are available. Gabo Island has been consistently fished over its OT since 2020/21. The Skerries was fished over its OT from 2018/19 to 2020/21 before a hard cap was placed on the OT. Several other important reefcodes have had a mixed history of catches well above and well below their relevant OT.

Data from 2025/26 are only available for the first six months of the quota year. Of particular interest, the catch from Gabo Island has already greatly exceeded the OT, as has Tullaberga Island. Whereas very little catch has been harvested from Cape Conron or Pearl Point.

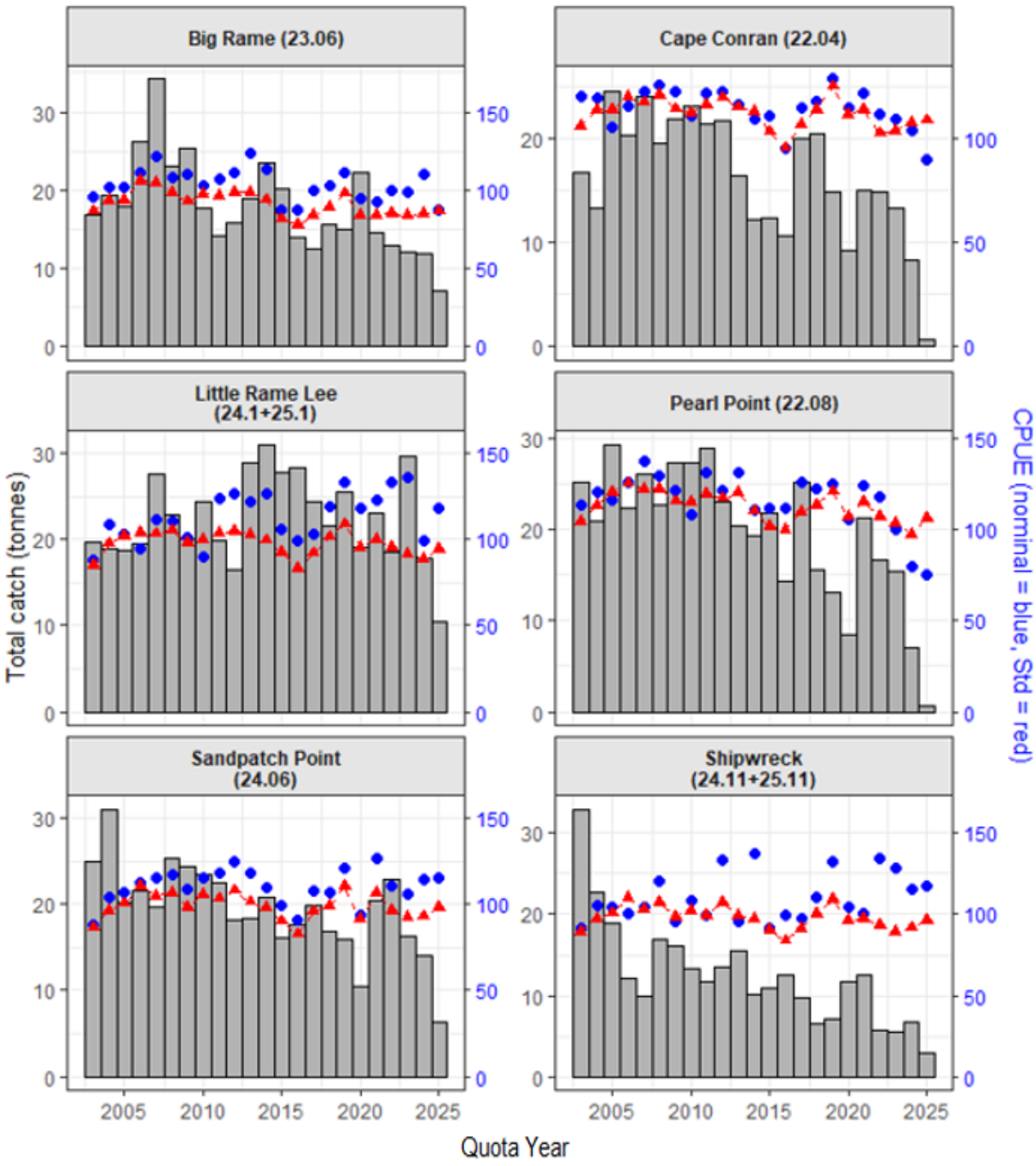

Figure 51: Total catch (bars) and CPUE (nominal - blue dots and standardised - red triangles) for six of the twelve highest producing reefcodes in the Eastern Zone.

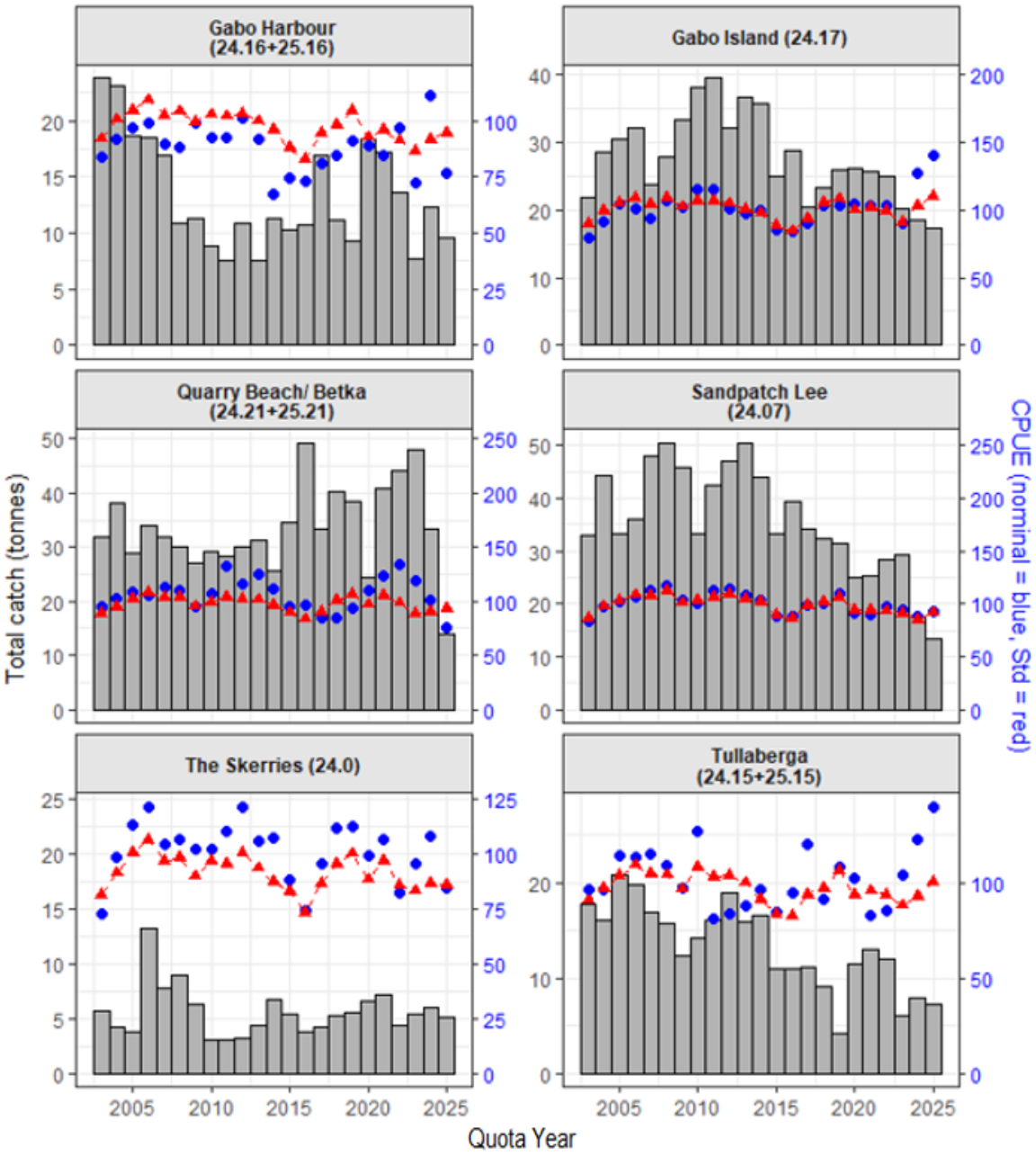

Figure 52: Total catch (bars) and CPUE (nominal - blue dots and standardised - red triangles) for six of the twelve highest producing reefcodes in the Eastern Zone.

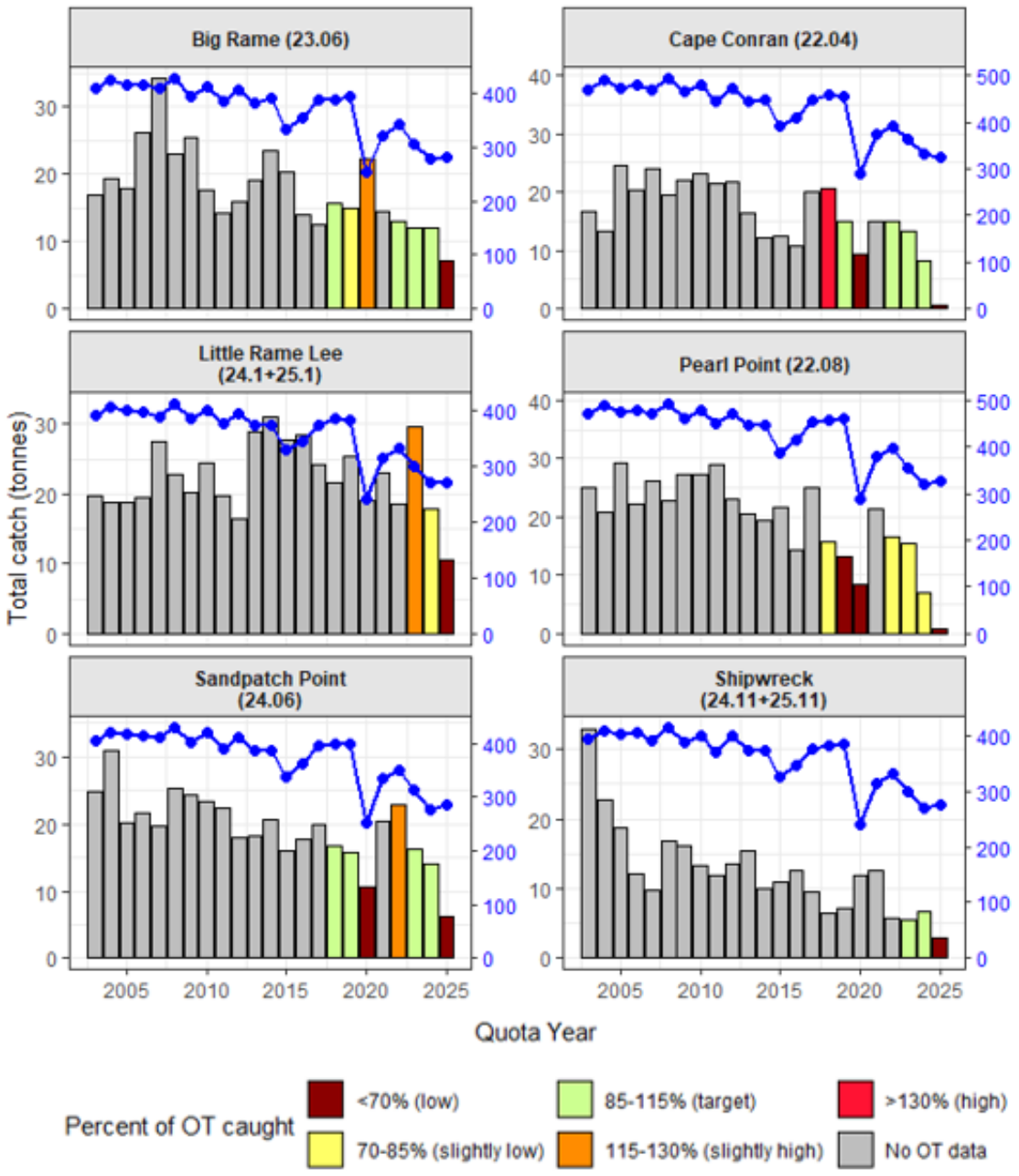

Figure 53: Total catch (bars) and mean daily catch (blue line) for six of the twelve highest producing reefcodes in the Eastern Zone. Coloured bars identify catches relative to OT, where OT data were available. For Airport SMU reefcodes, the lower coloured section of the bar is for "Airport days" harvested at 110 mm, with the upper dark coloured portion of the bar representing days harvested at 120 mm.

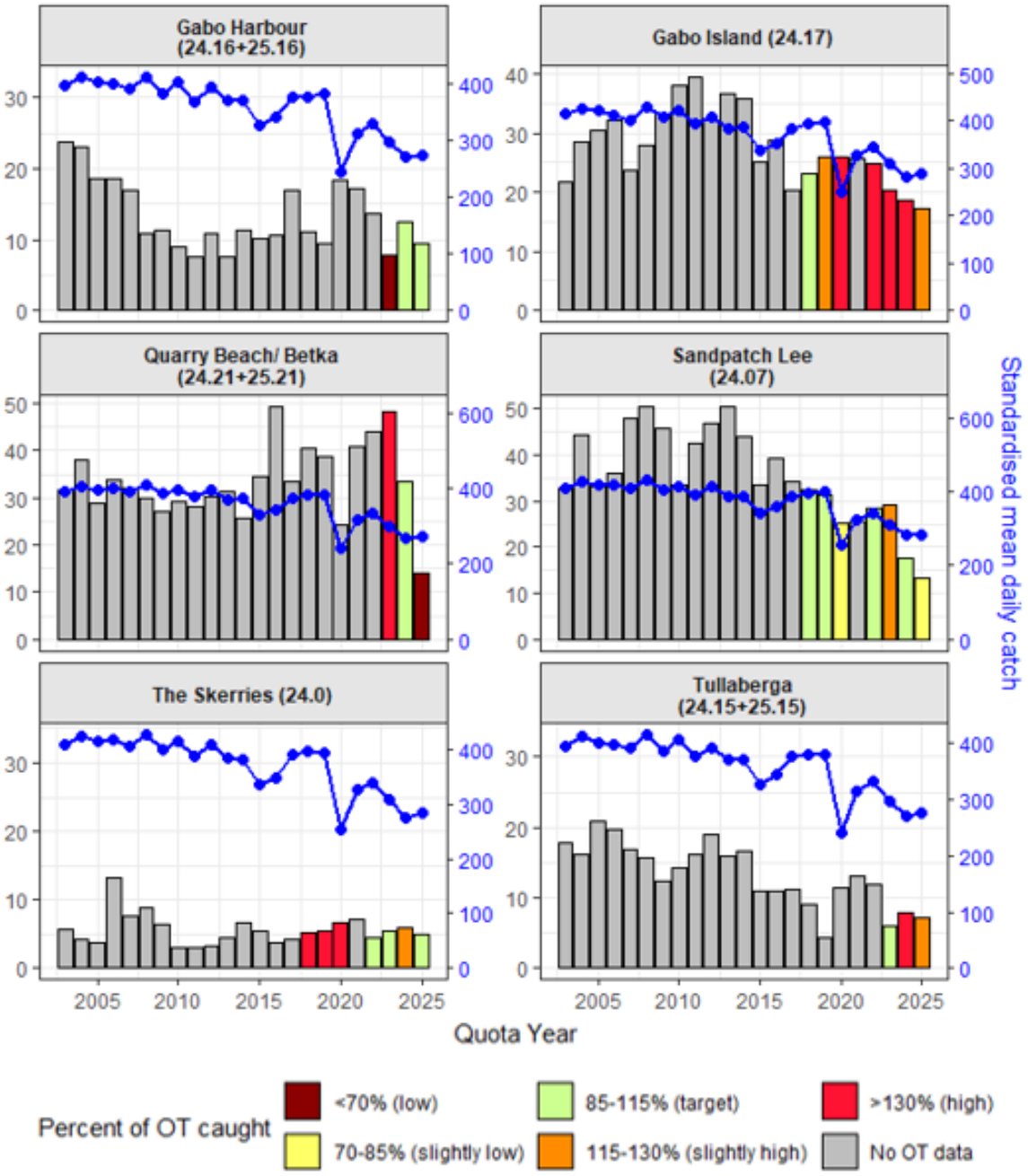

Figure 54: Total catch (bars) and mean daily catch (blue line) for six of the twelve highest producing reefcodes in the Eastern Zone. Coloured bars identify catches relative to OT, where OT data were available. For Airport SMU reefcodes, the lower coloured section of the bar is for "Airport days" harvested at 110 mm, with the upper dark coloured portion of the bar representing days harvested at 120 mm.

4. Discussion

4.1 What's new in this report?

Reduced scope of the report

This stock assessment report focuses on catch and effort data only. Historical analyses from fishery-independent surveys, commercial catch sampling and other historical analyses are reported in a separate document (Dixon and Lowe 2025). All methods used for this assessment are also documented in Dixon and Lowe (2025).

Inclusion of the data from the first six months of the current season

Previous reports have included only data from the previous full quota year. In this report, we have included data from the first six months of the current 2025/26 quota year to provide an assessment that is as close to real-time as practical.

CPUE standardisation model update

The latest CPUE standardisation model incorporates a seasonal component, with the quota year split into quarters. Examination of quarterly trends within quota years at the zone and SMU scales provides insights into how changes in the spatial and temporal fishing patterns affect CPUE.

Airport reefcodes

Previous datasets provided to MRAG did not separate "Airport day" reefcodes (i.e. 25.x when fished at 110 mm size limit) from days fished at 120 mm (i.e. 24.x). These catches are separated for five Airport reefcodes in the reefcode level assessment. The reefcodes are also treated separately in all standardisation models, which enables partitioning of higher CPUEs on days when the lower size limit is fished.

Reefcode level assessments

Examination of data for the twelve highest catch reefcodes for 2024/25 are presented. This includes CPUE standardisation model outputs, trends in catch relative to OTs and standardised mean daily catch.

4.2 Factors that may influence the stocks and stock assessment

Previous reports have provided details on factors that may affect the productivity and sustainability of the resource, and interpretation of data for the Eastern Zone stock assessment. Factors including environmental influences, sea urchin abundance and distribution, and changes in the abalone markets are documented in Dixon and Lowe (2025).

Of particular importance in recent seasons is the influence of market forces. Dixon and Lowe (2024) documented comments from Mr Charles Nelson, Operations Manager at Mallacoota Abalone Ltd (i.e. the Mallacoota Co-op), which processes most of the Eastern Zone abalone catch. Mr Nelson provided an update on market conditions in 2025.

Key changes have included lower prices for abalone product, and a shift to live markets that generally prefer larger abalone. In practice, this has resulted in two issues that may influence the interpretation of catch, effort and CPUE data. Firstly, limits on the volume of abalone that can be processed has forced the Mallacoota Co-op to constrain fishers to "daily limits". While the daily limits vary depending on a range of factors, they have likely resulted in the reduction in the mean catch per day measure analysed in this report. Secondly, targeting abalone of specific size for different markets may reduce CPUE by reducing the available biomass to harvest. The Co-op

indicated that this likely explains the reduced CPUE observed in the last quarter of the 2024/25 season.

4.3 The approach to stock assessment

This Stock Assessment Report relies on catch and effort data only. The performance framework has been modified over time and includes three scales of temporal assessment (long-, medium- and short-term) assessed at the zone and SMU scales. The key measures are 1) catch as it relates to the TACC and OTs at the SMU and reefcode scale, 2) standardised annual CPUE at the zone, SMU and reefcode scales and 3) mean daily catch at the zone, SMU and reefcode scales.

The Harvest Strategy also relies on catch and effort data only. In this report, we have used the nominal reference points in VFA (2019b). It is noted that the reference points are currently being reviewed through the Abalone Fishery Scientific Working Group (AFSWG).

A weight of evidence assessment is undertaken at the zone and SMU scales. Figures are presented at each spatial scale that examine 1) catch trends at the SMU and reefcode scale against OTs, 2) standardised CPUE trends, including within year variation and 3) standardised mean daily catch.

4.4 Trends in catch and effort data

The commercial catch in the Eastern Zone for 2024/25 was 208.6 t, which was just above the TACC (208.45 t). Catches in recent years have been the lowest observed since commercial logbook data were gathered the fishery (from January 1969). The 2024/25 catch was 57% lower than that harvested in 2003/04 and 55% lower than that harvested in 2009/10. The TACC for the current 2025/26 season was reduced to 184 t.

Standardised CPUE for 2024/25 (90.4 kg/h) was similar to 2003/04 (89.3 kg/h), 8% lower than 2009/10 (98.1 kg/h), and 4% lower than 2020/21 (94.3 kg/h). Fishing effort is around 21% of peak 1979 levels.

Standardised mean daily catch in 2024/25 was 269.3 kg/day, which was 31% lower than 2003/04 (392.4 kg/day), 30% lower than the 2009/10 (386.1 kg/day), but 11% higher than 2020/21 (242.2 kg/day). Mean daily catch has been impacted by market forces in recent years and thus recent trends should be interpreted cautiously.

New analyses in this report examine shifts in the temporal and spatial distribution of the catch and their impacts on quarterly CPUE. Of some concern, there has been an increasing trend towards greater proportions of the catch in the last quarter (January to March) in recent years, associated with low relative CPUE. These trends are clear at the zone scale and the Airport SMU, and to a lesser extent at the Marlo, Mallacoota West and Mallacoota Small SMUs.

The higher catches at the end of the quota year (particularly 2024/25) for these SMUs were exacerbated by the need to “shift” catch from the Marlo SMU late in that year. Historically, most of the quota in the Eastern Zone has been harvested prior to Christmas, allowing the resource a defacto “rest period” before the start of the next quota year. The impact of higher catches at the end of the season is unknown but given this is associated with decreasing CPUE in recent years there is some concern that this may reflect poor stock status at some reefs.

While the biological impact of increased late season catches remain uncertain, the associated decline in CPUE during the last quarter could indicate reduced stock availability. However, this interpretation is clearly impacted by changes in the abalone market, particularly targeting specific sizes of abalone from the Airport SMU late in the quota year. These trends need to be monitored closely in the immediate future.

4.5 OTs and TACC

The approach for setting the TACC for the Eastern Zone is from the bottom up, where OTs are established for each reefcode at levels thought to be sustainable. These reefcode OTs sum to SMU OTs and a zone-wide TACC. The concept provides a sound basis to establish a "sustainable" TACC, however, when a situation arises like what occurred at Marlo in 2024/25, the system does not operate as intended.

In December 2024, EZAIA requested that a substantial amount of catch be shifted away from the Marlo SMU as it was considered that harvesting the full Marlo OT may have been detrimental to the local stocks. As a result, the upper limit to the Marlo SMU OT was reduced by 6 t with subsequent increases in the OT upper limits of the Mallacoota West, Mallacoota Large and Mallacoota East SMUs to maintain the TACC. In practice, the catch at Marlo was more than 12 t below the original OT by season's end, double the amount formally established. Consequently, catches greater than the OT were harvested at Mallacoota West (36% over the OT), Mallacoota East (29%), Mallacoota Central (9%) and Mallacoota Large (4%).

While the total catch did not exceed the TACC, the practice of shifting catches risks localised depletion in some areas. While the risk may be low for a fishery considered as being harvested sustainably, the EZ has reduced the TACC in recent years with the objective of halting biomass decline and promoting recovery. To determine a sustainable TACC that limits the risk of localised depletion, precautionary OTs at the reefcode scale that closely examine recent catch history should be considered.

4.6 Eastern Zone Stock Status

The latest Status of Australian Fish Stocks (SAFS) assessment of the Victorian Eastern Zone Abalone Fishery is based on data up to and including 2021/22 (Mundy et al. 2024). The authors conclude *"Given the uncertainties around both CPUE and the fishery independent surveys, there is considerable uncertainty in the trajectory of the biomass in the Victorian Eastern Zone management unit [Dixon et al. 2022]. However, it is apparent that there have been significant declines in biomass over the last 2–3 decades, and recent landings have not been consistent with targets meaning several SMU have received a disproportionally high level of fishing pressure [Dixon et al. 2022] and are therefore likely to have experienced further declines in biomass. Coupled with the effects of increased urchin abundance, the available evidence indicates that the biomass of Blacklip Abalone in the Victorian Eastern Zone management unit is still declining, but not to the extent that the stock could be considered to have become depleted or recruitment impaired.*

On the basis of the evidence provided above, the Victoria Eastern Zone Fishery management unit is classified as a depleting stock.".

The above assessment was based on the 2021/22 Stock Assessment Report (Dixon et al 2022). Since then, further reductions in TACC have been implemented, however it is too soon to determine whether these reductions have slowed or halted the overall decline. On this basis, the classification as a depleting stock remains appropriate.

The causes for the decline in biomass observed in the Eastern Zone appear to be a combination of environmental factors and unsustainable levels of fishing mortality despite ongoing reductions in catch over time. Currently, the only tool available to the fishery to manage these impacts is through appropriate management of fishing mortality (i.e. the TACC).

The current stock assessment is based entirely on catch and effort data. CPUE is an insensitive index of abundance, and this has been clearly demonstrated in recent years with closures and large reductions in OT put in place voluntarily by industry at Mallacoota West, Marlo and Mallacoota Small despite no clear signals of decline in CPUE at these reefs. On this basis, a precautionary

approach must be taken to the interpretation of CPUE trends and the establishment of OTs and the TACC. The observations of divers remain critical to the process.

In recent years, there has been a large shift in the temporal and spatial distribution of the catch. This appears at least partly in response to changing markets, with a “race to fish” incentive to harvest from the better performing reefs that produce abalone of sizes more suited to the market. These reefcodes reach their limits earlier in the season and then get a “rest” before the new quota year begins. The issue of “shifting catch” as occurred away from the Marlo SMU last year exacerbates this problem and increases the risk of localised depletion at the reef scale. While the stocks fished earlier in the season appear to be healthy, the changes in catch distribution may also reflect or result in poor stock status at some other reefs.

This is the first report to examine seasonal trends in CPUE within the quota year. CPUE analyses showed declines in CPUE at the end of the quota year (i.e. January to March) in recent years at the Zone scale as well as for important SMUs including the Airport. Concerningly, some of these declines are associated with increasing catches during this period. These seasonal declines in CPUE may reflect higher fishing pressure for some stocks. However, market forces have also resulted in targeting specific sizes of abalone at some SMUs, which will result in reduced daily CPUE. The cumulative changes of seasonal distribution of catch and targeting of specific abalone sizes greatly complicate the interpretation of CPUE trends.

While the industry has borne significant reductions in catch in recent years, there is no clear evidence that these reductions have been sufficient to prevent further declines in biomass. The interpretation of CPUE trends has been further complicated by changes in the spatial and temporal distribution of the catch, and the targeting of specific abalone sizes that will reduce daily CPUE. In the absence of reliable information, diver observations for each SMU and reefcode are critical. Consideration should be given to further reducing OTs for some reefcodes and SMUs if warranted, particularly areas showing late-season declines in CPUE or recent high catches due to “catch shifting” late in the season.

4.7 Future Monitoring and Research

The research, assessment and management framework for the fishery is currently undergoing a period of critical review and development. Reviews of CPUE measures and the FIS program have been in progress for the last few years. The need for other reviews has been identified, including review of performance measures, Harvest strategy, and the Management Plan.

In February 2024, the ASWG was established by the VFA to utilise the experience and expertise of independent scientific personnel, fishery managers and abalone industry members to provide recommendations on how best to assess and monitor the Victorian Abalone Fishery. Industry participation in the research planning process through the ASWG is critical in improving the assessment framework, and engendering acceptance of its outcomes. The process has already led to several improvements to this and recent reports, including improvements to the CPUE standardisation model and the addition of six months of data from the current quota year.

Information from the Mallacoota Co-op indicates that some fishing days have required specific sizes ranges of abalone to be targeted to meet market demands. This will reduce daily CPUE on these days. An improved understanding of the impacts of this issue on CPUE is required.

A key source of data for future assessments will be commercial logger data that can provide spatial assessments of effort and size structure of the catch. In addition, depth and water temperature data should be gathered through a depth logger program. These data have been routinely gathered in the Western and Central Zones for several years, as well as other abalone producing States. Increasingly, commercial logger data are being formally included into the assessment process in other States, and the establishment of these programs remains an urgent priority for the Eastern Zone.

Finally, the sale of “live” abalone requires considerable cleaning of abalone shells at sea. Excessive growth on abalone shells has often been touted as the primary reason why shell measuring is problematic in the Eastern Zone. It may now be feasible to establish an on-board measuring program in the EZ, at least when abalone are being harvested for the live market.

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