

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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Table of Contents

1.	EXE	CUTIVE SUMMARY	1
2.	SUN	MMARY OF KEY OUTCOMES	2
	2.1. 2.2. 2.3. 2.4.	ANALYTICAL APPROACHES TO STOCK ASSESSMENT PERFORMANCE INDICATORS WEIGHT OF EVIDENCE ASSESSMENT ASSESSMENT OF STOCK STATUS	2 3
3.	CEN	ITRAL ZONE	4
4.	CAP	PE OTWAY	5
5.	BAC	CK BEACHES	6
6.	PHII	LLIP ISLAND	7
7.	SHII	PWRECK COAST	8
8.	PRC	DM WESTSIDE	9
9.	FLIN	NDERS	10
10	. к	(ILCUNDA	11
11	. c	APE LIPTRAP	12
12	. Р	PROM EASTSIDE	13
13	. с	LIFFY GROUP	14
14	. s	URF COAST	15
6.	REF	ERENCES	16
ΑF	PENDI	X 1: SUMMARY OF PERFORMANCE MEASURES	17
ΑF	PENDI	X 2: SUMMARY OF DRAFT HARVEST STRATEGY RESULTS	18
ΑF	PENDI	X 3: SUMMARY OF LML CHANGES	19
ΑF	PENDI	X 4: SUMMARY OF ABALONE LENGTH MEASURING IN CZ UPDATED TO DECEMBER 2024	20

1. Executive Summary

This report summarises the 2023/24 stock assessment for the Victorian Central Zone Abalone Fishery. The information that underpins this Executive Summary can be read in detail in the full Central Zone Stock Assessment Report 2025.

The report analyses fishery-dependent catch and effort data (up to 30 June 2024) and fishery independent survey (FIS) data (up to July 2023, as no FIS was completed in 2024) against a framework of performance indicators to assess the status of the blacklip abalone stock. In addition, an analysis of commercial length frequency data was provided independently by industry and is considered in the weight of evidence assessment at the Spatial Management Unit (SMU) scale. The report compares the weight of evidence outcomes against the results of the Draft Harvest Strategy.

At the zonal scale, all indicators of stock abundance are trending positively. The commercial catch in the Central Zone for 2023/24 was 222.3 t, which was 99.7% of the 222.9 t Total Allowable Commercial Catch (TACC). Compared to 2020/21, Catch per unit effort (CPUE) has increased by 12%, mean daily catch has increased by 7% and average length from the commercial catch has increased substantially at 8 of the 10 SMUs for which data are available (representing 92% of the 2023/24 total catch). While the Top 15 FIS sites were not surveyed in 2024 (as per the FIS review plan), recruit and pre-recruit abundance had increased by 16% and 37% respectively, in 2023. Several of these positive trends extend beyond the last four years. While uncertainties in each data source remain, these combined positive measures provide much greater confidence in the weight of evidence assessment.

Catches at the SMU scale were close to their respective Optimal Targets (OTs) at all large and medium SMUs. While stability in catches at the SMU scale is a positive outcome for the fishery, there is some concern in the current assessment regarding changes in the distribution of the catch at the reefcode scale. Reefcode catches generally show a high degree of variation on an annual basis, however the magnitude of changes in 2023/24 was unusual, particularly for Phillip Island and Cape Liptrap SMUs. An improved understanding of the reasons for these distributional shifts in catch is required.

Outcomes from the Draft Harvest Strategy generally aligned with the weight of evidence assessment. While increases in OT are suggested for several SMUs, it is recommended that any increases in OT be modest to assist with continuation of stock recovery. A review of the Reference Points in the Draft Harvest Strategy is required.

It is unequivocal that the spatial extent of the fishery has contracted substantially in the last two decades, and the fishery now concentrates heavily on shallow water, high catch-rate reefs. Prior to the 2024 stock assessment, there was little confidence in the assessment of stock status on these shallow water reefs and thus precautionary management advice was provided. This report provides the strongest evidence to date that biomass is likely recovering. However, it should be noted that stocks likely remain well below the conceptual target of biomass at Maximum Sustainable Yield (MSY). It is recommended that the continuation of a precautionary approach be applied by maintaining the TACC at levels that will continue to promote stock recovery under the assumption that recruitment to the stock remains consistent.

The 2024/25 quota period has a TACC of 225.1 t. Although data for the current 2024/25 quota year are not presented in this report, it is understood that the total catch for 2024/25 is likely to be well below the TACC due to unfavourable market conditions. While these circumstances are unfortunate for the fishery, low catches will be positive for the stock. However, it should be acknowledged that targeted fishing behaviours may affect the assessment of CPUE performance measures (i.e. kg/h and kg/day) next year.

2. Summary of key outcomes

This Summary Version of the Draft Stock Assessment Report for the central Zone Abalone Fishery aims to document the key results for the Zone and SMU scales, and the key conclusions from the assessment. Catch, effort and fishery independent survey (FIS) abundance data are presented. Additional data and analyses are provided in the full stock assessment report, along with rationales for key conclusions.

Performance Indicators are presented in Appendix 1. Draft Harvest Strategy results are presented in Appendix 2. A summary of LML changes in presented in Appendix 3. Commercial length frequency data are provided in Appendix 4, with the full report on commercial length frequency data provided as an Appendix in the Stock Assessment Report.

2.1. Analytical approaches to stock assessment

Three main analytical approaches are employed when evaluating stock status to guide TACC decision-making: (i) assessment based on Performance Indicators, (ii) an overall weight of evidence assessment, and (iii) outcomes from the Draft Harvest Strategy. As reported in previous Stock Assessment Reports and associated review documents, there are substantial uncertainties associated with two of the primary sources of data that underpin the assessment of stock status. CPUE data are positively biased due to hyperstability, and therefore present an overly optimistic assessment of stock status. FIS data are negatively biased because FIS site locations are not representative of the entire stock, and thus they represent an overly pessimistic assessment of stock status.

To address these issues, the CPUE standardisation model has been recently revised through the Abalone Scientific Working Group (ASWG) and this report provides further advancements in the modelling approach. The revised model continues to use a mixed-model GLM but with fewer terms and uses only data from 2003 onward which are considered more reliable. While this appears to have improved the outputs presented, many of the uncertainties associated with CPUE data and its interpretation remain. The FIS program has also been revised, with a focus on improving the understanding of abalone abundance on shallow reefs that better represent the current fishery footprint. The program is only in its early stages, and thus this report relies only on historic FIS data.

This full Stock Assessment Report provides an updated analysis and discussion of commercial length frequency data gathered by industry. While the number of shells measured in the last two years has been lower than previous years, it provides critical information to supplement the weight of evidence approach. The ASWG will continue to work on approaches to further integrate these data formally into the assessment process.

2.2. Performance Indicators

Tables of Performance Indicator outcomes at the Zone and SMU spatial scales are provided in Appendix 1. The Performance Indicators for CPUE were assessed at (i) the long-term (since 2003/04), (ii) the short-term (since 2009/10) and (iii) over the last 4 years. For the FIS data, the Top 15 sites were surveyed in 2023.

The catch in 2023/24 totalled 222.3 t, which was 99.7% of the TACC (222.9 t, Table 2). Catch has declined by 66% in the long term (since 2003/04), 48% in the short-term (since 2009/10) and 2% in the last four years. Standardised CPUE in 2023/24 was 22% lower than the long-term and 8% lower than the short-term, but 12% higher than 4 years ago. Standardised mean daily catch showed similar trends to CPUE, being 19% lower in the long-term and 7% lower in the short-term, and 7% higher than 4 years ago.

For the FIS data from 2022/23 were assessed. Recruit abundance at the Top 15 sites has declined by 26% in the long-term, but was 13% higher than the short-term and 16% higher than 4 years ago. Prerecruit abundance has declined by 6% in the long-term but was 10% higher than the short-term and 37% higher than 4 years ago.

In 2023/24, catches were close to the OT at all SMUs (Table 3). While Prom East and Cliffy Group SMUs were more than 15% below their respective OTs, the combined "under catch" was only 2.4 t.

At the SMU scale, long-term declines in CPUE (ranging from 8-27%) occurred at all SMUs. The short-term comparisons from 2009/10 show stable or declining trends that are less severe than the long term. In the last four years, trends in CPUE have been more positive, showing stable or increasing trends at all SMUs (ranging from a 1% decline to a 28% increase).

2.3. Weight of evidence assessment

All available data for the weight of evidence in the Stock Assessment Report look optimistic for the fishery. At the zonal scale all four measures of CPUE (kg/h), mean daily catch (kg/day), FIS abundance (recruit and pre-recruit) and average length from the commercial catch are currently trending positively. Compared to 2020/21, CPUE has increased by 12%, mean daily catch has increased by 7%, recruit abundance at Top 15 sites has increased by 16% and pre-recruit abundance by 37%, and average length from the commercial catch has increased substantially at 8 of the 10 SMUs from which data are available (representing 92% of the 2023/24 total catch). For several of these indicators, the increases have occurred over longer time scales than just the last four years.

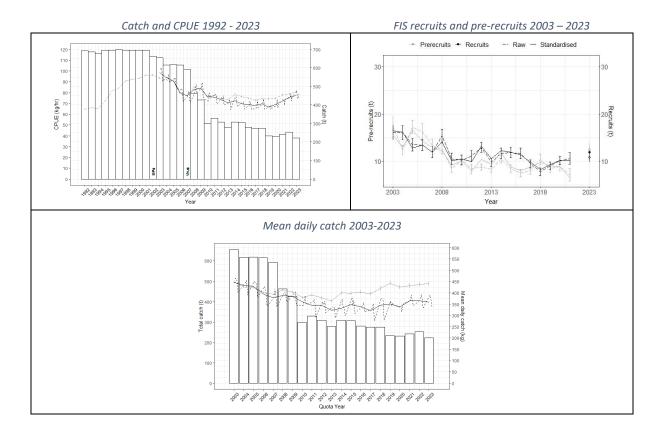
2.4. Assessment of stock status

All available indicators of stock status are positive for the Central Zone. While considerable uncertainties remain within each component of the weight of evidence approach, the positive direction of all indicators combined provides a stronger basis for assessment of stock status than for previous reports.

It is unequivocal that the spatial extent of the fishery has contracted substantially in the last two decades, and now concentrates heavily on shallow water reefs. In previous stock assessment reports, uncertainty in the status of these shallow water stocks has required precautionary advice to be provided. This report provides the strongest evidence to date that biomass is likely recovering. However, it should be noted that stocks likely remain well below the conceptual target of biomass at Maximum Sustainable Yield (MSY). It is recommended that the continuation of a precautionary approach be applied by maintaining the TACC at levels that will continue to promote stock recovery under the assumption that recruitment to the stock remains consistent.

The 2024/25 quota period has a TACC of 225.1 t. Although data for the current 2024/25 quota year are not presented in this report, it is understood that the total catch for 2024/25 is likely to be well below the TACC due to unfavourable market conditions. While these circumstances are unfortunate for the fishery, it is expected that low catches will be positive for the stock. However, it should be acknowledged that targeted fishing behaviours may affect the assessment of CPUE performance measures (i.e. kg/h and kg/day) next year.

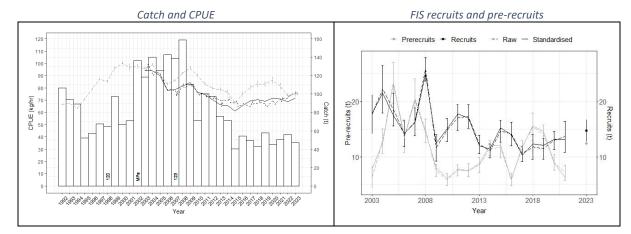
3. Central Zone



- The commercial catch for 2023/24 was 222.3 t, which was 99.7% of the TACC. Catches have been reduced substantially over time, with the 2023/24 catch being only 34% of that harvested in 2003/04. Annual catches have stabilised over the last five years around 220 250 t.
- Standardised CPUE declined from 2003 to 2015 and has increased thereafter.
- Recruit abundance at the Top 15 sites declined substantially from 2003 to 2009, then was relatively stable between 2009 and 2016 before declining to historic low levels in 2018. Recruit abundance has increased thereafter and in 2023 was around the 2009 levels.
- Pre-recruit abundance at the Top 15 sites declined consistently from 2003 to 2008, was
 relatively stable from 2008 to 2020 before declining to a historic low in 2021. Surveys were not
 conducted in 2022 but in 2023 pre-recruit abundance increased by 87% in 2023 and was the
 highest observed since 2008.
- Nominal mean daily catch has ranged from 350 to 450 kg/day over the last two decades.
 Standardised trends depart substantially from the nominal means, with a general decline from 2003 to 2013, stable trends to 2020 and an increase in the last four years.

4. Cape Otway

		Catc	h		Standardised CPUE Performance Indicators (%change)			
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Short-term	Last 4 years	
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
47.0	47.0 21.1 57.9* 49.0* 49		-24	-15	0			
	LML	2023/24	= 125 mm		Mean daily catch 2023/24 (nominal) = 445 kg			



Reefcode catches for the Cape Otway SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

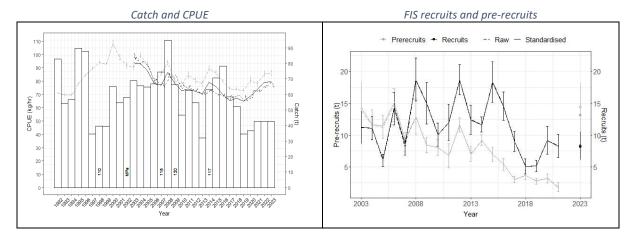
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
6.02	8325	15648	20397	11511	11674	13511	10056
6.01	9500	10670	9959	12441	12348	10984	8513
7.08	10599	14351	1586	6111	11993	8928	9895
6.03	6742	9951	10111	9765	4978	8309	4573
7.07	4828	5070	2851	8642	8501	5979	5689
7.05	1891	437	282	1119	1347	1015	2922
7.06	1000	0	0	331	2094	685	1852
7.03	286	682	278	274	1733	651	1440
7.04	187	828	0	88	1103	441	1548
8.01	0	0	0	0	0	0	556
Totals	43358	57638	45464	50283	55771	50503	47043

- A peak catch of 159 t was harvested from the Cape Otway SMU during 2008. Catches have generally declined thereafter, reaching a low of 40 t in 2015. Catch in 2023/24 was 47.0 t.
- The size limit was increased from 123 to 125 mm on 1 April 2021.
- CPUE declined from 2003 to 2015 and has increased thereafter.
- Mean size of the commercial catch has steadily increased for the last 7 years.
- Catches from 6.03 was the lowest of the last five years. Higher catches have been harvested from 7.03, 7.04, 7.05 and 7.06 the last 2 years.
- Recruit abundance from four Top 15 FIS sites has fluctuated without clear trend for the last 15
 years. Pre-recruit abundance is highly variable but more than doubled between 2021 and 2023.
- The Draft Harvest Strategy result was Stable, suggesting an OT of 46.6 to 51.5 t.

Following reduced catches in 2015, standardised CPUE increased until 2018 and has been stable thereafter. Mean daily catch has also been stable since 2018. At the 4 Top 15 FIS sites, recruit abundance is stable and pre-recruit abundance was high in 2023 in historical terms. No FIS was done in 2024. The standardised average length of the commercial catch has steadily increased for the last 7 years. The Draft Harvest Strategy suggests a Stable OT which is supported by the weight of evidence for the Cape Otway SMU.

5. Back Beaches

		Catc	h		Standardised CPUE Performance Indicators (% change)			
2023	2023/24 OT + carryover* (t)		Long-term	Short-term	Last 4 years			
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
42.5	42.5 16.8 40 40 41.5		-15	1	15			
	LML	2023/24	= 119 mm		Mean daily catch 2023/24 (nominal) = 483 kg			



Reefcode catches for the Back Beaches SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

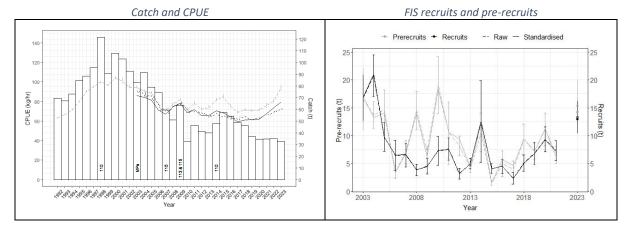
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
12.03	26917	12121	14689	20039	19028	18559	18666
12.02	12626	10938	10004	11365	10811	11149	13824
12.05	6262	8218	5494	4993	6883	6370	5522
12.04	6468	3277	6293	6267	5798	5621	4076
12.01	0	0	0	0	0	0	417
Totals	52273	34554	36480	42665	42520	41698	42505

- Catches have been highly variable at the Back Beaches SMU, declining from around 80 t in 2016 to around 36 t in 2019 and 2020. Catches have been stable around 42 t in the last three years.
- CPUE has increased and is now around 2008 levels. Mean catch per day has also increased.
- The distribution of catches by reefcode is stable.
- The mean length of the commercial catch has increased substantially since 2019/20.
- At the three Top 15 FIS sites, recruit abundance remains low in a historical context but is almost twice as high as it was in 2017 and 2018. The abundance of pre-recruits increased dramatically in 2023 to be the equal highest observed in 2006.
- The Draft Harvest Strategy result was Increasing, suggesting an OT of 41.5 to 51.9 t.

Following the lower catches harvested since 2019, the weight of evidence assessment for the Back Beaches SMU is now overwhelmingly positive. Both CPUE and mean daily catch have increased, and the distribution of catches among reefcodes is stable. The average length of abalone in the commercial catch has increased substantially, implying that fewer individual abalone are harvested annually for a given TACC. FIS recruit abundance is low but stable however pre-recruit abundance increased dramatically in 2023 and was at equal record levels. The Draft Harvest Strategy suggests another increase in OT can be considered, however if this is recommended then any increase should again be modest to ensure continued recovery of the stock.

6. Phillip Island

		Catc	h		Standardised CPUE Performance Indicators (% change)			
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Short-term	Last 4 years	
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
32.7	32.7 14.7 34.0 32.3 34.0		-8	2	28			
	LML	2023/24	= 112 mm		Mean daily catch 2023/24 (nominal) = 455 kg			



Reefcode catches for the Phillip Island SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

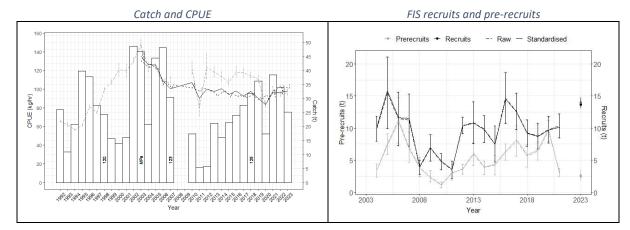
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
14.03	13533	9327	10817	12412	8752	10968	3830
14.02	11969	10474	8841	11001	9585	10374	15915
14.04	7009	4584	5567	3777	6310	5449	4123
14.09	6187	4458	4042	3218	3476	4276	4261
14.11	3591	2819	1200	294	2146	2010	1422
14.06	1192	2351	1596	1369	1301	1562	468
14.07	833	392	542	291	1831	778	303
14.05	332	1318	280	1157	680	753	720
14.10	496	767	419	0	700	476	0
14.01	232	73	810	558	259	386	1445
14.08	672	0	90	489	0	250	166
Totals	46047	36563	34203	34567	35039	37284	32653

- Following a peak catch of 121 t in 1998, catches declined to 26 t in 2010. Catches ranged from 33 to 51 t between 2011 and 2018 but have stabilised in the last 5 years under a catch cap.
- During the last few years of stable catches, CPUE, mean daily catch and average length of the commercial catch have all increased.
- The distribution of catches among reefcodes shifted considerably in 2023/24.
- Recruit abundance at the two Top 15 FIS sites had declined substantially between 2003 and 2017 but has increased thereafter, with 2023 levels amongst the highest recorded. Similar trends have occurred for pre-recruit abundance, with 2023 levels close to the historic high.
- The Draft Harvest Strategy result was Increasing, suggesting an OT of 34.0 t up to 42.5 t.

The Phillip Island SMU appears to have responded positively to the lower, stable catches maintained in recent years, with all available stock indicators appearing positive. The primary concern relates to the distribution of catches among reefcodes, with the 2023/24 catch from 14.03 being less than half of the 5-year average and the catch from 14.02 the highest from the last 6 years. An improved understanding of the reasons for this shift is required. While the Draft Harvest Strategy outcomes suggest another increase in OT can be considered, potential concerns regarding reefcode catches should be addressed first. As for the Back Beaches SMU, any potential increase in OT should be modest at best to promote further stock recovery.

7. Shipwreck Coast

		Catc	h		Standardised CPUE Performance Indicators (% change)			
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Short-term	Last 4 years	
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
25.1	25.1 11.3 34.3* 29.2* 29.2		-17	N/A	17			
	LML	2023/24	= 130 mm		Mean daily	Mean daily catch 2023/24 (nominal) = 576 kg		



Reefcode catches for the Shipwreck Coast SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

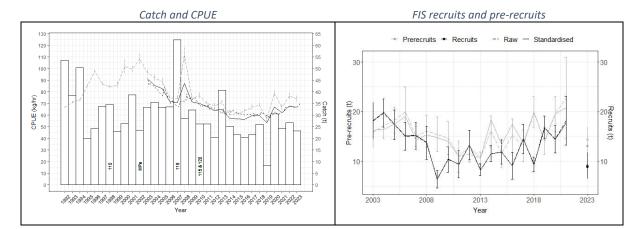
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
4.02	16947	15863	8064	11812	13161	13169	12321
4.01	5901	6074	3730	12363	7362	7086	2785
5.02	2883	5682	4010	7766	3959	4860	4410
5.03	4446	5363	1047	5740	4151	4150	3286
5.01	1458	3283	535	768	5311	2271	2327
Totals	31635	36265	17386	38448	33944	31536	25130

- The Shipwreck Coast SMU was severely affected by the abalone virus in 2007 (VFA 2018) and there was no fishing in 2008 and 2009. Catches have recovered substantially since with the 2023/24 catch (25.1 t) around the long-term average (24 t). Catches at the reefcode scale tend to be variable.
- The LML was increased from 125 to 130 mm on 1 April 2021.
- CPUE is stable and average size of commercial catch has increased despite the increase in LML.
- Following the virus outbreak, both recruit and pre-recruit abundance increased significantly up to 2016 and have fluctuated thereafter.
- The Draft Harvest Strategy result was Stable, suggesting an OT of 27.7 to 30.7 t.

While it is noted that the current OT is around 3 t above the long-term historic average catch, given its history of being virus infected it remains difficult to determine whether these catches are sustainable in the long-term. On a positive note, increases in mean length of the commercial catch indicate that fewer individual abalone are being harvested for a given OT. In addition, all indicators for the stock have remained stable in recent years despite a large increase in the LML in 2020. The Draft Harvest Strategy suggests a stable catch and it seems appropriate to maintain this strategy for 2025/26.

8. Prom Westside

		Catc	h		Standardised CPUE Performance Indicators (% change)			
2023	2023/24 OT + carryover* (t)		Long-term	Short-term	Last 4 years			
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
23.1	23.1 10.4 21.0 21.0 21.0		-27	-7	-1			
	LML 20	23/24 = 1	15 / 120 m	ım	Mean daily catch 2023/24 (nominal) = 476 kg			



Reefcode catches for the Prom Westside SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

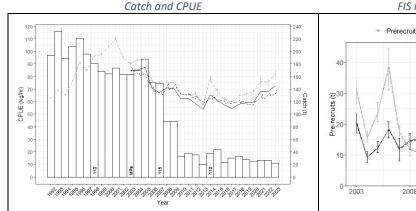
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
17.02	7700	1808	13950	7049	8269	7755	6884
17.10	5885	2542	4462	7683	6109	5336	6978
17.03	2557	1436	2531	3328	2661	2503	2443
17.04	3035	413	3856	3359	1645	2462	1881
17.05	3257	142	2429	570	4551	2190	2194
17.11	1414	220	1102	793	1643	1034	914
17.01	810	973	636	901	685	801	1325
17.12	846	387	678	114	735	552	456
17.13	450	224	378	49	151	250	30
16.07	0	0	405	368	207	196	0
Totals	25954	8146	30426	24216	26655	23079	23105

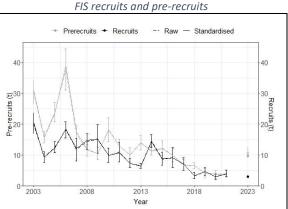
- A peak catch of 62 t was harvested from the Prom West SMU in 2007, with catches generally ranging from 20-40 t per quota year in most other years except for the low catch in 2019.
- Standardised CPUE declined from 2003 to 2019 but has increased thereafter.
- The average length of the commercial catch has increased over time, but interpretation is complicated by multiple size limits in this SMU.
- The abundance of recruit and pre-recruit sized abalone at the two Top 15 FIS sites had shown increasing trends since around 2010, however both measures declined substantially in 2023.
- The Draft Harvest Strategy result was Stable, suggesting an OT of 20.0 and 22.1 t.

Acknowledging that there was a low catch in 2019, the four subsequent years catches have all been above the OT. Nevertheless, CPUE and mean daily catch indicators remain positive, and the distribution of catches was stable across all SMUs. Whilst recruit and pre-recruit abundance at Top 15 FIS sites declined substantially in 2023, this was from limited sites and no FIS was done in 2024. Given catches at the Prom Westside SMU have been historically variable, stabilising catches at the current OT may improve the stock indicators as it has for other important SMUs. On this basis, maintaining the Draft Harvest Strategy outcome of "Stable" appears to be an appropriate strategy.

9. Flinders

		Catc	h		Standardised CPUE Performance Indicators (% change)			
2023	3/24	OT + carryover* (t)		Long-term	Short-term	Last 4 years		
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
22.2	22.2 10.0 24.2 20.5 20.5		-14	3	22			
	LML	2023/24	= 114 mm		Mean daily catch 2023/24 (nominal) = 388 kg			





Reefcode catches for the Flinders SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

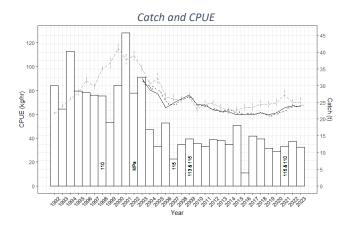
Reefcod	le 2	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
12.0	06	14953	10120	9604	11554	11970	11640	9372
13.0	01	5518	4233	4343	3676	3541	4262	5433
13.0)2	3544	3920	3341	3052	2529	3277	2548
13.0)4	2338	3633	2798	4181	3129	3216	605
13.0	03	4247	3203	1717	1211	1655	2406	2019
13.0	05	207	2056	1886	2382	3049	1916	1647
13.0	06	554	455	1463	233	205	582	384
13.0	07	988	338	0	0	651	395	175
Tota	ıls	32349	27957	25151	26288	26729	27695	22182

- The Flinders SMU has been the most important historically, with an average catch of 125 t (since 1992) and a peak catch of 231 t (1993). A catch of 88 t was harvested in both 2008 and 2009 and catches have ranged from 20-44 t per year since.
- The size limit was increased incrementally from 110 to 112 to 114 mm in 2020 and 2021.
- Standardised CPUE declined from 2003 to 2017 but has increased thereafter.
- The average length of the commercial catch has increased substantially since 2016/17.
- The abundance of FIS recruits declined substantially from 2003 and remains low. Pre-recruit abundance has also declined, before increasing substantially to 2016 levels in 2023.
- The Draft Harvest Strategy result was Increasing, suggesting an OT of 20.5 t and 25.6 t.

The once productive deeper water reefs of the Flinders SMU have declined substantially. CPUE, mean daily catch and the average length of the commercial catch have increased in recent years, despite a combined 4 mm LML increase since 2020. While there are only 2 Top 15 FIS sites, these showed a large increase in pre-recruit abundance in 2023, consistent with the nearby Phillip Island and Back Beaches SMUs. In 2023/24, the OT was reduced to 20.5 t and this was maintained for 2024/25. While the Draft Harvest Strategy suggests that an increase in OT can be considered, given the importance of the Flinders SMU historically, strong consideration should be given to maintaining the current OT to further build on the positive indicators from recent years.

10. Kilcunda

Catch					Standardised CPUE Performance Indicators (% change)				
2023	2023/24 OT + carryover* (t)				Long-term	Last 4 years			
(t)	(%)	22/23	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
11.6	5.2	11.8*	10.3*	9.3	-26	-12	8		
	LML 20)23/24 =	110/115 m	m	Mean daily	Mean daily catch 2023/24 (nominal) = 334 kg			



Reefcode catches for the Kilcunda SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

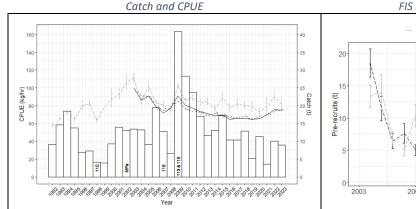
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
15.01	10906	8135	9652	9612	10726	9806	7478
15.05	1783	1585	0	1764	1339	1294	3878
15.03	852	1384	0	367	443	609	0
15.02	509	0	744	62	743	412	0
15.04	0	157	0	0	0	31	198
Totals	14050	11261	10396	11805	13252	12153	11554

- The Kilcunda SMU had a period of high catches from 1992 to 2003 where an average of 30 t per year was maintained, however since 2004 average catches have been less than half of this level (13 t).
- CPUE declined from 2003 to 2019 and has increased thereafter.
- Mean daily catch has been stable in recent years.
- The average length of the commercial catch has been relatively stable since 2016/17.
- There is no FIS data for the Kilcunda SMU.
- The Draft Harvest Strategy result was Stable, suggesting an OT of 8.8 to 9.8 t.

The indicators for CPUE, mean daily catch and average commercial length have all been relatively stable in recent years. It is noted that the OTs for this SMU have been reduced in recent years from 11.8 to 9.3 t. The Draft Harvest Strategy suggests a stable OT, and this appears to be an appropriate strategy.

11. Cape Liptrap

Catch					CPUE Performance Indicators			
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Long-term Short-term		
(t)	(%)	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
8.9	4.0	12.1*	9.4*	9.4	-25	-17	15	
	LML	2023/24	= 110 mm		Mean daily	catch 2023/24 (nomina	al) = 366 kg	



Reefcode catches for the Cape Liptrap SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

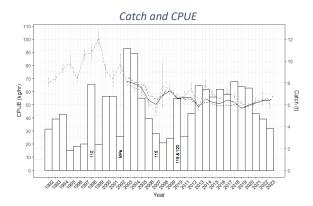
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
16.04	4402	0	4413	804	2832	2490	737
16.06	2989	1385	3513	1086	2903	2375	234
16.03	2678	2513	2369	821	2586	2193	5234
16.05	2170	449	999	108	621	869	408
16.02	609	874	0	755	1072	662	2281
Totals	12849	5221	11295	3574	10013	8590	8893

- The Cape Liptrap SMU produced consistent, low catches from 1992 to 2008. Catches peaked in 2009 resulting from a decrease in size limit. Catch in the last 5 years has averaged around 8 t which is well below historical levels.
- Standardised CPUE declined from 2003 to 2016 and has increased since 2020.
- Mean daily catch declined from 2003 to 2014 and has varied without trend thereafter.
- There was a large shift in the distribution of catches among reefcodes in 2023/24.
- The average length of the commercial catch has increased since 2016/17.
- There are no Top 15 FIS sites at Cape Liptrap (historic FIS data shown in graph).
- The Draft Harvest Strategy result was Stable, suggesting an OT of 8.9 to 9.9 t.

Available indicators of stock status appear to be improving for the Cape Liptrap SMU. Standardised CPUE and the average length of abalone in the commercial catch have both increased in recent years, while mean daily catch has been stable. The only concern regards the distribution of catches among reefcodes. As for the Phillip Island SMU, an improved understanding of the reasons for these shifts in catch distribution is required. The OT was 9.4 t in 2024/25, and maintaining a stable OT appears to be an appropriate strategy for 2025/26, noting the uncertainty due to shifts in catch distribution.

12. Prom Eastside

Catch					Standardised CPUE Performance Indicators (% change)			
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Last 4 years		
(t)	(%)	22/23	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24	
3.8	1.7	5.7	4.8	4.8	-22	-12	7	
	LML	2023/24	= 110 mm		Mean daily	catch 2023/24 (nomina	al) = 314 kg	



Reefcode catches for the Prom Eastside SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

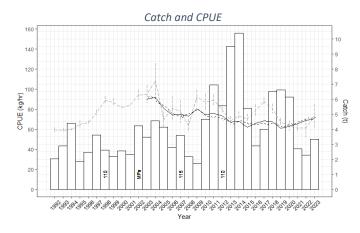
Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
18.03	3992	3310	3002	2052	2265	2924	1628
18.04	2635	3162	3115	2250	1660	2564	775
18.06	479	578	1107	555	220	588	176
18.05	991	625	299	326	540	556	1235
18.07	0	0	0	0	0	0	0
Totals	8097	7675	7522	5182	4685	6632	3815

- The Prom Eastside SMU had produced only variable catches until consistent catches were harvested from 2013 to 2020. In the last three years catches have been considerably lower.
- Standardised CPUE generally declined from 2003 to 2019 and has increased thereafter.
- Mean daily catch has been stable.
- The average length of the commercial catch has increased since 2016/17.
- There is no FIS data for the Prom Eastside SMU.
- The CPUE measure of the Draft Harvest Strategy has been below the Threshold and above the Limit Reference Levels for 14 consecutive years, meaning Catch Control Rule 2 applies. The Final Category result was Stable, suggesting an OT of 4.1 to 4.6 t.

The weight of evidence in this assessment suggests that the key indicators of the stock are now stable or improving. CPUE has increased slightly in recent years and mean daily catch has been stable. Commercial length data suggest that the average size harvested has been increasing. While the Draft Harvest Strategy recommends a reduction in OT, this appears to be an artefact of the reference point calculation which requires review. Given the OT was reduced last year and is currently well below recent historical levels of catch, maintaining the current OT appears to be an appropriate outcome.

13. Cliffy Group

Catch					Standardised CPUE Performance Indicators (% change)			
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Last 4 years		
(t)	(%)	22/23	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24	
3.3	1.5	5.5	4.7	4.7	-22	-13	11	
	LML	2023/24	= 110 mm		Mean daily	Mean daily catch 2023/24 (nominal) = 474 kg		

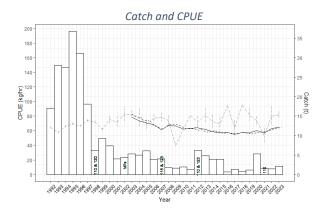


- There is only one reefcode for the Cliffy Group SMU.
- The total catch in the Cliffy Group SMU of 3.3 t was below the OT (4.7 t).
- The Cliffy Group SMU produced much higher than long-term average catches from 2010 to 2020 but catches have been low for the last three years.
- Standardised CPUE declined from 2003 to 2015 and has increased since 2019.
- Mean daily catch data are limited but relatively stable.
- The standardised average size of the commercial catch was stable from 2017/18 to 2019/20 before declining in 2020/21 and again in 2021/22. No data have been collected since.
- There is no FIS data for the Cliffy Group SMU.
- The Draft Harvest Strategy result was Stable, suggesting an OT of 4.5 to 4.9 t.

Low catches in recent years may have contributed to the stabilising of CPUE. While mean commercial length has declined it remained 9 mm above the LML in 2020/21 and no data have been gathered since. Maintaining a stable OT appears to be an appropriate strategy.

14. Surf Coast

		Catc	h		Standardised CPUE Performance Indicators (% change)				
2023	2023/24 OT + carryover* (t)			er* (t)	Long-term	Last 4 years			
(t)	(%)	22/23	22/23 23/24 24/25		2003/04 – 2023/24	2009/10 – 2023/24	2020/21 – 2023/24		
2.1	0.9	2	1.7	1.7	-18	-3	7		
	LML	2023/24	= 110 mm		Mean daily	Mean daily catch 2023/24 (nominal) = 345 kg			



Reefcode catches for the Surf Coast SMU from 2018/19 to 23/24 and five-year average 2018/19 to 22/23.

Reefcode	2018/19	2019/20	2020/21	2021/22	2022/23	5-yr average	2023/24
10.02	684	1183	4143	1152	1475	1790	2131
10.01	143	0	614	35	0	198	0
10.03	0	0	509	0	0	127	0
10.04	0	0	0	341	0	85	0
8.02	0	0	0	0	0	0	0
10.05	0	0	0	0	0	0	0
9.01	0	0	0	0	0	0	0
Totals	827	1183	5266	1528	1475	2201	2131

- The Surf Coast SMU averaged catches in excess of 25 t from 1992 to 1997, however catches declined rapidly thereafter. With eth exception of 2020, all annual catches since 2016 have been amongst the lowest recorded.
- Most of the catch was harvested from reefcode 10.02 in recent years.
- Mean daily catch declined from 2003 to 2011 and have ranged without trend thereafter.
- No commercial length frequency data are presented for the Surfcoast SMU.
- There are no FIS data for the Surf Coast SMU.
- The Draft Harvest Strategy result was Stable, suggesting an OT of 1.6 to 1.8 t.

Recent catches from the Surf Coast SMU have been well below historic levels. Annual catches generally come from the one reefcode, with small catches from others in some years. Maintaining the current OT appears to be an appropriate strategy.

6. References

Dichmont, C.M, Dixon, C.D., and Potts, J. (2022). Developing a new CPUE standardisation for the Central and Eastern Zones of the Victorian Abalone Fishery. MRAG Asia Pacific, Brisbane, Australia.

Dixon (2023). Review of fishery independent surveys for the Central and Eastern zones of the Victorian Abalone Fishery. MRAG Asia Pacific, Brisbane, Australia.

VFA. 2018. "2017/18 Draft Victorian Abalone Stock Assessment – Central Zone."

VFA. 2019a. "Victorian Abalone - Methods used for fishery assessment, Version 1.4 30 June 2019."

VFA. 2019b. "Draft Harvest Strategy Victorian Central and Eastern Zone Blacklip Abalone Fishery. Draft Version 2. VFA, February 2019."

Appendix 1: Summary of performance measures

Tables 1 and 2 summarise performance measures for the Central Zone overall and for all SMUs. Recruit and pre-recruit abundance are for the Top 15 sites only (see Dixon 2023).

Table 1: Assessment of zone wide performance measures. * Recruit and pre-recruit abundance data are for 2022/23

Measure	2023/24	Long term (since 2003/04)	Short term (since 2009/10)	Last 4 years
Standardised CPUE (kg/h)	77.3	98.5 (↓22%)	84.0 (↓8%)	66.5 (个12%)
Standardised mean daily catch (kg/day)	359	446 (↓19%)	384 (↓7%)	336 (个7%)
Recruit abundance (Top 15 n/transect)	11.9*	16.1 (↓26%)	10.5 (个13%)	10.2 (个16%)
Pre-recruit abundance (Top 15 n/transect)	12.2*	13.0 (↓6%)	10.0 (个22%)	8.9 (个37%)
Catch (t)	222.3	654.4 (↓66%)	426.2 (↓48%)	226.6 (↓2%)
2023/24 TACC (t, %)	222.9 t, 99.7%			

Table 2: Performance measures used in the assessment of the Central Zone abalone fishery at the SMU scale (Zone totals repeated for reference). OTs include carry-over TACC.

0.111		Cato	ch			CPUE	
Spatial Management Unit	Total Cat	ch 2022/23	OT (t)	SMU	Long-term	Short-term	4 years
(SMU)	(t)	(%) TACC	OT (t)	Category	(2003/04)	(2009/10)	(2019/20)
Cape Otway	47	21.1%	49	L	-24	-15	0
Back Beaches	42.5	19.1%	40	L	-15	1	15
Phillip Island	32.7	14.7%	32.3	М	-8	2	28
Shipwreck Coast	25.1	11.3%	29.2	М	-17	N/A	17
Prom West	23.1	10.4%	21	М	-27	-7	-1
Flinders	22.2	10.0%	20.5	М	-14	3	22
Kilcunda	11.6	5.2%	10.3	s	-26	-12	8
Cape Liptrap	8.9	4.0%	9.4	s	-25	-17	15
Prom East	3.8	1.7%	4.8	s	-22	-12	7
Cliffy Group	3.3	1.5%	4.7	s	-22	-13	11
Surfcoast	2.1	0.9%	1.7	s	-18	-3	7
PPB	0	0.0%		s			
Central Zone	222.3	99.7%	222.9		-22	-8	12

Notes: Coloured shading indicates whether catch has been caught within the OT, Threshold or exceeded the Limit. Green (within OT range) indicates catch was $<\pm15\%$ of the OT, Yellow (within threshold range) indicates catch was ±15 -30% OT, Red (exceeding limit range) indicates catch was $>\pm30\%$ of the OT for the 2023/24 quota year. SMU catch categories (% of zone catch): Large \geq 15%, Medium 10-15%, Small < 10%.

Appendix 2: Summary of Draft Harvest Strategy results

Table 3: Standardised reference points for Central Zone SMUs, mean annual CPUE from 2018 - 2023 and applicable catch control rules (CCR).

SMU	Limit RP	Threshold RP	Target RP	2018	2019	2020	2021	2022	2023	Current Status	Years at Status	CCR
BACK BEACHES	50	70	90	67.1	65.0	68.8	73.5	79.0	79.3	Above Threshold	3	1 - 125%
CAPE LIPTRAP	40	60	90	63.9	61.7	62.9	66.1	73.1	72.8	Above Threshold	21	1
CAPE OTWAY	50	70	100	70.2	68.8	71.2	70.9	68.9	71.5	Above Threshold	1	1
CLIFFY GROUP	40	60	80	66.7	60.9	62.5	65.0	68.6	69.6	Above Threshold	21	1
FLINDERS	40	60	90	56.3	55.8	56.5	66.0	66.1	69.9	Above Threshold	3	1 - 125%
KILCUNDA	40	60	100	60.8	58.5	60.7	64.7	66.4	64.9	Above Threshold	4	1
PHILLIP ISLAND	40	60	90	60.4	61.1	58.6	62.0	69.3	72.2	Above Threshold	3	1 - 125%
PROM EASTSIDE	40	60	70	52.0	47.7	49.5	51.0	53.0	52.9	Limit to Threshold	14	2
PROM WESTSIDE	40	60	90	59.5	53.5	66.7	61.8	67.3	66.3	Above Threshold	4	1
SHIPWRECK COAST	50	80	130	97.2	90.4	83.6	96.0	96.6	97.9	Above Threshold	21	1
SURFCOAST	40	60	70	51.7	54.2	55.4	54.7	60.3	61.5	Above Threshold	2	1

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

SMU	4yr gradient	Primary Indicator	2yr ratio (% change)	Secondary Indicator	Primary Category	Tertiary Indicator	Final Category	2024/25 Target Catch (OT, t)	Total catch, Lower (t)	Total catch, Upper (t)
BACK BEACHES	5.30	Increasing	0.3	Stable	Increasing	NA	Increasing	41.5	41.5, 43.6	47.7, 51.9
CAPE LIPTRAP	1.46	Stable	-0.4	Stable	Stable	NA	Stable	9.4	8.9	9.9
CAPE OTWAY	-0.15	Stable	3.8	Stable	Stable	NA	Stable	49.0	46.6	51.5
CLIFFY GROUP	3.98	Stable	1.5	Stable	Stable	NA	Stable	4.7	4.5	4.9
FLINDERS	6.89	Increasing	5.8	Increasing	Increasing	NA	Increasing	20.5	20.5, 21.5	23.6, 25.6
KILCUNDA	-0.77	Stable	-2.2	Stable	Stable	NA	Stable	9.3	8.8	9.8
PHILLIP ISLAND	8.27	Increasing	4.1	Stable	Increasing	NA	Increasing	34.0	34.0, 35.7	39.1, 42.5
PROM EASTSIDE	2.49	Stable	-0.2	Stable	Stable	NA	Stable	4.8	4.1	4.6
PROM WESTSIDE	0.67	Stable	-1.5	Stable	Stable	NA	Stable	21	20.0	22.1
SHIPWRECK COAST	4.98	Stable	1.4	Stable	Stable	NA	Stable	29.2	27.7	30.7
SURFCOAST	4.35	Stable	1.9	Stable	Stable	NA	Stable	1.7	1.6	1.8
Total								225.1	218.2, 223.0	245.7, 255.3

Appendix 3: Summary of LML changes

Table 5: Summary of changes in LML for the Central Zone. All measurements are in millimetres. Multiple LMLs indicate different LMLs for reefcodes within an SMU.

Date from	Shipwreck Coast	Cape Otway	Surf Coast	PPB	Back Beaches	Flinders	Phillip Island	Kilcunda	Cape Liptrap	Prom Westside	Prom Eastside	Cliffy Group
1 Apr 1998	120	120	110 & 120	100	110	110	110	110	110	110	110	110
1 Feb 2007	123	123	115 & 123	100	115	115	115	115	115	115	115	115
5 Mar 2009	123	123	115 & 123	105	120	115	113 & 115	113 & 115	105	115	115	115
1 Apr 2010	123	123	115 & 123	105	120	115	113 & 115	110 & 115	105 & 110	115 & 120	115	115
1 Apr 2012	123	123	110 & 123	105	120	115	113 & 115	110 & 115	105 & 110	115 & 120	115	110
1 Apr 2014	123	123	110 & 123	105	117	110	110	110 & 115	105 & 110	115 & 120	110	110
1 Apr 2016	123	123	110 & 123	105	117	110	110	110 & 115	105 & 110	115 & 120	110	110
1 Apr 2017	125	123	110 & 123	105	117	110	110	110 & 115	105 & 110	115 & 120	110	110
1 Apr 2018	125	123	110 & 123	105	117	110	110	110 & 115	105 & 110	115 & 120	110	110
1 Apr 2019	125	123	110 & 123	105	117	110	110	110 & 115	105 & 110	120	110	110
1 Apr 2020	130	125	110 & 123	105	119	112	112	115	110	115 & 120	110	110
1 July 2021	130	125	110	105	119	114	112	110 & 115	110	115 & 120	110	110

Appendix 4: Summary of abalone length measuring in CZ updated to December 2024.

Prepared by Dr Duncan Worthington, 28 February 2025. Full report provided in the 2025 Central Zone Stock Assessment Report.

Figure 1. Trends in the average length of abalone landed for each SMU since 2014, with error bars showing SE among diver-days, and standardised values normalised to the raw average in the most recent fishing period with data in each SMU. The range of annual un-standardised average length from the earlier 2000- 2007 dataset are also shown for individuals above the size limits in 2019-20.

