Fisheries

Western Zone Blacklip Abalone (*Haliotis rubra*) and Greenlip Abalone (*H. laevigata*) Fisheries in 2024/25

B. Stobart

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PO Box 120 Henley Beach SA 5022

December 2025

Report to PIRSA Fisheries and Aquaculture

Government of South Australia
Department of Primary Industries and Regions

SARDI
SOUTH AUSTRALIAN RESEARCH AND DEVELOPMENT INSTITUTE

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We recognise and own a difficult past, and together we will walk forward.

We acknowledge the many Aboriginal people of this Country as the oldest continuous living culture in the world.

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ABBREVIATIONS

AVG	Abalone Viral Ganglioneuritis
AIASA	Abalone Industry Association of South Australia
CPUE	Catch Per Unit Effort
FD	Fishery Dependent
FI	Fishery Independent
FIS	Fishery Independent Surveys
GSV	Gulf Saint Vincent
HS	Harvest Strategy
MDS	Multi-Dimensional Scaling
MLL	Minimum Legal Length
NFSRF	National Fishery Status Reporting Framework
PI	Performance indicator
PIRSA	Department of Primary Industries and Regions
PropG1	Proportion of Grade 1 (Greenlip Abalone in the catch)
SAAF	South Australian Abalone Fishery
SARDI	South Australian Research and Development Institute
SAU	Spatial Assessment Unit
SG	Spencer Gulf
TACC	Total Allowable Commercial Catch
WZ	Western Zone
WZAF	Western Zone Abalone Fishery
VCL	Voluntary catch limit

EXECUTIVE SUMMARY

This report assesses the status of the Blacklip Abalone (*Haliotis rubra*) and Greenlip Abalone (*H. laevigata*) stocks (hereafter referred to as blacklip and greenlip, respectively) in the Western Zone (WZ) of the South Australian Abalone Fishery (SAAF) in the 2024/25 financial year. The assessment includes application of the harvest strategy (HS) included in the Management Plan for the South Australian Commercial Abalone Fishery (PIRSA 2021) to determine stock status. The HS uses financial year information to recommend a zonal catch for the following (calendar) quota year for the fishery. Unless otherwise stated, years in this report refer to financial year indicated by the second year.

Uncertainties in the assessment

This assessment was based primarily on CPUE. There were limited fishery-independent data, particularly for blacklip. CPUE in abalone fisheries is known to be subject to bias and to be hyperstable. In addition, changes in effective effort have not been accounted for. Collectively, these may obscure important trends in CPUE and mean that increases in CPUE likely overestimate increases in stock abundance, and the converse. This increases the uncertainty of this assessment.

The HS also has limitations. Zone score is derived from two performance indicators for each Spatial Assessment Unit (SAU), 'raw' (or uncorrected) CPUE and, where available, legal density. The success of the HS relies on realistic zonal target catches paired with settings that deliver a zone score and recommended zonal catches that adequately reflect biomass, prevent overfishing and the stock becoming depleted. Given the settings in the HS, limitations in the use of CPUE and the rarity of Fishery Independent Surveys (FIS), outcomes of the HS should be interpreted cautiously. Furthermore, this report uses data to 30 June 25 and, therefore, does not account for any potential effects of the widespread harmful algal bloom on these stocks. The harmful algal bloom first occurred in coastal waters off the Fleurieu Peninsula in March 2025, and subsequently expanded to Investigator Strait, Gulf Saint Vincent (GSV) and Spencer Gulf (SG) during April–July 2025.. While no impact of the algal bloom has been observed or reported for the WZ abalone fishery, this could change rapidly, further increasing the uncertainty in stock status.

Blacklip

During 2025, blacklip comprised 46% (37.4 t) of the combined abalone catch in the WZ, having decreased 63% from 2013 (100.7 t). The 2025 catch was the second lowest on record. This reduction reflects lower TACCs and industry decisions to catch less than the TACC due to concern for blacklip stocks.

Application of the HS resulted in a zone score of 3.46 and a zone trend score of 5.0 (reflecting a stable trend), defining the stock status for blacklip in the WZ in 2025 as **'sustainable'** under the HS. This was the same as the stock status from 2020 to 2024.

Stock recovery has continued to occur between 2024 and 2025, following the long-term decline in harvestable biomass observed from 2006 to 2019. Evidence that the improvement had continued included a further increase in WZ CPUE, increasing or stabilising CPUE in several SAU's, and the legal and sub legal densities of blacklip at Avoid Bay increasing.

Despite these recent increases, the harvestable biomass of blacklip in the WZ has remained at historically low levels for the past ten years (zone scores below 3.5). CPUE estimates at 64% of SAU's, that account for 70% of the blacklip catch in 2025, were below the target range defined in the HS, and relative catch * relative CPUE remained amongst the lowest recorded for the last 7 years, with 2025 the second lowest value on record. The low biomass likely reflects a combination of overfishing and environmentally driven changes in productivity.

Greenlip

During 2025, greenlip comprised 54% (44.3 t) of the combined abalone catch in the WZ, having decreased 44% from 2013 (79.8 t). The 2025 catch was the second lowest on record. This reduction reflects lower TACCs and industry decisions to catch less than the TACC due to concern for greenlip stocks.

Application of the HS resulted in a zone score of 6.03, an increase from 5.31 in 2024. Combined with the zone trend score of 9.36 (reflecting an increasing trend) this defines the 2025 stock status for greenlip in the WZ as **'sustainable'** under the HS. This was the same as the stock status from 2021 to 2024.

There are multiple lines of evidence that the harvestable biomass of greenlip is continuing to increase which include: (1) WZ CPUE increased between 2024 and 2025, with the value in 2025 among the highest 20% of CPUE values on record; (2) CPUE increased, remained relatively high, or was within the target reference band of the HS in most SAU's; and (3) the proportion of grade 1 greenlip was the highest on record. However, relative catch * relative CPUE remained low in 2025, albeit with small increases from a historic low in 2022. The low value of this metric over the past three years is due the lower catches harvested.

Conclusion

The status for blacklip and greenlip from the HS for 2025 remains 'sustainable'. While the zone score for blacklip has increased in 2025, it remains low. In contrast, the zone score for greenlip has continued to increase rapidly, particularly since 2022. For both species, the recent increases in HS zone scores should be interpreted with caution as they are both heavily influenced by CPUE

as an indicator of abundance. The impact of the recent low catches for both species and contribution of recent changes in fishing practices on CPUE are poorly understood. However, increases in biomass are unlikely to be of the magnitude suggested by CPUE. Overall, (1) it is likely that blacklip biomass is increasing slowly, but remains relatively low; while (2) biomass for greenlip is increasing. While the HS and/or voluntary catch limit (VCL) are constraining catch of both species to a relatively low level, given the unique life-history traits of abalone species, low densities result in a high risk of recruitment impairment and stock collapse. Given the risks associated with the recent low biomass of both species, and the uncertainty in this assessment, both species require careful ongoing monitoring.

Key summarised WZ blacklip and greenlip statistics: **Calendar Year** - number of licences (No. licences); total allowable commercial catch (TACC); voluntary catch limit (VCL) and total commercial catch (TCC); **Financial Year** - stock status from the harvest strategy (HS). tmw = tonnes meat weight.

Calendar Year	No. licences	TACC (tmw)	VCL (tmw)	TCC (tmw)	Financial Year	HS Stock Status
BLACKLIP						
2019	22	58.6	53	51.08	2018/2019	Depleting
2020	22	43.0	NA	40.39	2019/2020	Sustainable
2021	22	47.3	44.3	45.19	2020/2021	Sustainable
2022	22	43.5	NA	44.04	2021/2022	Sustainable
2023	22	43.5	NA	45.11	2022/2023	Sustainable
2024	22	50.9	44.25	44.06	2023/2024	Sustainable
2025	22	50.1	38.7		2024/2025	Sustainable
GREENLIP						
2019	22	73.01	66.4	66.05	2018/2019	Depleting
2020	22	51.0	NA	49.05	2019/2020	Depleting
2021	22	48.9	NA	51.02	2020/2021	Sustainable
2022	22	44.1	NA	46.72	2021/2022	Sustainable
2023	22	42.5	37.6	40.35	2022/2023	Sustainable
2024	22	55.6	40.93	43.27	2023/2024	Sustainable
2025	22	78.0	44.3		2024/2025	Sustainable

Keywords: Greenlip Abalone (*Haliotis laevigata*), Blacklip Abalone (*Haliotis rubra*), Stock assessment, Harvest strategy, Stock status, South Australia.

1 GENERAL INTRODUCTION

1.1 Background

This report provides a fishery assessment for Blacklip Abalone (*Haliotis rubra* hereafter referred to as blacklip) and a stock status for Greenlip Abalone (*H. laevigata*; hereafter referred to as greenlip), in the Western Zone (WZ) of the South Australian Abalone Fishery (SAAF; Figure 1.1) in the 2024/25 financial year. The level of reporting for the two species differs because species-specific assessments are undertaken biennially as part of an overall rationalisation of the research program. These form part of the South Australian Research and Development Institute's (SARDI – Aquatic and Livestock Sciences) ongoing assessment program for greenlip and blacklip fisheries and update previous fishery assessment and status reports (see Stobart and Daly 2024). This report (1) assesses the status of each resource; (2) identifies the uncertainty associated with each assessment; and (3) documents future research needs for both species.

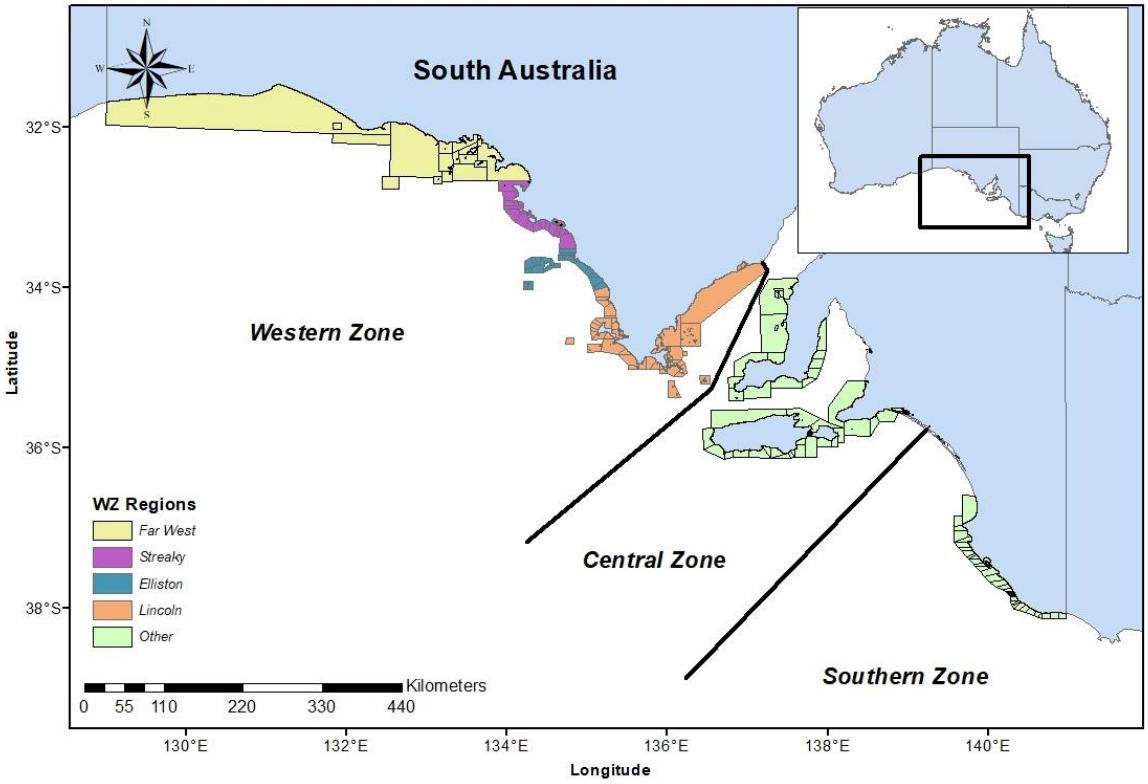


Figure 1.1. Fishing zones and mapcodes of the South Australian Abalone Fishery and regions of the WZ.

Data are presented for three spatial scales (Zone, Spatial Assessment Units (SAU), and Regions) and by financial year, as financial year is the time step specified by the harvest strategy (HS)

described in the Management Plan for the fishery (PIRSA 2021), noting the quota is set by calendar year. Thus, unless otherwise stated, information provided throughout this report is by financial year and referred to by the last year (e.g. 2024/25 financial year would be referred to as 2025), noting that this is a change from previous reports where financial year was referred to by the first year (e.g. Stobart *et al.* 2022). The HS includes assignment of stock status consistent with the NFSRF (Table 1.1; Stewardson *et al.* 2018, Piddocke *et al.* 2021) adopted by PIRSA Fisheries and Aquaculture for classifying fish stocks (PIRSA 2015).

Table 1.1. Terminology for the status of key Australian fish stocks reports (Stewardson *et al.* 2018).

	Stock status	Description	Potential implications for management of the stock
	Sustainable	Stock for which biomass (or biomass proxy) is at a level sufficient to ensure that, on average, future levels of recruitment are adequate (i.e. recruitment is not impaired) and for which fishing mortality (or proxy) is adequately controlled to avoid the stock becoming recruitment impaired	Appropriate management is in place
	Depleting	Biomass (or proxy) is not yet depleted and recruitment is not yet impaired, but fishing mortality (or proxy) is too high (overfishing is occurring) and moving the stock in the direction of becoming recruitment impaired	Management is needed to reduce fishing pressure and ensure that the biomass does not become depleted
	Recovering	Biomass (or proxy) is depleted and recruitment is impaired, but management measures are in place to promote stock recovery, and recovery is occurring	Appropriate management is in place, and there is evidence that the biomass is recovering
	Depleted	Biomass (or proxy) has been reduced through catch and/or fishing effects, such that recruitment is impaired. Current management is not adequate to recover the stock, or adequate management measures have been put in place but have not yet resulted in measurable improvements	Management is needed to recover this stock; if adequate management measures are already in place, more time may be required for them to take effect
	Undefined	Not enough information exists to determine stock status	Data required to assess stock status are needed
	Negligible	Catches are so low as to be considered negligible and inadequate information exists to determine stock status	Assessment will not be conducted unless catches and information increase

1.2 History and description of the fishery

1.2.1 Commercial fishery (calendar year)

The SAAF is a diver fishery with abalone individually hand-harvested from the seabed (see PIRSA 2021 for a detailed description of the fishery). A review of the management history of the SAAF since its inception in 1964 is provided by (Mayfield *et al.* 2012). The calendar year historical annual catch and quota (Figure 1.2) and listed major management milestones (Tables 1.2) are provided for reference. Notably, prior to the introduction of quota, average annual greenlip catch from 1968 to 1973 was 215 t, almost double that during the following eleven years (128 t) and more than double that during the first decade post-quota (87 t). In contrast, the average catch for blacklip was 98 t from 1968 to 1973, a third more than in the eleven years prior to quota (68 t) and similar to the first decade post-quota (102 t).

Entrants to the fishery increased in the late 1960s and exceeded 100 operators by 1970. In 1971, the SAAF was divided into three zones (Western (WZ), Central and Southern; Figure 1.1). During the same year, licences were made non-transferable to reduce the number of operators in the fishery and by 1976 had fallen to 35 licences. These 35 licences remained in the fishery until 2013. From 1 January 2014, removal of one licence from the WZ, as part of the marine park buy-back scheme, reduced the total number of licences in the SAAF to 34.

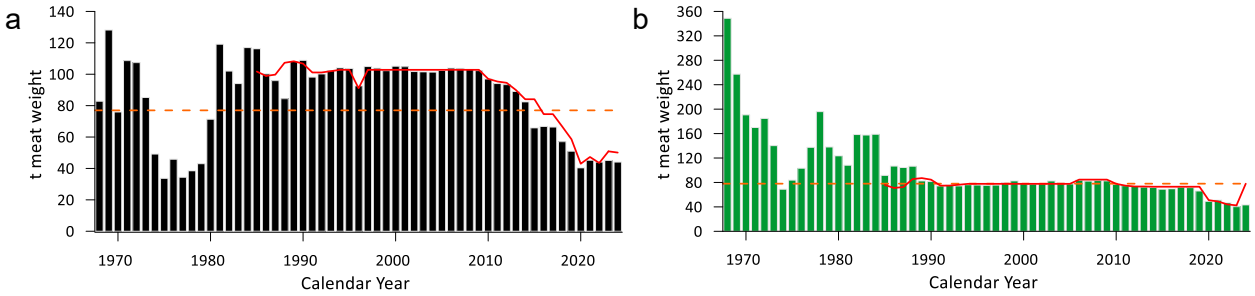


Figure 1.2. Western Zone Catch (t, meat weight), total allowable commercial catch (red line) and target catch from the Harvest Strategy (dashed red line) for a) blacklip (black bars) and b) greenlip (green bars) from the 1968 to 2024 **calendar years**.

The WZ of the SAAF includes coastal waters of South Australia between the Western Australia/South Australia border and eastern Eyre Peninsula (Figure 1.1). This zone was subdivided into Region A and Region B in 1985. In Region A, annual Total Allowable Commercial Catches (TACCs) were introduced for blacklip and greenlip in 1985 and amended to the calendar year fishing season from 1989 (Nobes *et al.* 2004).

For Region B, both species were included under a single annual TACC that was introduced in 1991. Regions A and B were recombined in 2014. There are currently 22 licences operating in the WZ, and the fishing season extends from 1 January to 31 December each year (Table 1.3).

Commercial catch and effort data on this fishery have been collected since 1968 and are used in stock assessment and status reports for each zone. A catch and effort logbook must be completed for each fishing day and submitted to PIRSA Fisheries and Aquaculture at the end of each month.

Since 1997, the WZ fishery has operated under the control of formal management plans (Zacharin 1997, Nobes *et al.* 2004, PIRSA 2012, PIRSA 2021). These plans guide management through a regime of input (e.g. limited entry) and output (e.g. minimum legal lengths (MLLs) and quotas) controls. Some of the current management arrangements in the WZ are summarised in Tables 1.2 and 1.3.

Table 1.2. Management milestones: Western Zone of the South Australian Abalone Fishery.

Calendar year	Milestone
1964	Fishery started
1970	More than 100 operators
1971	Licences made non-transferable, Fishery divided into three zones (Western, Central and Southern)
	Minimum legal length (MLL) set at 130 mm shell length (SL) for both species
1976	30 licences remained; 5 additional licences issued
1978	Sub-zones and fishing blocks replaced by map numbers and codes
1980	Licences became transferable
1984	Greenlip minimum legal length amended to 145 mm SL
1985	Western Zone divided into regions A and B
	Quota introduced to Region A (97.75 t blacklip; 97.75 t greenlip)
1989	Total allowable commercial catch (TACC) in Region A greenlip fishery reduced to 69 t
1991	Quota introduced to Region B (9.2 t both species)
1993	Abolition of owner-operator regulation, TACC in Region B increased to 11.5 t
1994	TACC in Region B increased to 13.8 t
1996	TACC in Region A blacklip fishery decreased to 86 t
1997	Management Plan implemented (Zacharin 1997), TACC in Region A blacklip fishery increased to 97.8 t
2004	Management Plan reviewed (Nobes *et al.* 2004)
2006	TACC in Region A greenlip fishery increased to 75.9 t
2010	TACC in Region A - blacklip fishery decreased to 92 t, greenlip fishery decreased to 69 t
2011	TACC in Region B fishery decreased to 9.2 t Voluntary closed season in Region B from October to February
2012	New Management Plan including harvest strategy (PIRSA 2012)
	TACC in Region B fishery decreased to 6.9 t
2013	TACC in Region A blacklip fishery decreased to 87.4 t
2014	Regions A and B amalgamated; Number of licences reduced to 22.
	TACC for greenlip increased to 73 t; TACC for blacklip decreased to 84.1 t
	Ministerial exemption to harvest *Haliotis roei* in with a TACC of 11 t granted from February 2014
2015	Harvest strategy review commenced; voluntary agreement to limit catch to 66.4 t
2016	TACC in blacklip fishery decreased to 74.6 t; voluntary agreement to limit catch to 66.4 t
2017	Voluntary agreement to limit catch to 67.0 t
2018	TACC in blacklip fishery decreased to 66.6 t; voluntary agreement to limit catch to 58.6 t
	Minor adjustment to mapcodes constituting Searcy, Baird, Venus and Anxious Bays (see Figure 1.2).
2019	TACC in blacklip fishery decreased to 58.6 t; voluntary agreement to limit catch to 53.0 t

	TACC in greenlip fishery remained at 73.0 t; voluntary agreement to limit catch to 66.4 t
2020	TACC in blacklip fishery decreased to 43 t. Under a Section 79 notice, catch from Drummond capped at 11 t, WZAF closed to fishing from 1 October to 31 December and area East of Cape Carnot closed to fishing from 1 January to 31 March
	TACC in greenlip fishery decreased to 51 t. Under a Section 79 notice, WZAF closed to fishing from 1 October to 31 December and area East of Cape Carnot closed to fishing from 1 January to 31 March.
2021	TACC in blacklip fishery increased to 47.3 t; voluntary agreement to limit catch to 44.3 t. WZAF closed to fishing from 1 October to 31 December.
	TACC in greenlip fishery decreased to 48.9 t. WZAF closed to fishing from 1 October to 31 December.
2022	TACC in blacklip fishery decreased to 43.5 t. WZAF closed to fishing from 1 August to 31 October.
	TACC in greenlip fishery decreased to 44.1 t. WZAF closed to fishing from 1 August to 31 October.
2023	TACC in blacklip fishery remained at 43.5 t. WZAF closed to fishing from 1 August to 31 October.
	TACC in greenlip fishery decreased to 42.5 t. Voluntary agreement to limit catch to 37.6 t. WZAF closed to fishing from 1 August to 31 October.
2024	TACC in blacklip fishery increased to 50.9 t; voluntary agreement to limit catch to 44.3 t. WZAF closed to fishing from 1 August to 31 October.
	TACC in greenlip fishery increased to 55.6 t; voluntary agreement to limit catch to 40.9 t. WZAF closed to fishing from 1 August to 31 October.
2025	TACC in blacklip fishery decreased to 50.1 t; voluntary agreement to limit catch to 38.7 t. WZAF closed to fishing from 1 August to 31 October.
	TACC in greenlip fishery increased to 78.0 t; voluntary agreement to limit catch to 44.3 t. WZAF closed to fishing from 1 August to 31 October.

Table 1.3. Western Zone commercial abalone fishery management arrangement summary.

Management strategy	**Western Zone management arrangements in the 2024 calendar year**
Licence holders	22
Target species	*Haliotis rubra* (blacklip), *H. laevigata* (greenlip)
Minimum legal length	Blacklip 130 mm shell length (SL), Greenlip 145 mm SL
Quota year	1 January to 31 December (note section 79 restrictions and industry voluntary closures in Table 1.2 above)
Quota transferability	Yes
Other species permitted	*H. roei* (small catches fished under Ministerial Exemption from 2014-2019 at minimum SL ≥75 mm), *H. scalaris*, *H. cyclobates* when SL ≥130 mm
Method of capture	By hand – dive fishery
By-catch	Negligible

1.2.2 Recreational fishery

The most recent recreational abalone catch estimate for South Australia was for the 2021/22 financial year and was 3,296 blacklip and 3,795 greenlip individuals (47% blacklip, 53% greenlip; (Beckman *et al.* 2023). This equates to an estimated 2.94 t meat weight, a 44% increase since the previous survey in 2013/14 (Giri 2015). Recreational fishing for the West Coast and Lower

Eyre Peninsula was estimated at 11% of the state take during 2021/22 (Beckman *et al.* 2023), equating to 323 kg or ~780 abalone assuming equal take throughout the state.

1.3 Management Plan

The Management Plan for the SAAF (PIRSA 2021) describes the management goals and objectives for the fishery that reflect current policy drivers including Section 7 of the *Fisheries Management Act 2007*, and Ecologically Sustainable Development as described in the *Environmental Protection and Biodiversity Conservation Act 1999*.

This report is directly relevant to the first goal of the Management Plan, for which the objectives are to maintain the stocks above ecologically sustainable levels and to ensure enough data and information are available to undertake the HS which underpins the management decisions. The HS is described in the Management Plan and is the primary tool used to achieve the goal of sustainably harvesting the abalone resource and allocating stock status in accordance with the NFSRF (PIRSA 2021). The HS is consistent with the *National Guidelines to Develop Harvest Strategies* (Sloan *et al.* 2014) and the *South Australian HS Policy* (PIRSA 2015).

The HS provides a structured, species-specific, and spatially explicit, framework for decision making and includes assignment of stock status consistent with the NFSRF. It has three main phases: (1) a monitoring phase in which information is collected for the two performance indicators, catch-per-unit-effort (CPUE- unit of $kg.hour^{-1}$) and legal density of abalone from fishery independent surveys (FIS), along with other relevant fishery information; (2) the stock assessment phase where the performance of each SAU is scored based on a CPUE score and, for some key SAU's, a legal density score. This scoring is based on limit and target reference points as defined in The Management Plan. Aggregated scores for the SAU's provide an overall stock status based on trigger reference points for biomass (zone score used as a proxy) and fishing mortality (zone score trend used as a proxy); and (3) the final phase where zone score is translated to a recommended zonal catch. During this step a workshop is held with industry to share relevant information, and SAU catches can be adjusted within a 10% range based on the information through harvest decision rules. The summed adjusted SAU catches inform setting of the TACC for the following season.

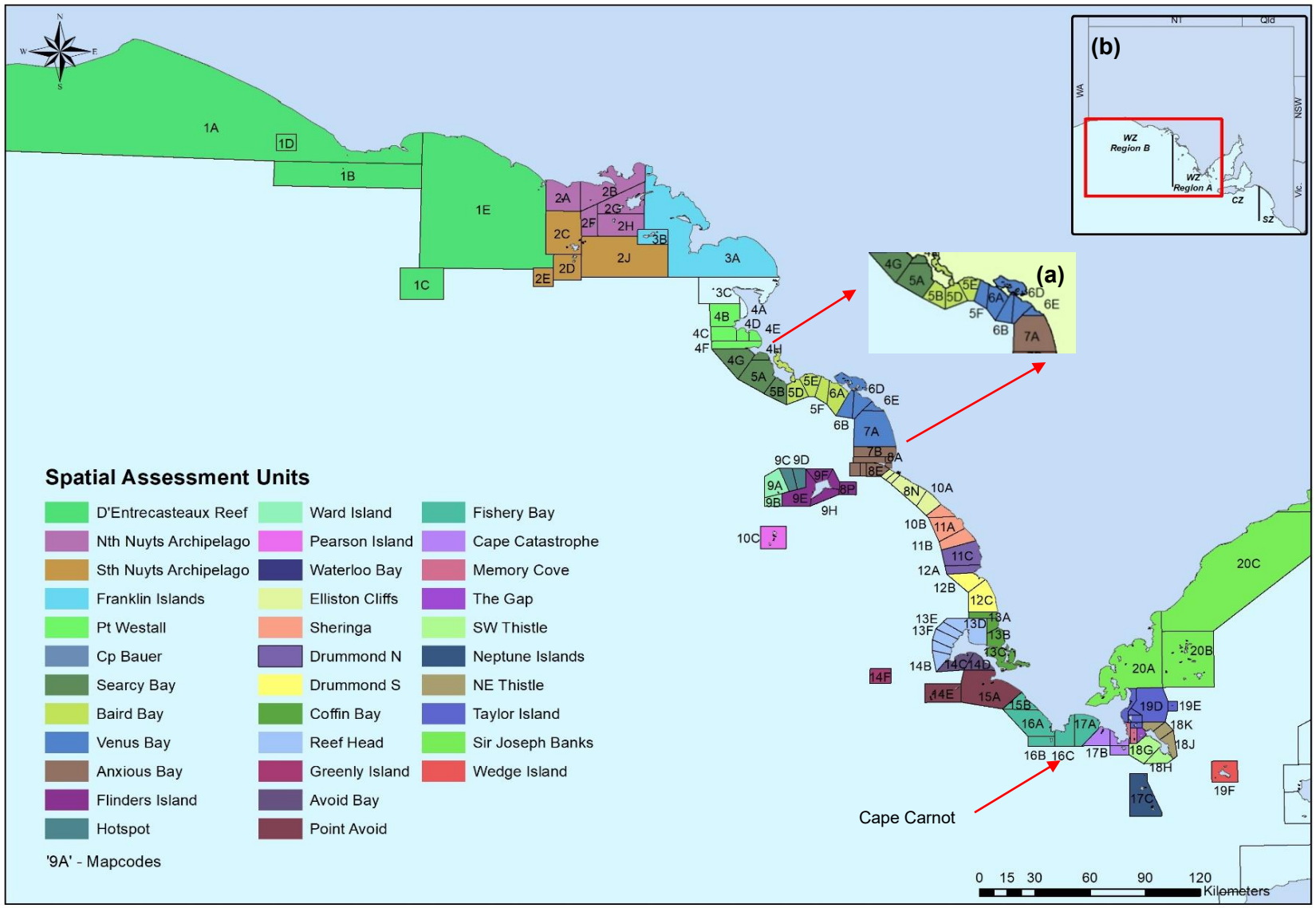


Figure 1.3. Spatial Assessment Units (SAU's) and map codes of the Western Zone South Australian Abalone Fishery. Inlay (a) shows old mapcode groupings for SAU's Searcy, Baird, Venus and Anxious Bays; inlay (b) shows old WZ region split.

1.4 Abalone biology

The biology of blacklip and greenlip in the WZ is described in previous stock assessment reports (e.g. Stobart *et al.* 2015, Stobart and Mayfield 2016). Additional information on the biology of both species is also provided in Appendix 6.1. Greenlip and blacklip are present throughout southern Australia but have differing overall distributions. Blacklip range from Coffs Harbour (New South Wales) to Rottnest Island (Western Australia), while greenlip range from Flinders Island (Tasmania) to Cape Naturaliste (Western Australia). Typically, these two species occupy different habitats, with blacklip mostly inhabiting crevices and caves or the bottom of steep rock faces of topographically complex rocky reefs (1 to 30 m depth) and greenlip tending to inhabit the edge of reefs and boulders near sand or seagrass (5 to >50 m depth).

Blacklip populations can show significant genetic differentiation between sites less than 15 km apart (Shepherd and Brown 1993, Temby *et al.* 2007, Miller *et al.* 2009), suggesting limited dispersal among 'metapopulations' (Fleming 1997, Miller *et al.* 2009). In contrast, greenlip dispersal appears to be more widespread as reflected in population genetics that suggest 'metapopulations' cover spatial scales of up to 135 km (Miller *et al.* 2014). The limited dispersal of abalone has implications for depleted stock recovery, contrasting with many other marine organisms, whose widespread dispersal makes them more resilient to localised depletion.

Abalone are prone to several diseases that can cause significant mortality and/or affect the quality of meat for sale. The two primary diseases affecting South Australian stocks are the protozoan parasite *Perkinsus olensi* (Goggin and Lester 1995) and abalone viral ganglioneuritis (AVG; Mayfield *et al.* 2012). *Perkinsus* negatively impacts three commercially harvested abalone species (Goggin and Lester 1995, Lester and Heyward 2005). Animals chronically infected with *Perkinsus* often exhibit extensive macroscopic lesions rendering the product unsaleable. Avoidance of fishing areas in the WZ of the SAAF that have a high prevalence of *Perkinsus*-related lesions displaced ~10% (11 $t.yr^{-1}$) of blacklip catch to alternative fishing grounds, exacerbated the need for quota reductions and likely cost the fishery in excess of $10 million over the past ten years. The disease is currently visibly expressed (*i.e*. animals with lesions are present) in fishing grounds near Port Lincoln and in the Baird Bay SAU (SARDI unpublished data). AVG recently emerged in the Southern Zone (SZ) of the South Australian abalone fishery (February 2024) and within a year caused considerable mortality across the SZ, including confirmed mortality in excess of 90% at Port McDonell. This led to the closure of the SZ commercial and recreational fisheries in March

2025 with both blacklip and greenlip now classified as depleted. Control measures are currently in place to reduce the spread of the disease throughout the SZ and to the CZ and WZ fisheries.

1.5 Climate change

The World Meteorological Organisation (WMO; Hermanson *et al.* 2022) predicts there is an 80% chance that the five-year average global temperature for 2025–2029 will exceed 1.5°C above pre-industrial levels. Climate change is already causing significant impacts on the oceans, including ocean warming, sea level rise, ocean acidification and an increase in extreme events such as marine heatwaves (Pörtner *et al.* 2019, Lévy *et al.* 2025). These changes are having widespread effects on marine ecosystems, biodiversity, and coastal communities. In general, climate change is expected to impact abundance, distribution, phenology and/or physiology of marine species with consequences for biodiversity and fishery productivity.

For wild abalone populations, climate change poses significant threats through a combination of rising sea temperatures, lowering of pH, increased prevalence of disease, habitat loss, and food scarcity (Rogers-Bennett and Catton 2022). For example, there is evidence that warm water and decreasing pH both negatively impact the early development of *Haliotis kamtschatkana* larvae (Bates *et al.* 2025). Warmer waters have also been linked to the susceptibility of abalone to withering syndrome in the USA, which severely impacts abalone growth and reproduction (Rogers-Bennett *et al.* 2010) and may increase the likelihood of *Perkinsus* outbreaks in South Australia that could lead to a reduction of stocks (Stobart *et al.* 2025). In addition, extreme weather events and resulting sedimentation can directly impact abalone populations. This has already occurred in California where landslides driven by extreme weather (heavy rain) following drought and fires have led to the deposition of sediment in the marine environment that impacted black abalone (*H. cracherodii*) populations (Peters *et al.* 2024). Marine heatwaves and ocean warming will also change habitats and impact algal populations, potentially further exacerbating the situation by depriving abalone of their primary food source, leading to starvation and suppressed reproductive capacity (Rogers-Bennett and Catton 2022).

Different abalone species may show varying levels of resilience to change and the impact of climate change is likely to also vary at local scales due to oceanographic conditions (Boch *et al.* 2018). However, the overall trend is expected to be one of heightened vulnerability and population decline worldwide. Adaptive management strategies (e.g. see Rogers-Bennett and Catton 2022) will be required to help mitigate the escalating impacts of climate change on these ecologically and economically important marine molluscs.

2 METHODS

2.1 Blacklip assessment

2.1.1 Data used and spatial scales of analyses

This assessment uses fishery dependent (FD) and fishery independent (FI) data. The FD data consist of catch and effort from 30 June 1968 to 30 June 2025. The FI data consist of density estimates and length frequency distributions from surveys conducted periodically at selected SAU's.

Data were analysed at three spatial scales: (1) the WZ; (2) four regions of the WZ (termed Port Lincoln, Elliston, Streaky Bay and Far West); and (3) the SAU's and combined SAU's defined in the HS (see Figure 1.3 and PIRSA 2021). The regions of Port Lincoln, Elliston, Streaky Bay, and Far West comprise SAU's typically accessed from each respective regional centre (see Figure 1.1). Data are presented by financial year and, where referred to and in figures, are described using their last year (e.g. 2025 refers to the 2024/25 financial year).

2.1.2 Fishery-dependent data

Commercial catch and effort data have been collected since 1968 in the form of daily entries to commercial logbooks submitted to SARDI, allowing spatial and temporal analyses of catch (t, meat weight), fishing effort by depth category (hours) and mean CPUE ± standard error (se). Multi-dimensional scaling (MDS) was used to evaluate temporal changes in the distribution of the proportion of catch among SAU's; closer proximity among years indicates greater similarity. MDS results were further interpreted with similarity percentage (SIMPER) analysis and hierarchical cluster analysis (CLUSTER) using complete linkage. SIMPER indicates which SAU's are contributing most to the differences between years and CLUSTER identifies "natural groupings" of years where years within a group are more like each other than years outside of the group that fall into other groups.

Spatial and temporal analyses of annual CPUE were compared across financial years. CPUE is estimated as the catch-weighted mean of daily CPUE where; 1) the percentage of the target species in the catch for each daily record is used as a weighting factor in calculating the arithmetic mean of daily CPUE records; and 2) effort is split based on the species proportion in the daily catch, assuming equal catch rate for each species (Appendix 6.2, Table 6.12). In all instances, prior to calculation of CPUE, daily data were filtered to remove records where effort was <3 and >8 hours and the ratio of total catch over total hours was >66.7 $kg.hr^{-1}$. Daily records with <30%

of the target species were also excluded from data used to estimate CPUE. The minimum sample size used to calculate both CPUE was 10 fishing records and where less than ten records are available for the year, the HS allows the estimation of CPUE by the inclusion of additional data from previous years (as described in the new HS, PIRSA 2021). These CPUE values can be identified in the plots as they lack error bars. Where there is a complete absence of CPUE data for a particular year, CPUE is not estimated. The combined trend of CPUE and catch is also displayed as a time series of relative catch multiplied by relative CPUE, where the metric for each year is divided by that in 1979 prior to multiplication, as an approximation to a Kobe plot (Kell 2012).

2.1.3 Fishery-independent data

Blacklip abundance and size structure were obtained from SARDI FIS which are currently undertaken biennially. The FI output statistics include mean density (± se) of legal and sub-legal-sized blacklip and length-frequency distributions. In 2025, FI data were scheduled for five SAU's – Drummond, Sheringa, Point Westall, Avoid Bay and Anxious Bay – and were estimated from cross-drop surveys.

The collection of length frequency information was discontinued in 2025 as part of the SARDI effort to reduce exposure time during dives following several shark incidents. Historic blacklip frequency distributions are provided in appendix 6.3 where FIS distributions by year are shown in plots of number of blacklip by size bin.

2.2 Greenlip status

Data sources and methods used for greenlip are described in (Stobart *et al.* 2020, Stobart and Daly 2025) and generally mirror those described above for blacklip. There were three differences between greenlip and blacklip performance indicators. First, for greenlip, the proportion grade 1 greenlip, the largest grade category where abalone weigh ≥ 230g meat weight (PropG1), is used as a secondary indicator to inform the assessment. Second, data for Drummond North and Drummond South were combined and reported as Drummond because there was insufficient data for greenlip to report Drummond North and Drummond South separately. Third, greenlip FI surveys use 100m lead lines as opposed to cross drops used for blacklip. For PropG1, records where the total catch was >1% different from the sum of all three weight-grade categories were excluded, as were all records with zero catch. The minimum sample size used to calculate PropG1 was 10 fishing records; therefore, the absence of data for this measure in any one year indicates fewer records were available.

2.3 Harvest Strategy – Blacklip and Greenlip

The HS is described in the Management Plan for the South Australian Commercial Abalone Fishery (PIRSA 2021). Briefly, the HS uses financial year FD and FI data. The FD data are used to estimate CPUE, and the FI data are used to estimate density of legal-sized abalone. SAU-specific limit and target reference points, determined from pre-identified reference periods, are used to score CPUE and legal-density for each SAU. Low-catch SAU's are combined by region to allow the determination of CPUE scores. Scores of the two performance indicators (PIs) are combined to achieve a final SAU score which is a measure of overall stock performance for the SAU. If both PIs are available, they are calculated using a 50:50 weighting, otherwise the available PI equals the final score. For detail of scoring where there are missing years see PIRSA (2021).

On collating this report, the outcome of the HS for 2025 for blacklip was affected because the biennial FIS surveys due at Sheringa, Drummond, Anxious Bay and Point Westall were not completed for 2025. There was, therefore, no FIS score contribution from these SAU's to the 2025 financial year HS scoring in the HS outcome presented in the results section of this report. In addition, Point Westall was also not surveyed in 2023. The HS was therefore also calculated using an alternative approach where the Point Westall density value from the 2021 survey was carried over to 2023 and 2025 and the Sheringa, Drummond and Anxious Bay density values from 2023 were carried over to 2025 (the proposed HS currently only allows FIS carryover for one year).

2.4 Quality Assurance

Quality assurance systems form an integral part of stock assessments undertaken by SARDI. These systems are designed to ensure high quality project planning, data collection and storage, analyses, interpretation of results and report writing. Details are provided in Appendix 6.4.

3 RESULTS

3.1 Blacklip

3.1.1 Western Zone annual patterns in catch, CPUE and fishing depth

Total catches were relatively stable from the introduction of Region A quota in 1985 (98 t) to 2013 (Figure 3.1a). Within this period, fluctuations in catch were primarily attributed to the introduction of quota to Region B in 1991 (9.2 t), increases to the Region B TACC in 1993 (11.5 t), 1994 (13.8 t) and Region A in 1997 (97.8 t), a reduction to the Region A TACC in 1996 (86 t), 2010 (92 t) and 2013 (87.4 t) and Region B in 2011 (9.2 t) and 2012 (6.9 t), and the variation in the proportion of blacklip caught in Region B (Figure 3.1a). Subsequently, catch decreased 60% between 2013 (101 t) and 2020 (40.7 t) following the removal of one licence in 2013 and reductions to the WZ TACC in 2016 (74.6 t), 2018 (66.6 t), 2019 (58.6 t) and 2020 (43 t). Catch has remained relatively low but stable from 2020 to 2025.

CPUE was generally stable over two periods: 1980 to 1989 (mean 23.8 kg.hr^{-1}) and 1990 to 2000 (mean 25.6 kg.hr^{-1}), after which it increased rapidly (20%) to a historic high in 2006 (30.7 kg.hr^{-1}; Figure 3.1a). CPUE then declined over 13 years between 2006 and 2019 (20.0 kg.hr^{-1}; 35%) and, in 2019, was the lowest value on record. Subsequently, CPUE has steadily increased and, in 2025 (23.5 kg.hr^{-1}) was equivalent to the mean value observed between 1980 and 1989 (Figure 3.1 a, b). The 2025 value from the combined trend of relative catch and relative CPUE was the second lowest value on record (Figure 3.1c), with the seven lowest values occurring between 2018 and 2025. This trend is also evident for most SAU's (Appendix 6.5).

Fishing effort across depth ranges remained relatively stable from 2009 to 2024 but fishing in shallower water (2-10 m) increased in 2025 (Figure 3.1d).

3.1.2 Catch and CPUE within Regions of the WZ

The percent of catch harvested from the four regions remained similar from the introduction of quota in 1985 to 2006, whereafter it generally decreased in the Streaky Bay region from 2006 and Elliston from 2010 and increased substantially in Port Lincoln between 2010 and 2015 and has remained higher than the other three regions from 2015 to 2025 (Figure 3.2a). Catch from the Far West region remained relatively stable at a low percentage between 1984 and 2019 but decreased to zero in 2021, 0.1 t from 2022 to 2024 and 0.03 t in 2025.

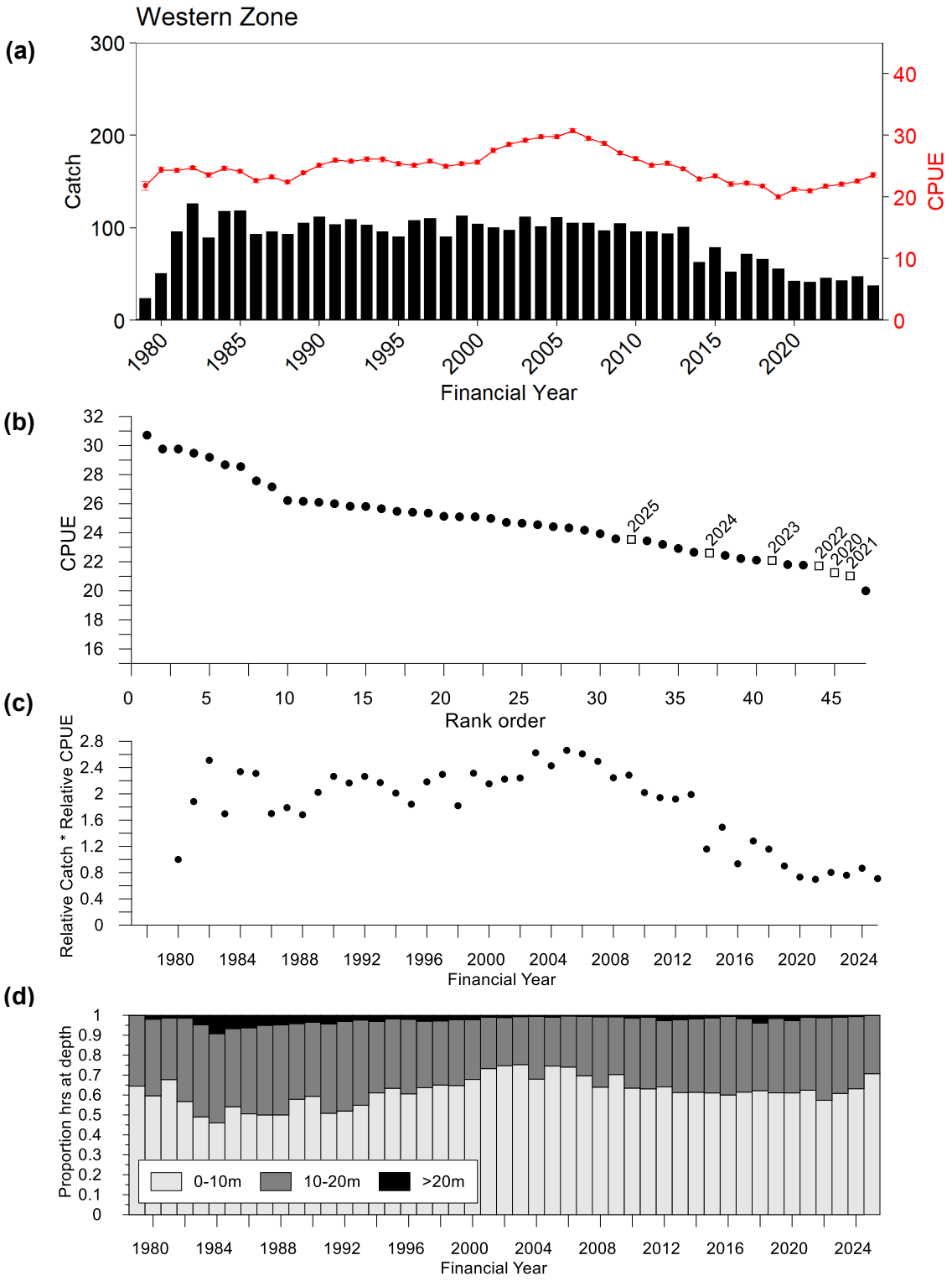


Figure 3.1. Blacklip **(a)** Catch (t, meat weight; black bars) and CPUE ± se (kg.hr^{-1}; solid red line) from the Western Zone from 1979 to 2025. **(b)** Rank order of Western Zone blacklip CPUE (kg.hr^{-1}). Last six years are marked with open square symbols. **(c)** Combined trend of relative catch and relative CPUE from the Western Zone from 1979 to 2025. **(d)** Proportion of hours fished in the Western Zone at three depth ranges (see legend) using fishing records where blacklip constituted 75% or more of the catch.

The CPUE in the Port Lincoln region was relatively stable from 1980 to 2000, whereafter it increased and, in 2007, reached a peak of 31.1 kg.hr^{-1} (Figure 3.2b). CPUE then declined consistently from 2007 to 2019, with the 2019 value (18.5 kg.hr^{-1}) the lowest on record. Subsequently CPUE has steadily increased and in 2025 was 22.2 kg.hr^{-1}. Similarly, the CPUE from the Elliston and Streaky Bay regions generally decreased from peaks in the mid-2000's, with CPUE from the Elliston region decreasing to the lowest value on record in 2020 (21.9 kg.hr^{-1}) but increasing by 2025 (Figure 3.2b; 25.5 kg.hr^{-1}). CPUE in the Streaky Bay region decreased from the peak in 2006 to 2010, whereafter it remained relatively stable at a lower level from 2010 to 2025. (Figure 3.2b). The Far West region CPUE was relatively stable from 1987 to 2009, whereafter it varied considerably among years and had the lowest recorded values for this region from 2017 to 2020, with CPUE not able to be estimated for the period 2021-2025 (Figure 3.2b).

3.1.3 Distribution of catch among spatial assessment units

In 2025, the seven SAU's from which more than 5% of the total blacklip catch was harvested were Drummond South (20.7%), Drummond North (15.9%), Point Westall (12.6%), Sheringa (12.6%), Avoid Bay (6.8%), Reef Head (6.3%) and Searcy Bay (5.6%). Cumulatively, they represented 75% of the catch. This differed from the SAU's that exceeded 5% of the blacklip catch in 2023 (Stobart 2023) and represented 81% of the catch, primarily because Point Avoid catch decreased to less than 5% of the total blacklip catch. The distribution of catch among SAU's changed between 2024 and 2025, with the largest changes being increases at Avoid Bay (0.91 t; 1.9% to 2.6 t; 6.8%) and decreases at Sheringa (8.4 t; 17.8% to 4.7 t; 12.6%) and Elliston Cliffs (1.1 t; 2.4% to 0.3 t; 0.9%).

The MDS plot shows five groupings of years based on CLUSTER analysis (75% similarity) where the distribution of blacklip catch in SAU's within each group was similar (Figure 3.4). The longest period of similarity occurred during a period when the catch contribution from SAU's was more diverse and lasted 19 years from 1992 to 2010. During this period, the catch contribution was more evenly distributed among SAU's and generally changed less abruptly between years (Figure 3.3). Catch distribution over the last fifteen years formed another cluster, with blacklip catch obtained from fewer SAU's, primarily Drummond, Sheringa, Point Westall, Searcy Bay, Reef Head, Point Avoid, Avoid Bay and Anxious Bay. Notable catch reductions were observed from Ward Island, Venus Bay, Baird Bay, Flinders Island and Hotspot during this period.

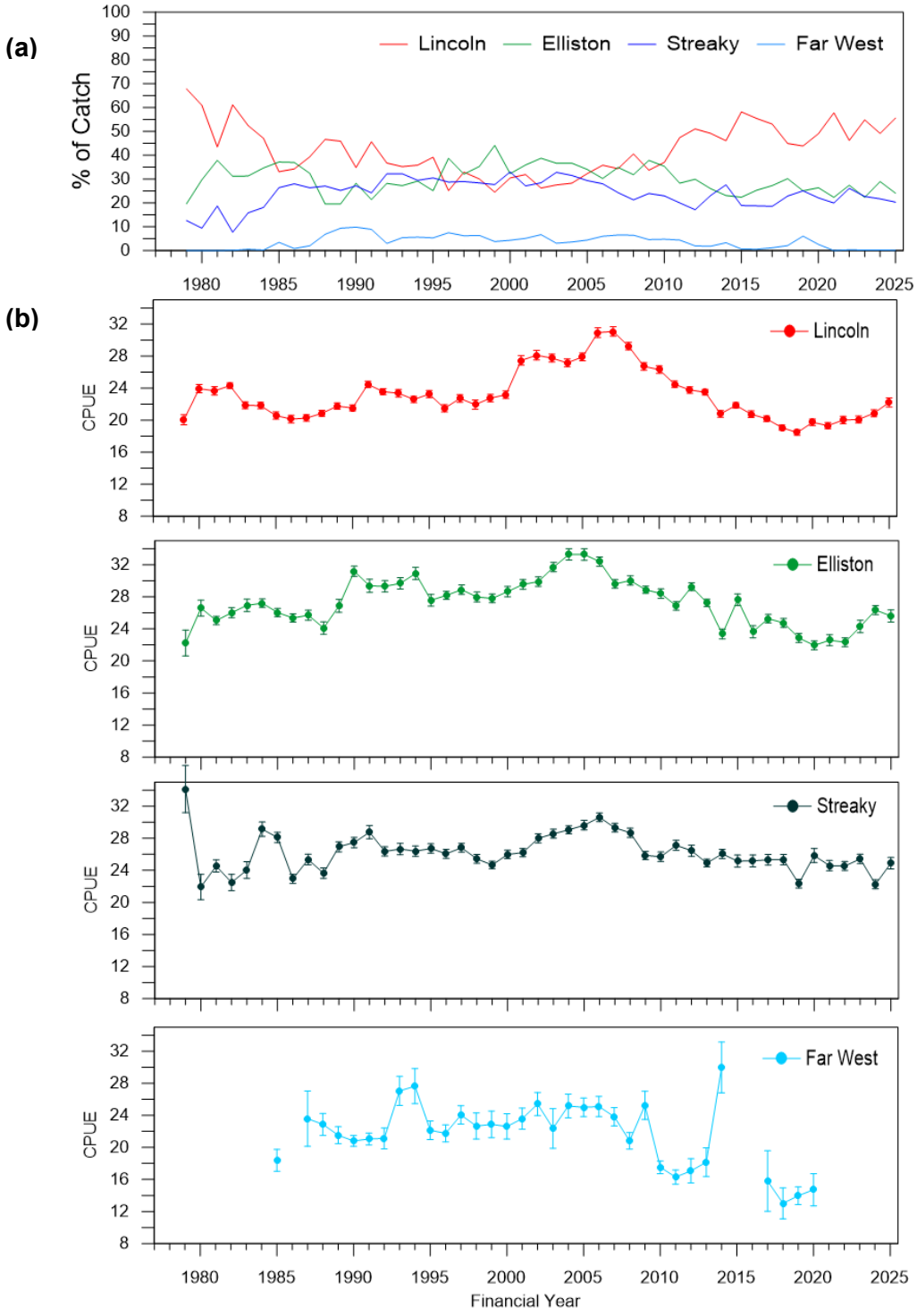


Figure 3.2. Blacklip **(a)** Comparison between percent catch and **(b)** CPUE ± se (kg.hr^{-1}) at Western Zone regions (see legend) from the 1979 to 2025 financial years.

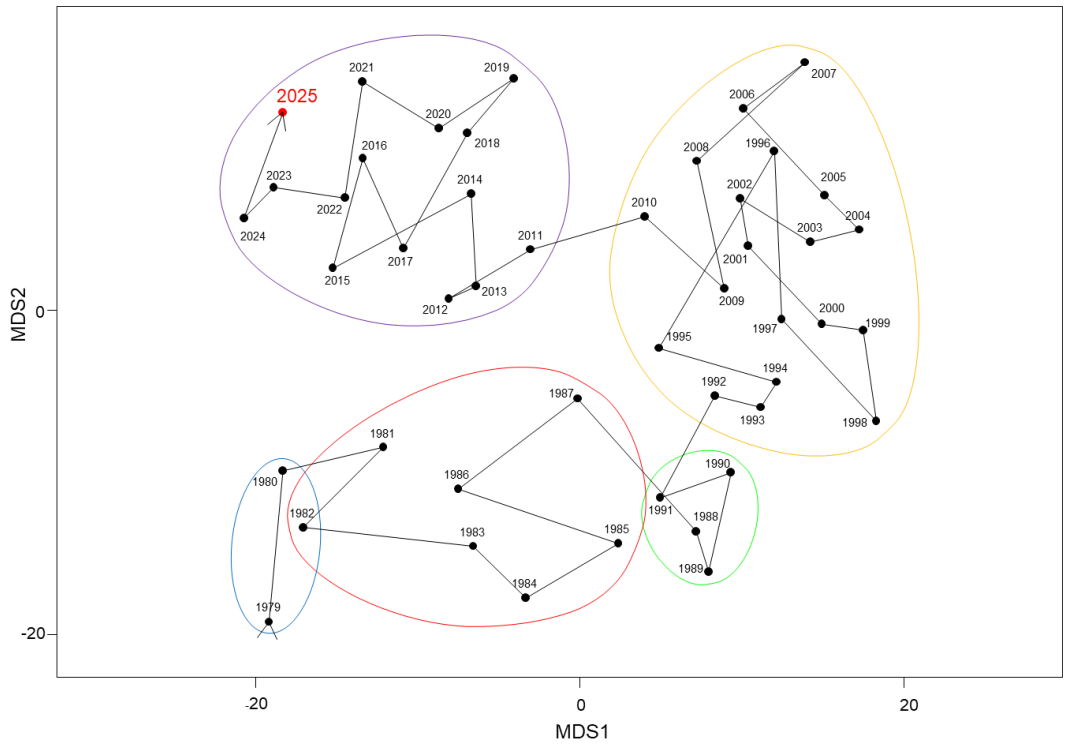


Figure 3.4. Multi-dimensional scaling (MDS) plot for SAU's showing similarity among years based on blacklip catch from the Western Zone from the 1979 to 2025 financial year. 2D stress = 0.20. coloured lines indicate numbered clusters with 75% similarity.

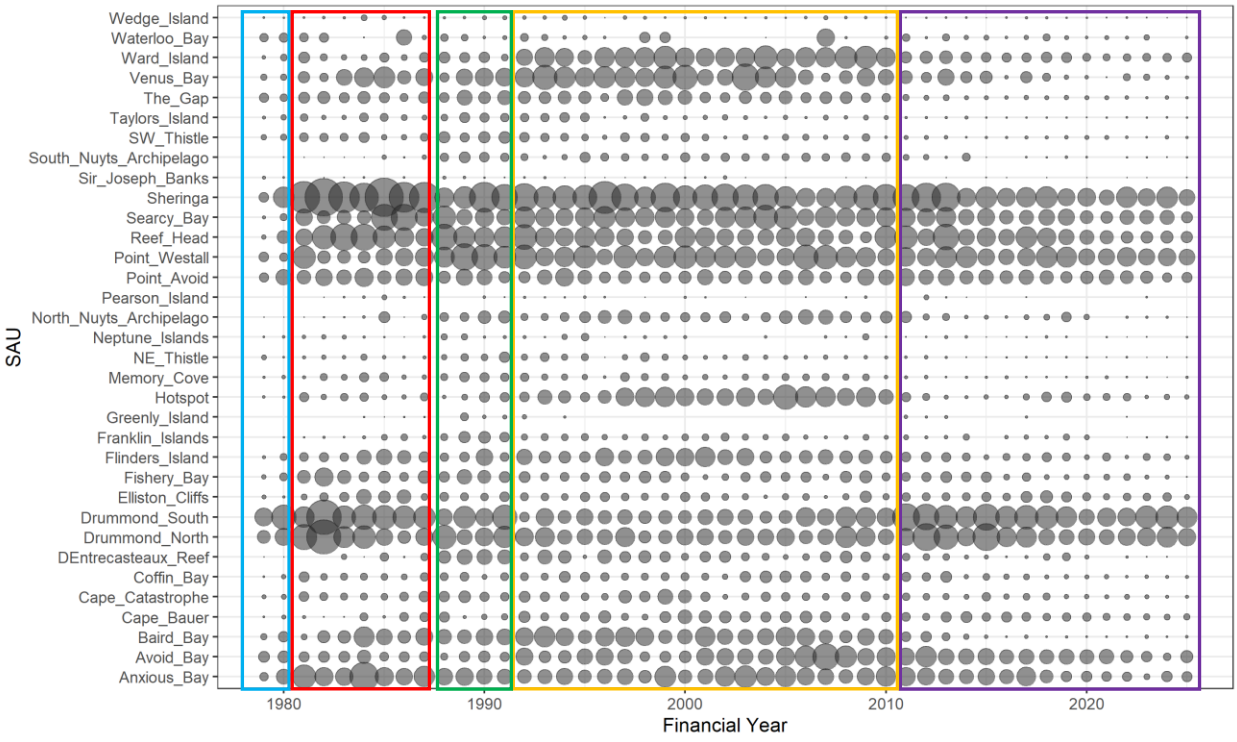


Figure 3.3. Bubble plot showing the spatial distribution of blacklip catch (% of total catch) among WZ SAU's from the 1979 to 2025 financial years. Coloured boxes represent clusters from the MDS in Figure 3.3.

3.1.4 Distribution of harvest strategy scores among spatial assessment units

Nine of the 14 SAU's scored for CPUE had values below 5, including three of the four amalgamated low catch SAU's (Figure 3.5). One SAU, Avoid Bay, had a score for legal density below 5. The SAU's with a combined score below 5 contributed 78% of the 2025 financial year blacklip catch.

The combined scores showed mostly improved scores in 2025 relative to 2024 (Figure 3.6a), with the exception of decreases in both combined and CPUE scores from Sheringa, Anxious Bay and the Elliston Low SAU's, noting that the lower combined score for Sheringa reflects the delay in undertaking the 2025 FIS while the 2023 survey for this SAU increased the 2024 score.

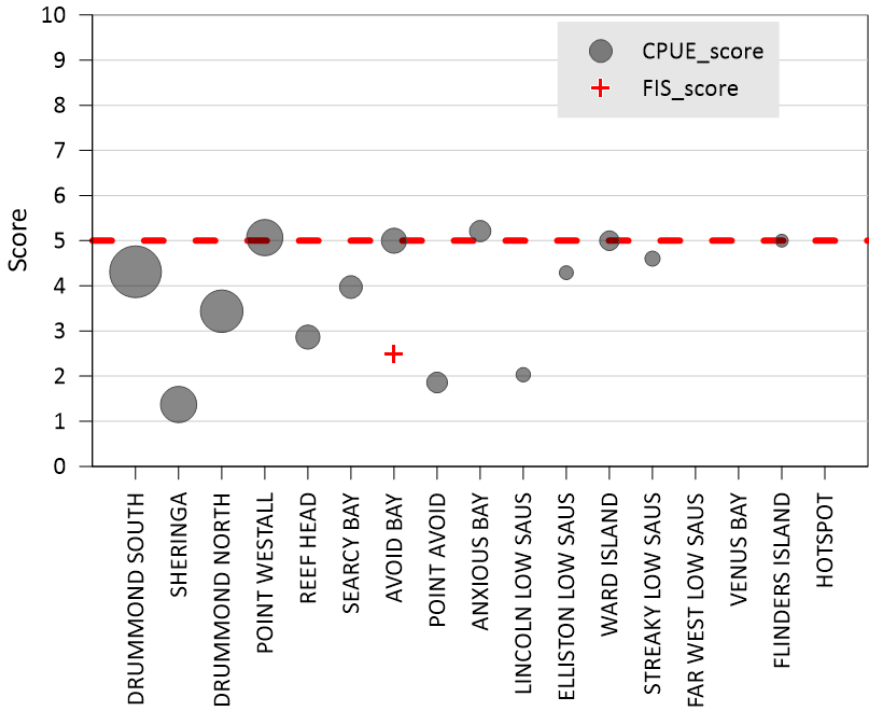


Figure 3.5. Blacklip SAU CPUE and legal density scores for the 2025 financial year (see legend). Bubble size for CPUE indicates % of WZ catch in the 2025 financial year. SAU's sorted left to right by decreasing HS catch contribution in 2025. Dashed red line shows target score of 5.

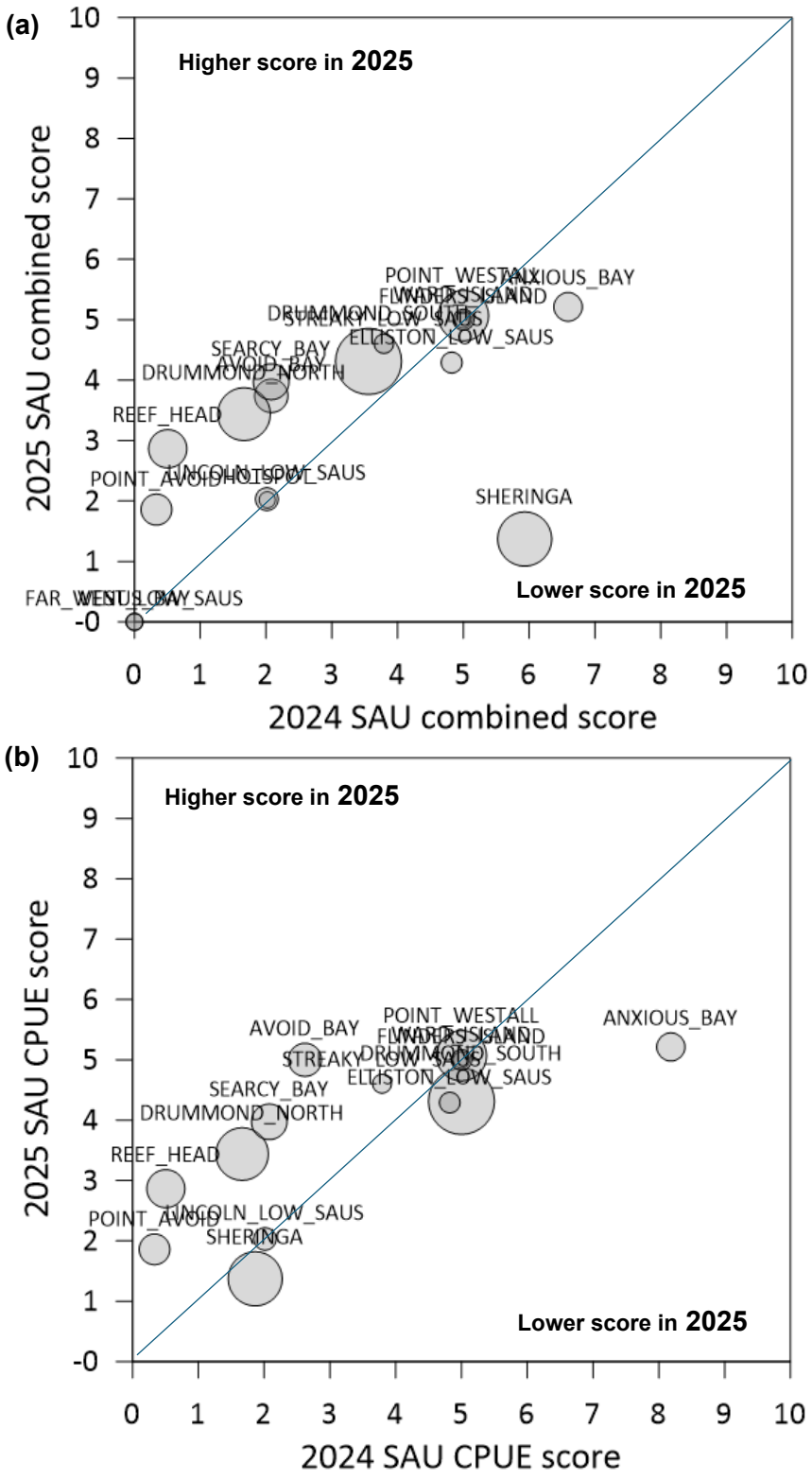


Figure 3.6. Comparison of blacklip HS (a) SAU combined scores and (b) SAU CPUE scores between 2024 and 2025. Bubble size indicates catch proportion in 2025.

3.1.5 Temporal patterns in spatial assessment units

Drummond South

Following very high catch in 1982 (23.3 t), catch generally decreased to the lowest on record in 1992 (1.6 t; Figure 3.7). Catch remained relatively low between 1993 and 2005, wheareafter it increased to a peak in 2011 (14.0 t). Catch from this SAU then decreased to 4.4 t in 2020 but has since increased and, in 2025, was 7.7 t. CPUE generally increased from 1979 (22.0 kg.hr^{-1}) to the maximum in 2006 (32.2 kg.hr^{-1}) and then declined to the third lowest value in 2019 (19.7 kg.hr^{-1}). Subsequently, CPUE increased and, in 2025, was 22.5 kg.hr^{-1}, but remains below the lower limit of the target reference band of the HS.

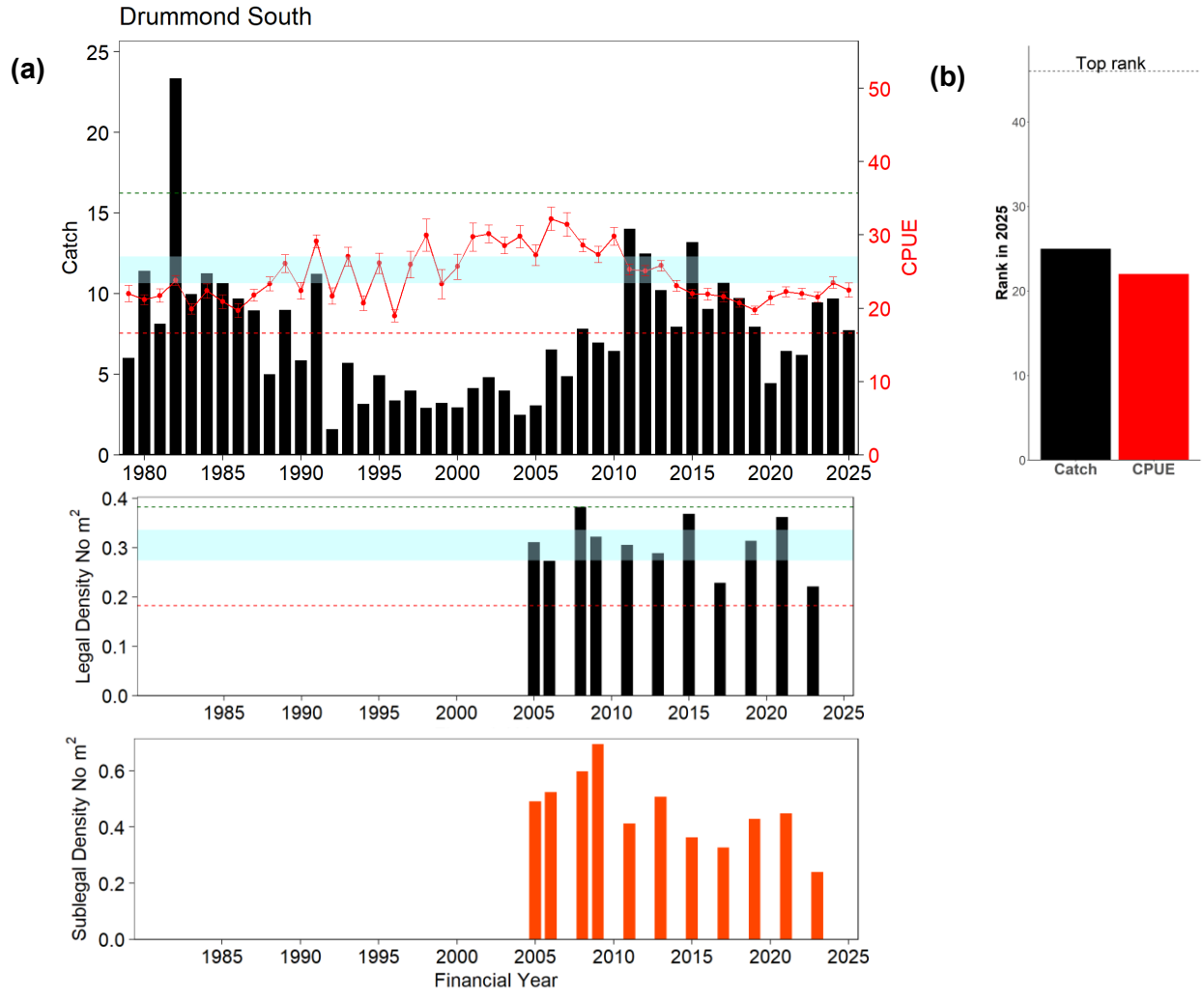


Figure 3.7. Drummond South blacklip **(a)** Catch (t meat weight, top plot black bars), CPUE ± se (kg.hr^{-1}, solid red line) and legal and sub-legal-sized mean density (abalone.m^{-2}, bottom plots black and red bars, respectively) from the 1979 to 2025 financial years. For the HS, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue for performance indicators CPUE and legal-sized mean density. Density is from cross drop fishery-independent surveys from mapcode 12B. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

FI surveys at Drummond South indicated the density of legal-sized blacklip in 2023 was the lowest recorded since surveys began in 2005 and below the target reference band of the HS (HS score 2.1; Figure 3.7). The density of sub-legal-sized blacklip remained similar from 2005 to 2021 but decreased 47% between 2021 and 2023 to the lowest values on record (Figure 3.7).

Drummond North

With the exception of very high catch in 1982 (22.3 t), and high catches in 2012 and 2015 (~13.7 t), catch from Drummond North has ranged between 2.7 t and 11.5 t (average 5.7 t; Figure 3.8). In 2025 catch was 5.9 t. CPUE generally increased from 1979 (21.1 kg.hr^{-1}) to the maximum in 2007 (31.3 kg.hr^{-1}). It subsequently declined consistently and, in 2019, was the lowest value on record (19.7 kg.hr^{-1}) and close to the lower limit reference point. CPUE has subsequently increased and in 2025 was 23.2 kg.hr^{-1}, but remains below the target reference band of the HS.

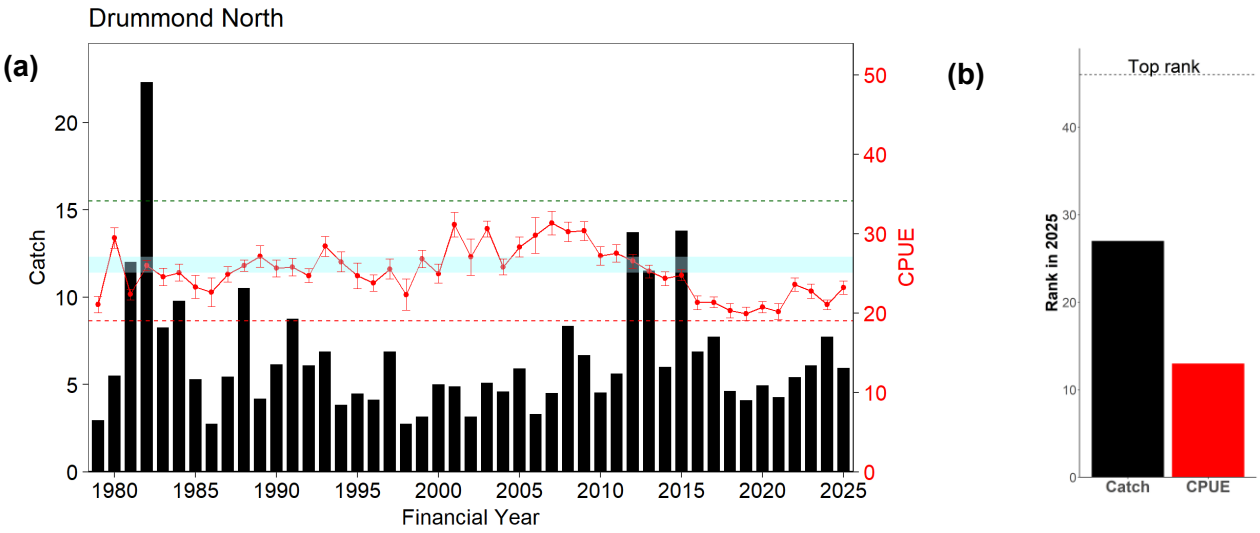


Figure 3.8 Drummond North blacklip **(a)** Catch (t meat weight, black) and CPUE ± se (kg.hr^{-1}, solid red line) from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Sheringa

Annual catches from Sheringa have oscillated among years with substantially larger catches (>27 t) harvested from this SAU in 1982 (27.6 t) and 1985 (28.6 t; Figure 3.9). Lower catches from 2006 to 2007 were the consequence of industry agreeing with PIRSA to reduce the level of catch from this SAU for this period. Catches decreased 58% from 2013 to 2014 (6.4 t) and have remained relatively low thereafter with 4.7 t caught in 2025. CPUE generally increased from 1979 to a peak in 2006 (35.1 kg.hr^{-1}), then decreasing, with the value in 2020 (21.7 kg.hr^{-1}) the lowest

on record and below the limit reference point of the HS for Sheringa. CPUE subsequently increased to 25.1 kg.hr^{-1} in 2023, close to the limit reference point of the HS.

The FI surveys at Sheringa indicate that the density of legal-sized blacklip halved between 2008 and 2009, remained relatively low until 2021 (<0.15 m^{-2}) and, in 2023, more than doubled to the highest value on record (Figure 3.9). Excepting higher values in 2005 and 2008, the density of sub-legal-sized blacklip varied at a relatively low level from 2005 to 2021 and, in 2023, increased to the highest value on record (Figure 3.9).

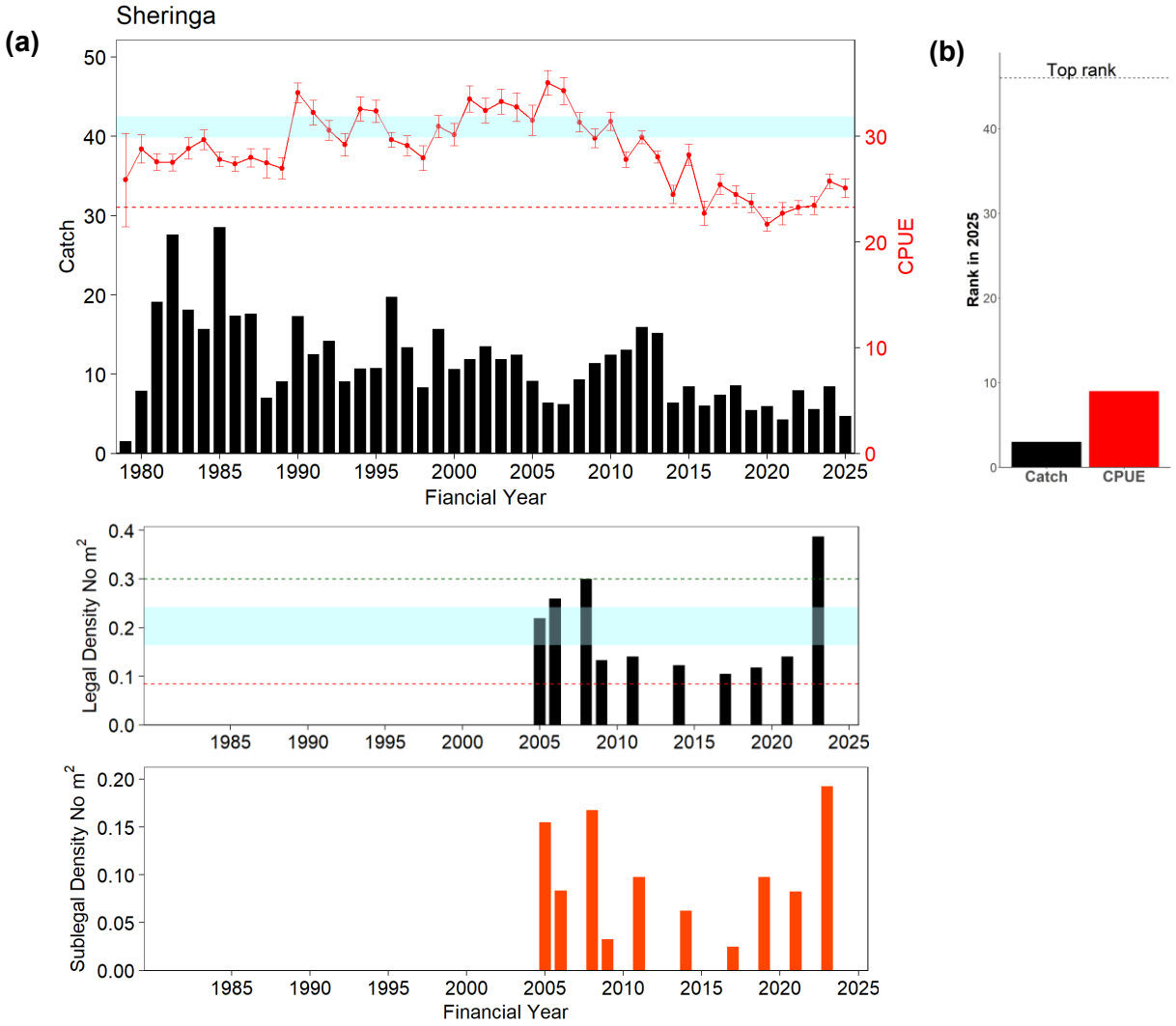


Figure 3.9. Sheringa blacklip **(a)** Catch (t meat weight, top plot black bars), CPUE ± se (kg.hr^{-1}, solid red line) legal and sub-legal-sized mean density (abalone.m^{-2}, bottom plots black and red bars, respectively) from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue for performance indicators CPUE and legal-sized mean density. Density is from cross drop fishery-independent surveys from mapcode 11A. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Point Westall

Except for the high catch in 1981 (9.9 t), catches from Point Westall increased from 1979 to a peak in 1989 (13.3 t; Figure 3.10). Subsequently, catch has oscillated between 1990 and 2025, ranging between 12.t and 4.4 t. Catch in 2025 was 4.7 t. Following a high value in 1979 (40.1 kg.hr^{-1}) and the lowest value recorded in 1982 (19.0 kg.hr^{-1}), CPUE has remained relatively stable and, in 2025, was 24.9 kg.hr^{-1} and above the target reference band of the HS.

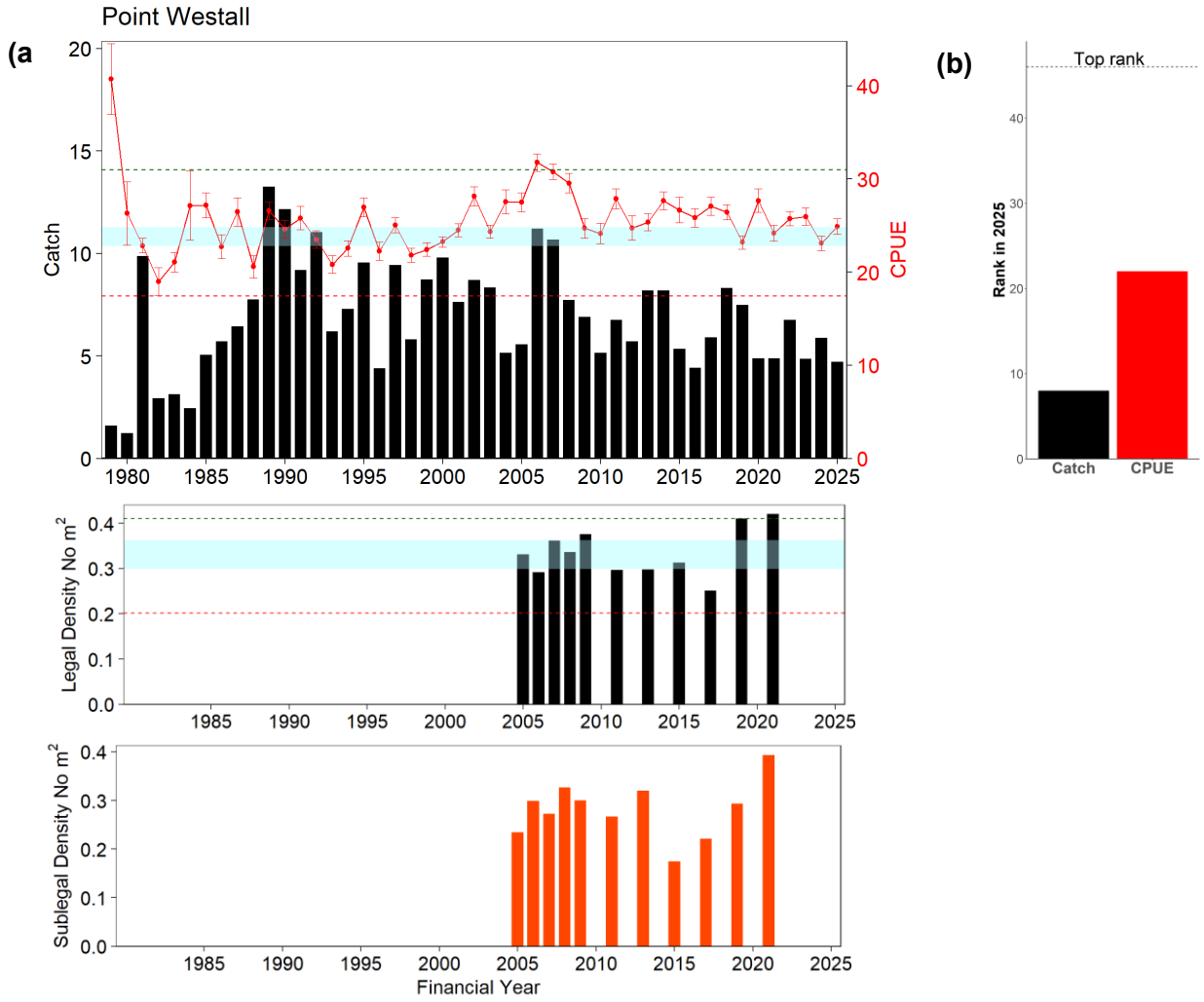


Figure 3.10. Point Westall blacklip **(a)** Catch (t meat weight, top plot black bars), CPUE ± se (kg.hr^{-1}, solid red line) and legal and sub-legal-sized mean density (abalone.m^{-2}, bottom plots black and red bars, respectively) from Point Westall from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue for performance indicators CPUE and legal-sized mean density. Density is from cross drop fishery-independent surveys from mapcode 4B. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

The density of legal-sized blacklip remained relatively stable from 2005 to 2015, was the lowest recorded in 2017, and subsequently increased in 2019 and 2021, with these being the highest

values recorded (Figure 3.10). Densities of sub-legal-sized blacklip at Point Westall remained relatively stable from the year surveys began in 2005 to 2013, whereafter they almost halved in 2015 (Figure 3.10). Sub-legal density then increased consistently from the low value in 2015 to the highest recorded value in 2021.

Avoid Bay

Catch from Avoid Bay was relatively low between 1979 and 1991 (< 2.5 t), variable from 1992 to 2000 and relatively stable, ranging from 4–8 t between 2001 and 2021 (Figure 3.11) except for the three-year period from 2006 to 2008 and 2012 when catch was higher (8-13 t). Catch then decreased 77% between 2021 (4.0 t) and 2024 (0.9 t), subsequently increasing to 2.6 t in 2025. CPUE has varied considerably among years but recently declined from the high levels through the mid-2000s to 2015 when it was relatively low (18.1 $kg.hr^{-1}$) remaining close to the lower limit reference point of the HS from 2015 to 2023 (average 18.8 $kg.hr^{-1}$). CPUE has subsequently increased and, in 2025 was 25.6 $kg.hr^{-1}$ and within the target range of the HS.

Except for high values in 2009 and 2019, the density of legal-sized blacklip has fluctuated from 2009 when surveys began to 2021 but subsequently decreased in 2023, when it was the lowest value recorded and below the lower limit reference point of the HS (Figure 3.11). Legal density increased in 2025 but remains below the lower limit reference point of the HS. The density of sub-legal-sized blacklip decreased by over 50% between 2013 and 2015, subsequently increasing to the highest density on record in 2019 (Figure 3.11) and then decreasing to the lowest value on record in 2023. Sub-legal density increased by 76% between 2023 and 2025.

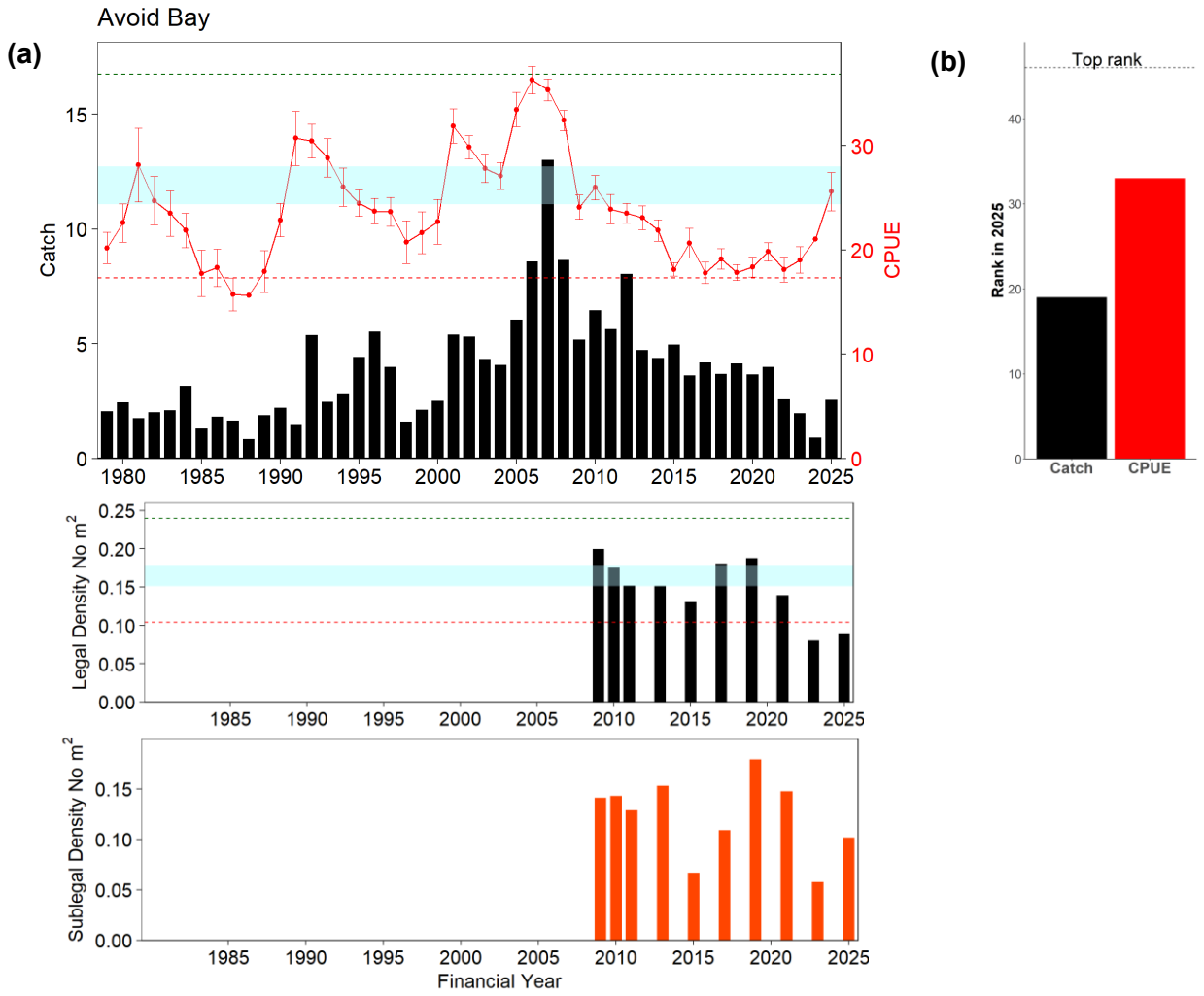


Figure 3.11. Avoid Bay blacklip **(a)** Catch (t meat weight, top plot black bars), CPUE ± se (kg.hr^{-1}, solid red line) and legal and sub-legal-sized mean density (abalone.m^{-2}, bottom plots black and red bars, respectively) from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue for performance indicators CPUE and legal-sized mean density. Density is from cross drop fishery-independent surveys from mapcode 14D. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Anxious Bay

With the exception of high catches in 1981 (10.5 t) and 1984 (15.6 t), annual catches from Anxious Bay have ranged between 2 and 9 t.yr^{-1} (Figure 3.12). However, catch declined consistently from 2017 to 2023 when it was 0.6 t, the lowest value on record, and has been under 2 t since 2020. CPUE was variable between 1979 and 2001, whereafter it increased and remained above the HS target reference point between 2002 and 2012 (average 28.2 kg.hr^{-1}). CPUE then declined to 20.5 kg.hr^{-1} in 2023 when it was among the lowest values on record. CPUE has subsequently

increased and in 2025 was 25.1 hr^{-1} and is at the upper limit of the target reference band of the HS.

The density of legal-sized blacklip increased since surveys began in 2014 and, in 2021, remained relatively high (Figure 3.12). Sublegal density in 2021 was the highest recorded (Figure 3.12).

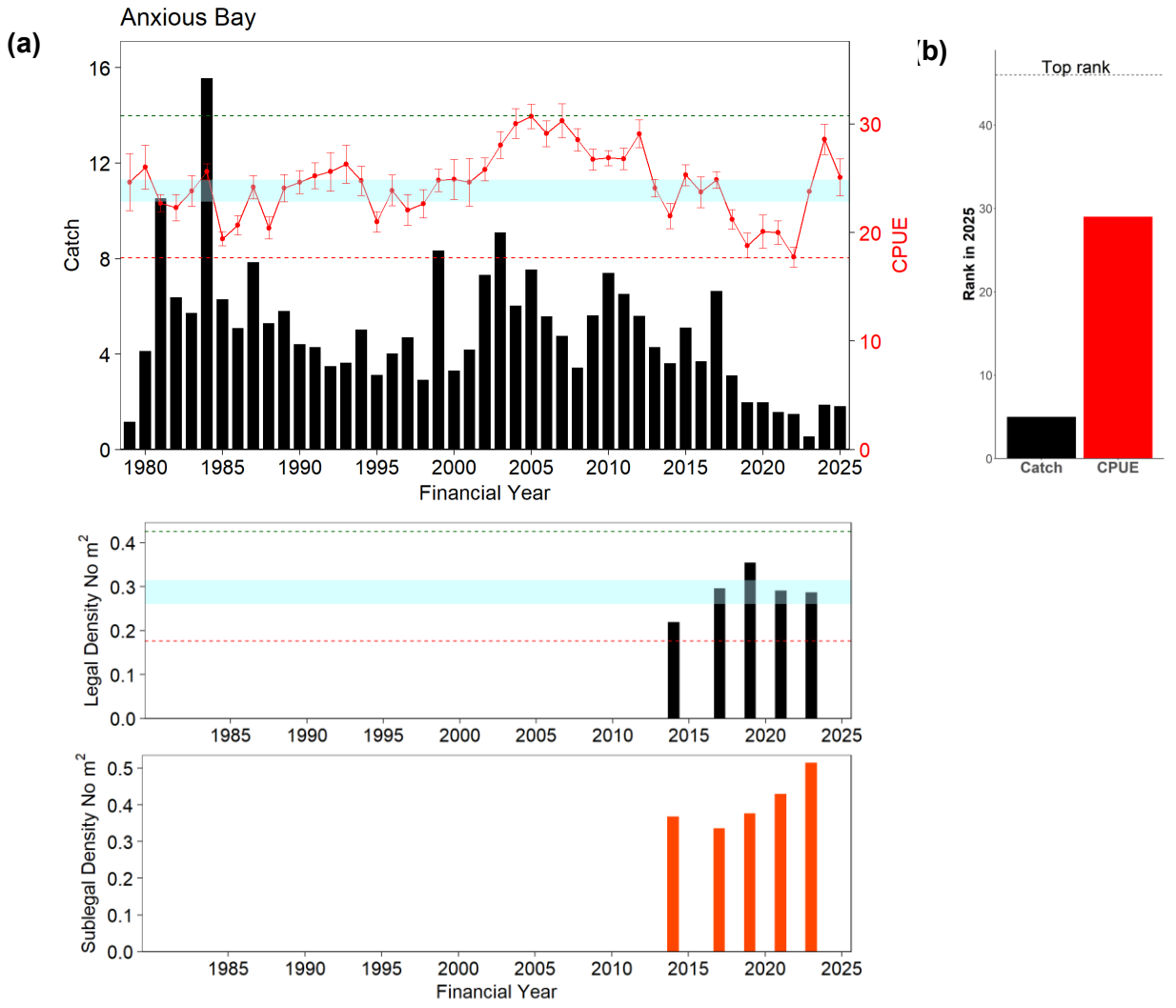


Figure 3.12. Anxious Bay blacklip **(a)** Catch (t meat weight, top plot black bars), CPUE ± se ($kg.hr^{-1}$, solid red line) and legal and sub-legal-sized mean density ($abalone.m^{-2}$, bottom plots black and red bars, respectively) from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue for performance indicators CPUE and legal-sized mean density. Density is from cross drop fishery-independent surveys from mapcode 8B. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Reef Head

Annual catch from Reef Head generally varied and declined from a historic high in 1983 (13.5 t) to the second lowest on record in 2009 (2.1 t; Figure 3.13). Catch then increased 358% from 2009 to 2010 (9.6 t), remaining relatively high until 2019, whereafter it again decreased and, in 2025, was 2.4 t and among the lowest catch on record. CPUE declined 40% from the third highest value on record in 2002 (27.7 kg.hr^{-1}) to the lowest value on record in 2023 (13.8 kg.hr^{-1}), below the HS lower limit reference point. CPUE has subsequently increased and, in 2025, was 19 kg.hr^{-1}.

Searcy Bay

Catch from Searcy Bay increased from the lowest on record in 1979 (0.3 t) to the highest values on record in 1985 and 1986 (~13 t), whereafter it remained relatively stable, ranging between 4 and 11 t.yr^{-1} from 1987 to 2015 (Figure 3.13). Catch then decreased and, in 2025, was 2.1 t. CPUE varied among years from 1980 to 2012, mostly remaining within or above the target reference band of the HS from 1990 to 1997 and 2002 to 2012, but subsequently decreasing and, in 2025 was 24.3 kg.hr^{-1} and below the target reference band of the HS.

Point Avoid

The annual catch from Point Avoid has been relatively stable since 1979, ranging between 1.5 and 6.4 t.yr^{-1} (Figure 3.13. Catch in 2025 (1.7 t) was below the average observed over the 47 years of the fishery (3.5 t). CPUE has fluctuated considerably among years but gradually increased from 1979 to the historical peak observed in 2006 (33.2 kg.hr^{-1}) and then generally declined from 2006 to the lowest value on record in 2018 (17.3 kg.hr^{-1}) that was on the lower limit reference point of the HS. From 2018 to 2025 CPUE has remained close to the lower limit and, in 2025, was 19.0 kg.hr^{-1}.

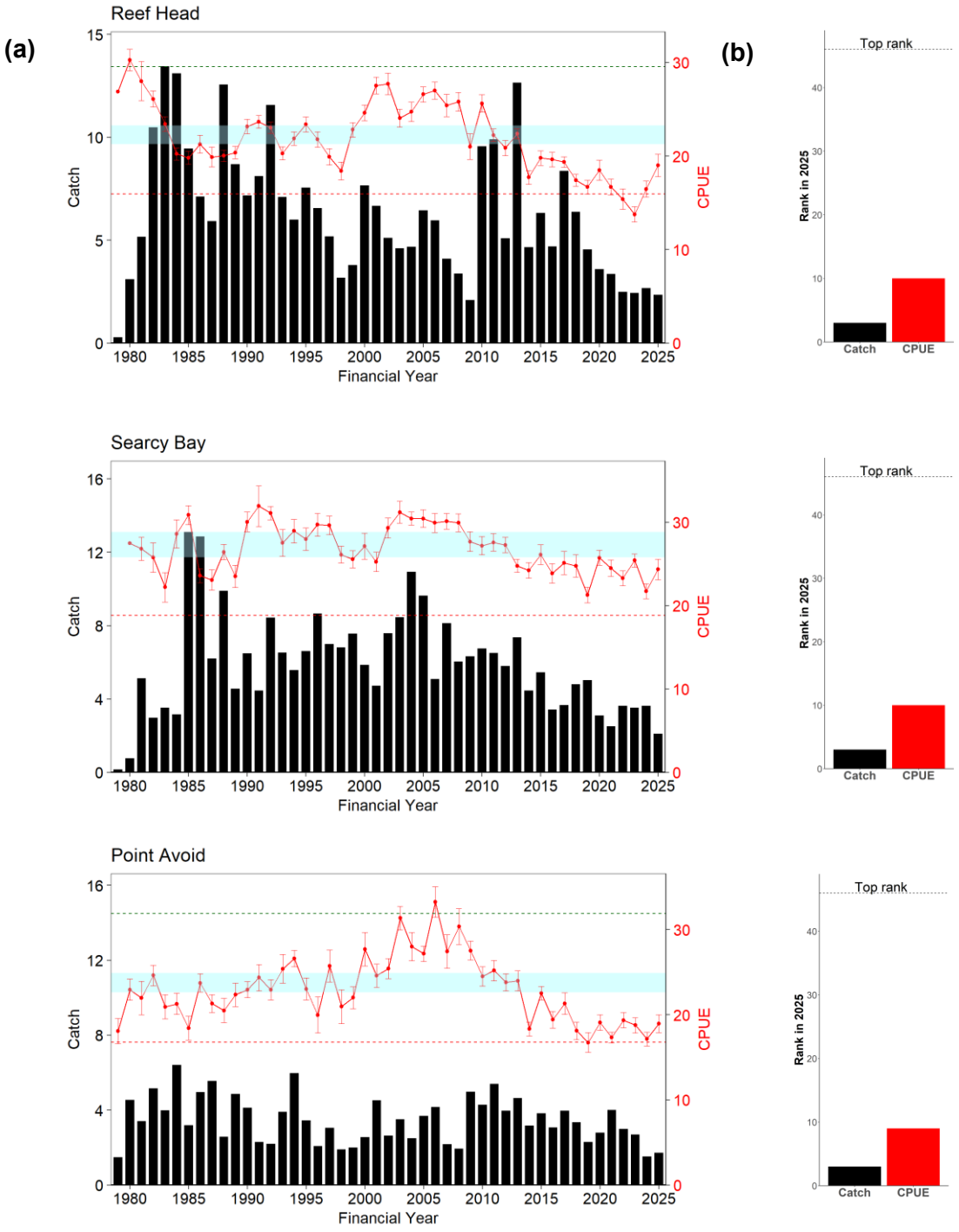


Figure 3.13. Reef Head, Searcy Bay and Point Avoid blacklip **(a)** Catch (t meat weight, black) and CPUE ± se (kg.hr^{-1}, solid red line) from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue. CPUE points lacking error bars are harvest strategy estimates. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Ward Island

Annual catches from Ward Island were less than 2.2 t between 1979 and 1991 (Figure 3.14). Following this, catch more than doubled, remaining high from 1992 to 2010 (about 7 t). In 2011, catch decreased by 62% to the lowest level since 1990 (2.3 t), decreasing to less than 1t in 2020 whereafter there have been small increases and, in 2025, catch was 1.5 t. CPUE was above or within the target reference band between 1989 and 2010, with a peak of 40.3 $kg.hr^{-1}$ in 2005. CPUE then declined and remained within or below the target reference band of the HS between 2011 and 2025.

Venus Bay

Catch from Venus Bay increased substantially from 1979 to 1985 and, except for low catch in 1988, oscillated at a higher level among years up to 2005. Catch then generally decreased and has remained <1 t from 2019 to 2025 (Figure 3.14). With the exception of a low value in 2000, CPUE was relatively stable between 1989 and 2002, whereafter it increased to a historic high in 2005 (34.3 $kg.hr^{-1}$). CPUE then decreased 49% between 2005 and 2020, the lowest value on record and below the lower limit reference point of the HS. CPUE remained low in 2023 and 2024 and could not be estimated in 2021, 2022 or 2025 due to insufficient data.

Flinders Island

Catch from Flinders Island generally increased from 1979 (0.1 t) to the highest on record in 2001 (7.5 t; Figure 3.14). Subsequently, catch decreased between 2001 and 2015 (0.4 t), whereafter it has remained relatively low. CPUE has fluctuated considerably among years and, in 2025, was 24.7 $kg.hr^{-1}$ and within the target reference band for the HS.

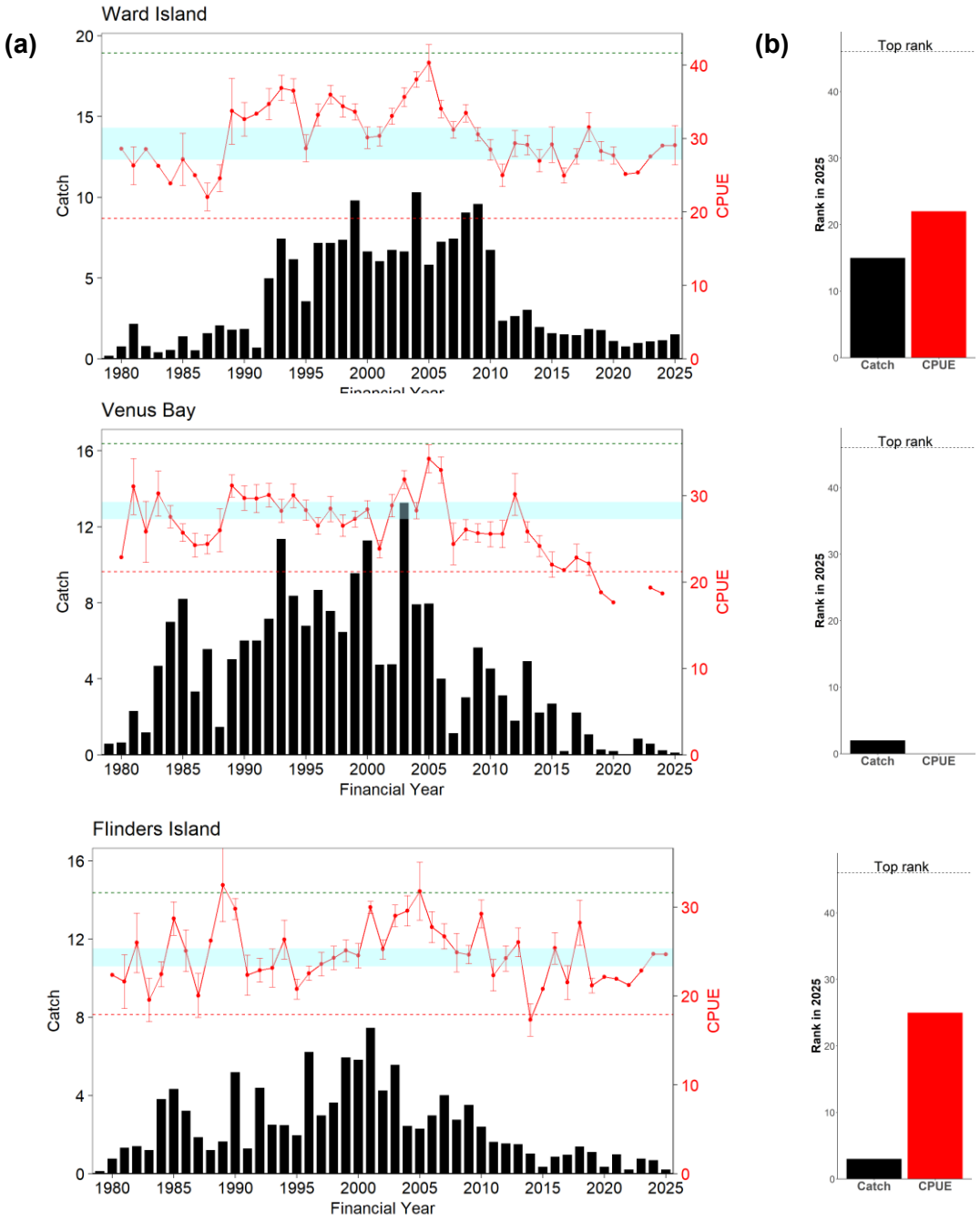


Figure 3.14. Ward Island, Venus Bay and Flinders Island blacklip **(a)** Catch (t meat weight, black) and CPUE ± se (kg.hr^{-1}, solid red line) from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue. CPUE points lacking error bars are harvest strategy estimates. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Hotspot

The annual catch for Hotspot was low from 1979 to 1989 (~1 t) whereafter it increased to a peak in 2005 (11.4 t; Figure 3.15). Subsequently, catch decreased to the third lowest value recorded in 2014 (0.1 t) and, with the exception of 2018 and 2019, has remained below 1 t thereafter. CPUE has fluctuated considerably between years and, in 2023, was 23.8 kg.hr^{-1} and below the target reference band for the HS. CPUE could not be estimated in 2024 or 2025 due to insufficient data.

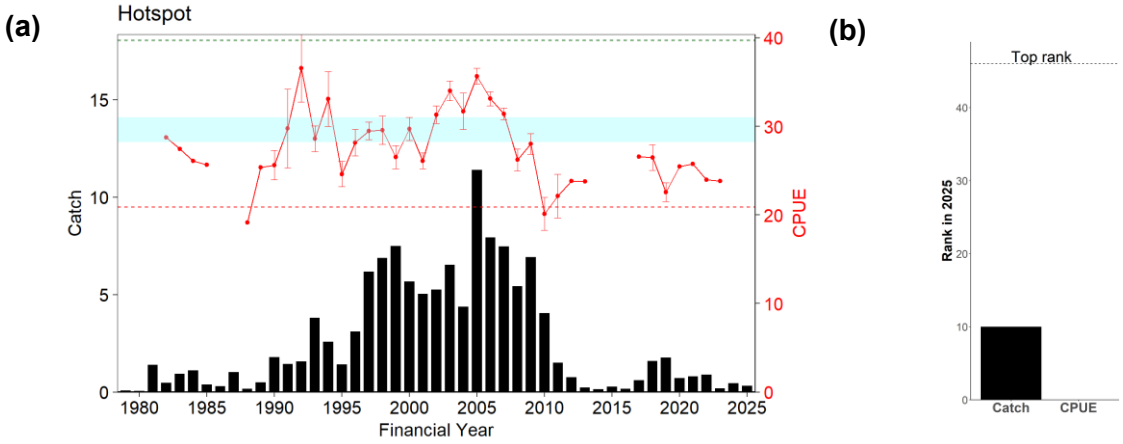


Figure 3.15. Hotspot blacklip **(a)** Catch (t meat weight, black) and CPUE ± se (kg.hr^{-1}, solid red line) of blacklip from the 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue. CPUE points lacking error bars are harvest strategy estimates. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

Temporal patterns in pooled low-catch spatial assessment units

Annual catch and CPUE for the individual low-catch SAU's is provided in Appendix 6.6, while the data pooled by regions is summarised and provided below.

Lincoln low SAU's

Catch has varied among years, with peaks in 1982 (13.9 t), 1989 (19.6 t), 1998 (14.9 t) and 2005 (9.8 t; Figure 3.16). However, catch generally decreased from the peak in 1989 to the lowest value on record in 2025 (0.5 t). CPUE was relatively stable from 1979 to 2001 (~20 $kg.hr^{-1}$), then increased rapidly to a peak of 28.5 $kg.hr^{-1}$ in 2004 and remained above the upper target reference point until 2011. Subsequently CPUE decreased to a value below the lower limit reference point in 2014 (15.4 $kg.hr^{-1}$) and has remained relatively low from 2014 to 2025 with the latter year (17.7 $kg.hr^{-1}$) among the lowest values on record.

Elliston low SAU's

Catch from Elliston has been relatively stable from 1979 to 2023 (average of 1.9 t), excepting high catches in 1986 (7.9 t) and 2007 (6.0 t; Figure 3.16). CPUE has fluctuated between years with low values at or below the limit reference point of 19.4 $kg.hr^{-1}$ in 1979, 1980 and 1999. CPUE was again low in 2020 (19.7 $kg.hr^{-1}$) but has subsequently increased and, in 2025, was 25.0 $kg.hr^{-1}$ and close to the lower value of the target reference band of the HS.

Streaky low SAU's

Catch generally increased from the lowest value on record in 1979 (0.6 t) to the highest value in 2006 (11.5 t). Catch then decreased and, in 2025, was 0.7 t, the third lowest value on record (Figure 3.16). CPUE was relatively low from 1979 to 1983 and in 1986 (~ 21 $kg.hr^{-1}$) and varied among years at a higher value between 1984 and 2025 (average 26.3 $kg.hr^{-1}$). In 2025, CPUE was close to the lower value of the target reference band of the HS (25.0 $kg.hr^{-1}$).

Far West low SAU's

Annual catches were low between 1979 and 1984 (Figure 3.16). Following this, except for 1986 (0.8 t), catch increased substantially and averaged 5.7 t from 1985 to 2011. Catch then decreased 57% from 2011 (4.2 t) to 2012 (1.8 t), and except for 2019, varied at a lower level from 2012 to 2025. Catch in 2025 was 0.03 t. CPUE was relatively stable from 1995 to 2009 (~ 23.5 $kg.hr^{-1}$) whereafter, except for a high value in 2014 (30.0 $kg.hr^{-1}$), it generally decreased to the lowest value on record in 2016 (13.0 $kg.hr^{-1}$), remaining low and below the lower limit reference point of the HS from 2016 to 2020. CPUE was inestimable from 2021 to 2025 due to insufficient data.

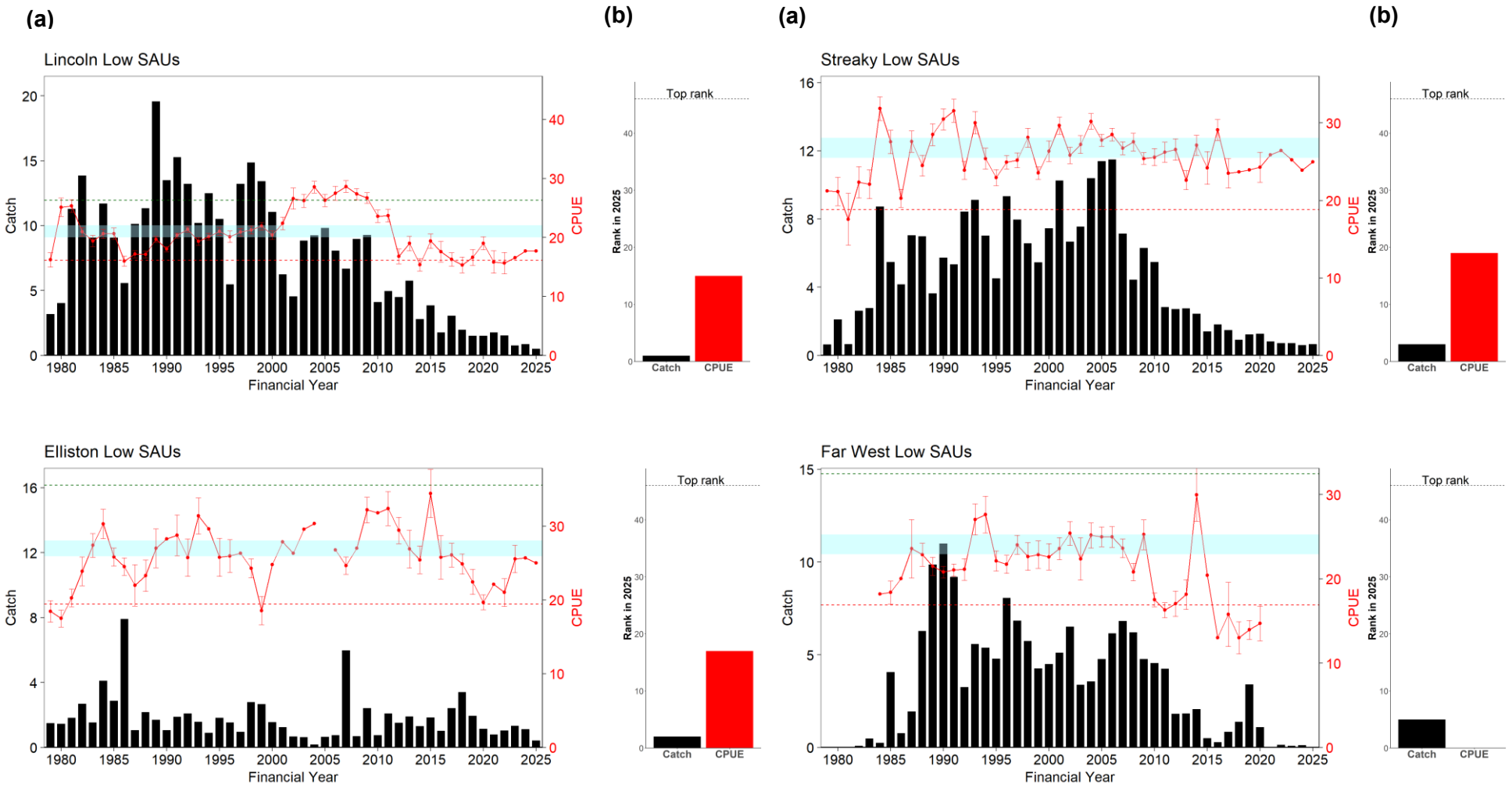


Figure 3.16. Lincoln, Elliston, Streaky and Far West blacklip Low SAU's **(a)** Catch (t meat weight, black) and CPUE ± se (kg.hr^{-1}, red) from 1979 to 2025 financial years. For the harvest strategy, the horizontal green and red dashed lines show the upper and limit reference points, respectively, and the target reference band is shaded light blue. CPUE points lacking error bars are harvest strategy estimates. **(b)** Rank of Catch and CPUE in 2025 relative to historic.

3.1.6 Harvest strategy – zone score and stock status

The catch-weighted zonal score for the 2025 financial year was 3.46 (Table 3.1, Figure 3.17). In combination with the zone trend score of 5.0 (Appendix 6.8, Table 6.18; reflecting a stable trend), these define the stock status for blacklip in the WZ in the 2025 financial year as **'sustainable'** (Figure 3.18).

The outcome of the HS for 2025 is affected by the lack of FIS information for Point Westall, Anxious Bay, Sheringa and Drummond in 2025 (see section 2.3). Calculation of the HS using the alternative approach where density estimates from these SAU's for 2023 are carried over to 2025 is provided in Appendix 6.8 (Table 6.19). This alternative option also defines stock status as 'sustainable'.

Table 3.1. Outcome of application of the harvest strategy described in the Management Plan for the South Australian Abalone Fishery to blacklip in the 2025 financial year. Combined score is half the sum of the CPUE and legal density scores.

SAU	CPUE	CPUE score	Legal density	Legal density score	Combined score	2024/25 Catch	Catch Proportion	Weighted SAU score
DRUMMOND SOUTH	22.48	4.31			4.31	7.73	0.16	0.69
SHERINGA	25.10	1.37			1.37	4.71	0.13	0.17
DRUMMOND NORTH	23.21	3.44			3.44	5.93	0.12	0.42
POINT WESTALL	24.90	5.07			5.07	4.72	0.11	0.58
REEF HEAD	19.00	2.86			2.86	2.35	0.08	0.22
SEARCY BAY	24.37	3.97			3.97	2.10	0.07	0.28
AVOID BAY	25.60	5.00	0.09	2.48	3.74	2.55	0.06	0.24
POINT AVOID	18.95	1.86			1.86	1.71	0.06	0.10
ANXIOUS BAY	25.11	5.21			5.21	1.82	0.05	0.25
LINCOLN LOW SAU's	17.71	2.03			2.03	0.50	0.03	0.07
ELLISTON LOW SAU's	24.99	4.29			4.29	0.42	0.03	0.11
WARD ISLAND	29.11	5.00			5.00	1.50	0.03	0.13
STREAKY LOW SAU's	24.96	4.60			4.60	0.65	0.02	0.10
FAR WEST LOW SAU's					0.00	0.03	0.01	0.00
VENUS BAY					0.00	0.12	0.01	0.00
FLINDERS ISLAND	24.67	5.00			5.00	0.21	0.01	0.07
HOTSPOT					2.02	0.33	0.01	0.03
				Total Catch and Zone Score		***37.41***		***3.46***

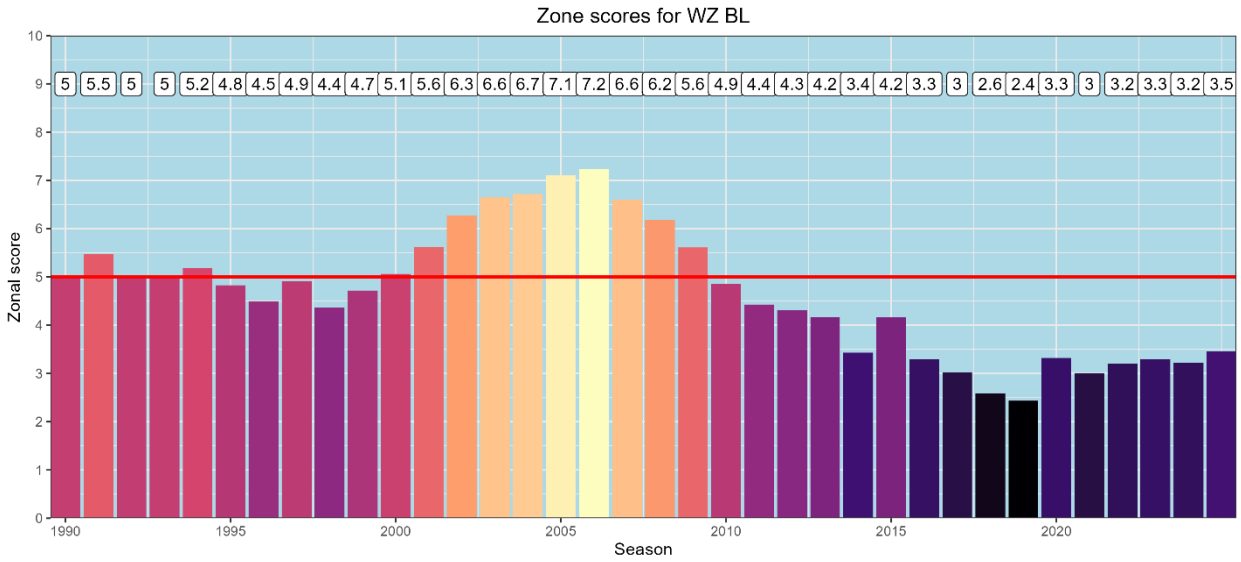


Figure 3.17. Zone score for blacklip from 1990 to 2025. Red line indicates target zone score of 5, numbers above bars are the zone score.

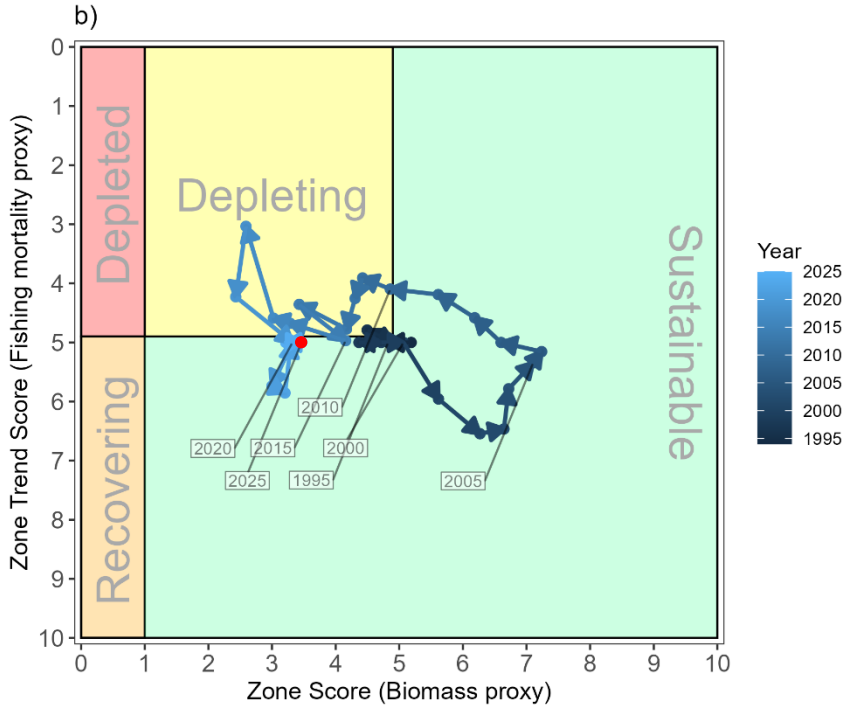


Figure 3.18. Phase plot showing the WZ changes in blacklip stock status from 1994 to 2025.

3.2 Greenlip

3.2.1 Western Zone

Total catches were relatively stable from the introduction of Region A quota in 1985 (98 t) to 2019, with catch ranging from 62.1 in 2014 to a high of 120.8 t in 1988 over this period (Figure 3.19 a). Subsequently, greenlip catch has reduced 40% between 2019 (69.1 t) and 2023 (41.2 t), remaining low in 2024 (44.4 t) and 2025 (44.3 t).

CPUE fluctuated from 1979 to 1998 (mean 21.5 $kg.hr^{-1}$), whereafter it increased to a peak of 29.9 $kg.hr^{-1}$ in 2005. CPUE then decreased 34% from 2005 to 2019, the fifth lowest value on record (Figure 3.19 a), but has subsequently increased from 2019 to 2025, with the largest increase occurring from 2022 to 2023 (17%). The increase in CPUE between 2022 (20.8 $kg.hr^{-1}$) and 2023 (24.4 $kg.hr^{-1}$) was the greatest inter-annual change in CPUE in the history of the fishery and was observed in multiple SAU's (See Appendix 6.6). In 2025 CPUE was 25. 4 $kg.hr^{-1}$ and the 9^{th} highest value on record. The 2025 value from the combined trend of relative catch and relative CPUE remained amongst the lowest values on record but has increased since 2022 that was the lowest value on record (Figure 3.19 c). This trend is also evident for most SAU's (Appendix 6.5).

Fishing effort in the 0–10 m depth range had small decreases from 2002 to 2022, with corresponding small increases occurring in the deeper ranges (Figure 3.19 d). However, this trend has recently reversed with fishing effort increasing in the 0–10 m depth range from 2022 to 2025.

The recent increase in CPUE coincides with greenlip being increasingly fished from mid to late autumn to early winter (April – June) rather than summer (Figure 3.21 a). The recent increase in CPUE also remains evident if the CPUE estimate is restricted to April-June and back calculated to the 1919/80 financial year (Figure 3.21 b). This suggests that the recent increase in CPUE is the result of either increased greenlip density, an alternative factor (e.g. change in the greenlip size targeted or the location of new fishing areas) or a combination of these.

3.2.2 Regions and spatial assessment units

While the 2025 CPUE estimate for the Port Lincoln Region was higher in 2025 than 2024, there were small decreases in CPUE for the Elliston and Streaky regions (Figure 3.20). The 2025 CPUE values in these three regions remained above the average values for each region. CPUE was not estimable for the Far West in 2024 or 2025. There were small changes in the distribution of annual catches among SAU's between 2024 and 2025. These included increases in catch from Taylor Island, Reef Head and Drummond South and decreases at Flinders Island and Point Avoid (Figure 3.22). Four of the 14 SAU's scored for CPUE had values below 5, while the three

amalgamated low SAU's that were scored had score values at or above 5 (see Appendix 6.7 for SAU plots). Two of the three SAU's scored for legal density had scores below 5 (Figure 3.23). Greenlip combined and CPUE scores for 2025 were mostly higher than those for 2024, reflecting the large increases in CPUE observed in many SAU's (Figure 3.24)

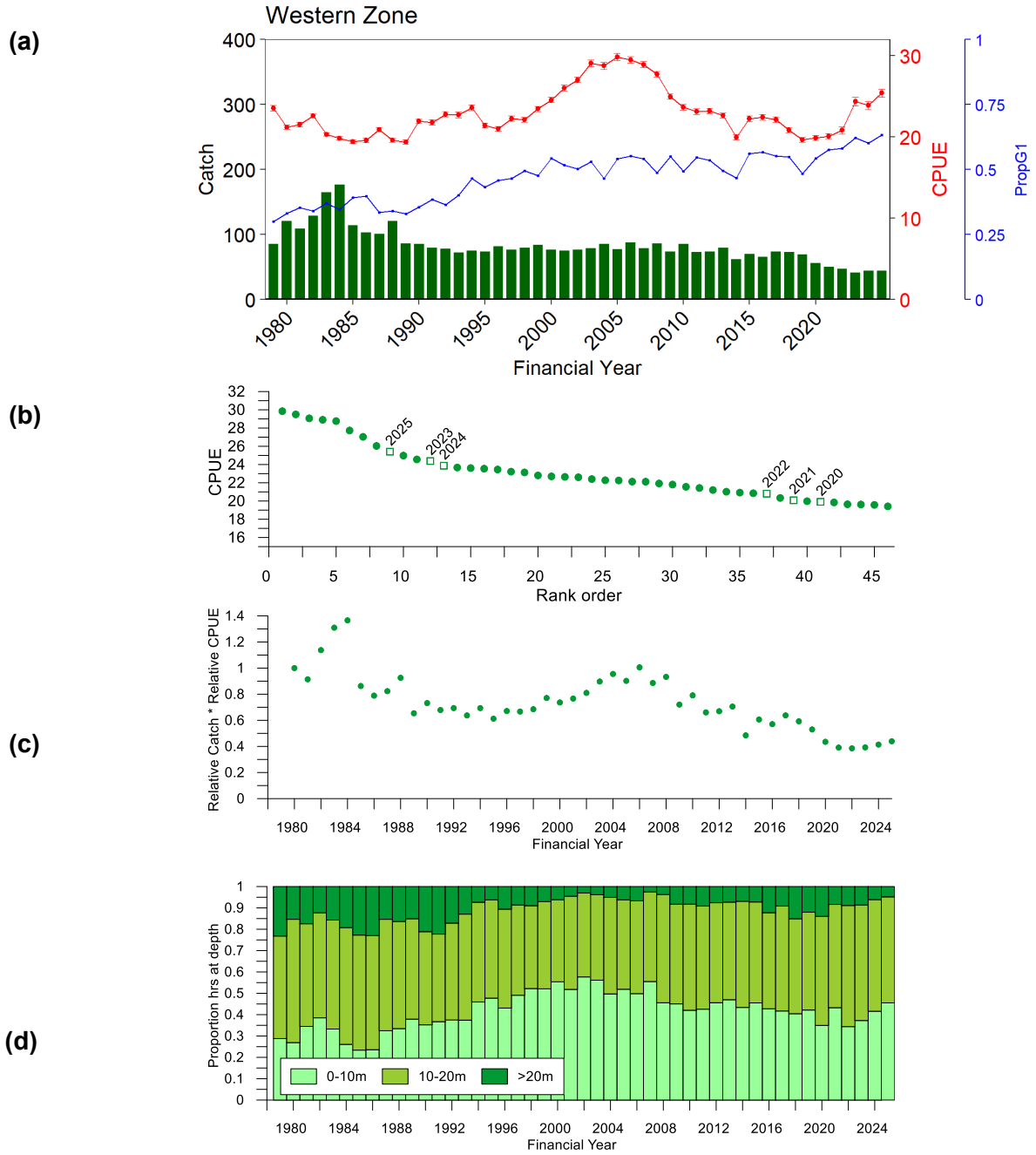


Figure 3.19. Greenlip **(a)** Catch (t, meat weight; green bars), CPUE ± se (kg.hr^{-1}; solid red line) and proportion of grade 1 greenlip (blue line) from the Western Zone from 1979 to 2023. **(b)** Rank order of Western Zone CPUE (kg.hr^{-1}) from 1979 to 2023. Last five years are marked with open square symbols **(c)** Combined trend of relative catch and relative CPUE from the Western Zone from 1979 to 2023. **(d)** Proportion of hours fished in the Western Zone at three depth ranges (see legend) using fishing records where Greenlip constituted 75% or more of the catch.

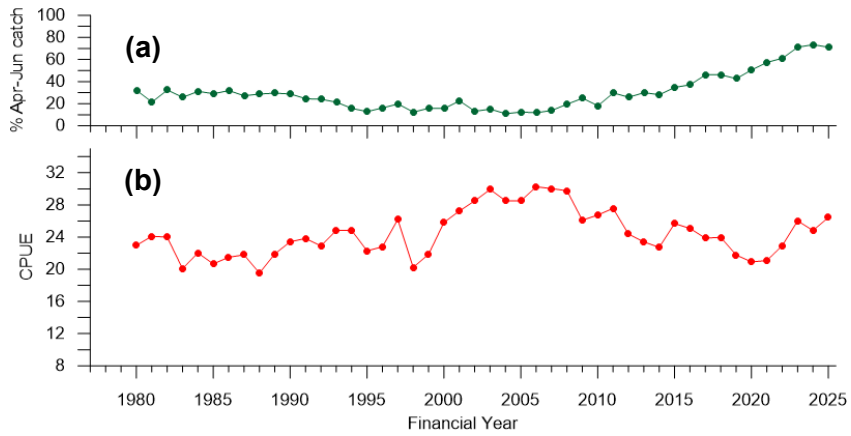


Figure 3.21. Percent greenlip catch in April – June (solid green line) and CPUE ± se (kg.hr^{-1}; solid red line) from the Western Zone from 1979 to 2025. CPUE was calculated using only months April–June.

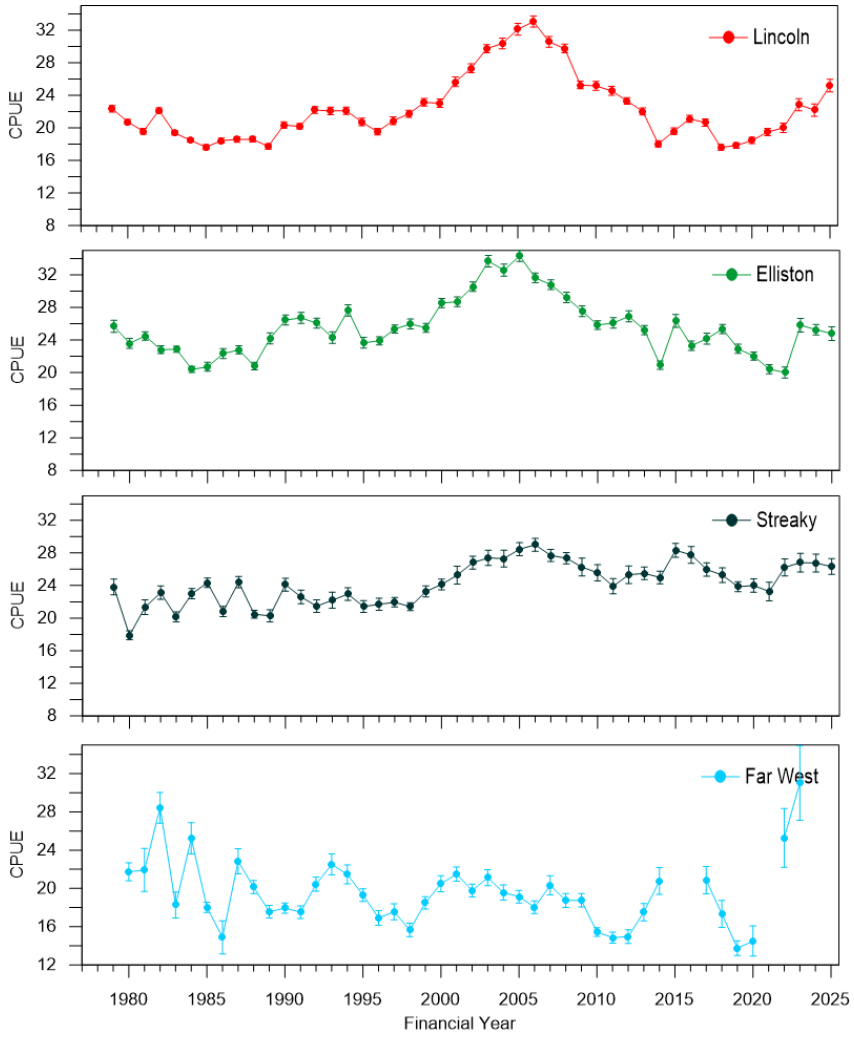


Figure 3.20. Comparison between CPUE ± se (kg.hr^{-1}) of greenlip at SAU's located near Port Lincoln, Elliston, Streaky Bay and Far West (see legend) from the Western Zone from 1979 to 2025.

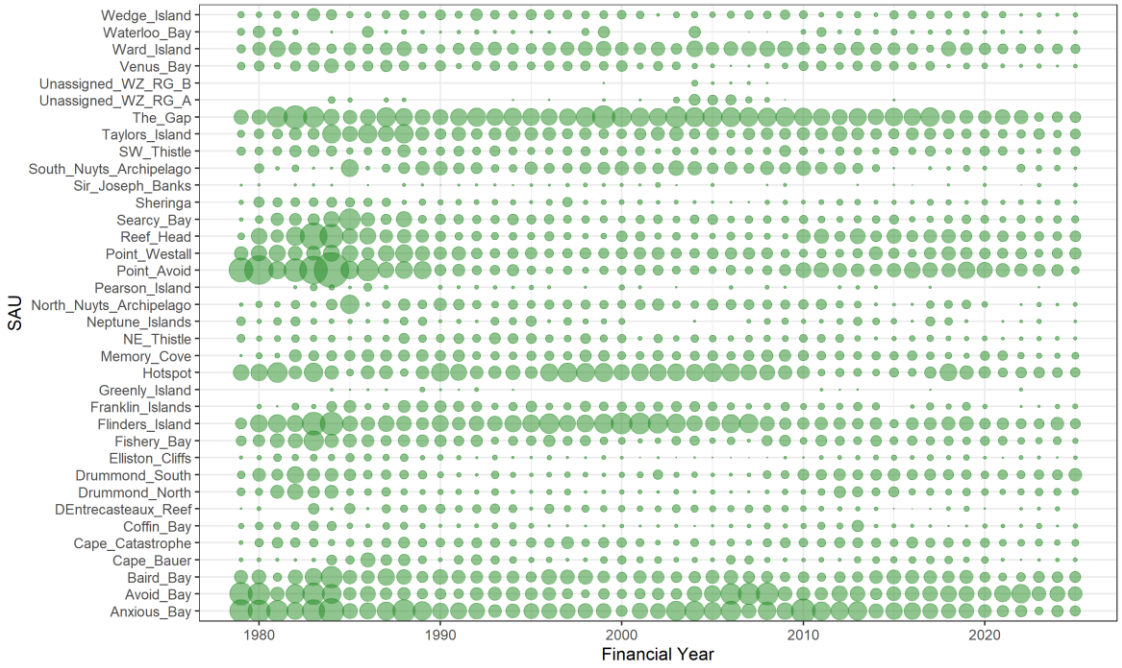


Figure 3.22. Bubble plot showing the spatial distribution of Greenlip catch (% of total catch) among the SAU's in the WZ from 1979 to 2025 by financial year.

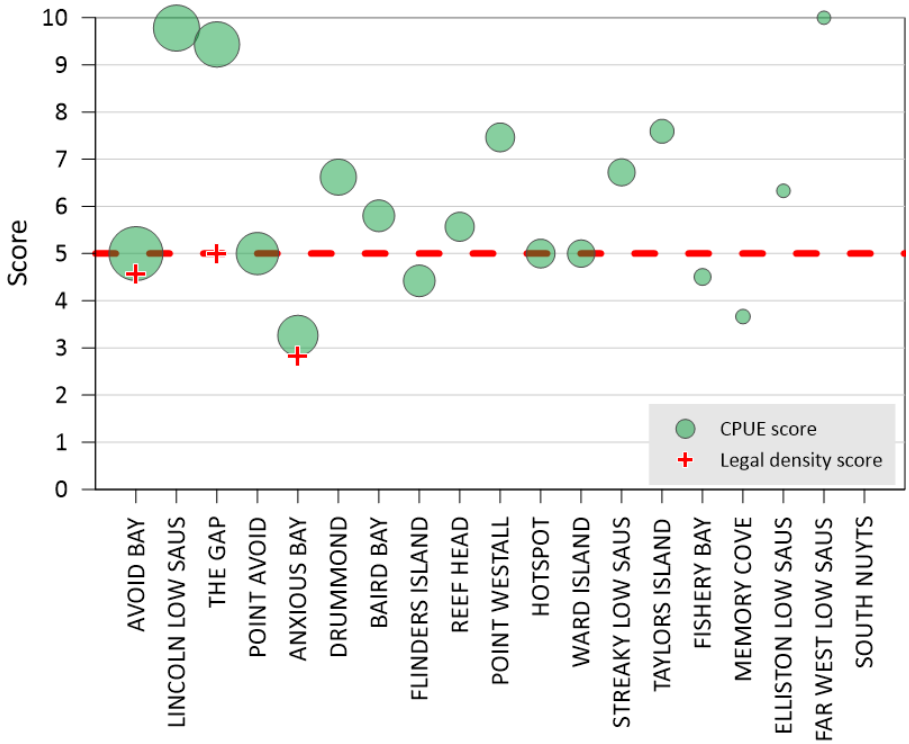
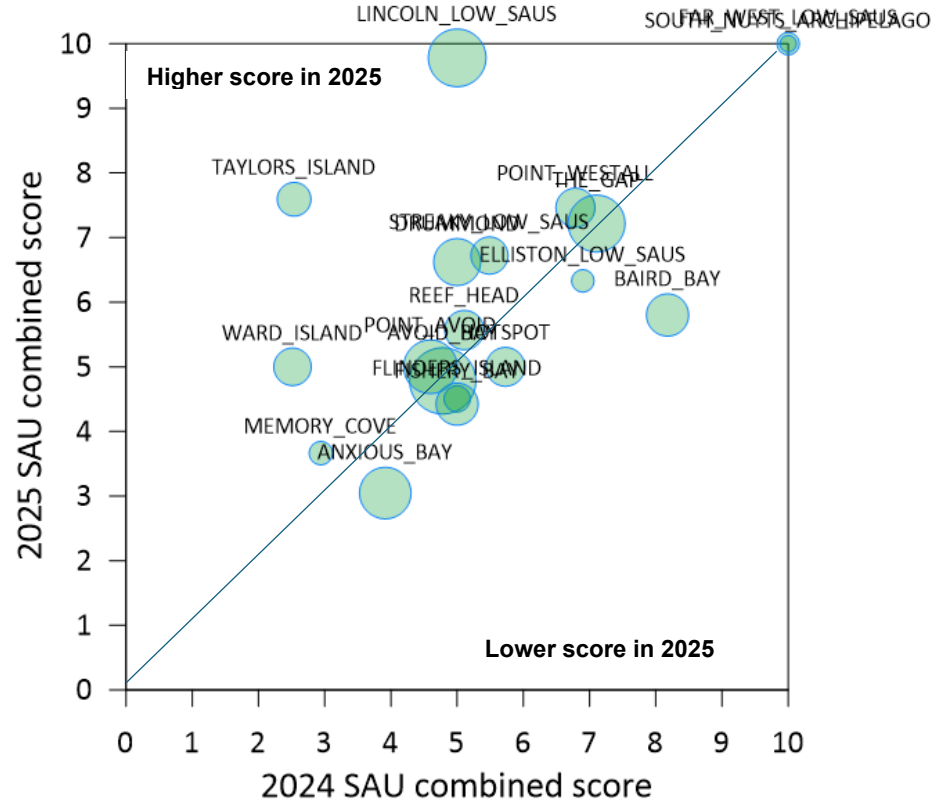


Figure 3.23 Greenlip SAU CPUE and legal density scores for the 2025 financial year (see legend). Bubble size for CPUE indicates % of WZ catch in the 2025 financial year. SAU's sorted left to right by decreasing HS catch contribution in 2025. Dashed red line shows target score of 5.



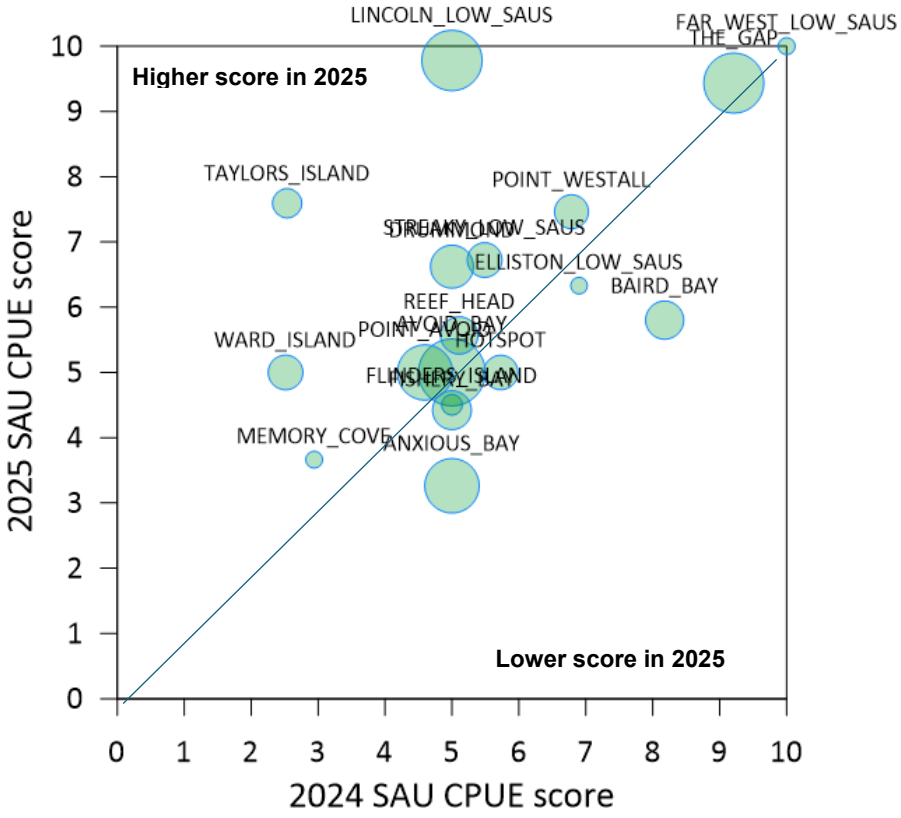


Figure 3.24. Comparison of greenlip HS (a) SAU combined scores and (b) SAU CPUE scores between 2024 and 2025. Bubble size indicates catch proportion in 2025.

3.2.3 Harvest strategy – zone score, trend in zone score and stock status

The catch-weighted zonal score for the 2025 financial year was 6.03 (Table 3.2, Figure 3.25). In combination with the zone trend score of 9.36 (Appendix 6.8, Table 6.18; reflecting an increasing trend), these define the zonal stock status for greenlip in the WZ in the 2025 as **'sustainable'** (Figure 3.26)**.**

Table 3.2. Outcome of application of the harvest strategy described in the Management Plan for the South Australian Abalone Fishery to greenlip in the 2025 financial year. Combined score is half the sum of the CPUE and legal density scores.

SAU	CPUE	CPUE score	Legal density	Legal density score	Combined score	2024/25 Catch	Catch proportion	Weighted SAU score
AVOID BAY	28.49	5.00	0.05	4.57	4.78	5.08	0.10	0.49
LINCOLN LOW SAU's	27.72	9.78			9.78	4.58	0.09	0.85
THE GAP	29.15	9.43	0.08	5.00	7.22	2.76	0.08	0.61
POINT AVOID	19.82	5.00			5.00	1.40	0.08	0.39
ANXIOUS BAY	22.67	3.26	0.03	2.83	3.05	2.52	0.07	0.23
DRUMMOND	26.60	6.62			6.62	5.03	0.07	0.44
BAIRD BAY	27.11	5.80			5.80	2.96	0.06	0.33
FLINDERS ISLAND	22.11	4.42			4.42	2.43	0.06	0.25
REEF HEAD	21.88	5.57			5.57	2.71	0.05	0.29
POINT WESTALL	26.11	7.46			7.46	3.12	0.05	0.38
HOTSPOT	27.77	5.00			5.00	2.19	0.05	0.26
WARD ISLAND	29.44	5.00			5.00	2.04	0.05	0.24
STREAKY LOW SAU's	25.34	6.72			6.72	1.72	0.05	0.32
TAYLOR ISLAND	21.68	7.59			7.59	2.42	0.04	0.31
FISHERY BAY	19.53	4.50			4.50	0.57	0.03	0.12
MEMORY COVE	17.75	3.66			3.66	1.10	0.02	0.08
ELLISTON LOW SAU's	24.32	6.33			6.33	0.70	0.02	0.13
FAR WEST LOW SAU's	28.39	10.00			10.00	0.79	0.02	0.20
SOUTH NUYTS					10.00	0.17	0.01	0.09
				Total Catch and Zone Score		**44.28**		**6.03**

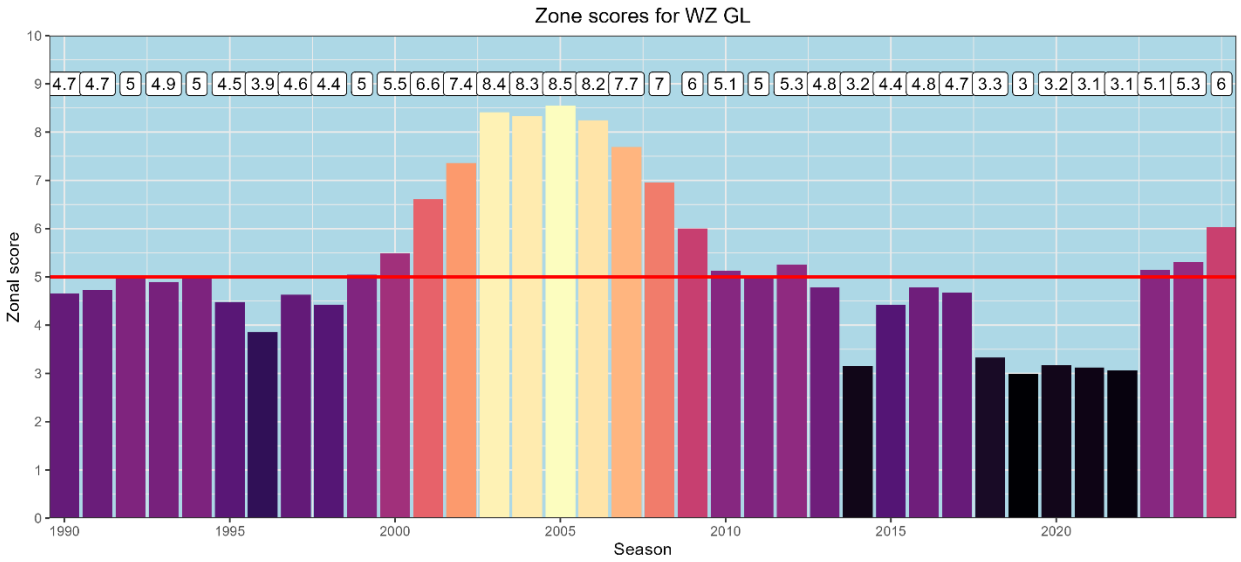


Figure 3.25. Zone score for greenlip from 1990 to 2025. Red line indicates target zone score of 5, numbers above bars are the zone score.

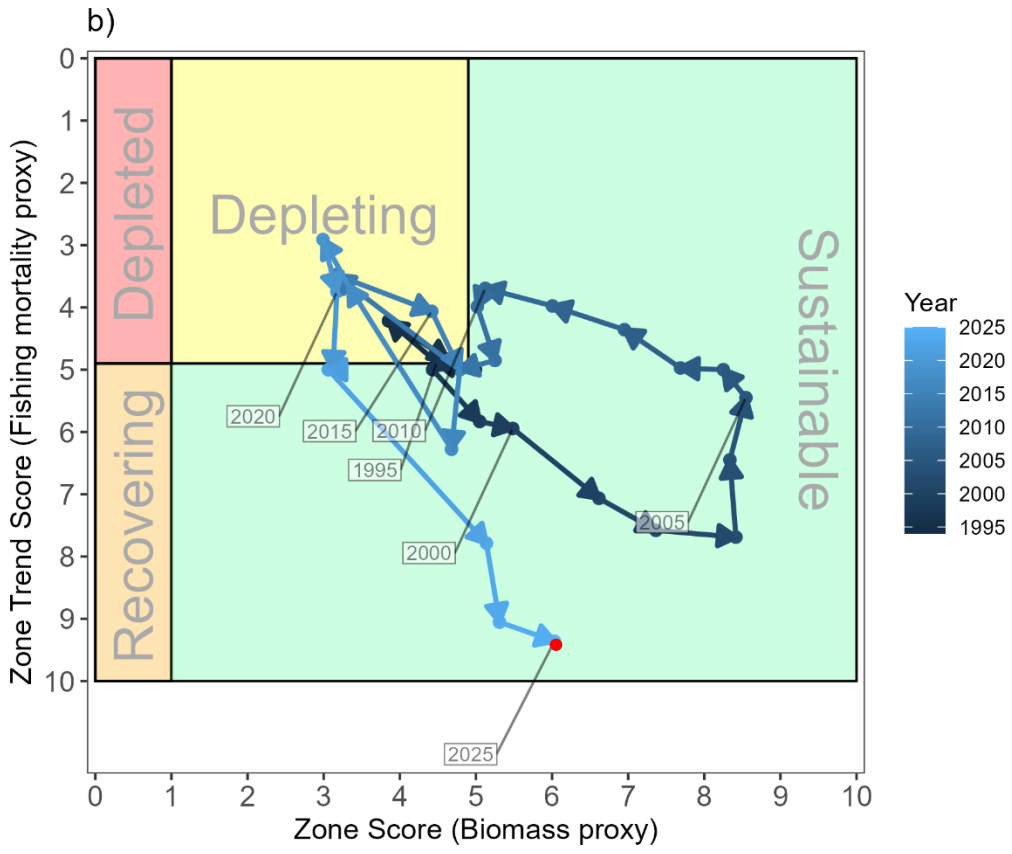


Figure 3.26. Phase plot showing the WZ greenlip stock status from 1994 to 2025.

4 DISCUSSION

4.1 Current status of blacklip and greenlip in the WZ

4.1.1 Uncertainties in the assessment

The success of the HS relies on realistic zonal target catches paired with settings that deliver a zone score and recommended zonal catch that adequately reflect biomass and that are conservative enough to protect stocks from overfishing and becoming overfished. Zone score is mostly derived from two performance indicators, CPUE and, where available, legal density. These performance indicators are subject to five key limitations in this assessment:

(1) CPUE is used as a key index of legal-sized abalone abundance, based on the assumption that it represents relative abundance of the fishable stock and that it can detect changes in relative abundance of the stock (Tarbath *et al.* 2005). However, CPUE can be influenced by numerous factors unrelated to abalone abundance (Stobart *et al.* 2017a) and is often viewed as a biased index of relative abundance (Harrison 1983, Breen 1992, Prince and Shepherd 1992, Gorfine *et al.* 2002, Stobart *et al.* 2017b). The impact of significant catch reductions, expected increases in effective effort and the hyperstability of this relative abundance index are not accounted for in this assessment;

(2) There have been substantial changes in the distribution of catch among SAU's since 2011 that are difficult to interpret (Stobart *et al.* 2017a), and these also influence the estimates of CPUE. These changes in the distribution of catch among SAU's are not accounted for in this assessment;

(3) Except for greenlip at The Gap, the FIS are available for a relatively short time period and cover spatially discreet areas making comparison between FD and FIS-based measures of abundance difficult (Stobart *et al.* 2017a);

(4) The minimum weight for grade 1 greenlip has recently been reduced at the abalone processor that processes most of the WZ catch. This complicates the interpretation of change to grades as an unknown proportion of greenlip, previously assigned lower grades, will now be graded as grade 1; and

(5) The lack of FIS estimates for Drummond, Point Westall, Sheringa and Anxious Bay in 2025 leads to this assessment relying almost entirely on CPUE estimates that are likely biased estimates of abundance (see point 1 above).

4.1.2 Blacklip

During the 2025 financial year, blacklip comprised 46% (37.4 t) of the combined abalone catch in the WZ, having decreased 63% from 2013 (100.7 t) to the second lowest value on record and the lowest in recent history (1979 was the lowest catch on record; 23.6 t). This 63 t reduction to a catch of 37.4 t in 2025 reflects lower TACC's, and the removal of one licence during the implementation of marine park sanctuary zones and industry decisions to catch less than the TACC due to concern for blacklip stocks (see table 1.2). This decline in catch is analogous with many other abalone fisheries across southern Australia, which are currently characterised by ongoing low levels of catch and productivity (Piddocke *et al.* 2021, Burnell and Mayfield 2023, McAllister and Mundy 2023). This lower catch has remained relatively stable from 2020 to 2025.

Status determination changed from calendar year to financial year in 2020 (Stobart *et al.* 2020) with the first implementation of the new HS described in the Management Plan for the SAAF (PIRSA 2021). Retrospective comparison with the previously used weight of evidence approach to determining stock status suggests that the HS may be appropriately responsive to early decreases in stock abundance (Stobart 2023). The HS reclassified the fishery from 'depleting' in 2019 to 'sustainable' in 2020 following ten years classification as 'depleting'. The change was the result of the decline in zone CPUE abating in 2019 and consequently the HS zone score increasing from 2019 (see Appendix 6.7). Evidence for the stabilisation at that time included CPUE increasing in 79% of SAU's (63% of 2020 catch) between 2019 and 2020, including several high catch SAU's (e.g. Drummond South and Point Westall). There was also an increase in the overall WZ CPUE between 2019 and 2020 and that has mostly been followed by continuing small increases from 2020 to 2024.

The outcome of the HS for the 2020 to the 2024 financial years was 'sustainable'. For 2025 the outcome remained **'sustainable'**, with a small zone score increase from 3.10 in 2024 to 3.46 in 2025 and a zone trend score of 5.0 for both years (stable trend).

Stock recovery has continued to occur between 2024 and 2025 following the long-term decline in harvestable biomass observed from 2006 to 2019. Evidence that the improvement continued included (1) the small increases in WZ CPUE mostly observed from 2019 onwards continued between 2024 and 2025; (2) CPUE increased or stabilised at a number of SAU's (e.g. Point Westall, Avoid Bay, Reef Head, Drummond North and Searcy Bay); and (3) that both legal and sublegal density of blacklip increased at Avoid Bay between 2023 and 2025. Although the improvement in CPUE of multiple SAU's from 2019 to 2025 is being accounted for in the HS, this is the sixteenth consecutive year in which the zone score has been less than 5. In particular, zone

scores below 3.5 for the past ten years indicate that, despite the upward trend in CPUE, biomass has remained historically low for this period. In 2025, CPUE estimates for some SAU's (e.g. Sheringa, Point Avoid, Reef head and Searcy Bay) remain low, despite recent lower catches. In total, 64% of the SAU's and combined SAU's for which CPUE was estimable in 2025 had values below the target reference band of the HS with these accounting for 70% of the blacklip catch in 2025. The CPUE values have remained relatively low despite lower catch and CPUE being prone to hyperstability (Shepherd *et al.* 2001, Dowling *et al.* 2004, Stobart *et al.* 2012). The low biomass is also reflected in the combined trend of relative catch and effort that had the seven lowest values on record occurring from 2019 to 2025 with the 2025 value the second lowest on record.

Despite the small increases in zone CPUE from 2019 to 2025, blacklip biomass remained among the lowest on record in 2025 (zone score of 3.46) despite significant decreases in catch over recent years. Notably, only the Anxious Bay and Point Westall SAU's maintained relatively high catch rates in 2025, with 73% of SAU's and combined low catch SAU's having HS scores below 5. The current low biomass likely reflects a combination of overfishing and environmentally driven changes in productivity, likely via reductions in recruitment, as evident for other fisheries across southern Australia (e.g. Rock Lobster; Linnane *et al.* 2010, Linnane *et al.* 2019). Uncertainty in the relationship between CPUE and abundance described above means that, while biomass is likely to have increased between 2019 and 2025, the actual change in biomass between 2019 and 2025 implied from the observed CPUE increases is poorly understood and requires further explanation. This is because the relative performance of CPUE as an index of abundance during low and high catch years may not be the same.

4.1.3 Greenlip

During the 2025 financial year, greenlip comprised 54% (44.3 t) of the combined abalone catch in the WZ, having decreased 44% from 2013 (79.8 t) to the second lowest recorded catch. This 35 t reduction reflects lower TACCs and the removal of one licence during the implementation of marine park sanctuary zones (see table 1.2) and industry decisions to catch less than the TACC due to concern for greenlip stocks.

For the 2025 financial year, the outcome of the HS remained '**sustainable**', reflecting a zone score increase from 5.31 in 2024 to 6.03 in 2025 with a zone trend score of 9.36 (increasing trend).

There are multiple lines of evidence that the harvestable biomass of greenlip is continuing to recover. In particular: (1) WZ CPUE increased from 2024 to 2025 with the latter among the highest

CPUE values on record; (2) CPUE increased, remained relatively high or was within the target reference band of the HS in most SAU's (e.g. stabilisation of high CPUE at The Gap and continuing increases in Avoid Bay, Reef Head, Drummond and the Lincoln Low SAU's; (3) the PropG1 was the highest recorded for the WZ and remained high at most SAU's, demonstrating that large greenlip, targeted due to their considerably higher value, were still available; (4) the last FIS survey in 2024 showed that the legal density estimates for The Gap increased to a value within the target reference band of the harvest strategy and also increased, but remained at a relatively low level, at Anxious Bay and Avoid Bay; and (5) the density of sub-legal-sized greenlip increased at The Gap and Avoid Bay.

The observed improvements in CPUE and legal density observed in FIS surveys suggest that the recent decreases in catch and changes to the fishing season are allowing greenlip biomass to increase. However, the magnitude of changing biomass should be interpreted with caution given the heavy reliance of the HS on CPUE because: (1) the impact of significant catch reductions over recent years on CPUE is unknown; (2) recent changes in fishing season and fishing behaviour may influence CPUE; (3) CPUE being prone to hyperstability (Shepherd *et al.* 2001, Dowling *et al.* 2004, Stobart *et al.* 2012); and (4) CPUE can be influenced by changes in effective fishing effort (e.g. differences in skipper/diver skill or technological differences; (McCluskey and Lewison 2008, Heldt and Beckmann 2021). These factors can all influence the reliability of CPUE as an indicator of abundance and none of them have been quantified or accounted for in this assessment. In addition, despite the increase in the combined trend of relative catch and CPUE, the value for 2025 still remains among the lowest on record, reflecting lower greenlip catch over the past three years. Consequently, the harvestable biomass in 2025 may be lower than indicated by the zone score. Given this, and the recent high risk of recruitment impairment for greenlip identified in the 2022 report (Stobart *et al.* 2022), careful consideration should continue to be given to increases to future catch.

4.1.4 Conclusion

The 2025 HS outcome for both greenlip and blacklip remains 'sustainable'. While the score for blacklip has increased from 3.21 in 2024 to 3.46 in 2025, it remains low. In contrast the HS score for greenlip continued to increase from a value of 5.26 in 2024 to 6.03 in 2025. For both species, the recent increases in HS zone scores should be interpreted with caution as they are both heavily influenced by CPUE as an indicator of abundance, yet the impact of the recent low catches for both species and contribution of recent changes in fishing practices on CPUE are poorly understood and unlikely to be of the magnitude they suggest. For blacklip, the lack of FIS

estimates for four sites in 2025 also increases the uncertainty in this assessment. Overall, as in the previous assessment (Stobart and Daly 2025), the biomass of blacklip is likely to be increasing slowly but remains relatively low, while that for greenlip is likely to have increased but the quantum of the increase is poorly understood but unlikely to be of the magnitude suggested by the zone score due to uncertainty in the CPUE estimates. While the HS and/or the voluntary catch limits (VCLs) are constraining catch of both species to a relatively low level, given the unique life-history traits of abalone species, low densities result in a high risk of recruitment impairment and stock collapse. Given the risk that the biomass of both species likely remains low, particularly that of blacklip, both stocks will require careful monitoring to ensure the low blacklip biomass continues to grow and the high greenlip CPUE observed in recent years reflects the true rise in harvestable biomass.

The appropriateness of the current HS settings will need careful consideration in the upcoming review in 2026. This should include accounting for changes in fishing practices on CPUE, including expected increases in effective effort and changing spatial distribution of catch, and the hyperstability of this relative abundance index, none of which are accounted for in this assessment. Furthermore, this report uses data to 30 June 25 and, therefore, does not account for any potential effects of the widespread harmful algal bloom may have on these stocks. While no impact of the algal bloom has been observed or reported for the WZ abalone fishery to date, this could change rapidly, further increasing the uncertainty in stock status.

4.2 Future research needs

There are four priority research needs for the WZ Abalone Fishery:

1) Assessment of the status of abalone stocks would be improved by information on the extent of depletion from unfished levels. An assessment of historical and any other available information from the start of the fishery should be undertaken to determine if current depletion levels can be estimated.

2) The impact of hyperstability, changes in effective effort and the consequences of reducing catch on CPUE estimates remain unquantified. Uncertainty in the assessments – as they are heavily reliant on CPUE – is exacerbated by these factors not being taken into account. There is a need to estimate the magnitude of these effects and apply these to develop an improved CPUE estimate that is a more reliable index of abundance.

3) Collect data and then develop, validate and, if appropriate, integrate PIs from GPS and diver-based depth logger data – potentially including biomass – into the assessment program for the fishery. GPS and depth logger data have the potential to transform abalone stock assessments because the data are collected at finer spatial scales than the current FD catch and effort data (Mundy *et al.* 2018a; see FRDC project 2011/201) and the use of these data can ease the burden of heavy reliance on traditional FD data (principally catch and CPUE) for assessing these stocks. However, for these data to be used, their suitability will need to be validated following several years of data collection.

4) Establish and validate an index of recruitment for use as a leading indicator. This is because the development of an index of recruitment for use as a leading indicator of harvestable biomass is essential to be able to predict suitability of future catch levels. A juvenile abalone monitoring method has recently been developed by the Institute of Marine and Antarctic Studies in Tasmania (FRDC project 2014/010; Mundy *et al.* 2018b).

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6 APPENDIX

6.1 Blacklip and Greenlip biology

Table 6.1. Size at L_{50} (mm, shell length) for blacklip at different sites in the Western Zone. a is the maximum proportion of mature blacklip (the asymptote) and b is the slope of the logistic ogive. The equation is of the form ($f(x) = a/(1+\exp(-((x-L_{50})/b))$). N = total number sampled, *n* = number of abalone sampled within length range of maturity transition.

Site	Year	Month	a	b	L_{50}	*N*	n	Reference
Anxious Bay	2013	5	0.9947	4.670	88.1	150	60	SARDI unpublished
Avoid Bay	2012	7	0.9867	0.892	92.0	108	16	SARDI unpublished
Hotspot	2004	5	1.0042	7.495	82.3	124	31	SARDI unpublished
Hotspot	2005	5	1.0094	5.359	94.3	192	32	SARDI unpublished
Reef Head	2001	5	0.9979	6.784	87.7	189	126	SARDI unpublished
Pt Drummond	2011	6	0.9923	6.253	99.3	222	102	SARDI unpublished
Searcy Bay	2014	5	0.9720	0.102	79.9	84	26	SARDI unpublished
Sheringa	2004	5	1.0022	5.369	97.3	130	46	SARDI unpublished
Tungketta	2004	5	0.9942	8.135	103.0	88	37	SARDI unpublished
Ward Island	2001	5	1.0353	10.72	92.0	65	36	SARDI unpublished
Ward Island	2005	5	1.0000	0.333	91.8	145	7	SARDI unpublished
West Bay	2001	6	0.9917	7.040	96.1	222	185	SARDI unpublished

Table 6.2. Relationships between shell length (SL, mm) and fecundity (F, millions of eggs) for legal sized (130 mm) blacklip at different sites in the Western Zone. The equation is of the form $F = aSL^b$. * Indicates calculations based on anterior counts only.

Site	Year	a	b	r	n	SL	F	Reference
Avoid Bay	2010	1.01E+01	2.46	0.49	15	130	1.60E+06	SARDI unpublished
Hotspot*	2005	2.00E-04	4.58	0.83	22	130	9.47E+05	SARDI unpublished
Point Drummond	2011	2.07E-02	3.59	0.70	20	130	8.07E+05	SARDI unpublished
Ward Island*	2005	1.87E-01	3.29	0.70	27	130	1.68E+06	SARDI unpublished

Table 6.3. Relationships between shell length (SL, mm) and total weight (TW, g) of blacklip abalone at various sites in the Western Zone. TW is calculated total weight for 130 mm legal-sized blacklip. The equation is of the form $TW = aSL^b$.

Site	Year	a	b	TW	r	n	Reference
Avoid Bay	2012	3.0E-04	2.90	405	0.95	204	SARDI unpublished
Flinders Island	1998	6.7E-05	3.16	321	0.95	85	SARDI unpublished
Hotspot	2004	7.1E-05	3.19	391	0.98	124	SARDI unpublished
Hotspot	2005	3.0E-04	2.90	399	0.98	192	SARDI unpublished
Kiana	1999	3.2E-02	1.93	378	0.73	46	SARDI unpublished
Drummond Point	1998	6.2E-05	3.21	370	0.94	54	SARDI unpublished
Drummond Point	2011	6.4E-05	3.20	377	0.98	222	SARDI unpublished
Point Labatt	1999	1.4E-03	2.58	396	0.85	102	SARDI unpublished
Point Whidbey	1998	4.9E-05	3.26	387	0.97	49	SARDI unpublished
Price Island	1999	5.3E-04	2.75	345	0.83	50	SARDI unpublished
Reef Head	1999	1.1E-02	2.16	411	0.79	44	SARDI unpublished
Reef Head	2004	6.0E-04	2.72	345	0.94	63	SARDI unpublished
Sheringa	2004	2.0E-05	3.44	379	0.98	130	SARDI unpublished
Smoothpool	1999	6.0E-04	2.72	340	0.92	127	SARDI unpublished
Tungketta	2004	9.8E-05	3.12	395	0.98	88	SARDI unpublished
Waldegrave Island	1998	1.0E-04	3.05	274	0.94	100	SARDI unpublished
Waldegrave Island	2005	1.0E-04	3.06	294	0.98	94	SARDI unpublished
Waterloo Bay	2005	5.0E-04	2.77	362	0.94	162	SARDI unpublished
Ward Island	1998	3.0E-04	2.90	399	0.92	100	SARDI unpublished
Ward Island	2005	3.0E-04	2.86	329	0.98	145	SARDI unpublished
West Bay	1998	2.0E-04	2.94	331	0.95	99	SARDI unpublished
West Bay	1999	7.0E-04	2.72	386	0.89	99	SARDI unpublished

Table 6.4. Growth rate, k ($yr.^{-1}$) and L_∞ (mm SL) for blacklip tagged and recaptured at different sites in the Western Zone. Size ranges are shell length at time of tagging for recaptured abalone (mm). n is the number of recaptures. For 'year tagged' * indicates uncertainty over aspects of the data including the year of tagging, time period at liberty may not adhere to criteria used for SARDI data (Geibel *et al.* 2010 (Geibel *et al.* 2010)) while for 'size range'*indicates size ranges estimated from published graphs.

Site (Year recovered)	Year tagged	r^2	k	L_∞	Size range	n	Reference
Avoid Bay (2013)	2012	0.462	0.236	156.3	56-170	113	SARDI unpublished
Reef Head (2002)	2001	0.176	0.102	153.6	52-116	29	SARDI unpublished
Reef Head (2003)	2002	0.404	0.177	132.8	66-133	58	SARDI unpublished
Sheringa (2004)	2002	0.571	0.190	152.4	54-135	20	SARDI unpublished
Venus Bay (2002)	2001	0.448	0.295	152.7	66-124	54	SARDI unpublished
Venus Bay (2003)	2001	0.369	0.155	167.9	62-117	34	SARDI unpublished
Ward Is. (2001)	2000	0.053	0.086	217.4	57-135	27	SARDI unpublished
Ward Is. (2002)	2000	0.182	0.139	150.2	67-129	18	SARDI unpublished
Ward Is. (2002)	2001	0.244	0.180	152.5	58-117	24	SARDI unpublished
Ward Is. (2005)	2004	0.363	0.172	167.4	40-153	24	SARDI unpublished
Waterloo Bay*	1969	0.911	0.406	144.0	57-150	52	(Shepherd and Hearn 1983)
West Bay (2001)	2000	0.078	0.078	244.0	59-127	53	SARDI unpublished

Table 6.5. Size at L_{50} (mm, shell length) for greenlip at different sites in the Western Zone. a is the maximum proportion of mature greenlip (the asymptote) and b is the slope of the logistic ogive. The equation is of the form (f(x) = a/(1+exp(-((x-L50)/b)). N = total number sampled, *n* = number of abalone sampled within period of maturity transition.

Site	Year	Month	a	b	L_{50}	*N*	n	Reference
Anxious Bay	2005	11	0.983	7.312	76.6	119	32	SARDI unpublished
Hotspot	2006	11	1.005	3.637	111.6	109	36	SARDI unpublished
Hotspot	2010	8	1.011	6.812	120.8	144	52	SARDI unpublished
The Gap	2003	9	1.018	4.441	94.0	96	54	SARDI unpublished
The Gap	2004	9	0.984	1.952	93.8	124	62	SARDI unpublished
The Gap	2010	9	1.010	4.170	100.6	160	18	SARDI unpublished
Waterloo Bay	1974	-	-	-	102.0	-	34	(Shepherd and Laws 1974)
Ward Island	2006	11	1.033	11.548	127.7	90	62	SARDI unpublished

Table 6.6. Relationships between shell length (SL, mm) and fecundity (F, millions of eggs) for legal sized (145 mm) greenlip at different sites in the Western Zone. The equation is of the form $F = aSL^b$.

Site	Year	a	b	r	n	SL	F	Reference
Anxious Bay	1987	2.94E-02	3.70	0.74	15	145	2.9E+06	(Shepherd *et al.* 1992b)
Flinders Bay	2010	2.50E-03	4.07	0.46	10	145	1.6E+06	SARDI unpublished
Hotspot	2010	3.90E-08	6.33	0.85	17	145	1.9E+06	SARDI unpublished
Maclaren Point	1987	1.93E-06	5.61	0.97	14	145	2.6E+06	(Shepherd *et al.* 1992b)
Sceale Bay	1987	6.19E-10	7.24	0.90	17	145	2.8E+06	(Shepherd *et al.* 1992b)
Taylor Island	1987	7.55E-06	5.33	0.94	15	145	2.5E+06	(Shepherd *et al.* 1992b)
The Gap	2011	8.20E-03	4.18	0.75	26	145	8.9E+06	SARDI unpublished
Waterloo Bay	1987	6.40E-03	3.85	0.76	15	145	1.3E+06	(Shepherd *et al.* 1992b)
Yanerbie	1987	1.11E-02	3.87	0.87	14	145	2.6E+06	(Shepherd *et al.* 1992b)

Table 6.7. Relationships between fecundity (F, millions of eggs) and whole weight (W, g) for greenlip at different sites in the Western Zone. The equation is of the form F = c + dW.

Site	c	d	Reference
Sceale Bay	-1.13	0.011	(Shepherd and Baker 1998)
Thorny Passage	-1.57	0.014	(Shepherd and Baker 1998)
Waterloo Bay	-0.36	0.004	(Shepherd and Baker 1998)
Ward Island	-1.87	0.008	(Shepherd and Baker 1998)

Table 6.8. Relationships between shell length (SL, mm) and total weight (TW, g) of greenlip abalone at various sites in the Western Zone. TW is calculated total weight for 145 mm legal-sized greenlip. The equation is of the form $TW = aSL^b$.

Site	Year	a	b	TW	r	n	Reference
Anxious Bay	1987	1.0E-04	3.07	432	0.99	46	(Shepherd *et al.* 1992b)
Anxious Bay	2004	4.0E-04	2.79	422	0.97	52	SARDI unpublished
Anxious Bay	2005	2.9E-05	3.30	407	0.99	110	SARDI unpublished
Flinders Island	1998	3.0E-04	2.90	551	0.94	69	SARDI unpublished
Flinders Island	1999	7.2E-04	2.69	469	0.68	47	SARDI unpublished
Flinders Bay	2004	2.4E-05	3.34	404	0.98	53	SARDI unpublished
Hotspot	1998	2.8E-05	3.33	439	0.94	80	SARDI unpublished
Hotspot	1999	3.5E-05	3.29	441	0.90	35	SARDI unpublished
Hotspot	2004	4.0E-04	2.81	479	0.93	53	SARDI unpublished
Hotspot	2006	6.1E-05	3.18	453	0.98	109	SARDI unpublished
Hotspot	2010	1.8E-05	3.41	404	0.98	144	SARDI unpublished
Maclaren Point	1987	5.8E-05	3.12	321	0.99	47	(Shepherd *et al.* 1992b)
Price Island	1997	5.0E-05	3.20	417	0.97	47	SARDI unpublished
Price Island	1999	2.0E-04	2.89	361	0.90	43	SARDI unpublished
Rowly Bay	1991	1.0E-04	3.04	363	0.93	65	SARDI unpublished
Searcy Bay	1999	7.0E-04	2.68	437	0.94	127	SARDI unpublished
Taylor Island	1987	4.7E-05	3.16	318	0.99	45	(Shepherd *et al.* 1992b)
The Gap	1998	2.0E-04	2.99	578	0.96	88	SARDI unpublished
The Gap	2000	1.5E-03	2.51	390	0.77	43	SARDI unpublished
The Gap	2003	4.8E-05	3.22	442	0.98	27	SARDI unpublished
The Gap	2004	6.1E-05	3.15	392	0.95	87	SARDI unpublished
The Gap	2010	4.7E-05	3.20	394	0.98	160	SARDI unpublished
Ward Island	1998	6.7E-05	3.15	425	0.94	75	SARDI unpublished
Ward Island	2004	1.0E-04	3.05	396	0.97	72	SARDI unpublished
Waterloo Bay	1987	2.0E-04	2.92	409	0.99	57	(Shepherd *et al.* 1992b)
Waterloo Bay	1999	6.0E-04	2.72	445	0.74	152	SARDI unpublished
Waterloo Bay	2005	2.8E-05	3.33	428	0.97	150	SARDI unpublished
Yanerbie	1987	4.6E-05	3.20	379	0.98	53	(Shepherd *et al.* 1992b)

Table 6.9. Growth rate (mm yr^{-1}) (± se) of sublegal greenlip at different sites in the Western Zone.

Site	Size range (mm)	Growth rate ($mm.yr^{-1}$ ± S.E.)	Reference
Anxious Bay	25-95	20.4 ± 1.5	(Shepherd and Breen 1992)
Avoid Bay	45-115	19.7 ± 2.4	(Shepherd and Triantafillos 1997)
Maclaren Point	20-140	20.3 ± 0.4	(Shepherd *et al.* 1992a)
Sceale Bay	45-110	20.4 ± 1.8	(Shepherd *et al.* 1992a)
Taylor Island	15-145	39.6 ± 0.9	(Shepherd *et al.* 1992a)
Ward Island	60-125	25.7 ± 1.5	(Shepherd *et al.* 1992a)
Yanerbie	15-110	15.3 ± 0.9	(Shepherd *et al.* 1992a)

Table 6.10. Growth rate, k ($yr.^{-1}$) and L_∞ (mm SL) for greenlip tagged and recaptured at different sites in the Western Zone. Errors are standard errors. Size ranges are shell length at time of tagging for recaptured abalone (mm). n is the number of recaptures. For 'tag period' * indicates uncertainty over aspects of the data including the year of tagging, time period at liberty may not adhere to criteria used for SARDI data (Geibel *et al.* 2010) while for 'size range' * indicates size ranges were estimated from published graphs.

Site	Tag period	r^2	k (± se)	L_∞ (± se) (mm)	Size range	n	Reference
Anxious Bay	1988*	0.744	0.385(0.07)	119.5(5.3)	43-102*	26	(Shepherd *et al.* 1992a)
Anxious Bay	1999-2000	0.302	0.343	157.0	110-156	40	SARDI unpublished
Flinders Is	2004-2005	0.692	0.365	162.8	64-177	153	SARDI unpublished
Hotspot	2002-2003	0.477	0.256	213.5	63-158	120	SARDI unpublished
Hotspot	2002-2004	0.659	0.306	181.7	63-131	53	SARDI unpublished
Maclaren Pt.	1988*	0.534	0.368(0.10)	178.3(7.7)	31-163*	35	(Shepherd *et al.* 1992a)
Sceale Bay	1988*	0.856	0.186(0.04)	186.3(28.2)	79-148*	9	(Shepherd *et al.* 1992a)
Taylor Island	1988*	0.713	0.552(0.08)	180.4 (10.3)	32-158*	41	(Shepherd *et al.* 1992a)
Taylor Island	1996	0.658	0.271	195.0	68-115	23	SARDI unpublished
The Gap	2002-2003	0.658	0.278	152.8	45-159	77	SARDI unpublished
The Gap	2002-2004	0.731	0.263	155.0	44-165	108	SARDI unpublished
The Gap	2009-2010	0.686	0.344	139.3	42-167	82	SARDI unpublished
Ward Island	1988*	0.81	0.413(0.053)	167.2(5.2)	76-167*	36	(Shepherd *et al.* 1992a)
Waterloo Bay	1969*	0.921	0.595(0.036)	147.8(1.8)	52-169	126	(Shepherd and Hearn 1983)
Yanerbie	1988*	0.642	0.268(0.076)	140.4(8.6)	62-135*	19	(Shepherd *et al.* 1992a)

Table 6.11. Natural mortality rates (yr^{-1}) for adult (emergent) greenlip at different sites in the Western Zone.

Site	M (yr^{-1})	Reference
Sceale Bay	0.25	(Shepherd and Baker 1998)
Thorny Passage	0.25	(Shepherd and Baker 1998)
Waterloo Bay	0.40	(Shepherd and Baker 1998)
Ward Island	0.13	(Shepherd and Baker 1998)

6.2 Performance indicators and other metrics

Table 6.12. Summary of the PIs and other metrics and the formulae and data constraints underpinning their computation. In formula: *Cs* = species-specific catch; *E* = total daily effort; and *w* = catch weighting.

Metric use	Description	Formulae	Data constraints
Performance indicator			
CPUE	Commercial catch-per-unit effort ($kg.hr^{-1}$)	$CPUE_{wp} = \frac{\Sigma_{i=1}^{n} wi(\frac{Csi}{Ei * wi})}{\Sigma_{i=1}^{n} wi}$	All records where: CPUE (total catch/total effort) was >66.66 $kg.hr^{-1}$; fishing effort was >8 hr.; fishing effort was <3 hr.; the reported catch of both species was zero; or the catch of the species for which CPUE was being estimated was <30% of the total catch were excluded. Minimum sample size: 10 records
$Density_{legal}$	Density of legal-sized abalone on surveys	$\text{Density}_{\text{Legal}} = \frac{\sum \text{Legal counted}}{\text{Total area surveyed}}$	>90% of survey completed Blacklip ≥130 mm SL defined as legal-sized Greenlip ≥145 mm SL defined as legal-sized
General assessment			
Proportion Grade 1 (greenlip)	Proportion Grade 1 greenlip abalone in commercial catch	$\text{PropG1} = \frac{\sum \text{Grade 1 Meats (kg)}}{\sum \text{Meats (kg)}}.$	All records where the total catch was >1% different from the sum of the three weight-grade categories were excluded. Records with zero catch were excluded. Minimum sample size: 10 records
$Density_{sublegal}$	Density of sublegal (*i.e.* those under the MLL) abalone on surveys	$\text{Density}_{\text{Pre-recruit}} = \frac{\sum \textit{Sublegal}}{\text{Total area surveyed}}$	>90% of survey completed Blacklip <130 mm SL defined as sublegal Greenlip <145 mm SL defined as sublegal

6.3 Historical blacklip length frequencies from FIS

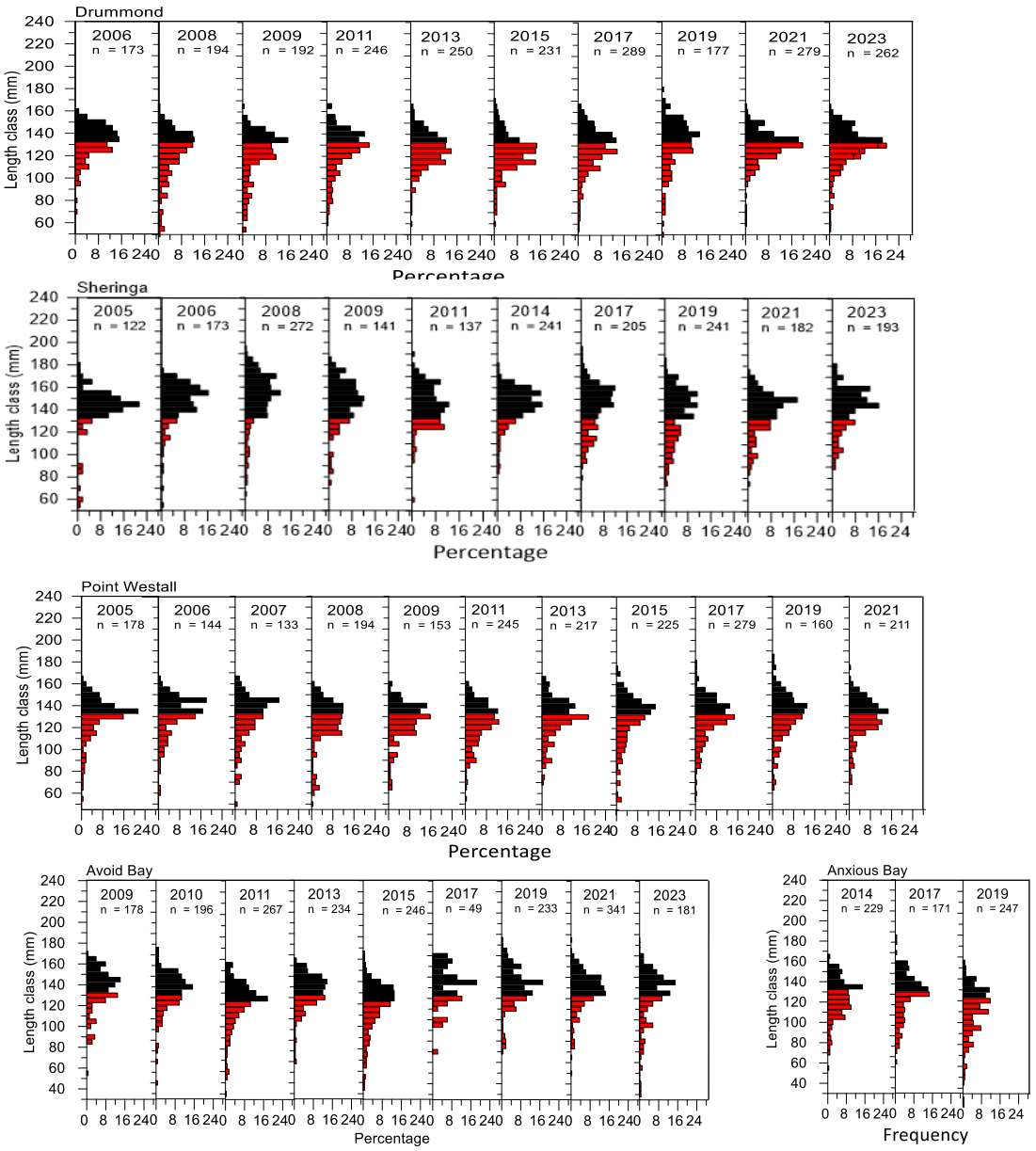

Figure 6.1. Length-frequency distributions of legal-sized (black bars) and sub-legal-sized (red bars) blacklip at Drummond South, Sheringa, Point Westall, Avoid Bay and Anxious Bay observed in fishery independent surveys from the 2005 to 2023 financial years. Length classes represent the upper length of each 5mm bin. n = number of blacklip measured. Bin classes < 50mm SL pooled.

6.4 Quality Assurance

6.4.1 Research planning

The requirements of PIRSA Fisheries and Aquaculture were discussed in December 2012 and subsequently provided to representatives of the WZ abalone fishery to confirm their understanding of proposed deliverables. This ensures that the research undertaken and deliverables provided are consistent with the needs of PIRSA to meet their obligations under the *Fisheries Management Act 2007.*

6.4.2 Data collection

Commercial fishers are advised on the procedures and requirements for commercial catch sampling and completion of the required fishing logbook on a regular basis, usually at the commencement of each fishing season. The data provided by commercial fishers are checked by PIRSA Fisheries and Aquaculture prior to acceptance and potential errors corrected through direct correspondence with individual commercial fishers. SARDI staff are trained to undertake FI data collection using the standardised method described in the SARDI Abalone Research Group Quality Assurance and Fishery-Independent Survey Manual.

6.4.3 Data entry, validation, storage and security

All logbook data are entered and validated according to the quality assurance protocols identified for the abalone fisheries in the SARDI Information Systems Quality Assurance and Data Integrity Report (Vainickis 2010). The data are stored in an Oracle database, backed up daily, with access restricted to PIRSA Fisheries and Aquaculture Information Systems staff. Copies of the database are provided to SARDI abalone researchers on request. All FI data are entered into Excel spreadsheets. A subset of the data (20%) is checked against the original data sheets in accordance with the Abalone Data Library Management Protocol. Once validated, data are uploaded to an Access database stored on the Port Lincoln network drive. The database is regularly backed up to an external hard drive and to a web-based data storage system called Objective.

6.4.4 Data and statistical analyses

Data are extracted from the databases using established protocols. A subset (10%) of data extractions is checked to ensure extraction accuracy. This occurs in two ways. First, data are compared to those extracted previously. Most of the data are analysed using the open-source software R. A subset (~10%) of the outputs from R are compared against estimates made in an alternative software package (e.g. Excel).

6.4.5 Data interpretation and report writing

The results, their interpretation and conclusions provided in the reports are discussed with peers, PIRSA and abalone licence holders. All co-authors review the report prior to the report being formally reviewed by two independent scientists at SARDI in accordance with the SARDI report review process (Bennett *et al.* 2009). Following necessary revision, the report is reviewed by PIRSA to ensure it is consistent with their needs and objectives for the fishery.

6.5 Combined SAU trend of relative catch and relative CPUE

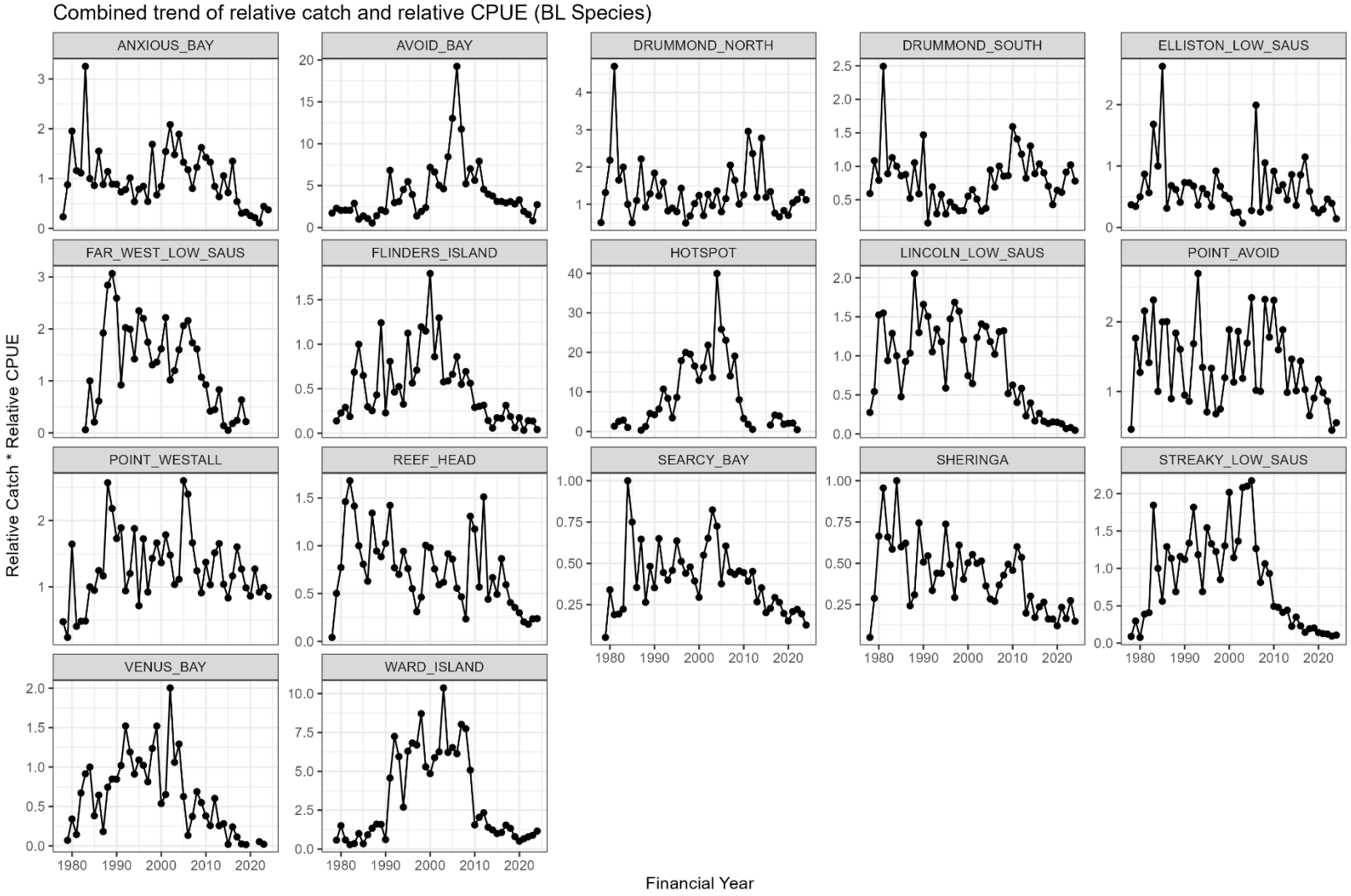

Figure 6.2. Combined trend of relative blacklip catch and relative CPUE from the Western Zone from 1979 to 2025.

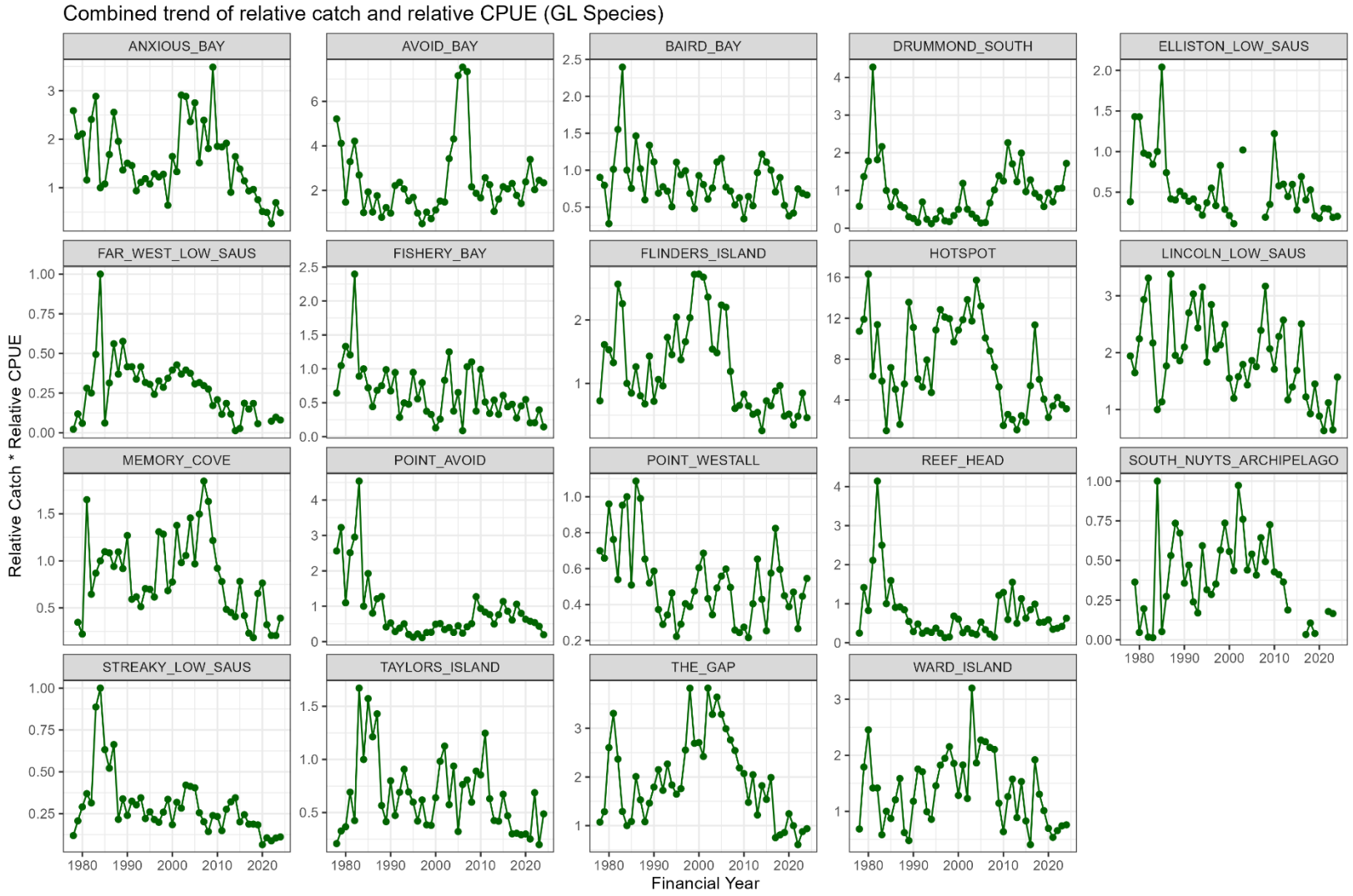

Figure 6.3. Combined trend of relative greenlip catch and relative CPUE from the Western Zone from 1979 to 2025.

6.6 Temporal patterns in low catch spatial assessment units – Blacklip and Greenlip

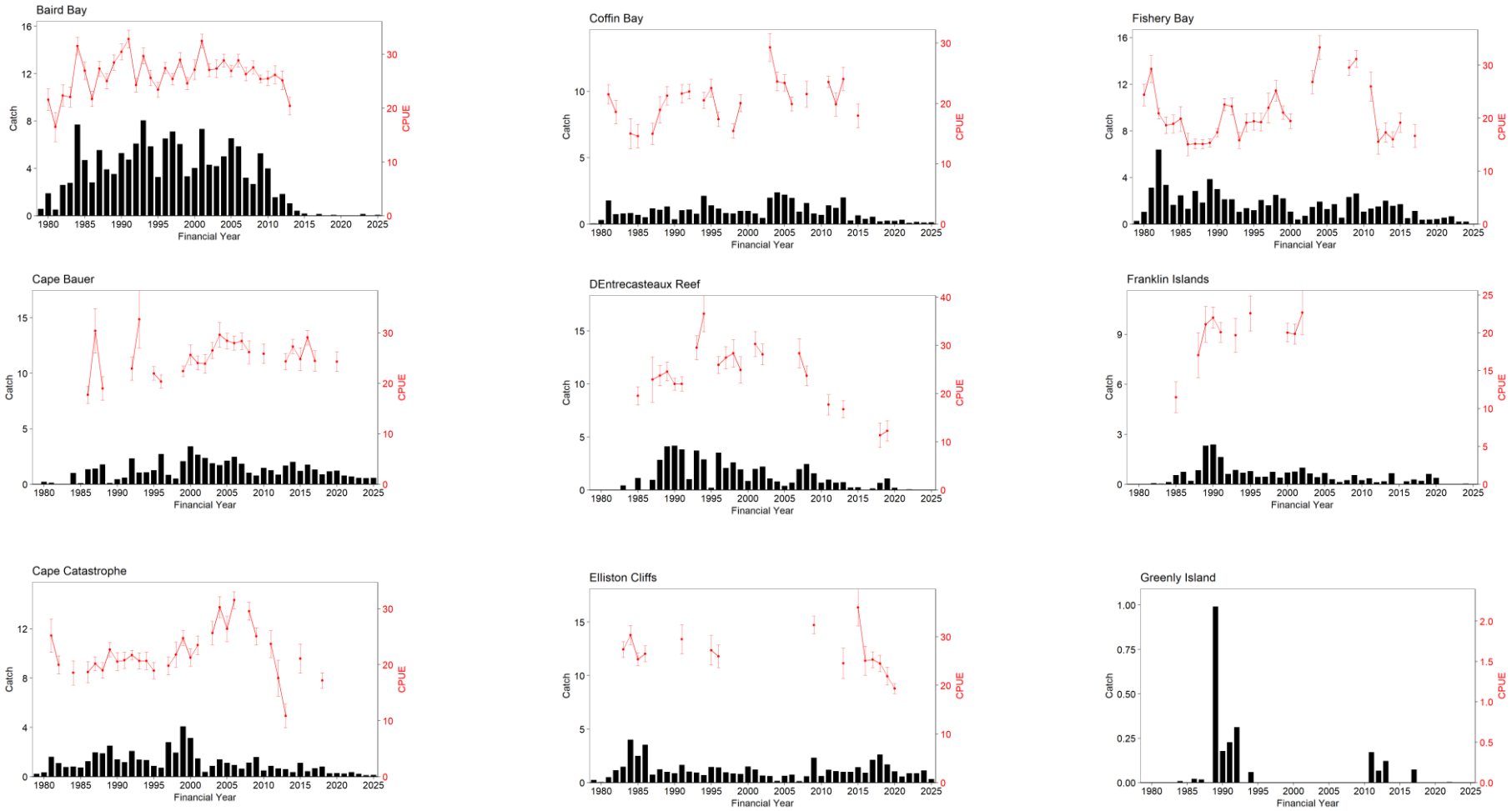

Figure 6.4. Blacklip low catch SAU's (indicated by plot names) showing Catch (t, meat weight, black bars) and CPUE ± se (kg.hr^{-1}; solid red line) from 1979 to 2025.

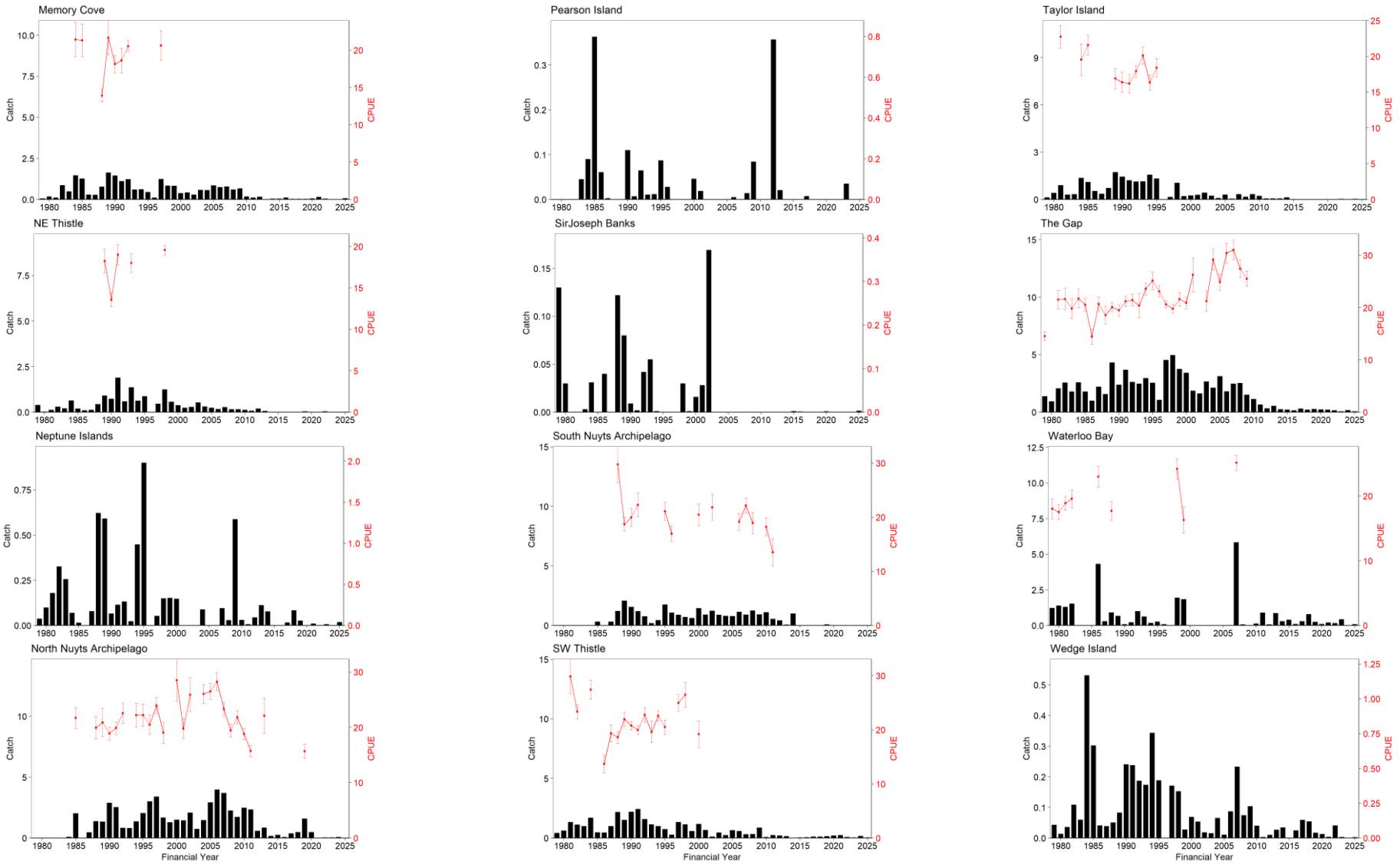

Figure 6.5. Blacklip low catch SAU's (indicated by plot names) showing Catch (t, meat weight, black bars) and CPUE ± se (kg.hr^{-1}; solid red line) from 1979 to 2025.

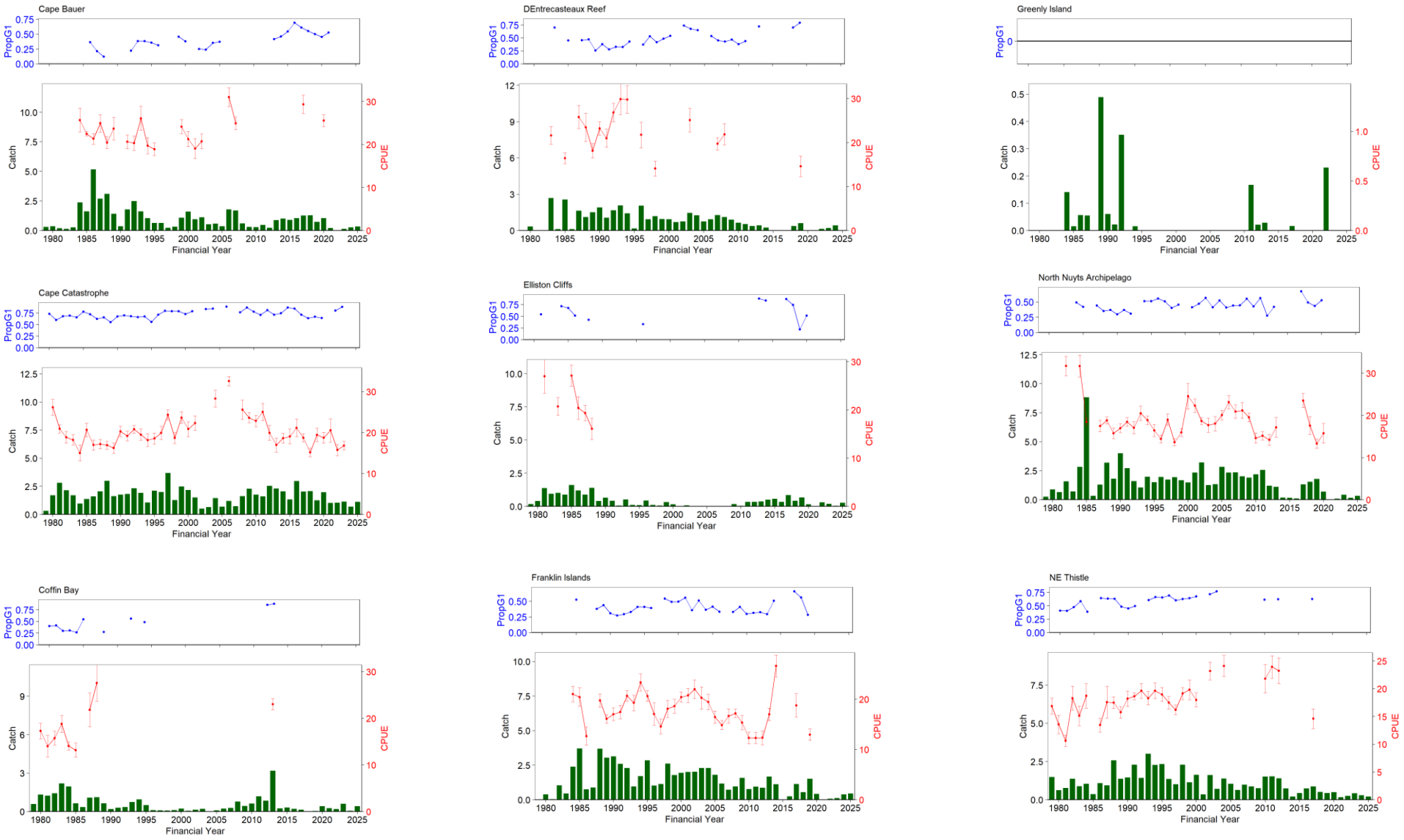

Figure 6.6. Greenlip low catch SAU's (indicated by plot names) showing Catch (t, meat weight, green bars), CPUE ± se (kg.hr^{-1}; solid red line) and PropG1 (solid blue line) from 1979 to 2025.

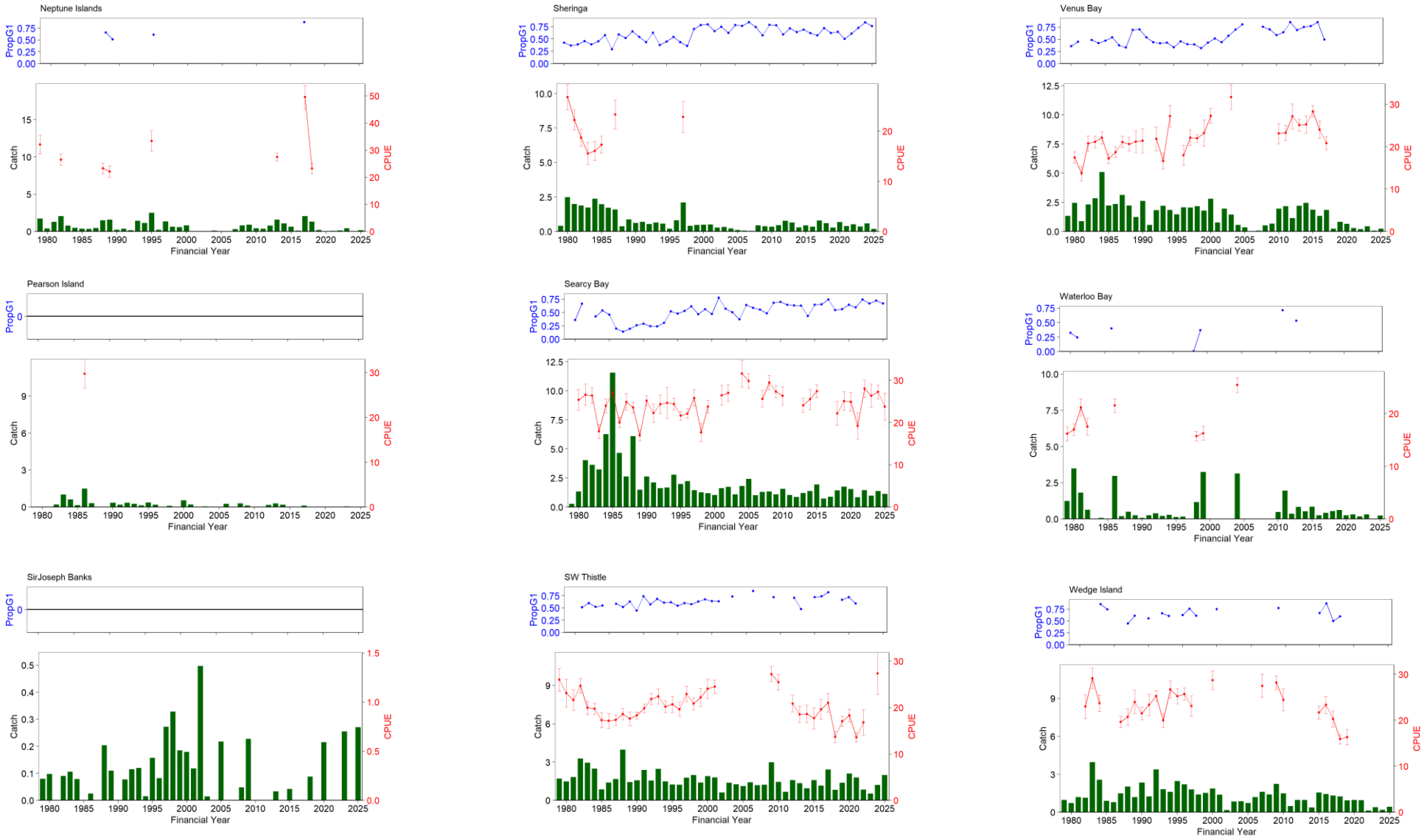

Figure 6.7. Greenlip low catch SAU's (indicated by plot names) showing Catch (t, meat weight, green bars), CPUE ± se (kg.hr^{-1}; solid red line) and PropG1 (solid blue line) from 1979 to 2025.

6.7 Harvest strategy scoring – Greenlip

Figure 6.8. Greenlip SAU's (indicated by plot names) showing performance indicator CPUE ± se (kg.hr^{-1}, red) from 1979 to 2025. Catch (t meat weight; black bars) is also included for reference. Densities are fishery independent surveys from surveyed years. On relevant plots the green and red dashed lines and pale blue bands are the upper and lower limit reference points and target reference band from the harvest strategy performance indicators CPUE and legal density, respectively.

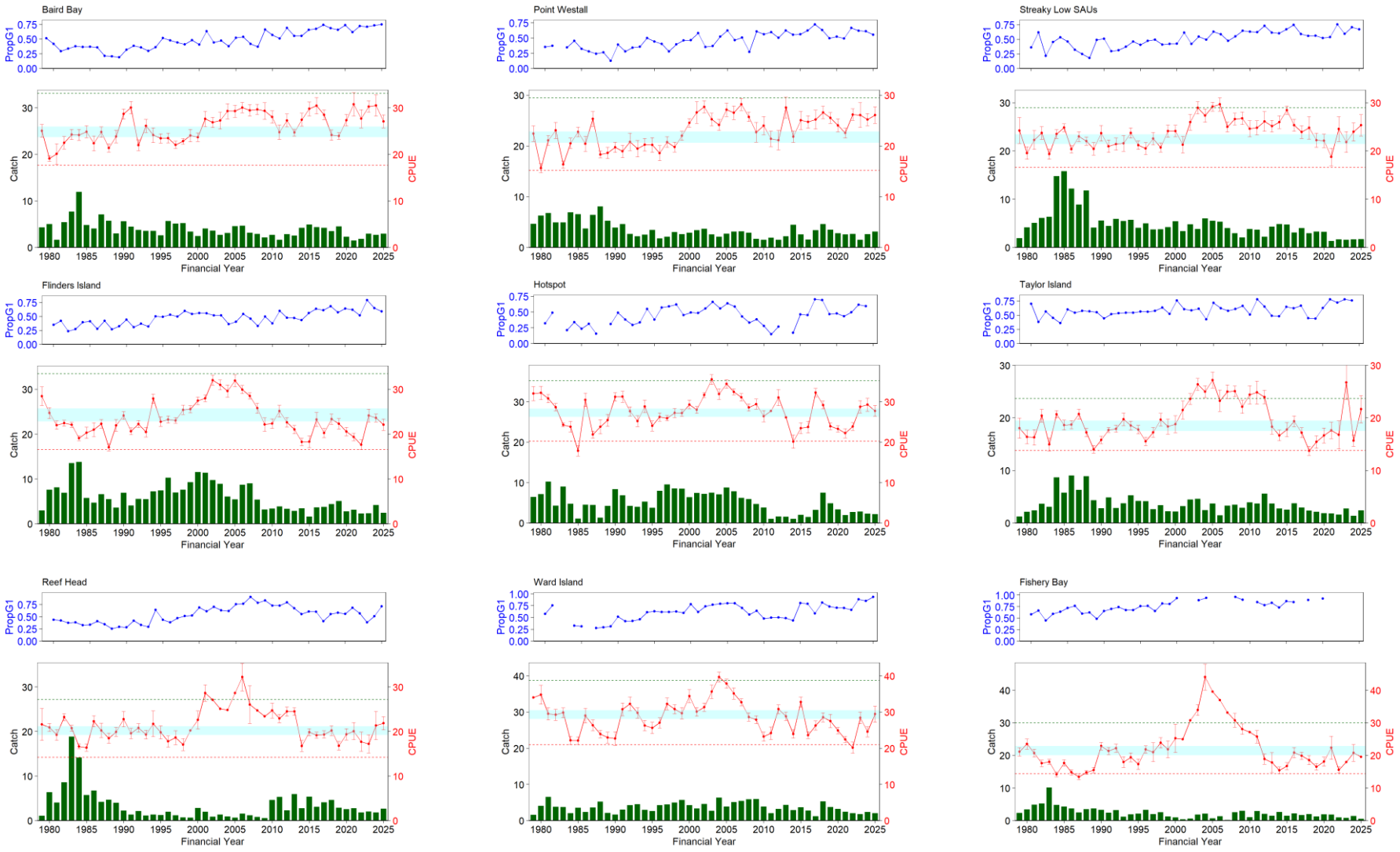

Figure 6.9. Greenlip SAU's (indicated by plot names) showing performance indicator CPUE ± se (kg.hr^{-1}, red) from 1979 to 2025. Catch (t meat weight; black bars) are also included for reference. The green and red dashed lines and pale blue bands are the upper and lower limit reference points and target reference band from the harvest strategy performance indicator CPUE.

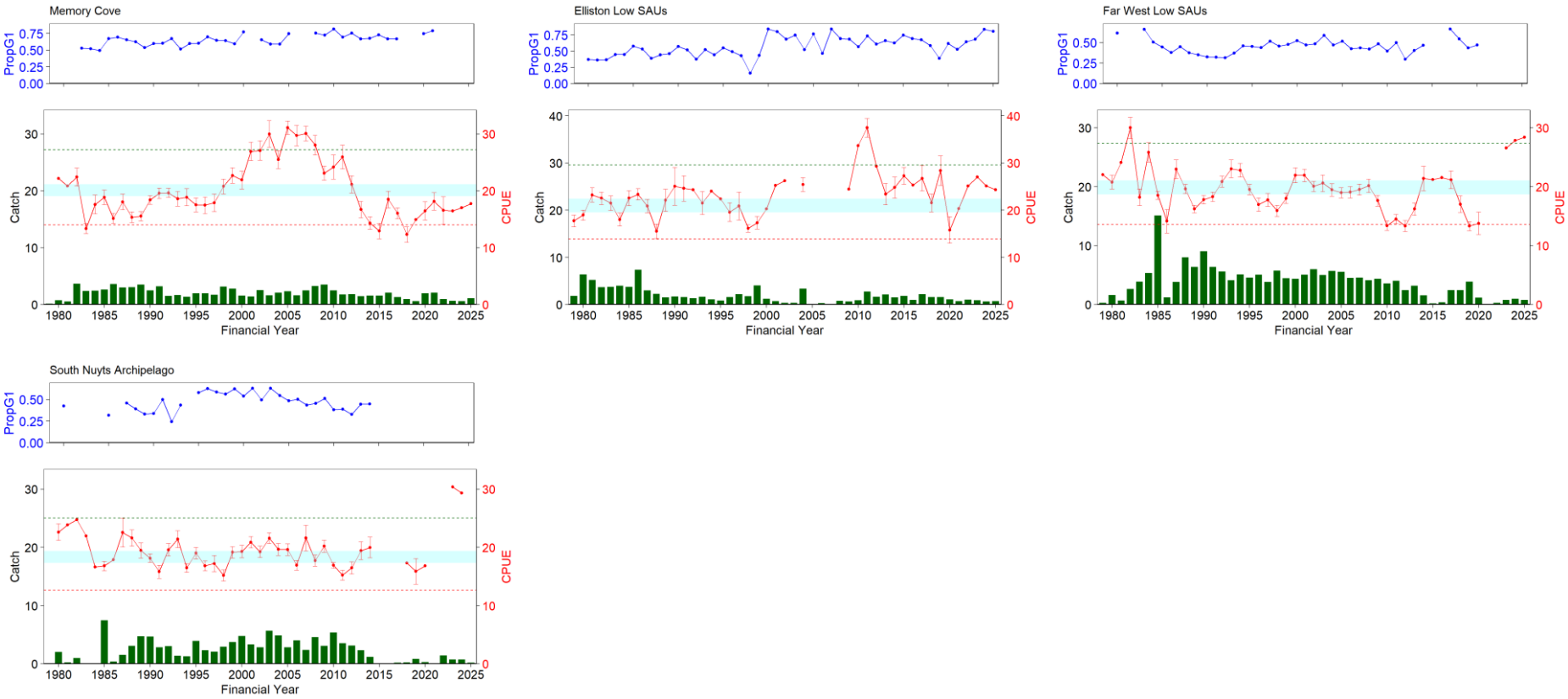

Figure 6.10. Greenlip SAU's (indicated by plot names) showing performance indicator CPUE ± se (kg.hr^{-1}, red) from 1979 to 2025. Catch (t meat weight; black bars) are also included for reference. The green and red dashed lines and pale blue bands are the upper and lower limit reference points and target reference band from the harvest strategy performance indicator CPUE.

6.8 Summary tables

Table 6.13. Financial year blacklip catch (tons MW) from the Western Zone SAU's and HS pooled data limited SAU's (ordered alphabetically). Empty cells denote no catch.

FINANCIAL YEAR	WESTERN ZONE	ANXIOUS BAY	AVOID BAY	BAIRD BAY	CAPE BAUER	CAPE CATASTROPHE	COFFIN BAY	DENTRECASTEAUX REEF	DRUMMOND NORTH	DRUMMOND SOUTH	ELLISTON CLIFFS	ELLISTON LOW SAUS	FAR WEST LOW SAUS	FISHERY BAY	FLINDERS ISLAND	FRANKLIN ISLANDS	GREENLY ISLAND	HOTSPOT	LINCOLN LOW SAUS	MEMORY COVE	NE THISTLE	NEPTUNE ISLANDS	NORTH NUYTS	PEARSON ISLAND	POINT AVOID	POINT WESTALL	REEF HEAD	SEARCY BAY	SHERINGA	SIR JOSEPH BANKS	SOUTH NUYTS	STREAKY LOW SAUS	SW THISTLE	TAYLORS ISLAND	THE GAP	VENUS BAY	WARD ISLAND	WATERLOO BAY	WEDGE ISLAND
1979	23.6	1.2	2.0	0.6	0.0	0.2	0.0		3.0	6.0	0.3	1.5		0.3	0.1			0.1	3.2	0.1	0.4	0.0			1.5	1.6	0.3	0.1	1.6	0.1		0.6	0.4	0.1	1.4	0.6	0.2	1.2	0.0
1980	50.9	4.1	2.4	1.9	0.2	0.4	0.3		5.5	11.4	0.1	1.4	0.0	1.1	0.8	0.0		0.1	4.0	0.2	0.0	0.1			4.5	1.2	3.1	0.8	7.9	0.0	0.0	2.1	0.6	0.4	0.9	0.7	0.8	1.4	0.0
1981	96.1	10.5	1.7	0.5	0.1	1.6	1.8		12.0	8.1	0.5	1.8	0.0	3.1	1.3	0.0		1.4	11.3	0.1	0.1	0.2			3.4	9.9	5.2	5.1	19.1			0.7	1.3	0.9	2.1	2.3	2.2	1.3	0.0
1982	126.3	6.4	2.0	2.6	0.0	1.1	0.7		22.3	23.3	1.2	2.7	0.1	6.4	1.4	0.1		0.5	13.9	0.9	0.3	0.3	0.0		5.2	2.9	10.5	3.0	27.6			2.6	1.1	0.3	2.6	1.2	0.8	1.5	0.1
1983	89.4	5.7	2.1	2.8	0.0	0.8	0.8	0.4	8.3	10.0	1.5	1.5	0.5	3.4	1.2	0.0		0.9	9.1	0.5	0.2	0.3	0.0	0.0	4.0	3.1	13.5	3.5	18.1	0.0		2.8	1.0	0.3	1.8	4.7	0.4		0.1
1984	117.8	15.6	3.2	7.7	1.0	0.8	0.8		9.8	11.3	4.0	4.1	0.2	1.7	3.8	0.1	0.0	1.1	11.7	1.5	0.6	0.1	0.1	0.1	6.4	2.5	13.1	3.2	15.7	0.0		8.7	1.7	1.4	2.6	7.0	0.6	0.0	0.5
1985	118.8	6.3	1.3	4.7	0.1	0.7	0.7	1.1	5.3	10.7	2.5	2.9	4.1	2.5	4.3	0.6		0.4	9.1	1.3	0.2	0.0	2.0	0.4	3.2	5.0	9.5	13.1	28.5		0.3	5.5	0.5	1.1	1.8	8.2	1.4		0.3
1986	93.2	5.1	1.8	2.8	1.3	1.3	0.5	0.0	2.7	9.7	3.5	7.9	0.8	1.3	3.2	0.7	0.0	0.3	5.6	0.3	0.1	0.0	0.0	0.1	5.0	5.7	7.1	12.9	17.4	0.0	0.0	4.2	0.5	0.5	1.0	3.3	0.5	4.3	0.0
1987	95.9	7.8	1.6	5.5	1.4	2.0	1.2	1.0	5.5	9.0	0.8	1.1	1.9	2.8	1.9	0.2	0.0	1.0	10.1	0.3	0.1	0.1	0.5	0.0	5.5	6.5	5.9	6.2	17.6		0.3	7.1	1.0	0.4	2.2	5.6	1.6	0.3	0.0
1988	93.1	5.3	0.8	3.9	1.8	1.9	1.1	2.8	10.5	5.0	1.3	2.2	6.3	1.9	1.2	0.8		0.2	11.3	0.8	0.4	0.6	1.4		2.6	7.8	12.6	9.9	7.0	0.1	1.2	7.0	2.2	0.7	1.6	1.5	2.1	0.9	0.1
1989	105.1	5.8	1.9	3.5	0.1	2.5	1.3	4.1	4.2	9.0	1.0	1.7	9.9	3.9	1.7	2.3	1.0	0.5	19.6	1.6	0.9	0.6	1.3		4.9	13.2	8.7	4.6	9.1	0.1	2.1	3.6	1.5	1.7	4.3	5.0	1.8	0.7	0.1
1990	112.0	4.4	2.2	5.3	0.5	1.4	0.4	4.2	6.1	5.8	0.9	1.1	11.0	3.0	5.2	2.4	0.2	1.8	13.5	1.5	0.7	0.1	2.9	0.1	4.1	12.2	7.2	6.5	17.3	0.0	1.6	5.7	2.2	1.4	2.4	6.0	1.8	0.1	0.2
1991	103.5	4.3	1.5	4.7	0.6	1.2	1.0	3.8	8.8	11.2	1.7	1.9	9.2	2.1	1.3	1.6	0.2	1.5	15.3	1.1	1.9	0.1	2.5	0.0	2.3	9.2	8.1	4.5	12.5	0.0	1.2	5.3	2.4	1.2	3.7	6.0	0.7	0.2	0.2
1992	109.1	3.5	5.4	6.1	2.3	2.1	1.1	1.0	6.1	1.6	1.0	2.1	3.3	2.1	4.4	0.6	0.3	1.6	13.2	1.2	0.6	0.1	0.8	0.1	2.2	11.0	11.6	8.4	14.2	0.0	0.8	8.4	1.6	1.1	2.6	7.2	5.0	1.0	0.2
1993	103.1	3.6	2.5	8.1	1.1	1.4	0.8	3.7	6.9	5.7	0.9	1.6	5.6	1.0	2.5	0.9		3.8	10.2	0.6	1.4	0.0	0.8	0.0	3.9	6.2	7.1	6.5	9.1	0.1	0.2	9.1	1.1	1.1	2.5	11.4	7.4	0.6	0.2
1994	95.8	5.0	2.8	5.9	1.1	1.3	2.1	2.9	3.8	3.1	0.7	0.9	5.4	1.4	2.5	0.7	0.1	2.6	12.5	0.6	0.6	0.4	1.4	0.0	6.0	7.3	6.0	5.6	10.7	0.0	0.4	7.0	1.0	1.6	3.0	8.4	6.2	0.2	0.3
1995	90.3	3.1	4.4	3.3	1.3	0.9	1.4	0.2	4.5	4.9	1.5	1.8	4.8	1.2	2.0	0.8		1.4	10.5	0.5	0.9	0.9	2.0	0.1	3.4	9.6	7.6	6.6	10.8		1.8	4.5	0.8	1.3	2.5	6.8	3.6	0.3	0.2
1996	108.1	4.0	5.5	6.5	2.7	0.7	1.2	3.5	4.1	3.4	1.4	1.5	8.1	2.1	6.2	0.4		3.1	5.5	0.1			3.0	0.0	2.1	4.4	6.6	8.7	19.7		1.1	9.3	0.3	0.0	1.1	8.7	7.2	0.1	
1997	110.5	4.7	4.0	7.1	0.8	2.8	0.8	2.1	6.9	4.0	1.0	1.0	6.8	1.6	3.0	0.5		6.2	13.2	1.2	0.5	0.1	3.4		3.1	9.4	5.2	7.0	13.4		0.9	8.0	1.3	0.2	4.5	7.6	7.2		0.2
1998	90.5	2.9	1.6	6.1	0.5	1.9	0.8	2.6	2.7	2.9	0.9	2.8	5.7	2.5	3.6	0.7		6.9	14.9	0.8	1.2	0.2	1.7	0.0	1.9	5.8	3.2	6.8	8.3	0.0	0.7	6.6	1.2	1.1	5.0	6.5	7.4	1.9	0.2
1999	113.2	8.3	2.1	3.3	2.1	4.1	1.0	2.0	3.2	3.2	0.8	2.7	4.3	2.2	5.9	0.4		7.5	13.4	0.8	0.6	0.2	1.3		2.0	8.7	3.8	7.6	15.7	0.0	0.6	5.5	0.6	0.2	3.8	9.6	9.8	1.8	0.0
2000	104.3	3.3	2.5	4.0	3.4	3.1	1.0	0.8	5.0	3.0	1.5	1.6	4.5	1.1	5.8	0.7		5.7	11.1	0.4	0.4	0.1	1.5	0.0	2.6	9.8	7.7	5.9	10.6	0.0	1.4	7.4	1.2	0.3	3.4	11.3	6.6		0.1
2001	100.2	4.2	5.4	7.3	2.7	1.5	0.8	2.0	4.9	4.1	1.2	1.2	5.1	0.4	7.5	0.8		5.0	6.3	0.4	0.2		1.5	0.0	4.5	7.6	6.7	4.7	11.9	0.0	0.9	10.3	0.7	0.3	1.9	4.8	6.0		0.1
2002	97.6	7.3	5.3	4.3	2.4	0.4	0.5	2.2	3.2	4.8	0.7	0.7	6.5	0.7	4.2	1.0		5.3	4.5	0.3	0.3		2.1		2.6	8.7	5.1	7.6	13.5	0.2	1.2	6.7	0.1	0.4	1.6	4.8	6.7		0.0
2003	111.7	9.1	4.3	4.2	1.9	0.9	2.0	1.1	5.1	4.0	0.6	0.6	3.4	1.5	5.6	0.6		6.5	8.8	0.6	0.5		0.8		3.5	8.3	4.6	8.5	11.9		0.9	7.6	0.5	0.2	2.7	13.3	6.6		0.0
2004	101.3	6.0	4.1	5.0	1.7	1.4	2.4	0.8	4.6	2.5	0.2	0.2	3.6	1.9	2.4	0.4		4.4	9.3	0.6	0.3	0.1	1.5		2.5	5.2	4.7	10.9	12.5		0.8	10.4	0.3	0.1	2.1	7.9	10.3		0.1
2005	111.2	7.5	6.0	6.6	2.1	1.1	2.2	0.4	5.9	3.1	0.6	0.6	4.8	1.3	2.3	0.7		11.4	9.8	0.9	0.2		2.9		3.7	5.6	6.5	9.6	9.1		0.8	11.4	0.7	0.3	3.1	8.0	5.8		0.0
2006	105.5	5.6	8.6	5.9	2.5	0.9	2.0	0.7	3.3	6.5	0.8	0.8	6.2	1.7	3.0	0.3		7.9	8.1	0.7	0.2		4.0	0.0	4.2	11.2	6.0	5.1	6.4		1.2	11.5	0.6	0.0	1.8	4.0	7.3		0.1
2007	105.2	4.8	13.0	3.2	1.8	0.7	0.9	2.0	4.5	4.9	0.1	6.0	6.8	0.6	4.0	0.1		7.5	6.7	0.8	0.3	0.1	3.7		2.2	10.7	4.1	8.1	6.2		0.9	7.1	0.3	0.3	2.5	1.1	7.4	5.8	0.2
2008	97.3	3.4	8.7	2.7	1.0	1.1	1.6	2.5	8.4	7.8	0.6	0.7	6.2	2.3	2.8	0.2		5.4	9.0	0.6	0.2	0.0	2.3	0.0	1.9	7.7	3.4	6.0	9.3		1.3	4.4	0.3	0.2	2.5	3.0	9.1	0.1	0.1
2009	104.5	5.6	5.2	5.3	0.8	1.6	0.8	1.6	6.7	7.0	2.3	2.4	4.8	2.6	3.5	0.5		6.9	9.3	0.7	0.2	0.6	1.7	0.1	5.0	6.9	2.1	6.3	11.4		0.9	6.3	0.9	0.3	1.5	5.7	9.6		0.1
2010	95.7	7.4	6.5	4.0	1.5	0.5	0.7	0.7	4.5	6.4	0.6	0.8	4.6	1.1	2.4	0.2		4.1	4.1	0.2	0.1	0.0	2.5		4.3	5.2	9.6	6.8	12.5		1.1	5.5	0.1	0.2	1.1	4.5	6.7	0.1	0.0
2011	96.1	6.5	5.6	1.6	1.3	0.9	1.4	1.0	5.6	14.0	1.2	2.1	4.2	1.3	1.6	0.4	0.2	1.5	4.9	0.1	0.1	0.0	2.4		5.4	6.7	9.9	6.5	13.1		0.6	2.8	0.2	0.1	0.7	3.1	2.3	0.9	0.0
2012	93.7	5.6	8.0	1.8	0.9	0.7	1.2	0.7	13.7	12.5	1.1	1.5	1.8	1.5	1.6	0.1	0.1	0.8	4.5	0.2	0.2	0.0	0.6	0.4	4.0	5.7	5.1	5.8	15.9		0.4	2.7	0.2	0.1	0.3	1.8	2.6	0.1	0.0
2013	100.7	4.3	4.7	1.1	1.7	0.6	2.0	0.7	11.5	10.2	1.0	1.9	1.8	2.0	1.5	0.2	0.1	0.2	5.8	0.0	0.1	0.1	0.8	0.0	4.6	8.2	12.7	7.4	15.2		0.1	2.7	0.2	0.1	0.6	4.9	3.0	0.9	0.0
2014	62.8	3.6	4.4	0.4	2.0	0.4	0.3	0.2	6.0	8.0	1.0	1.3	2.1	1.6	1.0	0.7		0.1	2.8	0.1	0.0	0.1	0.2		3.2	8.2	4.7	4.5	6.4		1.0	2.5	0.0	0.1	0.3	2.2	2.0	0.3	0.0
2015	79.0	5.1	5.0	0.2	1.2	1.1	0.7	0.2	13.8	13.2	1.5	1.9	0.5	1.7	0.4			0.3	3.8	0.1	0.0		0.3		3.8	5.3	6.3	5.5	8.5	0.0		1.4	0.0	0.0	0.2	2.7	1.6	0.4	
2016	52.5	3.7	3.6	0.0	1.8	0.4	0.4	0.0	6.9	9.1	0.9	1.0	0.3	0.5	0.9	0.2		0.2	1.8	0.1	0.0	0.0	0.1		3.1	4.4	4.7	3.4	6.0	0.0		1.8	0.1	0.0	0.2	0.2	1.5	0.1	0.0
2017	71.6	6.6	4.2	0.2	1.3	0.7	0.6	0.1	7.7	10.7	2.1	2.4	0.8	1.1	1.0	0.3	0.1	0.6	3.0	0.0	0.0	0.0	0.4	0.0	4.0	5.9	8.4	3.7	7.4		0.0	1.5	0.1	0.0	0.3	2.2	1.5	0.3	0.1
2018	66.1	3.1	3.7	0.0	0.9	0.8	0.2	0.7	4.6	9.7	2.6	3.4	1.4	0.4	1.4	0.2		1.6	2.0	0.0	0.0	0.1	0.5		3.3	8.3	6.4	4.8	8.6	0.0	0.0	0.9	0.1	0.0	0.2	1.1	1.9	0.8	0.1
2019	56.0	2.0	4.1	0.1	1.2	0.3	0.3	1.1	4.1	8.0	1.7	1.9	3.4	0.4	1.1	0.6		1.8	1.5	0.0	0.0	0.0	1.6		2.3	7.5	4.6	5.0	5.4		0.1	1.2	0.2	0.0	0.3	0.3	1.8	0.2	0.0
2020	42.7	2.0	3.7	0.0	1.2	0.3	0.2	0.2	4.9	4.4	1.1	1.2	1.1	0.4	0.4	0.4		0.7	1.5	0.1	0.0		0.5		2.8	4.9	3.6	3.1	5.9	0.0	0.0	1.3	0.2	0.0	0.2	0.2	1.1	0.1	0.0
2021	41.2	1.6	4.0	0.0	0.8	0.3	0.3		4.3	6.4	0.6	0.8		0.5	1.0			0.8	1.8	0.2	0.0	0.0			4.0	4.9	3.4	2.5	4.3			0.8	0.2	0.0	0.2	0.0	0.8	0.2	0.0
2022	45.9	1.5	2.6	0.0	0.7	0.4	0.1	0.1	5.4	6.2	0.9	1.0	0.1	0.7	0.2	0.0	0.0	0.9	1.5	0.0	0.0		0.1		3.0	6.8	2.5	3.6	8.0	0.0	0.0	0.7	0.1	0.0	0.2	0.9	1.0	0.2	0.0
2023	42.8	0.6	2.0	0.2	0.6	0.2	0.2	0.0	6.1	9.5	0.9	1.3	0.1	0.2	0.8	0.0		0.2	0.8	0.0		0.0	0.0	0.0	2.7	4.9	2.4	3.5	5.6		0.0	0.7	0.0	0.0	0.1	0.6	1.1	0.4	0.0
2024	47.6	1.9	0.9	0.0	0.5	0.1	0.1	0.0	7.7	9.7	1.1	1.1	0.1	0.2	0.7	0.0		0.5	0.9	0.0	0.0		0.1		1.5	5.9	2.7	3.6	8.5		0.0	0.6	0.2	0.0	0.2	0.2	1.2		
2025	37.4	1.8	2.6	0.1	0.6	0.1	0.1		5.9	7.7	0.3	0.4	0.0	0.0	0.2	0.0		0.3	0.5	0.1	0.0	0.0	0.0		1.7	4.7	2.4	2.1	4.7	0.0	0.0	0.7	0.0	0.0	0.1	0.1	1.5	0.1	0.0

Table 6.14. Financial year blacklip CPUE (kg.hr^{-1}) from the Western Zone SAU's and HS pooled data limited SAU's (ordered alphabetically). Empty cells denote no catch or insufficient data to estimate CPUE.

FINANCIAL YEAR	WESTERN ZONE	ANXIOUS BAY	AVOID BAY	BAIRD BAY	CAPE BAUER	CAPE CATASTROPHE	COFFIN BAY	DENTRECASTEAUX REEF	DRUMMOND NORTH	DRUMMOND SOUTH	ELLISTON CLIFFS	ELLISTON LOW SAUS	FAR WEST LOW SAUS	FISHERY BAY	FLINDERS ISLAND	FRANKLIN ISLANDS	GREENLY ISLAND	HOTSPOT	LINCOLN LOW SAUS	MEMORY COVE	NE THISTLE	NEPTUNE ISLANDS	NORTH NUYTS	PEARSON ISLAND	POINT AVOID	POINT WESTALL	REEF HEAD	SEARCY BAY	SHERINGA	SIR JOSEPH BANKS	SOUTH NUYTS	STREAKY LOW SAUS	SW THISTLE	TAYLORS ISLAND	THE GAP	VENUS BAY	WARD ISLAND	WATERLOO BAY	WEDGE ISLAND
1979	21.8	24.7	20.2						21.1	22.0		18.4							16.2						18.1	40.7	26.9		25.9			21.2			14.5			18.0	
1980	24.4	26.0	22.6	21.6					29.5	21.2		17.5		24.4	22.4				25.1						22.9	26.3	30.3	27.5	28.8			21.2				22.9	28.6	17.5	
1981	24.3	22.7	28.1	16.5		25.2	21.5		22.4	21.7		20.3		29.3	21.6				25.3						22.0	22.9	28.0	26.8	27.6			17.6	29.9	22.7	21.5	31.1	26.3	18.9	
1982	24.7	22.3	24.7	22.4		20.0	18.6		26.0	23.8		23.9		20.9	26.0			28.8	21.0						24.6	19.0	26.1	25.8	27.5			22.4	23.4		21.7	25.8	28.5	19.6	
1983	23.6	23.8	23.5	22.1					24.6	19.9	27.4	27.4		18.7	19.5			27.5	19.4						20.9	21.1	23.4	22.2	28.9			22.1			19.8	30.3	26.3		
1984	24.6	25.6	21.9	31.6		18.5	15.0		25.1	22.4	30.3	30.3	18.2	18.9	22.5			26.1	20.6	21.4					21.3	27.1	20.2	28.6	29.7			31.9	27.4	19.5	21.7	27.6	23.9		
1985	24.2	19.4	17.7	27.0			14.6	19.5	23.3	20.9	25.3	25.8	18.4	19.9	28.7	11.5		25.6	20.6	21.3			21.7		18.4	27.2	19.8	30.9	27.8			27.6		21.6	20.5	25.7	27.2		
1986	22.7	20.7	18.3	21.7	17.7	18.7			22.6	19.7	26.5	24.5	20.0	15.1	25.1				16.0						23.7	22.7	21.3	23.6	27.4			20.3	13.7		14.4	24.3	25.0	23.0	
1987	23.2	24.2	15.7	27.3	30.4	20.2	15.0	22.9	24.9	21.8		22.0	23.6	15.1	20.1				17.2						21.3	26.5	19.9	23.1	28.0			27.6	19.3		20.7	24.4	22.0		
1988	22.4	20.4	15.6	25.0	19.0	19.0	18.9	23.7	26.0	23.3		23.3	22.9	15.1	26.2	17.1		19.1	17.1	13.9			19.9		20.5	20.6	20.0	26.4	27.5		29.7	24.5	18.6		18.5	26.0	24.6	17.7	
1989	23.9	24.1	17.9	28.5		22.7	21.3	24.6	27.1	26.1		27.0	21.5	15.3	32.5	21.1		25.4	19.7	21.7	18.3		20.9		22.3	26.6	20.4	23.5	27.0		18.7	28.5	22.0	16.9	20.1	31.1	33.7		
1990	25.1	24.7	22.9	30.5		20.5		22.0	25.7	22.4		28.3	20.8	17.3	29.8	22.0		25.6	18.0	18.1	13.6		18.9		22.9	24.6	23.2	30.1	34.2		20.0	30.5	20.8	16.4	19.5	29.7	32.6		
1991	26.0	25.2	30.7	32.8		20.8	21.6	22.0	25.8	29.2	29.5	28.8	21.0	22.5	22.4	20.1		29.7	20.4	18.6	19.0		19.9		24.3	25.8	23.7	31.9	32.3		22.3	31.6	19.9	16.2	21.2	29.7	33.4		
1992	25.8	25.6	30.4	24.3	22.9	21.7	22.0		24.7	21.7		25.7	21.1	22.2	22.9			36.6	21.4	20.5			22.6		22.9	23.5	23.0	31.1	30.6			23.9	22.8	17.9	21.5	30.1	34.7		
1993	26.2	26.3	28.8	29.7	32.7	20.7		29.5	28.4	27.1		31.4	27.1	15.8	23.2	19.7		28.6	19.3		18.0				25.4	20.8	20.3	27.5	29.2			30.0	19.6	20.1	20.4	28.2	36.9		
1994	26.1	24.8	26.0	25.6		20.7	20.5	36.5	26.5	20.7		29.6	27.6	19.1	26.3			33.1	20.1				22.2		26.6	22.6	21.9	29.0	32.6			25.4	22.6	16.3	23.6	30.0	36.5		
1995	25.3	21.0	24.5	23.4	22.0	18.9	22.6		24.7	26.1	27.2	25.8	22.1	19.4	20.8	22.6		24.6	21.0				22.2		23.0	27.0	23.4	28.0	32.4		21.1	23.0	20.5	18.4	25.1	28.3	28.7		
1996	25.1	23.9	23.7	27.5	20.4		17.4	25.9	23.8	19.0	26.0	26.0	21.7	19.2	22.5			28.2	20.1				20.5		20.0	22.3	21.8	29.7	29.7		16.9	24.9			23.1	26.5	33.2		
1997	25.8	22.1	23.7	25.4		19.8		27.4	25.5	26.0		26.3	24.1	21.9	23.6			29.5	20.9	20.6			23.9		25.7	25.1	19.9	29.6	29.1			25.2	25.0		20.6	28.5	36.0		
1998	25.0	22.7	20.7	29.0		21.8	15.4	28.3	22.3	30.0		24.3	22.7	25.2	24.3			29.6	21.3		19.6		19.0		21.0	21.8	18.4	26.1	28.0			28.1	26.5		19.8	26.5	34.4	24.2	
1999	25.4	24.8	21.6	24.6	22.4	24.8	20.0	24.9	26.8	23.3		18.6	22.9	21.0	25.1			26.5	21.9						22.0	22.4	22.8	25.6	30.9			23.5			21.6	27.3	33.6	16.3	
2000	25.7	24.9	22.7	27.1	25.6	21.3			25.0	25.7		24.8	22.6	19.5	24.5	20.0		29.7	20.4				28.5		27.7	23.3	24.6	27.1	30.2		20.5	26.4	19.2		20.9	28.4	30.1		
2001	27.6	24.6	31.9	32.5	24.0	23.5		30.3	31.2	29.8		27.8	23.6		30.0	19.9		26.1	22.4				19.8		24.6	24.5	27.5	25.2	33.5			29.7			26.3	23.8	30.3		
2002	28.5	25.8	29.8	27.1	23.9			28.1	27.1	30.2		26.3	25.4		25.2	22.7		31.3	26.6				25.9		25.4	28.1	27.7	29.3	32.5		21.8	25.8				28.9	33.0		
2003	29.2	28.1	27.8	27.4	26.5	25.6	29.3		30.6	28.5		29.6	22.4	26.8	29.0			34.0	26.2						31.3	24.3	24.1	31.2	33.3			27.2			21.2	31.9	35.7		
2004	29.8	30.1	27.1	28.9	29.6	30.2	23.6		25.8	29.8		30.4	25.2	33.3	29.6			31.7	28.5				26.0		28.0	27.6	24.8	30.5	32.8			30.2			29.2	28.3	38.0		
2005	29.8	30.7	33.5	26.9	28.4	26.4	23.4		28.3	27.2			25.0		31.8			35.7	26.3				26.5		27.1	27.5	26.6	30.5	31.5			27.8			24.8	34.3	40.3		
2006	30.7	29.1	36.3	28.9	28.0	31.5	19.9		29.8	32.2		26.8	25.0		27.8			33.1	27.5				28.2		33.2	31.8	27.0	29.9	35.1		19.1	28.5			30.4	33.0	34.1		
2007	29.5	30.3	35.4	26.3	28.4			28.4	31.3	31.4		24.6	23.6		26.7			31.4	28.6				23.3		27.4	30.8	25.4	30.1	34.3		22.2	26.7			31.0	24.4	31.2	25.1	
2008	28.7	28.6	32.4	27.6	26.2	29.6	21.5	23.7	30.2	28.6		27.0	20.8	29.5	24.9			26.2	27.3				19.4		30.4	29.6	25.8	30.0	31.3		18.9	27.5			27.4	26.1	33.5		
2009	27.2	26.7	24.1	25.4		25.1			30.3	27.3	32.4	32.2	25.3	31.2	24.7			28.0	26.7				21.8		27.5	24.7	21.0	27.7	29.8			25.4			25.5	25.7	30.6		
2010	26.2	26.9	26.0	25.5	25.9				27.2	29.8		31.8	17.5		29.2			20.1	23.6				18.8		24.5	24.1	25.6	27.2	31.4		18.2	25.6				25.6	28.5		
2011	25.1	26.8	23.9	26.2		23.7	23.6	17.7	27.6	25.3		32.4	16.3	26.0	22.3			22.1	23.7				15.7		25.2	27.9	22.2	27.6	27.8		13.5	26.2				25.6	25.0		
2012	25.5	29.1	23.5	25.2		17.6	19.8		26.5	25.1		29.4	17.1	15.6	24.2			23.8	16.8						23.8	24.7	20.9	27.3	29.9			26.6				30.2	29.3		
2013	24.5	24.1	23.1	20.4	24.4	10.9	24.0	16.8	25.3	25.8	24.5	26.9	18.2	17.3	26.0			23.8	19.0				22.1		24.0	25.4	22.4	24.8	28.0			22.6				25.9	29.1		
2014	22.9	21.5	21.9		27.3				24.4	23.1		25.4	30.0	16.0	17.3				15.4						18.3	27.7	17.7	24.2	24.5			27.1				24.2	27.0		
2015	23.4	25.3	18.1		24.8	21.1	18.0		24.8	22.0	36.0	34.4	20.4	19.1	20.8				19.4						22.5	26.7	19.8	26.1	28.3			24.2				22.0	29.2		
2016	22.1	23.7	20.6		29.1				21.3	21.9	25.1	25.8	13.0		25.4				17.6						19.4	25.8	19.6	23.9	22.7			29.1				21.4	25.0		
2017	22.2	24.9	17.8		24.4				21.4	21.6	25.3	26.1	15.8	16.7	21.5			26.6	16.3						21.3	27.1	19.4	25.1	25.4			23.5				22.8	27.6		
2018	21.8	21.2	19.1			17.2		11.4	20.3	20.7	24.5	24.9	13.0		28.2			26.5	15.3						18.1	26.4	17.4	24.8	24.5			23.7				22.1	31.5		
2019	20.0	18.8	17.8					12.3	19.9	19.7	21.9	22.4	14.0		21.2			22.5	16.6				15.7		16.7	23.2	16.7	21.3	23.7			23.9				18.8	28.3		
2020	21.3	20.1	18.4		24.3				20.8	21.4	19.4	19.7	14.7		22.1			25.4	19.0						19.1	27.7	18.5	25.8	21.7			24.3				17.6	27.7		
2021	21.0	20.0	19.8						20.2	22.3		22.1			21.9			25.7	15.9						17.3	24.2	16.7	24.5	22.7			25.9					25.1		
2022	21.7	17.7	18.1						23.6	22.0		21.0			21.2			24.0	15.7						19.4	25.7	15.4	23.3	23.3			26.4					25.4		
2023	22.1	23.8	19.0						22.8	21.5		25.5			22.9			23.8	16.6						18.8	26.0	13.8	25.4	23.5			25.2				19.4	27.5		
2024	22.6	28.6	21.0						21.1	23.5		25.7			24.7				17.7						17.2	23.1	16.5	21.7	25.7			23.9				18.7	29.1		
2025	23.5	25.1	25.6						23.2	22.5		25.0			24.7				17.7						18.9	24.9	19.0	24.4	25.1			25.0					29.1		

Table 6.15. Financial year greenlip catch (tons MW) from the Western Zone SAU's and HS pooled data limited SAU's (ordered alphabetically). Empty cells denote no catch.

FINANCIAL YEAR	WESTERN ZONE	ANXIOUS BAY	AVOID BAY	BAIRD BAY	CAPE BAUER	CAPE CATASTROPHE	COFFIN BAY	DENTRECASTEAUX REEF	DRUMMOND NORTH	DRUMMOND SOUTH	ELLISTON CLIFFS	ELLISTON LOW SAUS	FAR WEST LOW SAUS	FISHERY BAY	FLINDERS ISLAND	FRANKLIN ISLANDS	GREENLY ISLAND	HOTSPOT	LINCOLN LOW SAUS	MEMORY COVE	NE THISTLE	NEPTUNE ISLANDS	NORTH NUYTS	PEARSON ISLAND	POINT AVOID	POINT WESTALL	REEF HEAD	SEARCY BAY	SHERINGA	SIR JOSEPH BANKS	SOUTH NUYTS	STREAKY LOW SAUS	SW THISTLE	TAYLORS ISLAND	THE GAP	VENUS BAY	WARD ISLAND	WATERLOO BAY	WEDGE ISLAND
1979	85.1	13.1	13.2	4.3	0.3	0.3	0.6	0.0	1.5	1.3	0.2	1.8	0.3	2.3	3.0			6.5	6.9	0.1	1.5	1.7	0.3		15.0	4.7	1.1	0.3	0.4	0.1		1.9	1.7	1.2	5.2	1.3	1.6	1.2	1.0
1980	120.9	12.6	12.3	5.0	0.4	1.7	1.3	0.3	1.2	4.2	0.4	6.4	1.6	3.4	7.6	0.4		7.1	6.4	0.8	0.6	0.4	0.9		21.9	6.3	6.4	1.3	2.5	0.1	2.0	4.2	1.5	2.1	5.4	2.5	4.1	3.5	0.7
1981	108.6	12.1	4.8	1.7	0.2	2.8	1.2		4.6	2.9	1.4	5.2	0.7	4.9	8.1	0.0		10.2	9.1	0.5	0.8	1.3	0.7		7.8	6.8	4.0	4.0	2.0		0.2	5.1	1.8	2.4	10.8	0.9	6.6	1.8	1.2
1982	128.9	7.4	8.9	5.4	0.2	2.2	1.4		6.3	7.4	1.0	3.7	2.6	5.2	6.9	1.0		4.3	11.5	3.7	1.4	2.1	1.6	0.2	13.7	4.9	8.6	3.6	1.9	0.1	1.0	6.1	3.3	3.6	13.8	2.3	3.8	0.6	1.1
1983	165.0	13.2	12.4	7.7	0.3	1.7	2.2	2.7	3.3	4.0	1.0	3.8	3.9	10.2	13.6	0.5		9.0	12.6	2.4	0.9	0.8	0.7	1.0	20.9	4.9	18.8	3.2	1.7	0.1	0.1	6.4	2.9	3.1	11.2	2.8	3.8		4.0
1984	176.3	16.2	9.4	12.0	2.4	1.0	2.0	0.1	4.5	4.3	0.9	3.9	5.4	4.8	13.8	2.4	0.1	4.7	9.7	2.5	1.0	0.5	2.8	0.6	32.2	6.9	14.2	6.3	2.4	0.1	0.1	14.8	2.5	8.7	6.2	5.1	2.1	0.1	2.6
1985	113.8	5.9	3.9	4.9	1.6	1.4	0.6	2.6	1.1	3.3	1.6	3.7	15.1	4.3	5.8	3.7	0.0	1.1	4.6	2.6	0.4	0.4	8.8	0.2	8.1	6.6	5.8	11.6	2.0		7.5	15.8	0.9	5.8	4.7	2.2	3.6		0.9
1986	103.3	7.0	5.8	4.1	5.2	1.6	0.3	0.1	1.0	1.9	1.2	7.4	1.2	3.7	4.7	0.8	0.1	4.5	5.7	3.6	1.1	0.4	0.3	1.5	12.3	3.7	6.7	4.7	1.7	0.0	0.4	12.2	1.4	9.0	5.9	2.4	2.4	3.0	0.8
1987	100.8	8.6	3.5	7.1	2.7	2.1	1.1	1.6	1.8	2.2	0.9	3.0	3.8	2.5	6.6	0.9	0.1	4.5	7.8	3.0	1.0	0.5	1.3	0.3	6.1	6.4	4.2	2.6	1.6		1.5	8.9	1.7	6.3	9.4	3.1	3.6	0.2	1.5
1988	120.9	13.4	4.0	5.7	3.1	3.0	1.1	1.1	1.0	1.9	1.4	2.3	8.0	3.5	5.5	3.7		1.3	14.4	3.0	2.6	1.5	3.2		7.5	8.1	4.7	6.1	0.4	0.2	3.1	11.8	4.0	8.9	7.6	2.2	5.2	0.5	2.0
1989	86.4	9.1	2.5	3.0	1.4	1.6	0.6	1.5	0.5	1.6	0.4	1.5	6.4	3.7	3.6	3.0	0.5	4.2	8.4	3.5	1.4	1.6	1.8		7.8	5.2	4.0	1.5	0.9	0.1	4.7	4.1	1.4	4.3	5.8	1.2	2.1	0.3	1.2
1990	85.5	6.5	2.8	5.6	0.4	1.8	0.2	1.9	0.6	0.8	0.7	1.7	9.1	3.3	6.9	3.1	0.1	8.4	7.6	2.5	1.5	0.2	4.0	0.4	2.9	3.9	2.3	2.6	0.6		4.7	5.6	1.6	2.8	6.0	2.6	1.7	0.1	2.3
1991	79.8	6.8	2.2	4.5	1.8	1.8	0.3	1.1	0.7	0.4	0.4	1.6	6.4	2.4	4.1	2.6	0.0	6.9	8.5	3.2	2.3	0.4	2.7	0.2	3.7	4.6	1.4	2.1	0.7	0.1	2.8	4.5	2.4	4.9	7.3	0.6	3.0	0.3	1.2
1992	77.9	6.6	4.1	3.8	2.5	2.3	0.4	1.7	0.4	0.1	0.1	1.3	5.6	3.3	5.6	2.3	0.4	4.2	9.7	1.5	1.4	0.2	1.6	0.4	2.0	2.7	2.2	1.6	0.5	0.1	3.0	5.9	1.6	2.8	8.7	1.8	4.3	0.4	3.4
1993	71.9	4.1	4.4	3.6	1.6	1.9	0.7	2.1	1.1	1.3	0.5	1.6	4.1	1.2	5.5	1.0		4.0	11.5	1.6	3.0	1.4	1.1	0.3	2.2	2.2	1.2	1.7	0.6	0.1	1.4	5.5	2.5	3.8	7.1	2.2	4.5	0.2	1.8
1994	75.2	5.0	4.8	3.6	1.1	1.1	1.0	1.4	0.3	0.6	0.1	1.1	5.1	2.0	7.2	1.7	0.0	5.3	8.6	1.4	2.3	1.1	2.0	0.1	3.2	2.5	1.3	2.8	0.6	0.0	1.3	5.7	1.5	5.3	8.1	1.9	3.0	0.3	1.6
1995	73.2	5.8	3.6	2.6	0.6	2.1	0.5	0.2	0.2	0.3	0.1	0.8	4.5	2.1	7.5	2.9		3.8	11.3	2.0	2.3	2.5	1.5	0.4	1.7	3.4	1.2	2.0	0.2	0.2	3.9	4.1	1.2	4.2	7.5	1.5	2.6	0.1	2.5
1996	81.8	6.0	4.1	5.7	0.6	2.0	0.1	2.1	0.6	0.5	0.4	1.6	5.0	3.3	10.3	1.0		8.0	7.2	2.0	1.4	0.2	2.0	0.2	1.1	1.8	2.0	2.2	0.8	0.1	2.4	5.0	1.2	4.1	7.0	2.1	4.3	0.2	2.2
1997	76.7	6.0	2.6	5.1	0.2	3.7	0.1	0.9	0.8	0.7	0.1	2.2	3.8	2.0	7.0	1.1		9.6	10.0	1.7	1.0	1.4	1.7		1.6	2.1	1.2	1.5	2.1	0.3	2.1	3.7	1.8	2.6	7.3	2.1	4.5		1.8
1998	79.3	5.7	1.5	5.2	0.3	1.3	0.1	1.2	0.1	0.5	0.1	1.7	5.8	2.5	7.6	2.6		8.6	8.0	3.1	2.3	0.6	1.9	0.1	0.8	3.1	0.7	1.3	0.4	0.3	2.9	3.8	2.0	3.4	9.3	2.2	5.0	1.2	1.4
1999	84.2	5.6	2.7	3.4	1.1	2.5	0.1	0.9	0.3	0.3	0.3	4.0	4.5	1.3	9.3	1.8		8.5	7.4	2.8	1.1	0.6	1.7		1.6	2.6	0.7	1.2	0.5	0.2	3.7	4.2	1.4	2.3	13.2	1.8	5.7	3.2	1.5
2000	76.9	2.9	2.0	2.4	1.6	2.2	0.2	0.9	0.4	0.6	0.2	1.2	4.4	1.0	11.6	2.0		6.4	8.8	1.5	1.6	0.8	1.5	0.6	1.6	2.9	2.9	1.0	0.5	0.2	4.8	5.5	1.9	2.2	9.6	2.8	4.3		1.9
2001	75.4	6.2	2.5	4.1	0.9	1.5	0.1	0.7	0.3	0.8	0.0	0.7	5.1	0.4	11.4	2.0		7.5	5.2	1.4	0.4		2.3	0.2	2.5	3.4	2.0	1.6	0.5	0.1	3.3	3.4	1.8	3.2	8.7	0.8	3.4		1.4
2002	76.8	5.9	3.2	3.6	1.1	0.5	0.1	0.7	0.1	2.1	0.1	0.4	6.0	0.6	9.8	2.0		7.2	3.6	2.5	1.6		3.2		2.4	3.7	0.9	1.7	0.3	0.5	2.8	4.8	0.6	4.5	8.0	2.0	4.6		0.2
2003	79.1	9.8	2.7	2.7	0.5	0.7	0.2	1.5	0.5	0.6	0.0	0.4	5.0	1.9	8.9	2.3		7.5	3.8	1.6	0.7		1.3	0.0	1.4	2.6	1.3	1.1	0.3	0.0	5.7	3.8	1.4	4.6	11.5	1.4	2.7		0.9
2004	85.1	9.6	5.7	3.1	0.6	1.5	0.0	1.3	0.2	0.7	0.0	3.4	5.7	2.2	6.1	2.3		7.1	5.1	2.1	1.4	0.1	1.3		1.8	2.1	0.9	1.8	0.2		4.9	6.0	1.3	2.5	9.4	0.6	6.4	3.1	0.9
2005	77.4	8.0	6.8	4.6	0.4	0.7	0.1	0.8	0.4	0.3	0.0	0.1	5.5	0.7	5.4	1.8		8.8	3.9	2.3	1.1		2.8		1.2	2.7	0.7	2.4	0.1	0.2	2.8	5.6	1.1	3.7	10.0	0.4	3.9		0.7
2006	87.4	10.2	11.0	4.7	1.8	1.2	0.2	0.9	0.1	0.2	0.0	0.3	4.5	1.3	8.7	1.2		7.9	4.7	1.6	0.6		2.3	0.3	2.1	3.1	1.6	1.0	0.1		4.0	5.4	1.4	1.5	9.3	0.0	5.1		1.2
2007	78.5	5.4	12.0	3.2	1.7	0.7	0.3	1.3	0.1	0.3		0.1	4.5	0.2	9.0	0.7		6.2	5.1	2.5	1.0	0.3	2.4		1.3	3.2	1.2	1.3	0.1		2.4	4.0	1.2	3.3	9.2	0.1	5.4		1.6
2008	86.2	8.4	12.8	2.9	0.6	1.6	0.8	1.1	0.4	1.4	0.0	0.8	4.1	2.6	5.4	1.0		5.9	6.8	3.3	0.9	0.8	2.0	0.3	2.0	2.9	0.8	1.3	0.4	0.0	4.6	3.0	1.2	3.5	8.8	0.5	5.9		1.4
2009	73.9	7.1	4.9	2.2	0.3	2.3	0.4	0.9	0.7	1.5	0.2	0.7	4.4	3.0	3.2	1.6		4.7	9.9	3.5	0.8	0.9	1.9	0.1	2.9	1.7	0.6	1.1	0.4	0.2	3.1	2.1	3.0	2.9	8.9	0.7	6.0		2.2
2010	85.6	15.1	4.4	2.7	0.3	1.8	0.6	0.6	0.5	2.9	0.0	0.9	3.6	1.1	3.4	0.8		3.9	7.3	2.5	1.5	0.4	2.2		6.0	1.5	4.6	1.6	0.3		5.4	3.8	1.4	3.9	8.2	2.0	3.9	0.5	1.5
2011	73.1	8.7	3.8	1.7	0.5	1.6	1.2	0.5	1.1	2.5	0.3	2.8	4.0	2.9	3.9	0.9	0.2	1.0	6.0	1.8	1.5	0.4	2.6		5.7	1.9	5.3	1.0	0.5		3.5	3.7	0.7	3.7	7.1	2.2	2.1	2.0	0.5
2012	73.9	8.1	6.3	2.9	0.2	2.5	0.8	0.4	3.2	3.5	0.3	1.7	2.5	2.1	3.3	0.9	0.0	1.6	8.2	1.8	1.4	0.8	1.2	0.2	4.8	1.5	2.3	0.9	0.8		3.1	2.2	1.6	5.6	5.9	1.1	3.2	0.4	1.0
2013	79.8	9.0	5.5	2.5	0.9	2.3	3.2	0.4	2.5	2.4	0.4	2.2	3.2	1.5	2.9	1.7	0.0	1.5	10.2	1.4	0.7	1.6	1.1	0.3	4.3	2.2	6.0	1.2	0.7	0.0	2.4	4.3	1.3	3.7	7.9	2.2	4.3	0.8	1.0
2014	62.1	5.2	3.1	4.2	1.0	2.1	0.3	0.2	1.5	2.8	0.5	1.5	1.5	2.7	3.5	1.1		1.0	4.9	1.6	0.2	1.1	0.2	0.2	3.3	4.5	2.8	1.4	0.3		1.2	4.8	0.9	2.7	6.2	2.4	2.9	0.5	0.4
2015	69.8	7.2	4.9	4.9	0.9	1.3	0.3	0.0	2.5	3.7	0.6	1.8	0.2	1.5	1.6			2.0	5.9	1.6	0.4	0.6	0.2		4.6	2.6	5.4	1.9	0.4	0.0	0.0	4.8	1.6	2.5	8.2	1.9	3.7	0.8	1.6
2016	65.2	7.1	5.1	4.4	1.0	3.0	0.2		1.0	2.5	0.3	0.9	0.4	2.2	3.6	0.2		1.5	6.6	2.1	0.7	0.1	0.1		6.5	1.5	3.1	0.7	0.3			3.1	1.1	3.7	7.1	1.3	2.8	0.3	1.4
2017	73.9	5.9	5.7	4.2	1.3	2.0	0.1	0.0	1.2	3.0	0.9	2.2	2.5	1.7	3.8	1.1	0.0	3.2	8.9	1.3	0.9	2.1	1.3	0.1	5.6	3.4	4.1	0.9	0.8		0.2	4.0	2.4	2.9	8.9	1.9	1.2	0.4	1.3
2018	72.8	5.3	6.6	3.5	1.3	2.1	0.0	0.4	0.8	2.5	0.4	1.6	2.5	2.0	4.4	0.5		7.5	6.1	0.9	0.5	1.3	1.5		4.7	4.6	4.6	1.4	0.6	0.1	0.2	3.0	0.8	2.3	4.4	0.2	5.3	0.5	1.2
2019	69.1	5.7	5.8	4.5	0.7	1.3	0.1	0.6	1.3	2.1	0.7	1.6	3.9	1.3	5.1	1.5		4.9	4.3	0.6	0.4	0.2	1.8		7.3	3.5	2.9	1.8	0.3		0.8	3.3	1.4	2.1	4.4	0.8	3.7	0.6	0.9
2020	55.9	4.1	4.4	2.3	1.0	2.0	0.4	0.0	1.1	1.3	0.2	1.1	1.2	1.9	2.8	0.4		3.4	6.2	2.0	0.5		0.7		6.1	2.8	2.6	1.6	0.7	0.2	0.3	3.3	2.1	1.9	4.2	0.7	3.2	0.3	1.0
2021	49.9	3.2	7.0	1.5	0.2	1.0	0.3		0.7	2.3	0.0	0.7		1.9	3.1			2.0	4.3	2.1	0.2	0.1			4.6	2.6	2.8	0.8	0.4			1.4	1.8	1.8	5.6	0.3	2.5	0.3	0.9
2022	47.4	3.1	9.0	1.8	0.0	1.1	0.2	0.1	1.0	1.4	0.3	1.0	0.3	1.0	2.3	0.1	0.2	2.8	2.8	1.0	0.3	0.1	0.1		3.9	2.7	1.8	1.5	0.5		1.4	1.7	0.8	1.6	4.6	0.2	2.1	0.2	0.1
2023	41.2	1.5	5.1	3.0	0.1	1.1	0.6	0.2	1.3	2.2	0.2	0.9	0.8	0.9	2.3	0.1		2.8	3.8	0.6	0.4	0.4	0.4	0.0	3.8	1.5	2.0	1.0	0.4	0.3	0.7	1.6	0.5	2.8	1.8	0.4	1.8	0.3	0.4
2024	44.4	3.2	5.9	2.7	0.3	0.7	0.1	0.4	1.2	2.3	0.1	0.6	1.0	1.5	4.2	0.4		2.3	2.5	0.6	0.3		0.2		3.2	2.6	1.8	1.4	0.6		0.7	1.7	1.2	1.4	2.6	0.1	2.4		0.2
2025	44.3	2.5	5.1	3.0	0.3	1.1	0.4		0.9	4.1	0.3	0.7	0.8	0.6	2.4	0.5		2.2	4.6	1.1	0.2	0.2	0.3		1.4	3.1	2.7	1.1	0.2	0.3	0.2	1.7	2.0	2.4	2.8	0.2	2.0	0.2	0.4

Table 6.16. Financial year greenlip CPUE (kg.hr^{-1}) from the Western Zone SAU's and HS pooled data limited SAU's (ordered alphabetically). Empty cells denote no catch or insufficient data to estimate CPUE.

FINANCIAL YEAR	WESTERN ZONE	ANXIOUS BAY	AVOID BAY	BAIRD BAY	CAPE BAUER	CAPE CATASTROPHE	COFFIN BAY	DENTRECASTEAUX REEF	DRUMMOND	ELLISTON CLIFFS	ELLISTON LOW SAUS	FAR WEST LOW SAUS	FISHERY BAY	FLINDERS ISLAND	FRANKLIN ISLANDS	GREENLY ISLAND	HOTSPOT	LINCOLN LOW SAUS	MEMORY COVE	NE THISTLE	NEPTUNE ISLANDS	NORTH NUYTS	PEARSON ISLAND	POINT AVOID	POINT WESTALL	REEF HEAD	SEARCY BAY	SHERINGA	SIR JOSEPH BANKS	SOUTH NUYTS	STREAKY LOW SAUS	SW THISTLE	TAYLORS ISLAND	THE GAP	VENUS BAY	WARD ISLAND	WATERLOO BAY	WEDGE ISLAND
1979	23.5	23.4	24.4	25.1					16.1		17.7	22.0	21.1	28.5			32.1	22.8		16.9	32.1			24.1	22.4	21.6					24.2	26.0	18.1	17.7		34.0	16.2	
1980	21.2	19.3	20.7	19.1		26.2	17.3		19.8		19.0	20.8	23.5	24.7			32.2	20.9	22.2	13.6				20.9	15.6	20.9	25.4	26.8		22.6	19.6	23.2	16.4	20.6	17.5	34.8	17.0	
1981	21.6	20.6	19.1	20.1		20.9	14.0		18.6	26.9	23.2	24.1	20.7	22.0			30.8	19.8	20.8	10.6				19.9	21.1	19.3	26.6	22.2		23.9	22.3	21.6	16.3	20.7	13.7	29.6	21.2	
1982	22.6	18.5	22.8	22.5		18.9	15.7		24.3		22.5	30.0	17.6	22.5			28.7	20.6	22.4	18.3	26.5	31.7		26.0	23.1	23.2	26.4	18.7		24.8	23.7	24.7	20.4	20.5	20.8	29.3	17.5	23.0
1983	20.3	21.6	21.0	24.3		18.3	18.8	21.6	19.4	20.7	21.5	18.2	18.1	22.1			24.3	21.2	13.4	15.1				20.1	16.4	20.7	17.9	15.5		22.0	19.4	20.0	14.9	18.2	21.1	29.8		29.1
1984	19.8	21.0	17.6	24.2	25.7	15.0	14.1		19.2		18.0	25.8	14.2	19.1	21.0		23.8	18.0	17.6	18.7		31.7		19.9	20.6	16.7	24.0	16.1		16.7	23.5	19.7	20.7	18.0	22.1	22.2		23.7
1985	19.4	20.1	16.0	24.9	22.5	20.7	13.2	16.4	18.0	27.1	22.6	18.5	17.7	20.3	20.4		17.9	17.7	18.9			18.5		17.5	22.8	16.4	27.1	17.3		16.8	24.9	17.3	18.6	18.4	17.2	22.1		
1986	19.6	18.2	20.4	22.4	21.3	17.0			15.5	20.4	23.4	14.1	14.8	21.0	12.7		30.5	16.2	15.2	13.5			29.7	22.2	20.4	22.3	20.0			17.9	20.4	17.2	18.7	15.7	18.7	29.0	21.5	
1987	20.9	23.1	18.3	24.8	25.0	17.2	21.8	25.8	19.0	19.4	20.9	23.0	13.4	22.3			21.9	18.4	18.0	17.6		17.5		18.8	25.3	20.3	24.9	23.3		22.5	23.0	17.3	20.7	18.3	21.1	26.4		19.6
1988	19.6	22.5	27.4	21.4	20.4	17.0	27.6	23.4	17.1	16.1	15.5	19.6	14.8	17.1	19.7		23.8	19.0	15.4	17.5	23.3	18.8		22.9	18.3	18.5	23.5			21.6	22.0	18.6	17.2	17.3	20.6	24.0		20.7
1989	19.4	25.3	19.4	23.9	23.7	16.3		18.2	20.0		22.1	16.2	15.5	22.0	16.1		25.5	18.7	15.6	15.8	22.1	15.8		23.1	18.6	19.9	16.9			19.5	20.5	17.6	14.0	15.9	21.2	23.0		24.0
1990	21.9	24.9	27.0	28.7		20.3		23.2	17.6		25.0	17.8	22.9	24.2	17.0		31.3	19.7	18.4	18.2		17.0		20.3	19.8	22.8	25.2			18.2	23.7	18.3	15.8	21.0	21.4	22.7		21.5
1991	21.8	26.2	26.9	30.1	20.6	19.2		21.0	18.4		24.6	18.3	21.4	20.7	17.5		31.3	19.9	19.6	18.7		18.5		20.5	18.9	19.6	22.2			15.8	21.0	19.9	17.7	20.9		30.8		23.4
1992	22.8	25.9	33.4	22.0	20.3	20.8		26.8	21.2		24.3	20.9	22.2	22.3	20.7		27.7	22.5	19.6	19.6		17.1		20.0	20.8	20.8	24.3			19.6	21.4	21.9	17.9	21.3	21.9	32.3		25.3
1993	22.7	26.7	33.4	26.1	26.1	19.5		29.9	22.9		21.5	23.0	18.0	20.5	19.3		25.3	21.3	18.6	18.3		20.5		24.8	19.5	19.3	24.6			21.4	21.6	22.4	19.8	20.9	16.7	29.8		20.0
1994	23.6	26.5	26.6	24.1	19.7	18.1		29.8	21.5		24.0	22.8	19.4	27.9	23.3		28.9	23.0	18.9	19.6		18.9		22.0	20.2	21.7	24.4			16.5	23.7	20.2	18.5	24.0	27.2	26.3		26.7
1995	21.4	24.0	26.3	23.4	18.9	18.6			19.5		22.3	19.5	17.3	22.8	20.6		24.1	22.5	17.5	19.0	33.4	16.5		17.4	20.2	19.8	21.6			19.0	21.2	20.7	17.8	21.0		25.6		25.2
1996	21.0	21.4	25.3	23.5		19.9		21.8	18.7		19.6	17.0	21.9	23.3	17.0		26.3	20.5	17.5	17.5		14.4		16.0	18.6	17.8	22.1			16.8	20.5	19.6	15.5	20.3	18.0	27.1		25.7
1997	22.3	25.5	23.0	22.1		24.4			23.4		20.9	17.8	21.0	23.1	14.6		26.0	23.0	17.9	16.2		19.0		19.4	20.8	18.6	25.8	22.8		17.2	22.6	22.9	17.3	20.6	22.2	32.3		23.1
1998	22.1	25.2	21.4	22.8		18.7		14.1	23.3		16.2	15.9	23.9	25.4	18.1		27.3	20.9	20.8	19.2		13.6		20.3	19.8	17.1	17.7			15.2	20.7	20.8	19.7	23.7	22.0	30.8	15.7	
1999	23.5	27.0	23.4	24.0	24.2	23.7			21.9		17.3	18.0	21.9	25.6	18.6		27.2	23.3	22.7	19.8		16.0		22.2	22.0	20.2	23.8			19.2	24.1	22.2	18.4	24.9	23.2	29.7	16.3	
2000	24.6	25.8	22.5	23.7	21.3	20.9			26.5		20.3	21.9	25.3	27.5	20.4		29.3	22.9	21.9	18.0		24.5		22.8	24.5	22.6				19.3	24.2	24.1	18.8	24.2	27.3	34.4		28.7
2001	26.0	31.2	27.8	27.6	19.1	22.4			34.7		25.3	21.9	25.0	28.0	20.7		28.0	24.0	26.9			22.3		28.2	26.6	28.6	26.4			20.9	21.3	24.5	21.5	26.6		30.1		
2002	27.0	26.7	29.3	26.9	20.8				40.7		26.2	20.0	30.8	32.0	22.0		31.7	27.2	27.1	23.2		18.7		29.9	27.7	27.1	27.0			19.3	26.0		23.6	26.1		31.4		
2003	29.1	35.2	33.9	27.3				25.1	35.8			20.6	34.0	31.0	20.3		35.5	33.3	30.0			17.7		33.7	25.2	25.1				21.6	29.0		26.4	28.4	31.7	35.6		
2004	28.8	35.4	37.1	29.3		28.3			30.0		25.4	19.5	44.0	29.6	19.5		31.9	28.5	25.5	24.1		18.1		30.6	24.2	24.8	31.6			19.7	27.4		25.0	29.9		39.7	25.4	
2005	29.8	34.9	39.0	29.3					31.3			19.0	39.6	31.9	16.4		34.5	29.7	31.1			20.1		31.4	27.2	28.6	29.8			19.6	29.2		27.2	31.3		37.9		
2006	29.5	31.7	40.2	30.1	31.0	32.6			31.6			19.1	37.0	30.0	14.8		32.5	32.2	29.7			23.1		30.6	26.6	32.2				16.9	29.7		23.3	30.3		35.1		
2007	28.9	33.1	38.8	29.5	24.9			19.7	29.9			19.5	33.1	28.5	16.7		31.2	27.7	30.1			20.9		26.6	28.2	26.1	25.6			21.6	25.0		25.0	28.0		32.7		27.5
2008	27.7	33.6	35.3	29.7		25.6		21.9	29.4			20.2	30.8	25.8	17.2		28.6	28.6	28.0			21.2		29.3	25.7	24.8	29.5			17.7	26.6		25.1	26.9		28.6		
2009	25.0	29.9	27.4	29.3		23.7			35.8		24.4	17.6	28.1	22.1	15.3		29.4	26.0	23.1			19.5		24.9	22.7	23.4	27.3			20.2	26.8	27.2	22.1	24.4		27.9		28.2
2010	23.7	27.3	26.0	28.0		22.9			31.6		33.7	13.4	27.2	22.4	12.3		26.5	22.9	24.2	21.8		14.6		29.9	24.0	24.7	26.3			16.9	24.6	25.5	24.4	22.9	23.1	23.2		24.4
2011	23.1	25.3	26.8	24.8		25.1			27.1		37.5	14.5	25.8	25.2	12.3		27.8	23.0	26.0	23.9		15.2		23.3	21.4	22.9				15.2	24.8		24.9	25.1	23.3	24.2		
2012	23.2	26.7	25.3	27.3		19.9			26.3		29.3	13.3	18.9	22.7	12.3		31.0	22.7	21.1	23.2		14.2		24.5	21.2	24.5				16.5	26.1	20.9	24.0	21.3	27.2	30.8		
2013	22.6	25.2	25.5	24.7		17.0	23.0		26.9		23.4	16.2	17.8	21.0	17.0		26.2	20.4	16.7		27.4	17.2		25.2	27.6	24.5	24.1			19.5	25.2	18.5	18.3	22.3	25.1	28.8		
2014	20.0	20.7	20.8	27.5		18.6			22.0		24.8	21.4	15.5	18.3	26.6		20.2	19.2	14.3					21.0	21.8	16.8	25.5			20.0	26.0	18.6	16.7	17.0	25.2	24.0		
2015	22.2	26.8	20.2	29.8		19.1			24.9		27.3	21.2	16.8	18.3			23.5	19.1	12.9					23.4	25.1	19.9	27.4				28.5	17.7	17.8	19.0	28.4	32.8		21.7
2016	22.4	23.2	26.1	30.5		21.2			21.6		25.3	21.5	20.9	23.3			23.8	20.6	18.5					24.9	24.8	19.2					25.3	19.6	19.4	18.7	24.0	23.6		23.3
2017	22.1	22.9	22.5	28.5	29.3	18.7			23.8		26.7	21.2	19.9	20.2	18.8		32.3	22.9	16.1	14.6	49.6	23.5		21.6	25.2	19.4					23.9	21.1	17.2	19.2	20.9	26.3		20.3
2018	20.8	20.9	21.8	24.2		15.2			22.0		21.5	17.0	18.6	23.4			29.2	16.2	12.3		23.3	17.6		18.4	26.6	20.2	22.2			17.3	24.8	13.7	13.8	14.7		28.6		15.9
2019	19.6	20.0	19.0	23.9		19.5		14.6	18.8		28.4	13.3	16.6	22.3	13.0		23.9	17.6	15.0			13.3		20.5	25.5	16.8	25.1			15.9	22.2	17.1	15.4	15.7		27.5		16.3
2020	19.9	21.5	20.0	27.4	25.6	18.8			18.7		15.8	13.8	18.1	20.6			23.3	19.0	16.5			15.8		18.6	24.1	19.4	24.9			16.8	22.1	18.3	16.6	17.7		24.9		
2021	20.1	19.1	21.1	30.8		20.6			24.5		20.3		22.4	19.4			22.3	16.7	18.2					19.4	22.6	20.1	19.2				18.8	13.6	17.6	18.9		22.4		
2022	20.8	18.4	23.2	27.7		15.8			22.6				15.6	17.6			23.9	18.0	16.6					20.9	26.2	17.7	28.0				24.6	16.8	16.8	18.6		20.2		
2023	24.4	21.0	24.6	30.3		16.8			23.9		27.0	26.6	18.0	24.2			28.8	23.9	16.5					20.1	26.1	17.2	26.3			30.4	21.9		26.8	28.6		28.4		
2024	23.9	26.0	25.8	30.5					23.5		25.1	27.8	20.8	23.6			29.3	21.2	17.0					19.2	25.2	21.3	27.3			29.3	24.0	27.3	15.7	28.9		24.6		
2025	25.4	22.7	28.5	27.1					26.6		24.3	28.4	19.5	22.1			27.8	27.7	17.7					19.8	26.1	21.9	23.8				25.3		21.7	29.2		29.4		

Table 6.17. Financial year greenlip PropG1 from the Western Zone SAU's and HS pooled data limited SAU's (ordered alphabetically). Empty cells denote no catch or insufficient data to estimate PropG1.

FINANCIAL YEAR	WESTERN ZONE	ANXIOUS BAY	AVOID BAY	BAIRD BAY	CAPE BAUER	CAPE CATASTROPHE	COFFIN BAY	DENTRECASTEAUX REEF	DRUMMOND	ELLISTON CLIFFS	ELLISTON LOW SAUS	FAR WEST LOW SAUS	FISHERY BAY	FLINDERS ISLAND	FRANKLIN ISLANDS	GREENLY ISLAND	HOTSPOT	LINCOLN LOW SAUS	MEMORY COVE	NE THISTLE	NEPTUNE ISLANDS	NORTH NUYTS	PEARSON ISLAND	POINT AVOID	POINT WESTALL	REEF HEAD	SEARCY BAY	SHERINGA	SIR JOSEPH BANKS	SOUTH NUYTS	STREAKY LOW SAUS	SW THISTLE	TAYLORS ISLAND	THE GAP	VENUS BAY	WARD ISLAND	WATERLOO BAY	WEDGE ISLAND
1979	0.36	0.29		0.52																													0.49				
1980	0.40	0.35	0.47	0.42		0.73	0.40				0.37	0.62	0.58	0.35			0.32	0.57		0.41				0.28	0.35	0.44	0.36	0.42		0.43	0.36		0.70	0.59	0.36	0.58	0.32	
1981	0.42	0.40	0.28	0.30		0.60	0.41		0.32	0.54	0.36		0.66	0.42			0.49	0.51		0.41				0.28	0.37	0.42	0.67	0.37			0.62	0.51	0.38	0.49	0.45	0.76	0.24	
1982	0.41	0.25	0.32	0.34		0.68	0.30		0.33		0.37		0.45	0.24				0.54	0.53	0.48				0.34		0.37		0.39			0.22	0.60	0.57	0.57				
1983	0.44	0.38	0.45	0.38		0.69	0.31	0.70	0.29		0.45	0.66	0.59	0.28			0.21	0.61	0.52	0.59				0.40	0.35	0.38	0.42	0.46			0.45	0.52	0.45	0.63	0.48			0.86
1984	0.41	0.36	0.40	0.37		0.66	0.26		0.30	0.72	0.45	0.51	0.64	0.40			0.34	0.55	0.50	0.39		0.49		0.39	0.46	0.33	0.54	0.39			0.54	0.55	0.36	0.48	0.42	0.33		0.74
1985	0.47	0.39	0.48	0.37		0.78	0.55	0.45	0.32	0.68	0.58	0.45	0.72	0.41	0.53		0.24	0.74	0.67			0.42		0.45	0.32	0.34	0.46	0.45		0.32	0.46		0.60	0.75	0.47	0.31		
1986	0.48	0.40	0.53	0.36	0.36	0.72			0.31	0.51	0.53	0.38	0.76	0.28			0.32	0.61	0.69	0.64				0.59	0.28	0.41	0.20	0.58			0.32	0.58	0.54	0.68	0.54		0.40	
1987	0.40	0.22	0.37	0.22	0.21	0.63		0.46	0.29		0.39	0.45	0.60	0.42			0.16	0.54	0.66	0.64		0.44		0.46	0.24	0.35	0.14	0.29		0.46	0.25	0.52	0.58	0.63	0.37	0.28		0.45
1988	0.41	0.23	0.47	0.21	0.12	0.66	0.27	0.47	0.28	0.43	0.44	0.37	0.62	0.27	0.38			0.62	0.63	0.63	0.66	0.35		0.37	0.26	0.25	0.19	0.59		0.39	0.18	0.63	0.57	0.64	0.33	0.29		0.61
1989	0.40	0.30	0.27	0.19		0.55		0.26	0.18		0.46	0.35	0.48	0.33	0.44		0.31	0.52	0.54	0.49	0.51	0.37		0.45	0.13	0.29	0.26	0.52		0.33	0.49	0.45	0.55	0.53	0.69	0.31		
1990	0.43	0.28	0.27	0.32		0.68		0.38	0.19		0.57	0.33	0.65	0.44	0.31		0.49	0.59	0.60	0.45		0.30		0.32	0.39	0.28	0.29	0.65		0.34	0.51	0.74	0.44	0.59	0.71	0.51		0.55
1991	0.46	0.22	0.42	0.39		0.70		0.28	0.21		0.52	0.32	0.70	0.31	0.27		0.38	0.60	0.60	0.49		0.37		0.58	0.28	0.42	0.24	0.54		0.50	0.30	0.57	0.52	0.61	0.54	0.42		
1992	0.44	0.23	0.45	0.36	0.22	0.68	0.56	0.33	0.29		0.38	0.32	0.74	0.37	0.29		0.29	0.64	0.68			0.31		0.48	0.34	0.33	0.24	0.43		0.24	0.31	0.68	0.54	0.67	0.44	0.43		0.66
1993	0.48	0.28	0.60	0.30	0.38	0.66		0.33	0.40		0.52	0.37	0.67	0.32	0.33		0.34	0.59	0.52	0.61				0.66	0.36	0.30	0.31	0.63		0.43	0.37	0.61	0.55	0.63	0.42	0.46		0.61
1994	0.56	0.36	0.64	0.36	0.38	0.67	0.49	0.43	0.43		0.44	0.46	0.67	0.50	0.41		0.55	0.65	0.60	0.66		0.51		0.62	0.50	0.64	0.52	0.38			0.46	0.62	0.55	0.64	0.43	0.61		
1995	0.52	0.18	0.43	0.52	0.36	0.56			0.46		0.55	0.45	0.76	0.49	0.41		0.38	0.58	0.60	0.66	0.61	0.51		0.62	0.44	0.44	0.48	0.45		0.58	0.41	0.54	0.57	0.64	0.34	0.63		0.62
1996	0.55	0.33	0.33	0.48	0.31	0.71		0.37	0.48	0.33	0.49	0.44	0.77	0.53	0.39		0.57	0.71	0.70	0.69		0.56		0.48	0.41	0.38	0.53	0.54		0.63	0.48	0.60	0.56	0.67	0.46	0.61		0.76
1997	0.56	0.32	0.41	0.44		0.80		0.53	0.56		0.43	0.52	0.65	0.50			0.59	0.66	0.65	0.60		0.51		0.61	0.28	0.47	0.62	0.43		0.59	0.49	0.58	0.58	0.66	0.40	0.61		0.61
1998	0.59	0.44	0.55	0.41		0.79		0.42	0.53		0.16	0.46	0.82	0.60	0.54		0.62	0.67	0.65	0.63		0.40		0.61	0.40	0.52	0.47	0.36		0.56	0.41	0.63	0.64	0.79	0.39	0.63	0.00	
1999	0.57	0.34	0.54	0.48	0.46	0.79		0.48	0.63		0.43	0.48	0.81	0.54	0.49		0.45	0.70	0.60	0.64		0.46		0.63	0.46	0.52	0.56	0.70		0.62	0.42	0.67	0.52	0.72	0.32	0.60	0.37	
2000	0.65	0.52	0.68	0.41	0.38	0.73		0.54	0.64		0.84	0.52	0.94	0.56	0.49		0.49	0.71	0.77	0.68				0.73	0.47	0.69	0.47	0.78		0.54	0.42	0.64	0.76	0.78	0.43	0.78		0.75
2001	0.62	0.56	0.72	0.64		0.79			0.84		0.80	0.47		0.56	0.56		0.49	0.65				0.41		0.83	0.58	0.61	0.78	0.80		0.63	0.61	0.63	0.61	0.76	0.52	0.62		
2002	0.60	0.62	0.69	0.44	0.25			0.74	0.62		0.68	0.49		0.52	0.36		0.56	0.76	0.66	0.72		0.47		0.67	0.35	0.70	0.57	0.66		0.50	0.42		0.58	0.71	0.44	0.73		
2003	0.63	0.50	0.59	0.48	0.24	0.84		0.68	0.78		0.75	0.59	0.89	0.52	0.51		0.66	0.80	0.59	0.77		0.57		0.71	0.37	0.63	0.51	0.75		0.63	0.55	0.74	0.62	0.77	0.57	0.77		
2004	0.56	0.24	0.66	0.38	0.35	0.85		0.65	0.66		0.53	0.47	0.94	0.36	0.37		0.56	0.71	0.59			0.41		0.66	0.52	0.61	0.37	0.62		0.55	0.49		0.43	0.76	0.70	0.79		
2005	0.65	0.43	0.84	0.52	0.37				0.67		0.77	0.52		0.41	0.41		0.64	0.77	0.75			0.53		0.83	0.62	0.75	0.64	0.78		0.49	0.63		0.72	0.81	0.81	0.80		
2006	0.66	0.51	0.80	0.54		0.89		0.54	0.76		0.47	0.43		0.55	0.33		0.59	0.82				0.41		0.91	0.46	0.77	0.59	0.76		0.50	0.59	0.85	0.62	0.70		0.80		
2007	0.65	0.62	0.85	0.42				0.45	0.79		0.84	0.44		0.46			0.43	0.72				0.44		0.93	0.51	0.91	0.56	0.84		0.44	0.47		0.58	0.76		0.70		
2008	0.59	0.51	0.68	0.37		0.77		0.43	0.78		0.69	0.42	0.96	0.33	0.33		0.33	0.75	0.76			0.45		0.75	0.27	0.78	0.49	0.74		0.46	0.55		0.61	0.76	0.76	0.56		
2009	0.66	0.49	0.75	0.66		0.87		0.47	0.79		0.68	0.49	0.90	0.50	0.41		0.38	0.77	0.73			0.55		0.83	0.61	0.84	0.68	0.57		0.51	0.65	0.72	0.67	0.81	0.70	0.64		0.77
2010	0.59	0.55	0.64	0.57		0.78		0.38	0.84		0.57	0.40		0.37	0.30		0.28	0.71	0.82	0.62		0.43		0.83	0.56	0.73	0.70	0.79		0.38	0.63		0.51	0.68	0.59	0.48		
2011	0.65	0.56	0.73	0.51		0.71		0.44	0.77		0.73	0.50	0.84	0.60	0.31		0.15	0.67	0.69			0.56		0.76	0.60	0.72	0.65	0.78		0.39	0.62		0.78	0.79	0.65	0.50	0.72	
2012	0.64	0.59	0.78	0.69		0.81	0.85		0.64		0.61	0.30	0.78	0.48	0.33		0.27	0.71	0.76	0.62		0.28		0.82	0.50	0.79	0.63	0.59		0.33	0.73	0.71	0.65	0.79	0.85	0.50		
2013	0.59	0.55	0.65	0.55	0.41	0.71	0.88	0.72	0.60	0.88	0.66	0.40	0.83	0.47	0.29			0.71	0.67			0.42		0.74	0.63	0.67	0.63	0.72		0.45	0.62	0.48	0.49	0.70	0.69	0.49	0.53	
2014	0.56	0.41	0.65	0.55	0.46	0.75			0.52	0.84	0.63	0.47	0.73	0.43	0.51		0.17	0.67	0.68					0.72	0.56	0.55	0.43	0.64		0.45	0.60		0.48	0.62	0.75	0.44		
2015	0.67	0.60	0.74	0.66	0.55	0.87			0.61		0.75		0.87	0.56			0.46	0.70	0.73					0.79	0.56	0.61	0.64	0.69			0.67	0.72	0.65	0.73	0.77	0.81		0.67
2016	0.68	0.55	0.68	0.68	0.69	0.85			0.65		0.69		0.85	0.64			0.45	0.80	0.67					0.73	0.62	0.60	0.65	0.62			0.75	0.74	0.62	0.74	0.85	0.79		0.87
2017	0.66	0.51	0.67	0.74	0.61	0.71			0.63	0.87	0.68	0.67		0.61	0.66		0.70	0.74	0.67	0.63	0.88	0.68		0.73	0.73	0.41	0.75	0.57			0.59	0.82	0.67	0.76	0.50	0.58		0.50
2018	0.66	0.66	0.69	0.69	0.55	0.64		0.70	0.59	0.75	0.59	0.54	0.89	0.69	0.56		0.69	0.60				0.49		0.84	0.63	0.55	0.55	0.72			0.56		0.45	0.68		0.82		0.60
2019	0.58	0.53	0.61	0.66	0.50	0.67		0.79	0.55	0.22	0.39	0.44		0.58	0.28		0.47	0.62				0.43		0.78	0.50	0.58	0.57	0.62			0.56	0.67	0.44	0.59		0.73		
2020	0.65	0.60	0.65	0.74	0.45	0.64			0.50	0.52	0.62	0.47	0.93	0.64			0.48	0.68	0.75			0.53		0.80	0.52	0.56	0.65	0.64			0.52	0.72	0.63	0.80		0.70		
2021	0.69	0.57	0.82	0.62	0.53				0.53		0.53			0.62			0.43	0.70	0.79					0.79	0.49	0.68	0.60	0.50			0.54	0.59	0.78	0.85		0.70		
2022	0.70	0.62	0.80	0.72		0.80			0.67		0.64			0.52			0.50	0.75						0.84	0.67	0.57	0.75	0.61			0.76		0.73	0.78			0.66	
2023	0.74	0.69	0.86	0.71		0.89			0.65		0.68			0.80			0.62	0.85						0.85	0.62	0.38	0.67	0.72			0.60		0.78				0.89	
2024	0.72	0.75	0.79	0.73					0.68		0.84			0.65			0.59	0.76							0.61	0.51	0.72	0.84			0.71		0.76	0.91			0.85	
2025	0.76	0.73	0.85	0.75					0.73		0.80			0.59				0.91						0.79	0.55	0.71	0.67	0.76			0.67						0.94	

Table 6.18. Annual HS zone score, score gradient, trend in zone score and status for greenlip and blacklip.

	Greenlip				Blacklip			
Financial Year	Zone score	Score Gradient	Zonal trend	Status	Zone score	Score Gradient	Zonal trend	Status
1994	4.99	0.01	5.00	Sustainable	5.19	-0.02	5.00	Sustainable
1995	4.48	-0.03	4.88	Depleting	4.82	0.00	5.00	Sustainable
1996	3.85	-0.07	4.22	Depleting	4.50	-0.04	4.79	Depleting
1997	4.63	-0.04	4.83	Depleting	4.92	-0.02	5.00	Sustainable
1998	4.43	0.01	5.00	Sustainable	4.37	-0.02	5.00	Sustainable
1999	5.05	0.08	5.83	Sustainable	4.72	0.00	5.00	Sustainable
2000	5.48	0.08	5.94	Sustainable	5.07	0.02	5.00	Sustainable
2001	6.62	0.15	7.06	Sustainable	5.62	0.08	5.96	Sustainable
2002	7.36	0.18	7.58	Sustainable	6.27	0.12	6.54	Sustainable
2003	8.41	0.19	7.69	Sustainable	6.65	0.11	6.46	Sustainable
2004	8.34	0.11	6.45	Sustainable	6.72	0.07	5.78	Sustainable
2005	8.55	0.05	5.45	Sustainable	7.10	0.05	5.34	Sustainable
2006	8.25	0.00	5.00	Sustainable	7.24	0.03	5.16	Sustainable
2007	7.69	-0.03	4.97	Sustainable	6.60	0.00	5.00	Sustainable
2008	6.95	-0.06	4.36	Sustainable	6.19	-0.05	4.58	Sustainable
2009	6.01	-0.09	3.98	Sustainable	5.59	-0.08	4.17	Sustainable
2010	5.12	-0.10	3.69	Sustainable	4.84	-0.08	4.08	Depleting
2011	5.02	-0.09	3.99	Sustainable	4.42	-0.09	3.91	Depleting
2012	5.25	-0.03	4.85	Sustainable	4.31	-0.07	4.28	Depleting
2013	4.79	-0.01	5.00	Sustainable	4.17	-0.04	4.79	Depleting
2014	3.16	-0.12	3.48	Depleting	3.43	-0.06	4.35	Depleting
2015	4.42	-0.08	4.06	Depleting	4.16	-0.03	4.97	Depleting
2016	4.79	0.02	5.00	Sustainable	3.29	-0.04	4.68	Depleting
2017	4.68	0.10	6.28	Sustainable	2.98	-0.05	4.54	Depleting
2018	3.33	-0.11	3.65	Depleting	2.55	-0.15	2.96	Depleting
2019	2.99	-0.15	2.91	Depleting	2.45	-0.07	4.25	Depleting
2020	3.17	-0.10	3.75	Depleting	3.34	0.03	5.08	Sustainable
2021	3.12	-0.01	5.00	Sustainable	3.00	0.07	5.82	Sustainable
2022	3.06	0.00	5.00	Sustainable	3.20	0.07	5.82	Sustainable
2023	5.14	0.19	7.79	Sustainable	3.30	0.00	5.00	Sustainable
2024	5.31	0.27	9.05	Sustainable	3.21	0.02	5.00	Sustainable
2025	6.03	0.29	9.36	Sustainable	3.46	0.02	5.00	Sustainable

Table 6.19. Alternative outcomes of the HS for blacklip in 2025 based on whether the Sheringa, Drummond South and Anxious Bay FIS densities are rolled over from 2023 to 2025 and the Point Westall FIS is rolled over from 2021 to 2025, or not.

FIS rollover	Zone Score	Score gradient	Zone trend	Status
No	3.46	0.02	5.00	Sustainable
Yes	4.10	0.09	6.06	Sustainable