Fisheries

Southern Zone Rock Lobster (*Jasus edwardsii*) Fishery Status Report 2024/25

A. Linnane, J. Feenstra, K. Mark and P. Hawthorne

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SARDI Aquatic and Livestock Sciences
PO Box 120 Henley Beach SA 5022

February 2026

Status 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 ensure the land, sea, water and sky are healthy for future generations and strive to better understand their spiritual and cultural significance for Aboriginal people across the state.

In the spirit of reconciliation, our commitment is to build progressive and trusting relationships, to share knowledge and learn from each other.

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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EXECUTIVE SUMMARY

This report assesses the status of South Australia's Southern Zone Rock Lobster Fishery (SZRLF) stock and provides the latest estimates of the biological performance indicators (PIs), information in context of the reference points (RPs) and stock status classification described in the Management Plan for the fishery. Stock status was determined using the harvest strategy for the fishery that was developed in alignment with the National Fishery Status Reporting Framework (NFSRF) classification system used to determine the status of all South Australian fish stocks.

The 2024 season (i.e. 2024/25) extended from 1 September to 31 May (normally 1 October to 31 May). In 2024, TACC in the SZRLF was 1,320 t. In addition, 19 t was carried over from 2023/24. The TACC, combined with carry-over, gave an available catch of 1,339 t. The total reported 2024 logbook catch was 1,336 t (99% of TACC).

A total of 738,628 potlifts were required to take the 1,366 t catch in 2024, representing a 3% increase from 2023 (716,204 potlifts). Since 2009 (2,049,961 potlifts), overall effort in the fishery has generally declined, with the 2024 estimate being the third lowest on record.

Commercial catch per unit effort (CPUE) of legal-sized lobsters is the primary biological performance indicator for the fishery. In 2024, CPUE was 1.81 kg/potlift—an 88% increase over the past eight seasons and the fifth highest on record. This value is above both the long-term average (1.12 kg/potlift) and the Trigger Reference Point (TrRP) (0.60 kg/potlift).

The secondary biological performance indicator is the pre-recruit index (PRI; no. of undersized lobsters/potlift) based on commercial data. In 2024, the PRI was 1.36 undersized/potlift, reflecting a 23% decrease over the last five seasons, but remaining above the TrRP of 1.32 undersized/potlift. Fishery-independent outputs are broadly consistent with fishery dependent data in recent seasons for both legal and undersized catch rates.

Model outputs (qR) indicate considerable increases in legal-size biomass over the last eight seasons. In 2024, the estimate was 4,768 t. This equates to an exploitation rate of 29%, one of the lowest on record. Egg production in the fishery remains low with 2024 estimates equating to 14% of unfished levels, but with increases in recent seasons.

The stock status classification for the SZRLF is defined in the Management Plan for the fishery (PIRSA 2020). In 2024, the CPUE of 1.81 kg/potlift was above the TrRP of 0.60 kg/potlift. As a result, the SZRLF stock is classified as "**sustainable**". This means that the Southern Rock Lobster biomass is at a level sufficient to ensure that, on average, future levels of recruitment are adequate and fishing mortality is adequately controlled to avoid the stock becoming recruitment impaired.

Statistic	2021/22	2022/23	2023/24	2024/25
TACC (t) (including carry-over)	1,334	1,327	1,330	1,339
Total catch (t)	1,327	1,317	1,309	1,336
Total effort (potlifts)	767,379	678,755	716,204	738,628
CPUE (kg/potlift)	1.72	1.93	1.81	1.81
PRI (undersized/potlft)	1.54	1.52	1.46	1.36
Biomass (t)	4,434	4,906	4,778	4,768
Exploitation rate (%)	31	28	29	29
Egg Production (%)	14	15	14	14
Status	**Sustainable**	**Sustainable**	**Sustainable**	**Sustainable**

Table 1 Key statistics for the SZRLF**.** Model outputs are from the qR fishery model.

Keywords: Southern Rock Lobster, Southern Zone, Fishery Status, *Jasus edwardsii*.

1 INTRODUCTION

This report updates the 2023/24 stock assessment for the Southern Zone Rock Lobster Fishery (SZRLF) (Linnane et al. 2025) and forms part of SARDI Aquatic Sciences' ongoing assessment program. Its purpose is to summarise key information for the SZRLF and assess the resource status against the performance indicators outlined in the fishery's Management Plan (PIRSA 2020).

The Department of Primary Industries and Regions (PIRSA) uses the National Fishery Status Reporting Framework (NFSRF; Piddocke et al. 2021) to assess the status of all South Australian fish stocks. The SZRLF harvest strategy (PIRSA 2020) aligns with the NFSRF system to enable stock status determination. A full assessment, including detailed spatial and temporal analyses, will be presented in the 2024/25 stock assessment report, due July 2026.

In 2024/25 (hereafter referred to as 2024), the total allowable commercial catch (TACC) in the SZRLF was 1,320 t. In addition, 19 t was carried over from 2023/24. The TACC, combined with carry-over, gave an available catch of 1,339 t. The 2024 season operated from 1 September to 31 May. This status report presents new data from 1 September 2024 to 31 May 2025. Data to inform the TACC is from 1 October to 31 May.

2 METHODS

Data sources presented in this report are described in Linnane et al. (2025). In summary, the catch and effort data presented were obtained from a mandatory daily logbook program administered by PIRSA Fisheries and Aquaculture.

The primary biological performance indicator is commercial logbook CPUE (kg of legal-sized lobsters per potlift) using data from October to May. The harvest strategy specifies a Trigger Reference Point (TrRP) of 0.60 kg/potlift, below which exploitation rates and TACC are significantly reduced (PIRSA 2020). The secondary indicator is commercial logbook PRI (number of undersized lobsters per potlift) using data from October to March.

Data are presented by zone and Marine Fishing Area (MFA) (Figure 2-1). Length-frequency data were obtained from a fishery-dependent catch sampling program. Puerulus sampling is undertaken at three sites in the SZRLF and based on data collected from July to June.

A detailed description of the qR fishery model is provided in McGarvey and Matthews (2001) and Linnane et al. (2025). The model's primary outputs are: (i) legal-sized

biomass, (ii) egg production, (iii) percent of unfished egg production, (iv) exploitation rate (proportion of legal-sized biomass harvested), and (v) recruitment. For the 2019/20 season only, total annual effort was adjusted to account for COVID-related market disruptions after 22 January 2020.

A fishery-independent monitoring survey has been undertaken in the SZRLF since 2006/07. The survey design consists of 29 transects, that run from inshore (~10 m depth) to offshore (~120 m depth) grounds. Each transect line consists of 10 pots set at predetermined locations that are independent of known fishing effort. Sampling is undertaken during August/September and January of each season. All lobsters are sexed, measured, staged (females only) and tagged. Surveys provide spatially-explicit fishery-independent catch rate estimates of both legal and undersized (pre-recruit) rock lobsters.

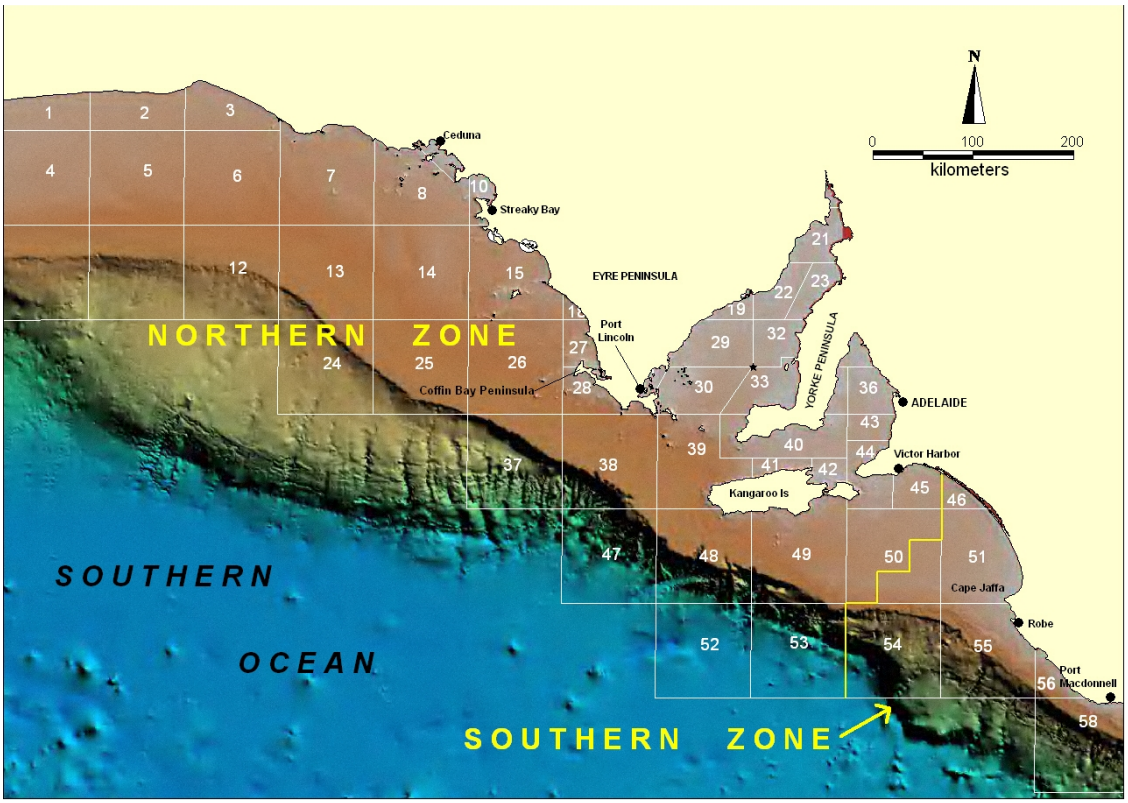

Figure 2-1 Northern and Southern Zones and Marine Fishing Areas (MFAs) in the South Australian Rock Lobster Fishery.

3 RESULTS

3.1 Commercial catch and effort statistics

3.1.1 Zone

The reported logbook catch (September–May) was 1,336 t, or 99% of the TACC (Figure 3-1a). Current catch levels are low historically, reflecting declines and TACC reductions from 2007 to 2009, when the TACC was lowered from 1,900 t to 1,250 t, with a further reduction to 1,246 t in 2014 following the removal of one licence under the marine parks voluntary fisheries catch and effort reduction program. Catches have been relatively stable since 2010, consistent with a constant TACC over this period.

Effort required to take the 1,336 t catch was 738,628 potlifts, an increase of 3% from 2023 (716,204 potlifts) (Figure 3-1a). Since 2009 (2,049,961 potlifts), effort has generally declined in the fishery, with the 2024 estimate being the third lowest on record.

In 2024, the legal-sized CPUE (October-May) was 1.81 kg/potlift, reflecting an 88% increase over the last eight seasons (from 0.96 kg/potlift in 2016) and the fifth highest catch rate on record (Figure 3-1b). Between 2010 and 2016, catch rates remained relatively stable at approximately 1 kg/potlift. The 2024 estimate marks the eighth time since 2007 that CPUE has exceeded the long-term average (1.12 kg/potlift) and remains above the trigger reference point (TrRP) of 0.60 kg/potlift.

The zonal estimate of the logbook-based PRI (October-March) shows a long-term decline between 1999 and 2015 (Figure 3-1c). Between 2016 and 2019, PRI rose 138% to 1.76 undersized/potlift, the highest level since 2002. Over the past five seasons, PRI has declined by 23%. In 2024, PRI was 1.36 undersized/potlift, remaining above the TrRP of 1.32. In the SZRLF, pre-recruits take approximately one year to enter the fishable biomass.

Legal-sized mean weight has remained relatively stable over time ranging between 0.7 and 1.0 kg (Figure 3-1d). Since 2010, mean weight has generally increased, reaching 0.96 kg in 2024—one of the highest on record. Variations in mean weight reflect long-term recruitment patterns, with low weights resulting from strong influxes of small lobsters and high weights from several consecutive years of low recruitment.

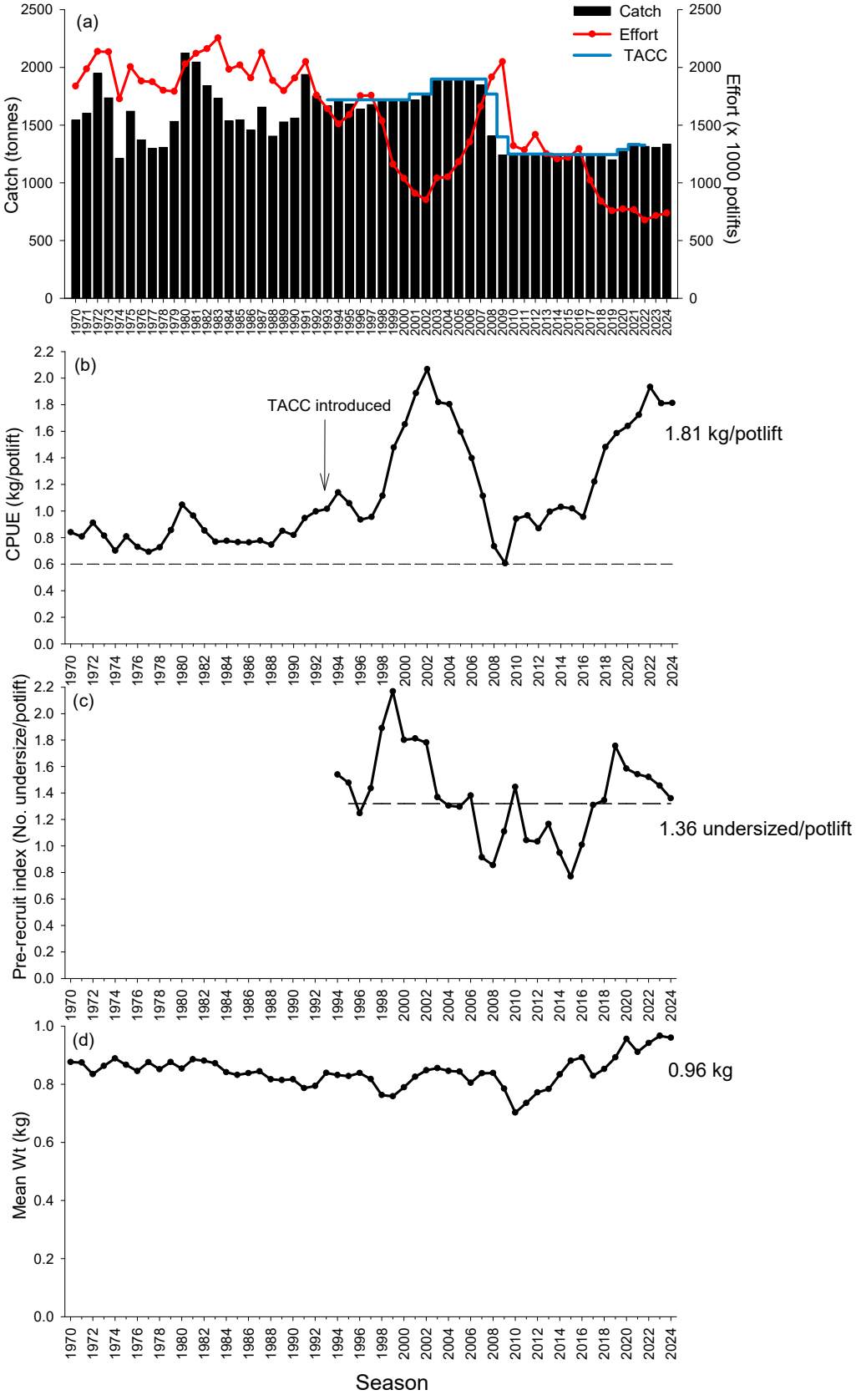

Figure 3-1 Fishery dependent outputs for the SZRLF. (a) Catch and effort including total allowable commercial catch (TACC) limit; (b) catch per unit effort (CPUE) including TrRP (dashed line); (c) pre-recruit index (PRI) including TrRP (dashed line); and (d) legal-sized mean weight.

3.1.2 Within season trends

In general, within-season trends in catch, effort, CPUE, PRI and mean weight within the SZRLF are consistent through time (Figure 3-2). The highest catches are generally taken during spring/summer from September to January (Figure 3-2a) before declining thereafter. In 2024, exceptionally high catch was taken in January (395 t), with the lowest catch in April (19 t). No catch was recorded in May of the 2024 season.

Within-season effort levels are largely consistent with those of catch (Figure 3-2a). In 2024, effort was highest in January (185,319 potlifts) and lowest in May (7,966 potlifts).

Legal-sized CPUE within the fishery generally increases from October/November to February/March and decreases thereafter (Figure 3-2b). In 2024, catch rates were highest in March (2.39 kg/potlift) and lowest in October (1.34 kg/potlift). The catch rate in January, when 395 t were landed, was 2.13 kg/potlift.

Over the last three seasons, there were no clear trends in PRI's (Figure 3-2c). In 2024, the PRI was highest in April (1.78 undersized/potlift) and lowest in December (1.27 undersized/potlift).

Monthly legal-sized mean weight generally increases as the season progresses with trends broadly similar over the last three seasons (Figure 3-2d). In 2024, mean weight was lowest in November (0.83 kg) and highest in September (1.05 kg).

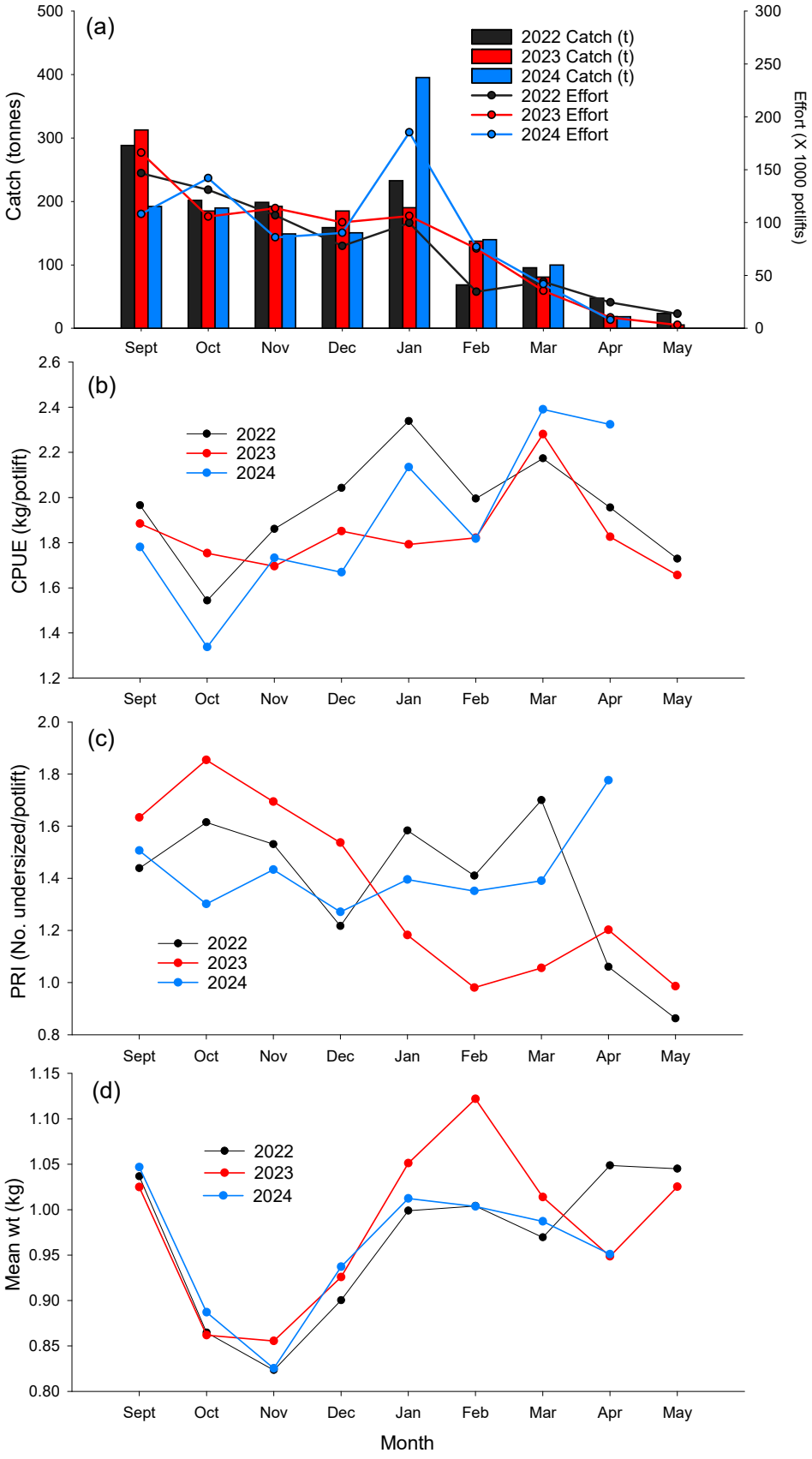

Figure 3-2 Within-season fishery dependent trends in the SZRLF. (a) Catch and effort; (b) catch per unit effort (CPUE); (c) pre-recruit index (PRI); and (d) legal-sized mean weight.

3.1.3 Spatial trends

Over 95% of the catch in the SZRLF is taken from MFAs 55, 56 and 58 (Figure 2-1). Historically, MFA 51 was more significant, but its contribution has declined over the past fifteen seasons. This partly reflects that lobsters from MFA 51 are generally larger and have lower market value due to overseas preference for smaller individuals. In 2024, catches in MFAs 51, 55, 56, and 58 were 79 t, 477 t, 345 t, and 433 t, respectively (Figure 3-3a).

In 2024, compared to 2023, effort increased in all MFAs except MFA 58. Effort estimates in 2024 in MFAs 51, 55, 56 and 58 were 40,431; 283,870; 202,159 and 210,476 potlifts, respectively (Figure 3-3a). Current effort estimates in all areas reflect some of the lowest on record.

Trends in CPUE are consistent across MFAs over time (Figure 3-3b). After substantial declines between 2002 and 2009, catch rates were relatively stable from 2010 to 2016. Over the following eight seasons, catch rates have generally increased across all major MFAs. In 2024, CPUE in MFAs 51, 55, 56, and 58 was 1.96, 1.70, 1.69, and 2.03 kg/potlift, respectively.

Spatial estimates of logbook-based PRI show consistently lower numbers of undersized lobsters/potlift in the northern SZRLF (MFAs 51 and 55) compared to the southern regions (MFAs 56 and 58) (Figure 3-3c). Estimates have been relatively stable in most MFAs in recent seasons, though decreases were observed over the past three seasons in the two high-catch MFAs (56 and 58). In 2024, PRI was 0.22, 0.38, 1.57, and 2.65 undersized/potlift in MFAs 51, 55, 56, and 58, respectively.

Rock lobster legal-sized mean weight decreases with increasing latitude from the mouth of the Murray River (MFA 51) to the Victoria/South Australia border (MFA 58) (Figure 3-3d). Weight is most variable in MFA 51 but generally consistent across other MFAs. In 2024, mean weights in MFAs 51, 55, 56, and 58 were 1.35, 1.11, 0.89, and 0.86 kg, respectively.

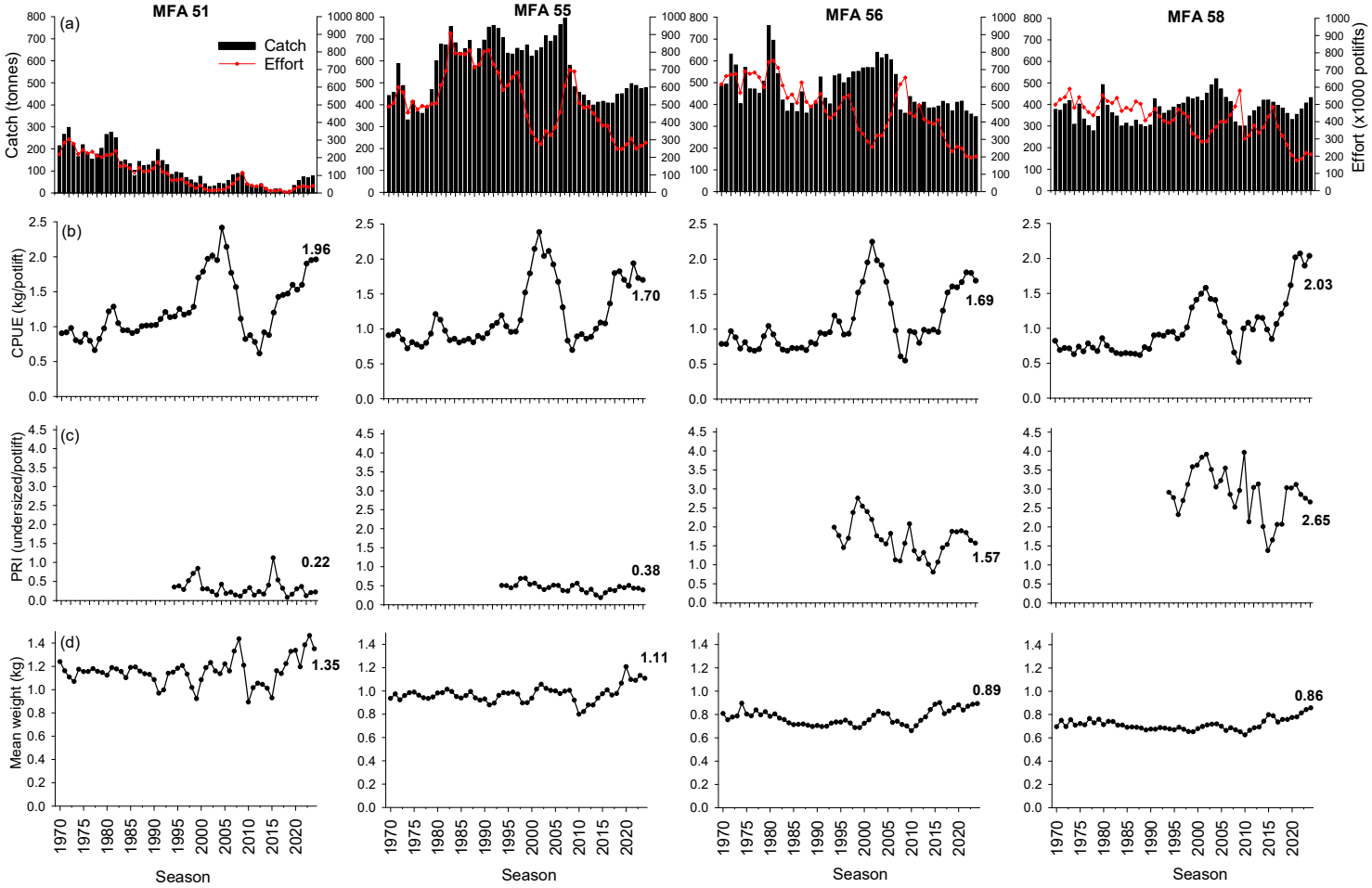

Figure 3-3 Spatial fishery dependent trends in the SZRLF. (a) Catch and effort (Sept-May); (b) catch per unit effort (CPUE) (Oct-May); (c) pre-recruit index (PRI) (Oct-Mar); and (d) legal-sized mean weight (Sept-May).

3.1.4 Additional indices

3.1.4.1 Ovigerous (spawning) females

In 2024, the catch rate of ovigerous (spawning) lobsters (September–May) was 0.62 spawners per potlift, the second highest on record (Figure 3-4a). Following overall declines in legal-sized lobster CPUE (Figure 3-1b), spawner CPUE fell from 2002 to a historical low of 0.05 spawners per potlift in 2010. Since then, the index has been variable, with notable increases over the past eight seasons.

3.1.4.2 Predation mortality

The catch rate of octopus and dead lobsters are highly correlated (Figure 3-4b; R^2 = 0.66). The number of dead lobsters per potlift has varied over time, ranging from 0.09 in 2009 to 0.28 in 2021. In 2024, it reached 0.32 dead lobsters per potlift—the highest on record. In 2024, consistent with elevated within-pot mortality, octopus CPUE was 0.05 octopus per potlift, also among the highest on record (Figure 3-4b).

3.1.4.3 Average days fished

In 2024, the average number of days fished in the SZRLF was 62 (S.D. 21 days), one of the lowest estimates on record (Figure 3-4c). This index is a proxy for overall fishing effort and largely reflects trends in annual potlifts within the fishery (Figure 3-1a).

3.1.4.4 High-grading

In 2024, high-grading in the SZRLF (legal-sized lobsters returned due to low market value) was estimated at 52 t, substantially lower than the >100 t reported in the early to mid-2000s (Figure 3-4d).

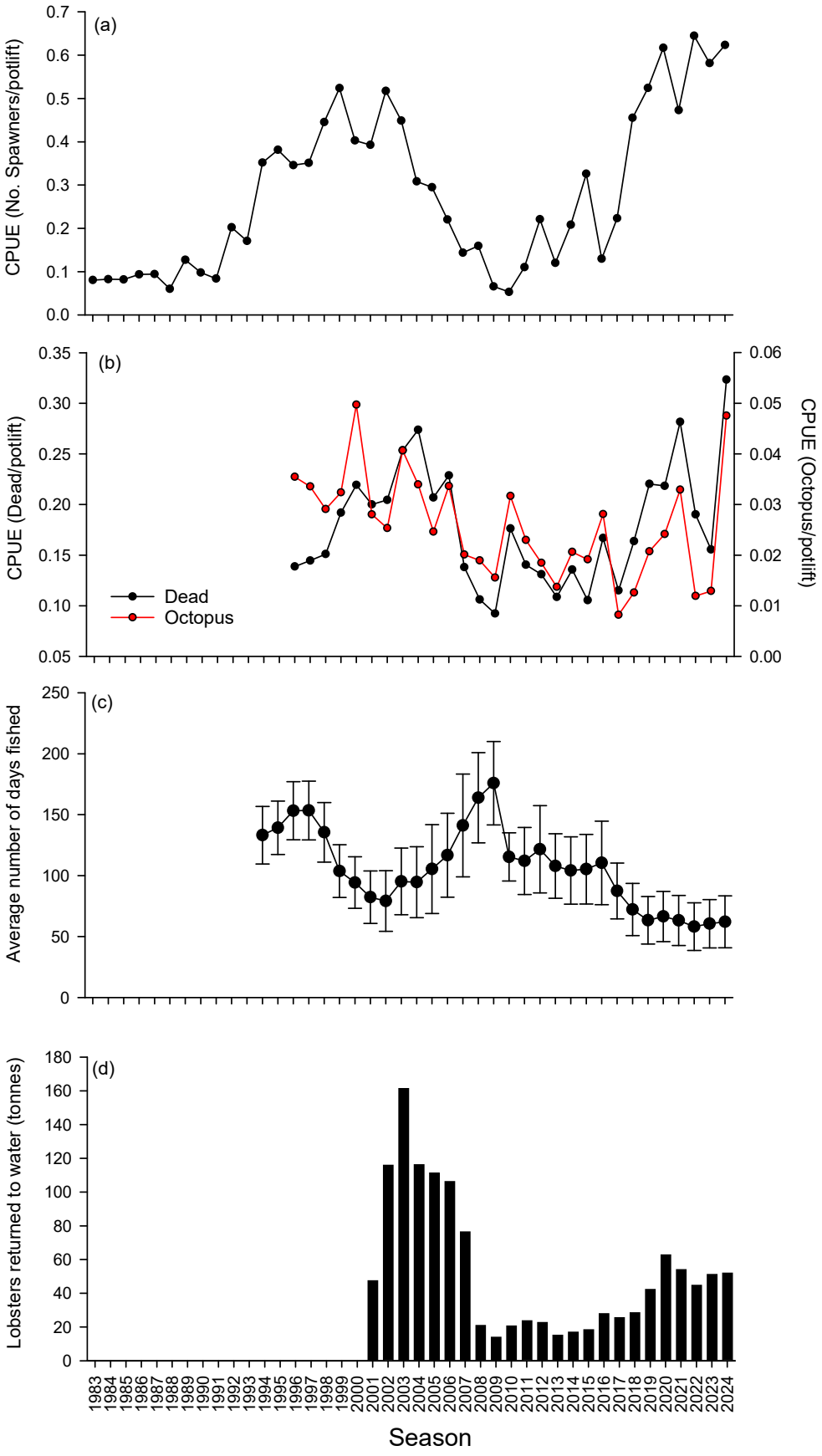

Figure 3-4 Additional fishery-dependent indices in the SZRLF. (a) Catch rate of spawning lobsters; (b) predation mortality and predatory octopuses; (c) average number of days fished; and (d) levels of high-grading.

3.2 Puerulus settlement index

In the SZRLF, the period from settlement to entry into the fishable biomass is estimated at about five years, with undersized lobsters appearing in catches after roughly four years. Between 2020 and 2023, puerulus settlement indices (PSIs; number of puerulus per collector) were above the long-term average (Figure 3-5), suggesting above-average recruitment in the short to medium term. In 2024, the PSI was 0.63 (S.E. 0.24 puerulus per collector), the second lowest on record..

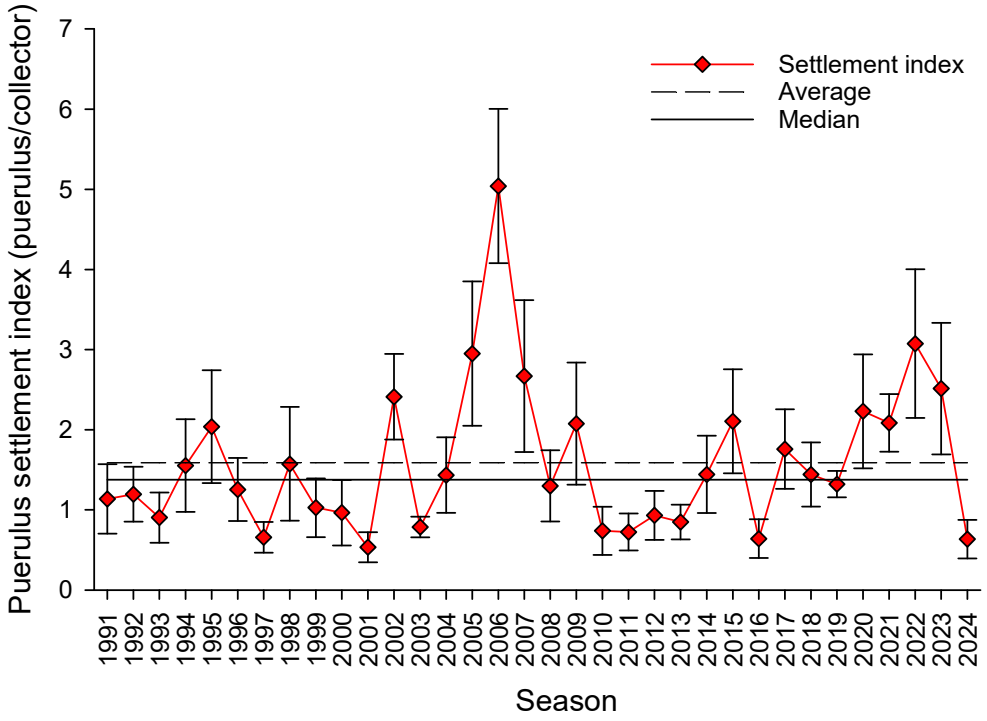

Figure 3-5 Puerulus settlement index (PSI) (mean ± S.E.) in the SZRLF from 1991 to 2024.

3.3 Length frequency data

Since 1991, up to 26,000 lobsters have been measured annually in the SZRLF through the voluntary catch sampling program. Male lobsters, which grow faster and reach larger sizes than females, range from 70 to 200 mm carapace length (CL), while few females exceed 150 mm CL. In 2024, 11,315 lobsters were sampled. Length-frequency data from the last two seasons (Figure 3-6) align with recent trends in pre-recruit indices (Figure 3-1c). Notably, the proportion of lobsters below the minimum legal size (MLS) of 98.5 mm CL decreased from 39% in 2020 to 32% in 2024, reflecting the decline in undersized catch rates over the same period.

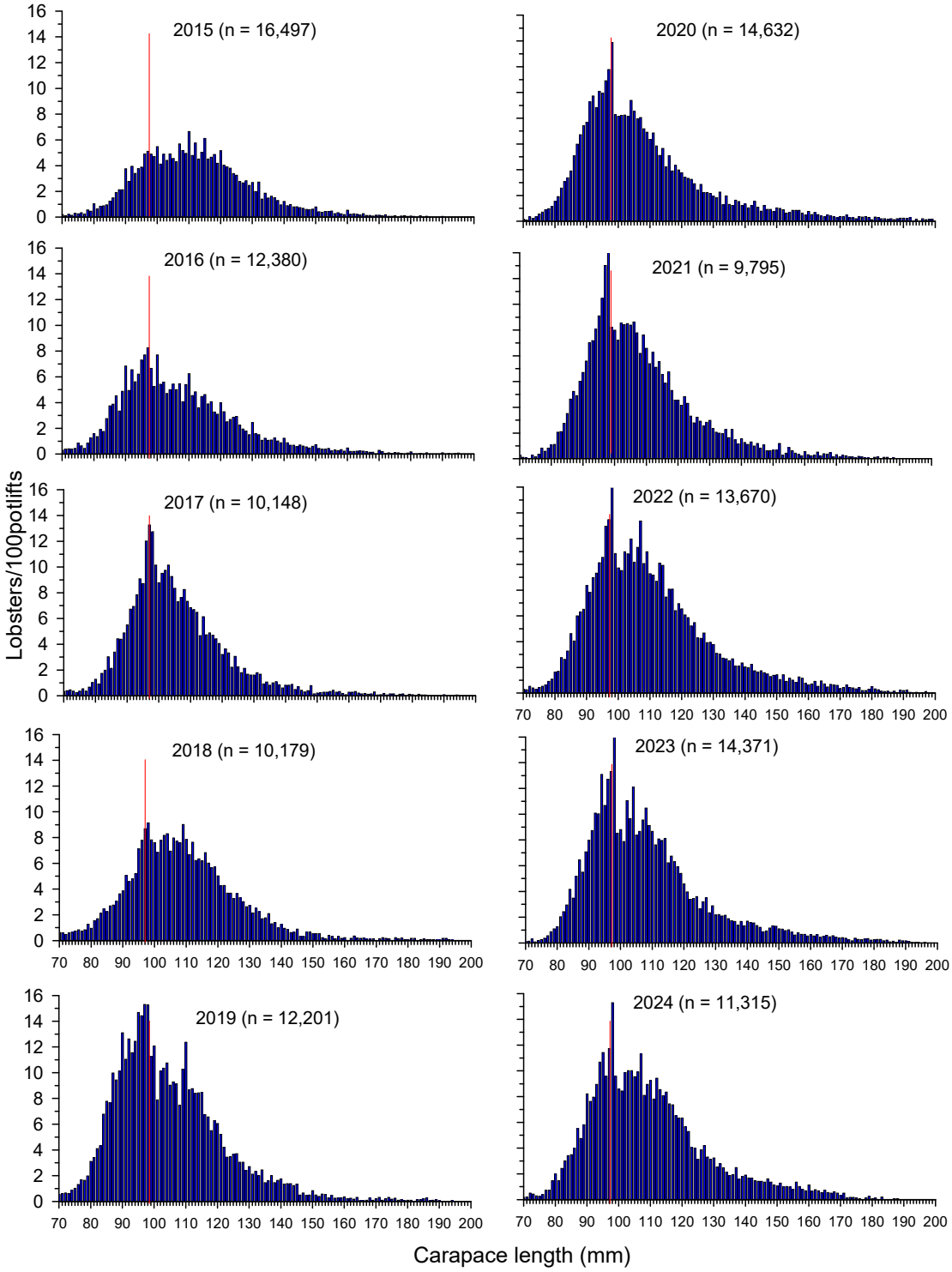

Figure 3-6 Length frequency distributions of male and female lobsters combined in the SZRLF from 2014 to 2024(red line indicates MLS at 98.5 mm CL).

3.4 qR Model outputs

From 2002 to 2009, estimates of legal-sized biomass in the SZRLF decreased by 69% from approximately 5,200 t to 1,600 t (Figure 3-7a). Between 2010 and 2016, biomass remained relatively stable at approximately 2,500 t. Over the following eight seasons, Southern Rock Lobster biomass increased, reaching 4,768 t in 2024—one of the highest on record.

Egg production mirrored biomass trends, falling 52% from roughly 730 billion in 2003 to 349 billion in 2009 (Figure 3-7b). After remaining stable from 2010 to 2016, egg production increased over the last eight seasons, reaching about 645 billion in 2024. Overall, egg production estimates are low equating to 14% of unfished levels but with increases in recent seasons (Figure 3-7c).

Exploitation rate rose from around 35% in 2002 to 79% in 2009 in response to declining biomass (Figure 3-7d). It decreased substantially in 2010 and has continued to gradually decline, reaching 29% in 2024—one of the lowest on record.

Outputs from the qR model indicate that recruitment to the fishery declined from approximately 4 million individuals in 1999 to 1 million in 2008, a decrease of 75% (Figure 3-7e). Since then, the estimate has been variable and in 2024 was approximately 1.9 million individuals. Trends in recruitment from the qR model are highly correlated with PRI estimates from logbook data (1995–2024) ($R^2 = 0.75$).

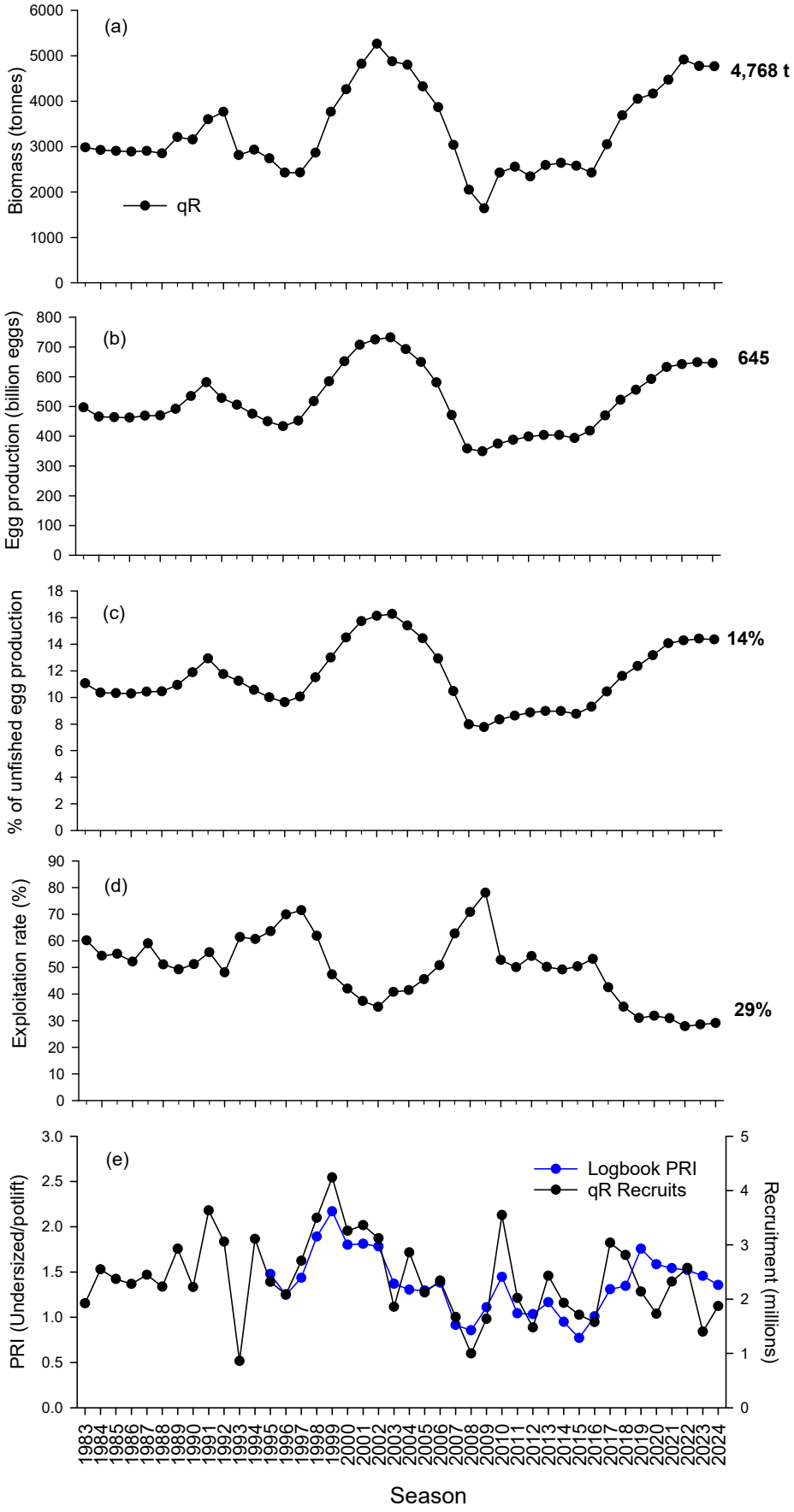

Figure 3-7 Fishery model outputs for the SZRLF. (a) Legal-size biomass; (b) Egg production; (c) % of unfished egg production; (d) Exploitation rate; and (e) Recruitment.

3.5 Fishery Independent Surveys

Since 2016, catch rates of legal-sized lobster have been consistent with fishery-dependent data, showing substantial increases over this period (Figure 3-8). In 2024, the estimated survey catch rate was 1.25 lobsters/potlift, representing a 35% decrease from 2023 (1.92 lobsters per potlift), yet still the fourth highest estimate on record.

Fishery-independent undersized catch rates increased overall from 2015 to 2022, broadly consistent with commercial data. In 2024, the undersized catch rate was 0.41 lobsters/potlift, a 17% increase from 2023 (0.35 lobsters per potlift). However, declines have been observed over the past two seasons, consistent with recent decreases in fishery-dependent data.

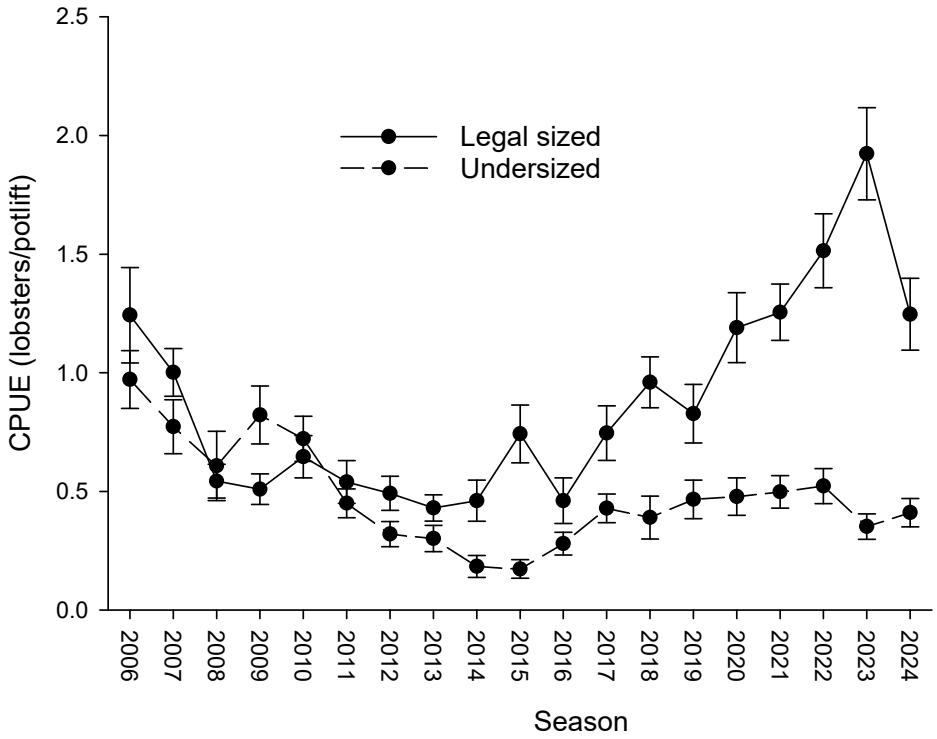

Figure 3-8 Catch rate of legal and undersized sized lobsters (with confidence intervals) as estimated from fishery independent monitoring surveys (FIMS) from 2006 to 2024. Note: above data are presented as numbers of lobsters/potlift from August/September and January surveys combined. Year represents start-of-season year (e.g. 2024 = 2024/25). Error bars show 95% confidence intervals using the v8 systematic survey sampling error variance estimator.

4 SUMMARY AND STOCK STATUS

There are multiple lines of evidence to indicate substantial improvements in the SZRLF over the past 15 years. Specifically; (i) biomass levels have increased and exploitation rates are historically low; (ii) CPUE is the fifth highest on record and above the TrRP; and (iii) the PRI is above the TrRP.

The stock status classification for the SZRLF is defined in the Management Plan for the fishery (PIRSA 2020) using the primary performance indicator of CPUE (Table 2). In 2024, the CPUE was 1.81 kg/potlift, which is above the TrRP of 0.60 kg/potlift. As a result, the SZRLF stock is classified as "**sustainable**". This means that the Southern Rock Lobster biomass is at a level sufficient to ensure that, on average, future levels of recruitment are adequate and fishing mortality is adequately controlled to avoid the stock becoming recruitment impaired.

Table 2 Stock status classification for the SZRLF.

CPUE (kg/potlift)	Status
≥ 0.60	Sustainable
< 0.60	Depleting or Recovering
≤ 0.40	Depleted

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