TASMANIAN SCALEFISH FISHERY ASSESSMENT 2023/24

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This assessment of the Tasmanian Scalefish Fishery is produced by the Institute for Marine and Antarctic Studies (IMAS) using data downloaded from the Department of Natural Resources and Environment, Tasmania (NRE Tas) Fisheries Integrated Licensing and Management System (FILMS) database. The information presented here includes all logbook returns for the 2023/24 season.

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2 Executive Summary

The Tasmanian Scalefish Fishery is a multi-species fishery that operates in state waters and encompasses a wide variety of species and capture methods. The Scalefish Fishery Management Plan, which was amended in 2023, establishes the regulatory framework for the management of the fishery.

2.1 Fishery Assessment

Since the early 1990s, commercial catches of major scalefish species have exhibited a general decline. This decline can be attributed to several factors, including changes in targeting practices and market demand, reductions in species abundance and biomass, the implementation of the Scalefish Fishery Management Plan in 1998, and the transfer of the Southern Shark Fishery to the Commonwealth in 2000.

Since 2000, there has been a notable decline in both the number of vessels participating in the scalefish fishery and the number of active scalefish fishing licenses. However, the rate of decline has slowed in recent years. Although commercial catches have also decreased during this period, this decline is only partially attributable to reduced effort. Furthermore, there is ongoing concern regarding insufficient information about the status of multiple assessed species. Additionally, the level of latent capacity within the fishery from license holders who are currently participating either at low levels or not active is also a significant concern, with only about 50% of licenses being active, depending on the type.

The highest commercial catches in 2023/24 were reported for Southern Calamari (55.7 t), Tiger Flathead (37.8 t), Bluethroat Wrasse (36.2 t) and Eastern School Whiting (35.3 t). Detailed summary tables of commercial catches for all assessed species and various other species groups are available in Appendix 3. Recreational fishing data, periodically estimated (most recently for 2022/23, Tracey and Stark 2024), show that recreational catches constitute a significant portion of the total harvest for several key species, including Southern Sand Flathead, Striped Trumpeter, and Bastard Trumpeter. Notably, recreational fishing contributed 99 percent of the total catch of southern sand flathead in 2022/23 (Tracey and Stark 2024).

2.2 Species Status

The commercial Scalefish Fishery in Tasmania reports catch of more than 100 species. However, catches vary significantly among species, primarily due to differences in their social and economic value. In this report, only 22 species, (or groups of species) have been prioritised for stock status assessment. This prioritisation was based on several factors, including whether the species are targeted, the magnitude of annual landings recorded since 1995/96, their social-economic importance, and general concerns about species conservation related to fishing activities.

The status of all main scalefish species was assessed based on a combination of information from previous assessments, new data on catch, effort, and species biology, as well as updated stock assessments by the Fisheries Research and Development Corporation (FRDC) and the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) (Butler et al. 2023). Species status was assigned according to the national framework used for the Status of Australian Fish Stocks (SAFS) reports, which includes categories such as Sustainable, Recovering, Depleting, Depleted, or Undefined (refer to the FRDC webpage for further explanation).

This classification framework evaluates the stock status against the limit reference point of whether it is likely to be depleted and/or recruitment impaired. Additionally, in this report, we contrast estimates of stock status against target reference points, which correspond to levels of biomass and fishing pressure considered to provide for maximum ecological or economic productivity. However, these target reference points are not used as a criterion to define sustainability.

In cases where either fishery-dependent or fishery-independent data are insufficient to inform stock status assessments, species are classified as Undefined. This is often due to low catches and effort recorded in commercial logbooks over recent years. However, there are three principal considerations for assigning a status as Sustainable in such situations:

(1) Confidence that historic catches are unlikely to have caused biomass depletion (information on sustainable/unsustainable catches from other states might be consulted for justification).
(2) A clear rationale for any declining trends (if evident), such as fundamental changes in management arrangements; and
(3) In cases where catch is not recorded at the species level, confidence that neither historic nor recent catches are likely to have caused biomass depletion of the most vulnerable species within multi-species groups.

We note that the Institute for Marine and Antarctic Studies (IMAS) and the Department of Natural Resources and Environment, Tasmania (NRE Tas) have initiated a continuous data quality control and assessment procedure. This process may result in updates to the Fisheries Integrated Licensing and Management System (FILMS) database and stock assessment calculations. Historical stock status classifications of each species assessed for the current season are available in Appendix 4.

Additionally, we note that assessments for Banded Morwong are reported separately due to differences in the reporting period used for setting the annual Total Allowable Catch (TAC), which is based on the quota year, compared to the routine assessment reporting for other scalefish species, which is based on the financial year. Similarly, Octopus catches are reported following the same reporting period as Banded Morwong and are assessed in an independent report.

***Table** 1: Species Assessments for 2023/24*

Species/Species group	Preliminary status	Explanation
State assessed species		
Australian Sardine *Sardinops sagax*	**SUSTAINABLE**	Currently, there is no targeted commercial fishing for Australian Sardine in Tasmanian waters. Consequently, the current fishing pressure in Tasmania is unlikely to impair the recruitment of the biological stock. A fishery-independent assessment of the south-eastern stock undertaken in 2023 indicates a spawning biomass in the order of 210,000 tonnes (Ward et al. 2024).
Barracouta *Thyrsites atun*	**UNDEFINED**	Catches have steadily declined since the early 1900s, with recent landings at historically low levels. Catch declines may reflect reduced effort to target Barracouta, possibly due to low market demand, but it remains unclear whether the species is no longer being targeted or has not recovered from historically high catch levels. Commercial effort is now too low for catch or CPUE to provide reliable indicators of biomass or stock status. Due to these data limitations and historically high catches, there is currently insufficient information to confidently determine stock status.
Bastard Trumpeter *Latridopsis forsteri*	**DEPLETED**	Trends in both commercial and recreational catches of Bastard Trumpeter indicate record-low population levels, suggesting the species is overfished. In response, the minimum legal size limit was raised to 420 mm from 1 November 2023. However, the estimated size at maturity is at least 450 mm, and the fishery remains heavily reliant on juvenile fish. Although data-limited stock assessment methods suggest recovery may be possible under current commercial catch levels, these assessments do not account for the significant recreational catch, and there is currently no evidence of stock rebuilding. Given the species' dependence on shallow reef habitats during critical juvenile stages, and ongoing concerns regarding depleted biomass and impaired recruitment, a precautionary approach is warranted in fishery management. Marine heatwaves may further reduce juvenile recruitment in nearshore environments, adding uncertainty to stock assessments and reinforcing the need for conservative management measures.

Species/Species group	Preliminary status	Explanation
Eastern Australian Salmon *Arripis trutta*	**SUSTAINABLE**	Eastern Australian Salmon has a long history of exploitation across south-eastern Australia. In 2022/23, the recreational fishery caught an estimated 40.6 tonnes, 83% of the total Tasmanian catch, making it the second most important recreational species by weight. Recent low commercial landings in Tasmania are likely driven by market demand or changes in fisher behaviour rather than a decline in abundance. Current fishing pressure is significantly lower than historically sustained levels and is therefore unlikely to impair recruitment of the biological stock.
Greenback Flounder *Rhombosolea tapirina*	**UNDEFINED**	Commercial flounder catches in Tasmania include multiple species that are not reliably reported to species level, though Greenback Flounder are thought to comprise most of the catch. Landings have declined steadily since the mid-1990s to less than 5 t annually since 2015–16. Although overnight gillnetting restrictions may have reduced targeting, the relatively high retail price of flounder suggests that further investigation is required to explain the decline in commercial catch. Recreational landings have also declined, from a peak of 15 tonnes in 2000–01 to just 14% of peak levels in 2022-23, but estimates are based on small sample sizes and are subject to uncertainty. Most of the current recreational catch is now thought to be taken by spearing at night. Due to limited available data given commercial fishing effort changes, the potential role of overfishing and depletion remains unclear. For these reasons, the stock is classified as undefined.
King George Whiting *Sillaginodes punctatus*	**SUSTAINABLE**	King George Whiting is an emerging species of interest in Tasmania, with growing commercial and recreational activity, particularly in northern waters. While current fishing pressure is not expected to impair recruitment, the legal minimum size of 35 cm remains below the estimated size at maturity (40 cm), which may warrant review. Recent catch increases—especially around Flinders Island—have been driven by beach seine operations targeting aggregating fish. It remains unclear whether this reflects genuine stock growth or increased fishing efficiency. The use of beach seines on dense schools raises concerns about potential impacts on spawning, as this gear can effectively harvest entire aggregations. Importantly, Tasmanian King George Whiting appear genetically distinct from mainland stocks, and limited understanding of local spawning locations and larval connectivity introduces uncertainty and highlights the vulnerability of potentially spawning aggregations.

Species/Species group	Preliminary status	Explanation
Leatherjackets *Monacanthidae* family	**UNDEFINED**	Several species of Leatherjacket occur in coastal waters around Tasmania, with the Brown-striped (*Meuschenia australis*), Toothbrush (*Acanthaluteres vittiger*), and Six-spine (*Meuschenia freycineti*) most recorded in commercial catches. These species are taken mainly as byproduct rather than targeted catch. Historic catches (e.g., ~40 t in 1995/96) were considerably higher than in recent years, likely reflecting higher biomass or greater popularity and market value at the time. The stock status of Leatherjackets is undefined due to the grouping of multiple species under generic catch categories and limited confidence in commercial data. Most landings were reported simply as 'Leatherjacket', making it difficult to assess trends or biomass for individual species.
Longsnout Boarfish *Pentaceropsis recurvirostris*	**UNDEFINED**	Longsnout Boarfish are a by-product species of the gillnet fishery targeting Banded Morwong, with catches remaining low in part due to the large minimum legal size. There is limited biological information available for this species, with key gaps including size at maturity, stock structure, and movement patterns. As Boarfish are caught incidentally but are not actively targeted, catch and effort data may not link closely to their biomass. Given these limitations, the available information is insufficient to confidently determine the status of the Longsnout Boarfish stock.
Snook *Sphyraena novaehollandiae*	**SUSTAINABLE**	Recorded commercial catches of Snook remain low, likely reflecting limited targeted effort due to low market demand. At times, estimated recreational catch has exceeded commercial catch by a considerable margin. Catch-only data-poor assessments indicate that current levels of fishing mortality are unlikely to pose a risk to stock recruitment.
Southern and Eastern Region: Southern Calamari *Sepioteuthis australis*	**DEPLETED**	Catch in this region peaked at over 80 t in 2004/05, followed by a long-term decline to < 20 t in the current assessment year. Temporary increases in catch from 2016/17 to 2018/19 were driven by higher effort and lower CPUEs, suggesting a declining stock. Signals of stock decline may be masked by hyperstability, as the species is vulnerable to targeting at spawning aggregations. Management changes, including seasonal closures and a limit on species-specific licences, likely resulted in effort shifting northward. Data-poor CMSY assessment results indicate sustained overfishing, with the stock likely depleted below critical levels and no signs of recovery. The stock is therefore classified as depleted.

Species/Species group	Preliminary status	Explanation
<u>Northern Region:</u> **Southern Calamari** *Sepioteuthis australis*	**DEPLETING**	Rising catch and effort in the Northern region reflect a northward shift in fishing activity from the depleted southern and eastern regions. Although catch and CPUE are likely hyperstable, trends suggest a decline from peak levels observed between 2012/13 and 2016/17. Effort has increased substantially over the past five years, with CPUE mostly stable over time but decreasing in the current season. Closures cover part of the spawning season, but as the spawning period is likely to vary and not be fully covered, protection may be insufficient to mitigate recruitment risks. Catch and effort now equal or exceed historical peaks from the Southern and Eastern region. Environmental conditions are likely contributing to recent catch trends and continued low recruitment, or poor environmental seasons could exacerbate declines, potentially shifting the stock from its current classification of depleting to depleted. Data-limited assessments indicate that current exploitation is likely unsustainable. The stock is therefore assessed as depleting.
Southern Garfish *Hyporhamphus melanochir*	**DEPLETED**	Steep declines between 2005 and 2008 led to the fishery being classified as depleting, prompting management actions such as one-month closures in eastern and northern regions to protect peak spawning periods. Although an initial recovery followed, subsequent declines in catch and CPUE underscored the stock's vulnerability. Over the past four years, modest increases in catch and effort have been observed around the northeast coast and Flinders Island. CPUE has fluctuated but shows a recent upward trend; however, given the species' schooling behaviour and the use of lights to attract fish to dip nets, CPUE may not reliably indicate changes in biomass. Data-limited assessments suggest recovery is possible under current commercial catch levels, though uncertainty remains around recent trends and recreational harvest is largely unquantified. Additional data are needed to evaluate the effectiveness of existing measures and to determine whether region-specific management, rather than statewide controls, would better support stock sustainability.
Southern Sand Flathead *Platycephalus bassensis*	**DEPLETED**	Southern Sand Flathead in Tasmania are only impacted by recreational fishing, after a state-wide commercial ban was implemented in November 2023. Annual fishery-independent surveys since 2012 show low abundance of legal-sized fish in key southern and eastern regions, indicating heavy fishing pressure. Management changes in 2015 (increased size limit and reduced bag limit) initially suggested recovery but regionally expanded annual surveys since 2021 reveal ongoing

Species/Species group	Preliminary status	Explanation
		unsustainable fishing mortality in all eight regions surveyed statewide (except Flinders Island), particularly for females. Recent assessments (2022 - 2024) show female biomass and spawning potential are below critical levels. Further regulations in 2023–24 aim to aid recovery, but current survey data (except Flinders Island) indicate ongoing depletion, and the stock remains classified as Depleted (Krueck et al. 2025). This species is now covered by a dedicated separate assessment report.
Striped Trumpeter *Latris lineata*	**DEPLETED**	Despite the appearance of young fish in biological samples after years of suspected recruitment failure, there is still no clear evidence of population recovery for Striped Trumpeter. Commercial catches remain near historical lows, yet total fishing pressure predominantly from recreational and charter sectors may still be high enough to undermine rebuilding. Management measures, including a seasonal closure, aim to protect the spawning stock, but may not be sufficient under current exploitation levels. The minimum size limit remains below the size at maturity and could thus inhibit stock recovery.
Bluethroat Wrasse *Notolabrus tetricus*	**SUSTAINABLE**	Catches, effort, and CPUE for Bluethroat Wrasse have remained relatively stable for nearly a decade, suggesting that current fishing pressure is likely sustainable. However, uncertainty remains around the potential for localised depletion and the volume of catch taken by rock lobster fishers for use as bait. The relatively low catches in 2019/20 and 2020/21 were likely influenced by COVID-related disruptions and shifts in fishery dynamics. In the past three years, catches have shown an upward trend, possibly driven by increased demand in the live fish market.
Purple Wrasse *Notolabrus fucicola*	**SUSTAINABLE**	Catches, effort, and CPUE for Purple Wrasse have remained relatively stable for nearly a decade, suggesting that current fishing pressure is sustainable. However, uncertainty persists around the potential for localised depletion and the extent of catch taken by rock lobster fishers for use as bait. A sharp increase in catch has been observed over the past four years, likely linked to recovery in demand from the live fish market following COVID-related disruptions. Notably, the 2023/24 season recorded the highest catch of Purple Wrasse since species-specific reporting began in 2007/08, which is potentially concerning for the stock.
Yelloweye Mullet *Aldrichetta forsteri*	**SUSTAINABLE**	Yelloweye Mullet are most abundant in estuarine habitats, where netting is restricted or prohibited, affording the species a high level of protection across much of its Tasmanian range. Commercial logbook

Species/Species group	Preliminary status	Explanation
		data show consistently low catches, suggesting that the stock is not recruitment impaired and that current fishing pressure is unlikely to pose a future risk.
Commonwealth assessed species		
Blue Warehou *Seriolella brama*	**DEPLETED**	Blue Warehou is a Commonwealth-assessed species that has been classified as "Overfished" in the ABARES Fishery Status Reports 2024 (Butler et al. 2024). It was reported as Depleted in the 2023 Status of Australian Fish Stocks Report (Butler et al. 2024). This species is sporadically abundant in Tasmanian waters. Despite a reduction in Total Allowable Catch (TAC) for the Commonwealth fishery to 50 t in 2021 and the initiation of a stock rebuilding strategy in 2008, there is no evidence of stock recovery. Additionally, there is evidence that climate-driven changes may be limiting the effectiveness of current management measures in rebuilding the Blue Warehou stock (Fulton et al. 2024).
Common Jack Mackerel *Trachurus declivis*	**SUSTAINABLE**	Common Jack Mackerel is primarily managed by the Commonwealth and has been classified as "Not overfished nor subject to overfishing" in the ABARES Fishery Status Reports 2024 (Butler et al. 2024). Over the past decade, only minor catches have been recorded from Tasmanian waters due to limited purse seine fishing activity. Consequently, catch and effort patterns in Tasmania are unlikely to reflect the overall stock status. However, the current low fishing pressure in Tasmanian waters is unlikely to cause recruitment impairment of the stock.
Eastern School Whiting *Sillago flindersi*	**SUSTAINABLE**	Eastern School Whiting is predominantly a Commonwealth-managed species and has been classified as "Not overfished nor subject to overfishing" in the ABARES Fishery Status Reports 2024 (Butler et al. 2024). It was also classified as Sustainable in the 2024 Status of Australian Fish Stocks Report (SAFS 2024). Catches in Tasmanian waters fluctuate in response to market demand but generally constitute only a small proportion of the total Commonwealth commercial catch.
Gould's Squid *Nototodarus gouldi*	**SUSTAINABLE**	Gould's Squid is a predominantly Commonwealth-managed species that has been classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2024 (Butler et al. 2024). Dual-licensed vessels fish for this species in Tasmanian waters, especially in years of peak abundance. Gould's Squid is characterised by high inter-annual variability in abundance in state waters resulting in periodically high catches compared to other scalefish species.

Species/Species group	Preliminary status	Explanation
Jackass Morwong *Nemadactylus macropterus*	**DEPLETED**	Jackass Morwong is a predominantly Commonwealth-managed species. The eastern stock, primarily caught in Tasmanian waters, has been classified as 'Overfished' and 'Subject to Overfishing' by ABARES in the Fishery Status Report 2024 (Butler et al. 2024). There is evidence that climate-driven changes may be limiting the effectiveness of current management measures in rebuilding the Jackass Morwong stock (Fulton et al. 2024). Catch and effort reported by scalefish fishers in Tasmania have remained low over the past 17 years.
Tiger Flathead *Platycephalus richardsoni*	**SUSTAINABLE**	Tiger Flathead is a predominantly Commonwealth-managed species that has been classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2024 (Butler et al. 2024). It has been classified as Sustainable in the 2024 Status of Australian Fish Stocks Report. In Tasmania, Tiger Flathead are caught mostly by the commercial sector. Catches in Tasmania fluctuate substantially on an annual basis, but they typically represent a small proportion of Commonwealth trawl landings.

3 Introduction

This report covers assessments of 22 selected taxa within the Tasmanian Scalefish Fishery, including species of both teleosts and cephalopods. Stock status classifications follow the national reporting scheme used in the Status of Australian Fish Stocks (SAFS) reports. SAFS reports include four categories: “Sustainable”, “Depleting”, “Depleted”, or “Recovering”. These four categories define the status of the stock exclusively in terms of likely recruitment impairment. Recruitment impairment occurs when the mature adult population (spawning biomass) is depleted to a level where it can no longer maintain the reproductive capacity for stock rebuilding. Stock status compared to potential target reference points (e.g., the biomass supporting maximum sustainable ecological or economic yield) is considered where feasible but not incorporated into the basic stock status classification scheme. For more detailed information on status classification categories, please refer to the TasFisheriesResearch webpage.

We note that the status of most (16) Tasmanian fishery taxa included in this report are assessed exclusively by IMAS. However, formal assessments of the remaining six species primarily caught under Commonwealth jurisdiction (e.g., Tiger Flathead, Blue Warehou, Jackass Morwong, Eastern School Whiting, Gould’s Squid and Jack Mackerel), are undertaken by the Southern and Eastern Scalefish and Shark Fishery Assessment Group (SESSF-AG). These formal assessments are summarised in fishery status reports produced by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) (Butler et al. 2024). The stock status classifications reported here for this subset of species are based on the status determined by SESSF-AG.

3.1 Data sources and analyses

Commercial catch and effort data are collected through compulsory Tasmanian Commercial Catch, Effort and Disposal Returns, and Commonwealth non-trawl (GN01 and GN01A) and Southern Squid-jig Fishery (SSJF) logbook returns. Tasmanian Scalefish fishers report catch and effort data by fishing block (see Figure 3.1). Unless noted otherwise, catch and effort data reported in this assessment relate to the commercial sector. Catch and effort information for the recreational sector are collected from surveys that are conducted periodically (generally every 5 years) and published on the IMAS webpage. Detailed information on the fishery, management objectives, data analysis, assessment criteria, and general fishery trends can be accessed online through the TasFisheriesResearch webpage.

3.1.1 Routine analyses

Routine assessments involve the analysis of time series of catch, effort, and catch-per-unit-effort (CPUE). For the purpose of this assessment, effort and CPUE analyses are restricted to commercial data provided for the period 1st July 1995 to 30th June 2024. A fishing year from 1st July to 30th June in the following year has been adopted for annual reporting because reporting based on financial rather than calendar year better reflects the seasonality of the fisheries for most species, which are characterised by a concentration of catch (and effort) between late spring and early autumn. In addition, this reporting schedule better encompasses the biological processes of recruitment and growth for most species.

Data have traditionally been analysed mostly for state-wide trends, but in this report analyses at a regional level are included for all species. Fishing regions can be assigned flexibly for each species according to fishing block information which is recorded along with details on catch and effort as part of routine logbook returns (Figure 3.1). Unless otherwise noted, five broad assessment regions were used: southeast coast (SEC), east coast (EC), northeast

coast including Flinders Island (NEC), northwest coast including King Island (NWC), and west coast (WC).

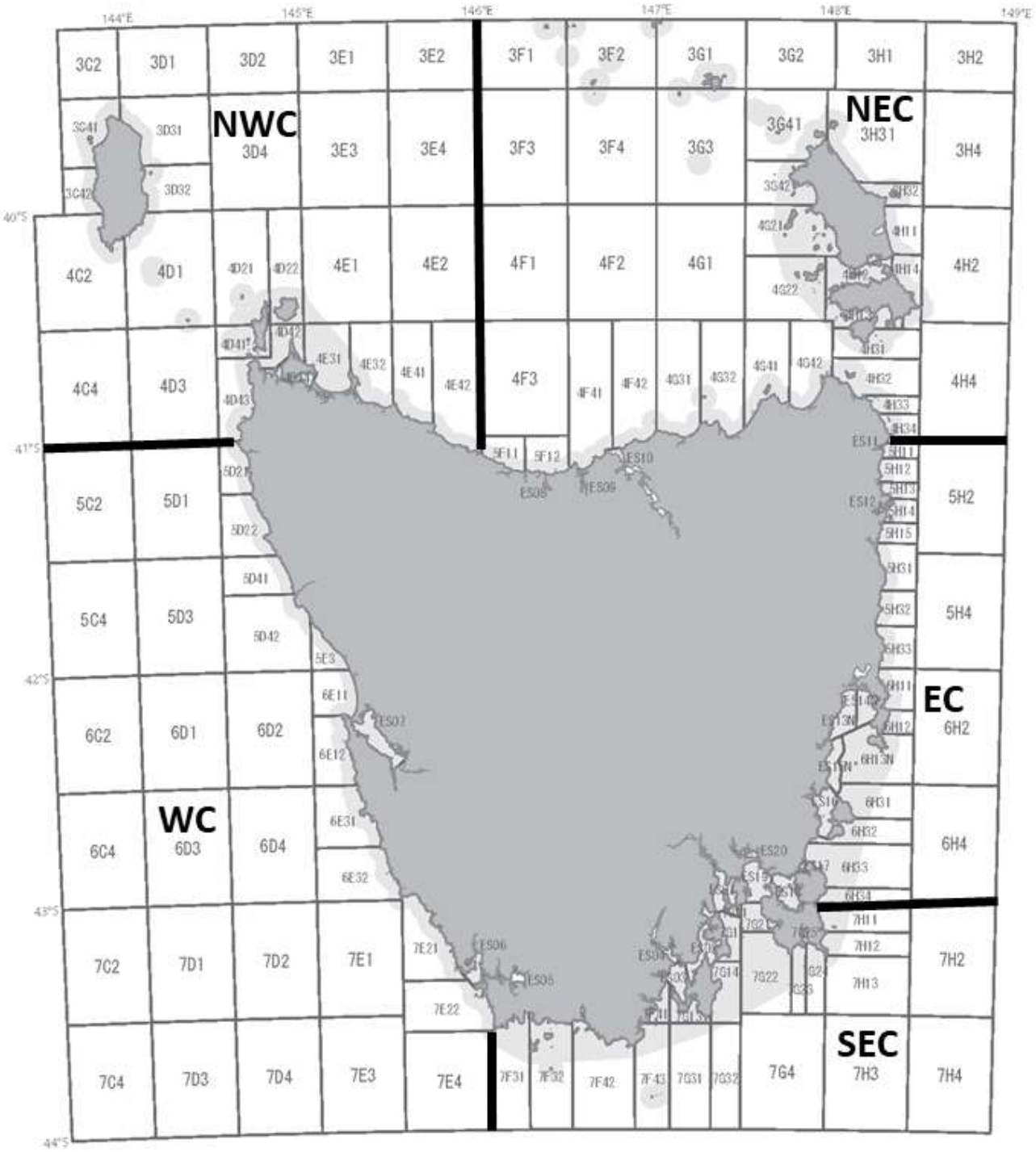


Figure 3.1: Map of Tasmania showing official NRE fishing blocks used for catch reporting, and regions used in this assessment (NWC = northwest coast, NEC = northeast coast, EC = east coast, SEC = southeast coast, WC = west coast). Light grey areas indicate Tasmanian state waters limits.

There are 14 main fishing methods used in the Tasmanian Scalefish Fishery. However, for assessment purposes, effort was expressed in numbers of days fished per gear type, irrespective of the amount of gear utilised each day. Examining effort in terms of days fished

overcomes any uncertainty about the reporting of effort units and provides consistency through time, assuming that there have been no major changes to fishing practices over the duration of the time series (1995-2024).

Since CPUE data are typically log-normally distributed, the geometric mean (*GM*) rather than arithmetic mean of daily catch records has traditionally been calculated to generate CPUE statistics. The geometric mean is the n^{th} root of the product of individual CPUE values (y_i):

Equation 1

$$GM_{\bar{y}} = \sqrt[n]{\prod y_i}$$

This is equivalent to computing the arithmetic mean of the natural logarithm of each number, and then taking the exponent:

Equation 2

$$GM_{\bar{y}} = \exp\left[\frac{1}{n}\left(\sum \ln\left(y_n\right)\right)\right]$$

CPUE calculated using this method may differ slightly from the more simplistic approach of dividing total catch by total effort or using the arithmetic mean. The advantage of calculating the geometric mean is that results are less affected by relatively few, outstandingly high data points, which are characteristic of log-normally distributed data.

State-wide CPUE based on the geometric mean has traditionally been reported by normalising data based on the first representative values of the catch and effort time series (i.e., the reference year), which allows for the simultaneous comparison of multiple CPUE trends for different gear types. However, in this report we also report nominal CPUE trends (i.e., raw CPUE in kg/day) for each main gear type and region.

3.1.2 Catch-based stock assessment approach: CMSY

In addition to routine analyses of spatio-temporal trends in catch and effort, we used a commonly applied catch-only stock assessment method to estimate stock depletion and catch relative to the estimated maximum sustainable yield (MSY). The results shown here are based on the “CMSY” method (Froese et al. 2017), which refers to a model-assisted stock assessment approach developed for data-poor conditions (Froese et al. 2021). The approach relies on the Schaefer production model, which defines the relationship between biomass and catch based on the intrinsic population growth rate (r), and which assumes that the biomass delivering MSY is equal to 50% of the unfished biomass. According to a time series of catch records and the assumed resilience of the target species (“very low” ,“low”, “medium”, or “high”, and associated ranges of plausible r values), CMSY can be used for a stock reduction analysis based upon which credible Schaefer model predictions are inferred to estimate management reference points for MSY and biomass depletion (see also Haddon 2018; Haddon et al. 2019).

Biomass depletion fluctuating around 50% of unfished levels is a commonly defined target (B_{target} = B_{MSY} = 0.5 B/B0, where B = biomass and B0 = unfished biomass), but has also been used as a threshold in precautionary Australian harvest strategies to initiate reductions in catch of data-poor fish populations so that biomass remains above or recovers back to target levels (B > 0.5 B/B0) (see e.g., DPIRD 2020). Biomass depletion below 20% is an internationally applied limit reference point (B_{limit}), beyond which directed fisheries under Australian harvest strategies are commonly closed (Rayns 2007; Smith et al. 2009; Punt et al. 2014).

The CMSY analyses conducted here were based on the commercial component of total fishery catch, excluding estimates of recreational catch. The CMSY method appears to be robust to the exclusion of recreational catch data unless trends in recreational vs commercial catch over time are divergent (Haddon 2018).

Scalefish species selected for CMSY analyses (Table 3.1) were those for which we assumed that changes to management over the duration of recorded fishery catch did not severely undermine the use of catch data to infer trends in abundance. The same implicit assumption was made with respect to changes in the spatial distribution of fishing effort and catch. Priors for initial and final biomass depletion were assigned based on expert knowledge according to the ranges for B/B0 suggested by the authors of the CMSY software (Depletion levels: “Very strong”: 0.01-0.2; “Strong”: 0.01-0.4; “Medium”: 0.2-0.6; “Low”: 0.4-0.8; “Very low”: 0.75-1).

To confirm robust CMSY results, we estimated stock depletion and MSY by also using the most recent version of the Bayesian state-space implementation of the Schaefer production model (BSM) assessment method, which can incorporate raw CPUE data (Froese et al. 2017). However, both methods produced similar results for assessed species; therefore, only CMSY results were included in this report.

Table 3.1: Assessment of the suitability of catch data available for state-assessed species for application of the CMSY approach. BMSY = biomass assumed to deliver the maximum sustainable yield, with a commonly defined target around 50% of unfished biomass. Those determined suitable for application of the CMSY approach are shaded in grey.

Species name	**Historical depletion beyond target biomass**	**Suitable for CMSY**	**Prior relative biomass (B/k) ranges**		**Comment**
			Initial	**Final**	
Australian Sardine *(Sardinops sagax)*	Unlikely	No			Some developmental fishing previously occurred, but no permits are currently active and, thus, limited or no catch has been recorded.
Barracouta *(Thyrsites atun)*	Likely	No			Historical catches were high (1960s – 1970s). However, subsequent declining trends are suspected to reflect a combination of environmental impacts and reduced market demand rather than fishery-induced stock trends. Thus, the stock status remains undefined.
Bastard Trumpeter *(Latridopsis forsteri)*	Likely	Yes	0.2-0.6	0.01-0.2	Bastard Trumpeter was highly abundant in Tasmanian waters prior to commercial and recreational fishing; however, abundance has declined substantially with fishing.
Eastern Australian Salmon *(Arripis trutta)*	Possible	No			Only a few operators target this species opportunistically. A substantial drop in catch was noted when one major operator stopped targeting Eastern Australian Salmon in 2013/14.
Greenback Flounder *(Rhombosolea tapirina*)	Possible	No			Management change (restrictions on unattended night-netting) substantially reduced commercial catches obscuring trend. Additional gillnet restrictions in Macquarie Harbour, aimed at safeguarding the Maugean Skate, will likely diminish regional commercial catch levels further.
King George Whiting	Unlikely	No			The fishery is in development, with commercial catch data

Species name	Historical depletion beyond target biomass	Suitable for CMSY	Prior relative biomass (B/k) ranges		Comment
			Initial	Final	
(Sillaginodes punctatus)					not yet revealing informative trends.
Leatherjackets *(Monacanthidae* family)	Uncertain	No			Multiple undifferentiated species complicate the use of catch data to infer stock status.
Longsnout Boarfish *(Pentaceropsis recurvirostris)*	Uncertain	No			The species is not targeted, which complicates the use of catch data to estimate population depletion and maximum sustainable catch.
Snook *(Sphyraena novaehollandiae)*	Uncertain	Yes	0.4-0.8	0.2-0.6	The species is no longer targeted commercially but catch trends might provide a reasonable reflection of abundance.
Southern Calamari *(Sepioteuthis australis)*	Possible	Yes	0.2-0.6	0.01-0.4	Spatial shifts in the distribution of fishing effort require regional applications of CMSY and BSM simulations.
Southern Garfish *(Hyporhamphus melanochir)*	Likely	Yes	0.2-0.6	0.01-0.4	Anecdotal reports suggest that currently low catches might not adequately reflect abundance.
Southern Sand Flathead *(Platycephalus bassensis)*	Likely	No			Recreational landings dominate catches of this species (~99%), but sporadically available recreational catch data cannot meaningfully be used for CMSY simulations. Therefore, the assessment for this species is conducted independently outside the scope of this report.
Striped Trumpeter *(Latris lineata)*	Likely	Maybe	0.2-0.6	0.01-0.4	Commercial catches close to historical low but this might reflect low abundance. High recreational catch not captured in this data will impact results.
Wrasse *(Notolabrus spp.)*	Uncertain	Yes	0.4-0.8	0.2-0.6	Notable changes within the fishery are likely to affect estimates of biomass depletion. These include a decline in the use of fish traps

Species name	Historical depletion beyond target biomass	Suitable for CMSY	Prior relative biomass (B/k) ranges		Comment
			Initial	Final	
Bluethroat Wrasse *(Notolabrus tetricus)* Purple Wrasse *(Notolabrus fucicola)*					from 2006/07, with replacement by hooks leading to reduced catches for Purple Wrasse In addition, restaurant closures following the start of the COVID-19 pandemic in 2020 changed the demand for live fish, though demand has since renewed with the recovery of live trade.
Yelloweye Mullet *(Aldrichetta forsteri)*	Unlikely	No			Low catches, also because the species is protected across much of its range.

4 State-assessed species

4.1 Australian Sardine (*Sardinops sagax*)

STOCK STATUS	SUSTAINABLE
Currently, there is no targeted commercial fishing for Australian Sardine in Tasmanian waters. Consequently, the fishing pressure in Tasmania is unlikely to impair the recruitment of the biological stock. The most recent assessment of the south-eastern stock, which includes Tasmanian and Bass Strait waters, estimated spawning biomass to be in the order of 210,000 tonnes (Ward et al. 2024). The species was classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2023 (Butler et al. 2023). Similarly, all Australian stocks are currently classified as Sustainable in the 2020 Status of Australian Fish Stocks report (Piddocke et al. 2021).	
IMPORTANCE	Minor but possibly increasing
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; spawning biomass.
MANAGEMENT	State (Tasmania)

Australian Sardine
(Sardinops sagax)
Illustration©R.Swainston/anima.fish

4.1.1 Biology

- **Habitat:** Lower reaches of estuaries to continental shelf waters (Paxton et al. 1989).
- **Distribution:** Southern Australia – Rockhampton to Shark Bay, northern Tasmania (Izzo et al. 2017).
- **Diet:** Phytoplankton and planktonic crustaceans (Stewart et al. 2010).
- **Stock Structure:** Four separate biological stocks in Australian waters: Western: SW coast of WA, Southern: Great Australian Bight-Spencer Gulf, South-eastern: Bass Strait-Port Phillip Bay (including Tas and southern NSW), Eastern: northern NSW to Qld.
- **Movement:** Schooling fish.
- **Size at Maturity (length FL; cm):** 14.5.
- **Age at Maturity:** 1-2 (Stewart, Ballinger, and Ferrell 2010; T. Ward and Grammer 2017).
- **Spawning Season:** Summer (Bass Strait stock), late winter-early spring (eastern Australia stock).

- **Spawning Location:** Bass Strait (Bass Strait stock), southern Queensland-northern New South Wales (eastern Australia stock).

4.1.2 Fishery

A developmental fishing program for Australian sardines operated from 2015-2017. There are currently no active permits in place. Following recent surveys indicating a significant biomass in waters adjacent to Tasmania (Ward et al. 2024), the Tasmanian Government has released development guidelines for a Tasmanian Sardine Fishery ('Development Guidelines for a New Tasmanian Sardine Fishery', n.d.).

4.1.3 Management

Currently, all commercial scalefish licence holders are restricted to a bycatch limit of 10 kg per trip of Australian Sardine.

4.1.4 Commercial Catch, effort and CPUE

- **Current commercial catch**: 0.10 tonnes (Figure 4.1 A)
- **Catch, effort and CPUE trend**: Throughout historical records, this species has represented a minor and sporadic component of the scalefish fishery. Peak catches of Australian Sardine were recorded in specific years, such as 15.4 t in 1997/98, 14.5 t in 2008/09, and 33.3 t in 2016/17. These peak catches were primarily derived from purse seine records, with the 2016/17 catch a result of a developmental fishing program. Earlier peak catches mainly resulted from incidental take of Australian Sardine by fishers targeting other small pelagic fishes, such as Redbait. Small quantities are caught in the Danish seine fishery, never reaching greater than 0.2 tonnes reported.
- **Fishing distribution:** Targeted fishing activity for Australian Sardine, under a developmental fishery permit, occurred in 2016/17 and was concentrated along the north coast, particularly the northeast coast (Figure 4.2 , Figure 4.3). In 2023/24, Danish seine catches were negligible, with activity barely discernible in the Derwent.
- **Gear types:** The primary capture method for Australian Sardine is purse seine, with small quantities also taken using Danish seine and beach seine gear.
- **Recreational Fishery:** Australian Sardine is not considered a significant recreational species in Tasmania (Tracey and Stark 2024).

4.1.5 Risk Assessment of Recruitment Impairment

- **Risk of Recruitment Impairment:** Low. The fishery scored >80 in risk assessment, indicating low risk of recruitment impairment due to Australian Sardine's high productivity, rapid growth, high fecundity, and low trophic level.
- **Fishing Pressure:** Minimal. Despite purse seine gear posing a high capture risk, there is currently no active purse seine fishing, so fishing effort is negligible.
- **Stock Status – Sustainable:** Australian Sardine in Tasmania are part of the South-eastern Sardine stock, which has an estimated biomass >210,000 t (Ward et al. 2024) and is shared with VIC and NSW; all assessed Australian stocks were deemed sustainable.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

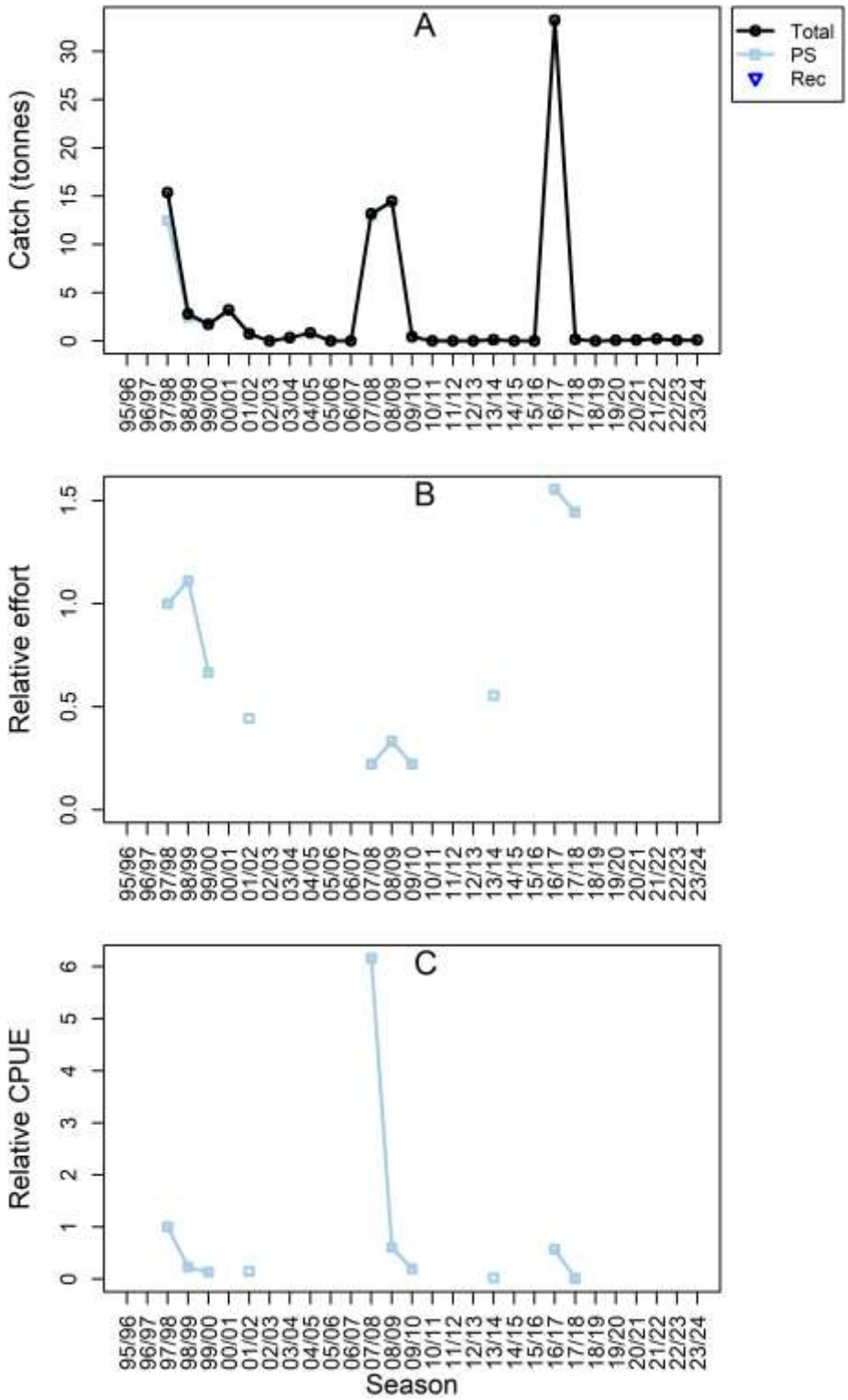


Figure 4.1 (A) Annual commercial Australian Sardine catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished, relative to 1995/96. PS = purse seine; no recreational catch estimates (Rec) were available for this species.

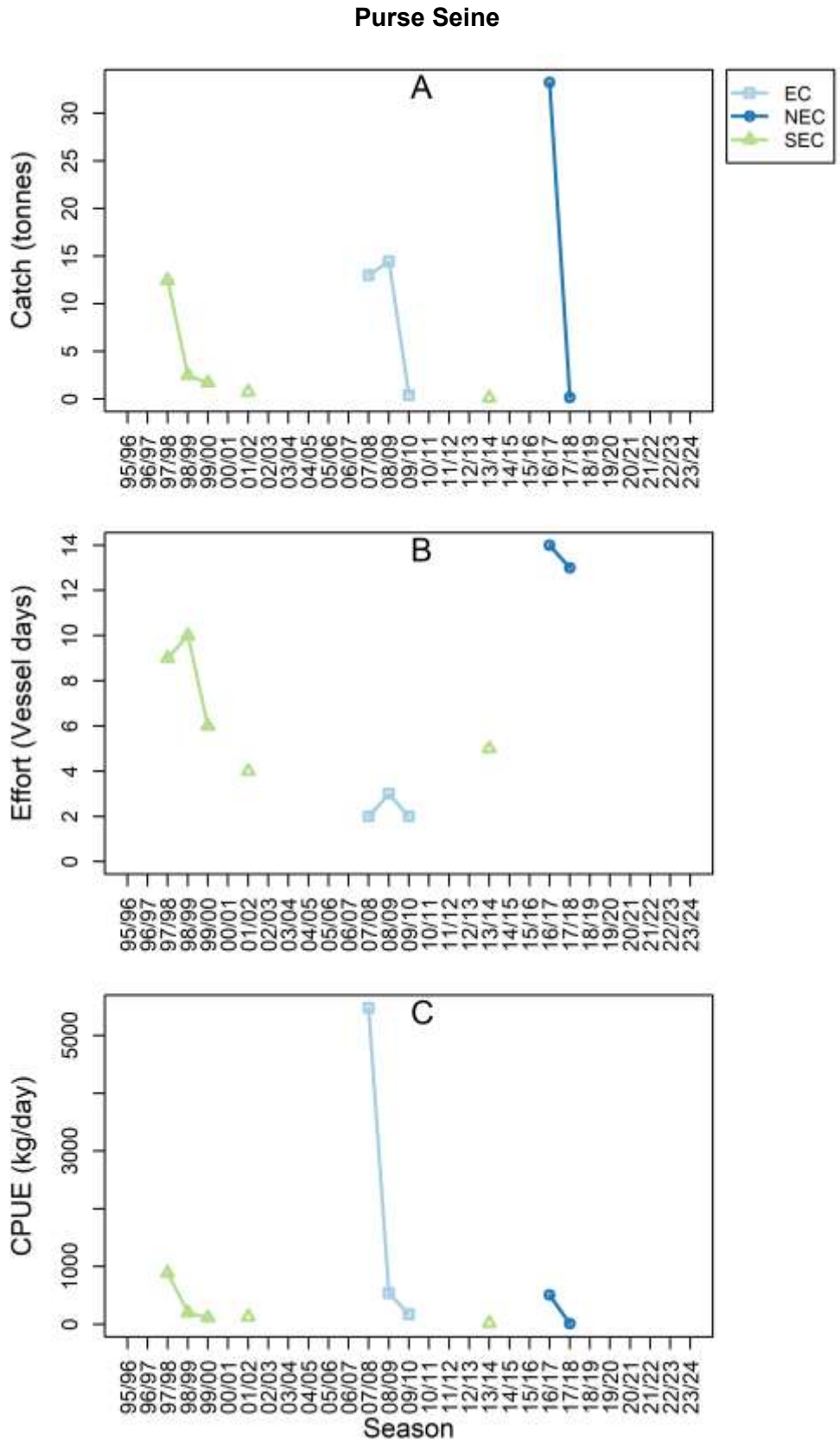


Figure 4.2 Regional commercial Australian Sardine catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for purse seine. EC = east coast, NEC = northeast coast, SEC = southeast coast.

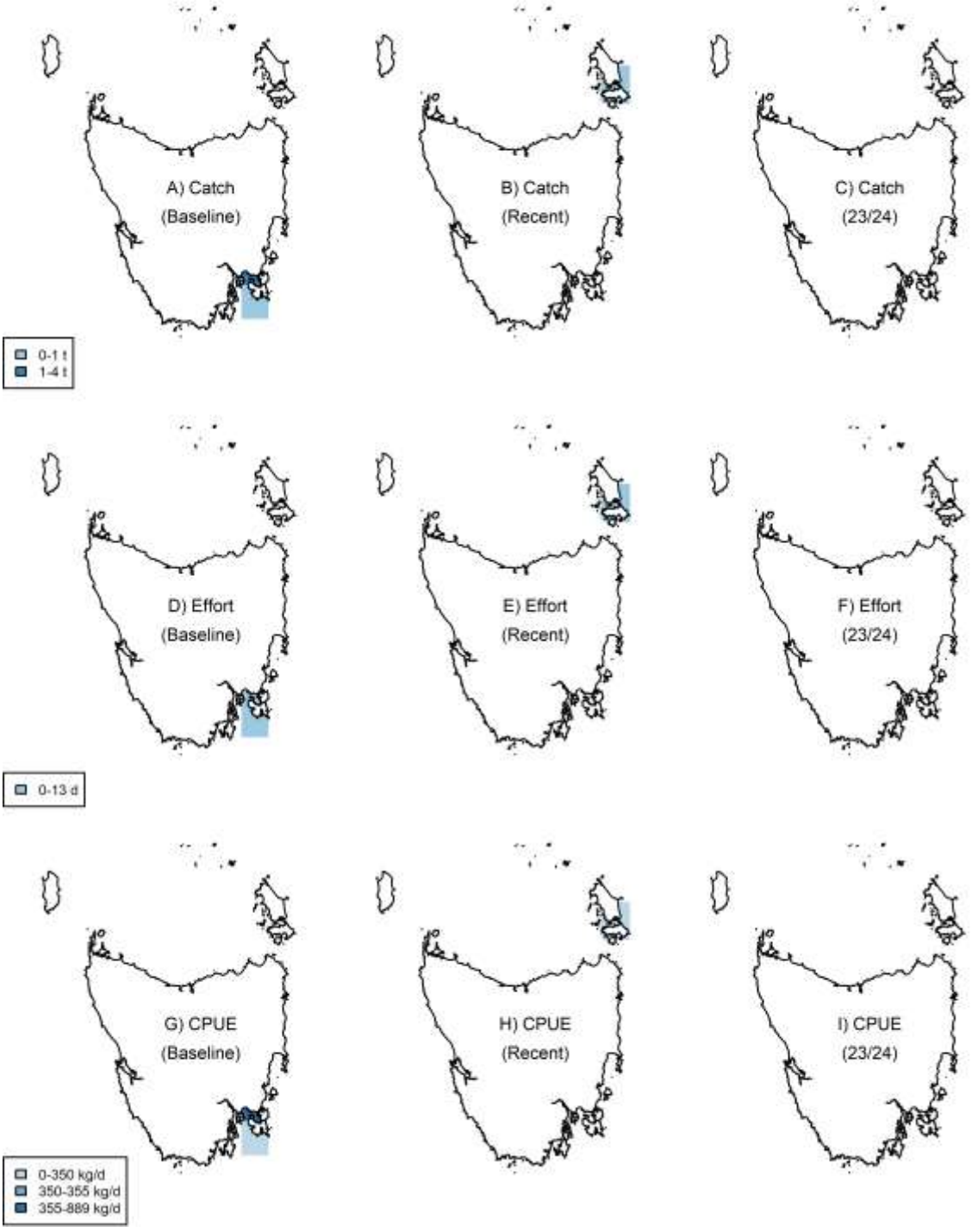


Figure 4.3 Australian Sardine catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.2 Barracouta (*Thyrsites atun*)

STOCK STATUS	UNDEFINED
Catches have steadily declined since the early 1900s, with recent landings at historically low levels. Catch declines may reflect reduced effort to target Barracouta, possibly due to low market demand, but it remains unclear whether the species is no longer being targeted or has not recovered from historically high catch levels. Commercial effort is now too low for catch or CPUE to provide reliable indicators of biomass or stock status. Due to these data limitations and historically high catches, there is currently insufficient information to confidently determine stock status.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment.
MANAGEMENT	State (Tasmania)

Barracouta
(Thyrsites atun)
Illustration©R.Swainston/anima.fish

4.2.1 Biology

- **Habitat:** Open water and coastal bays.
- **Distribution:** Southern Qld to midwestern Australia. Widely distributed in southern hemisphere, temperate latitudes (Edgar 2008).
- **Diet:** Pelagic crustaceans, cephalopods, fishes (e.g. anchovy and jack mackerel) (Nakamura and Parin 1993).
- **Stock Structure:** At least 5 stocks: 3 in south eastern Australian waters, 1 in South Australia, 1 in Western Australia (Paul 2000; Kailola 1993).
- **Movement:** Schooling fish; some stocks undertake annual migrations lasting 6 – 9 months and covering hundreds of km.
- **Size at Maturity (length FL; cm):** 50-60.
- **Age at Maturity:** 2-3 (Hurst et al. 2012).
- **Fecundity:** Highly fecund (Yemane et al. 2008).
- **Spawning Season:** October – March.
- **Spawning Location:** Tasmania (Kailola 1993).

More detailed information on biological characteristics and current management of Barracouta fisheries is available from the TasFisheriesResearch webpage.

4.2.2 Fishery

This species was historically an important fishery species in Tasmania, with a large commercial troll fishery operating during the 1960s and 1970s, when annual catches ranged between 600 and 1,600 tonnes (Kailola 1993). Market demand is assumed to have declined in the mid-1970s, leading to reduced fishing pressure. Without active commercial targeting, catch data may not accurately reflect the true biomass or stock status of a species.

4.2.3 Management

With relatively minimal catch and effort, current management restrictions of commercial barracouta fishing are limited to the requirement of a scalefish fishing licence.

4.2.4 Commercial Catch, effort and CPUE

Current commercial catch: The total commercial catch in 2023/24 was 1.12 t (Figure 4.4 A).

Catch, effort and CPUE trend: Records of total commercial catches of Barracouta peaked in the early 2000s with a maximum of 136 t but gradually declined from 101 t in 2004/05 to an historical low of 0.4 t in 2015/16 (Figure 4.4 A). After the peak in the early 2000s, effort declined and, since 2007/08, has stabilised at a low level (Figure 4.4 B). Fishers who once targeted Barracouta are likely now focusing on other species, making catch-based statistics an unreliable indicator of biomass.

Fishing distribution: Catches and fishing effort were traditionally concentrated off southern Tasmania (Emery et al. 2017) (Figure 4.4).Over the last few fishing seasons, what little fishing effort there is has been concentrated off the north coast (Figure 4.4).

Gear types: Trolling and handline are the main fishing methods.

4.2.4.1 Recreational Fishing

Barracouta are targeted and taken as by-product by the recreational sector. Estimated catches range from 2.8 tonnes in 2017/18 to 46.9 tonnes in 2000/01 (Lyle 2005; Lyle et al. 2009; Lyle, Stark, and Tracey 2014b; Lyle et al. 2019; Tracey and Stark 2024). In the latest 2022/23 recreational report, the recreational sector was estimated to take 7.5 tonnes, making the recreational catch 88 percent of the total catch in that year (Tracey and Stark 2024). Recreational Barracouta catches generally, and sometimes considerably, exceed the commercial harvest (Figure 4.4).

4.2.5 Risk Assessment of Recruitment Impairment

- **Risk of Recruitment Impairment**: >80 passing with low risk of recruitment impairment.
- **Productivity**: Moderately productive, matures at a young age, highly fecund but grows to a large size and lives longer than 10 years.
- **Fishing Pressure:** Large historical catches with currently minimal effort and catches .
- **Stock Status:** Undefined.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

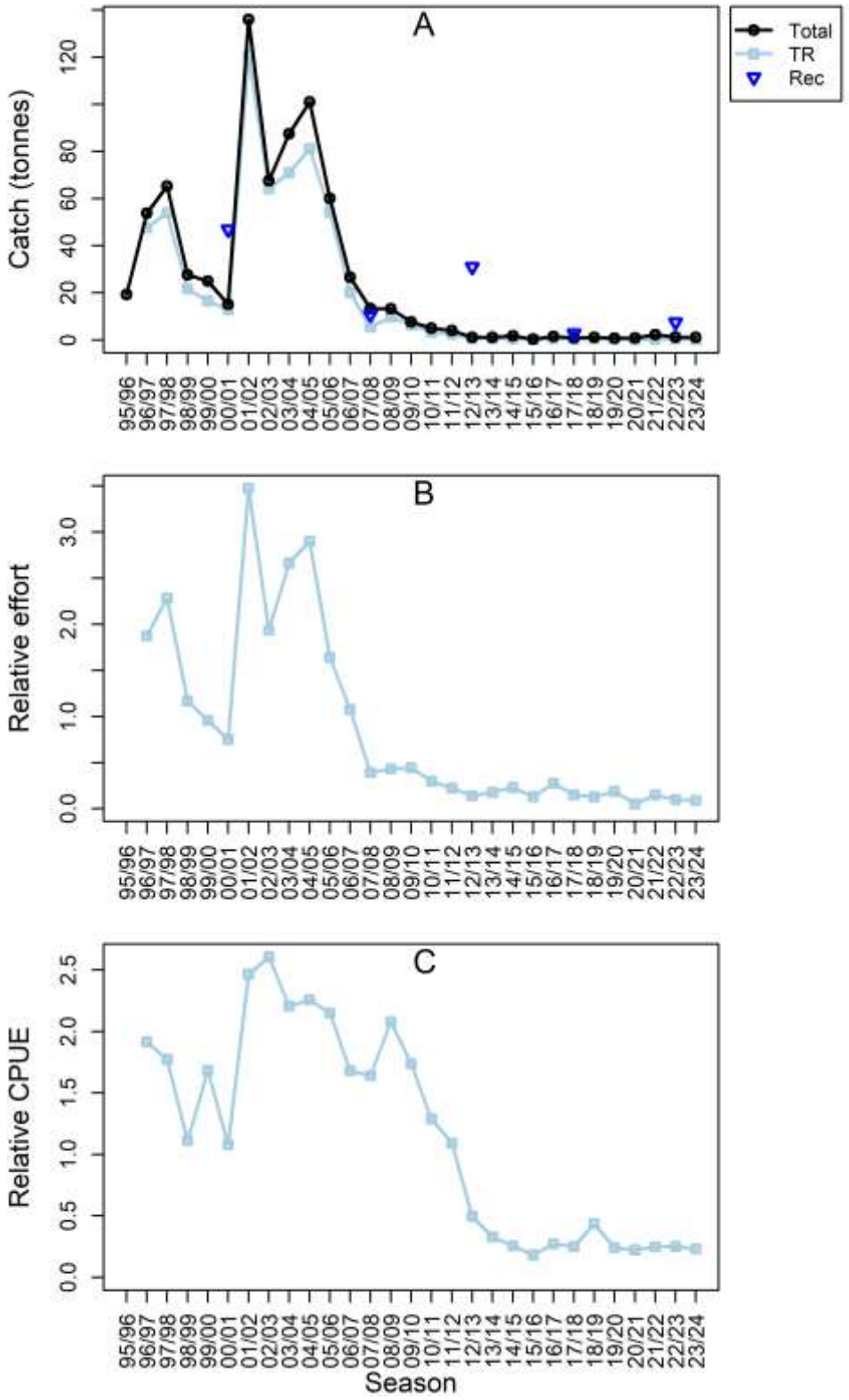


Figure 4.4 (A) Annual commercial Barracouta catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. TR= troll, Rec = estimated recreational catch.

Trolling

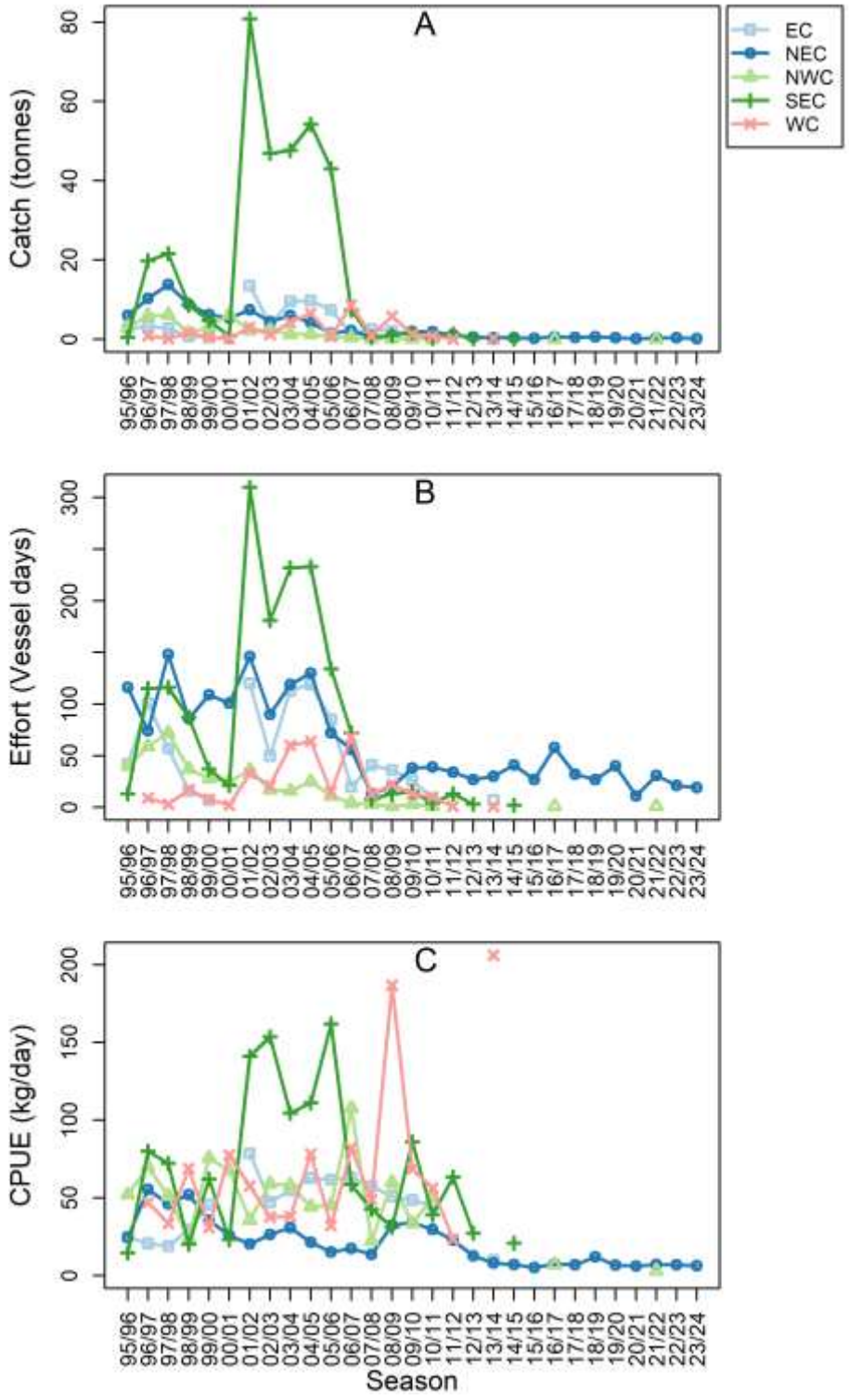


Figure 4.5 Regional commercial Barracouta catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for troll. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

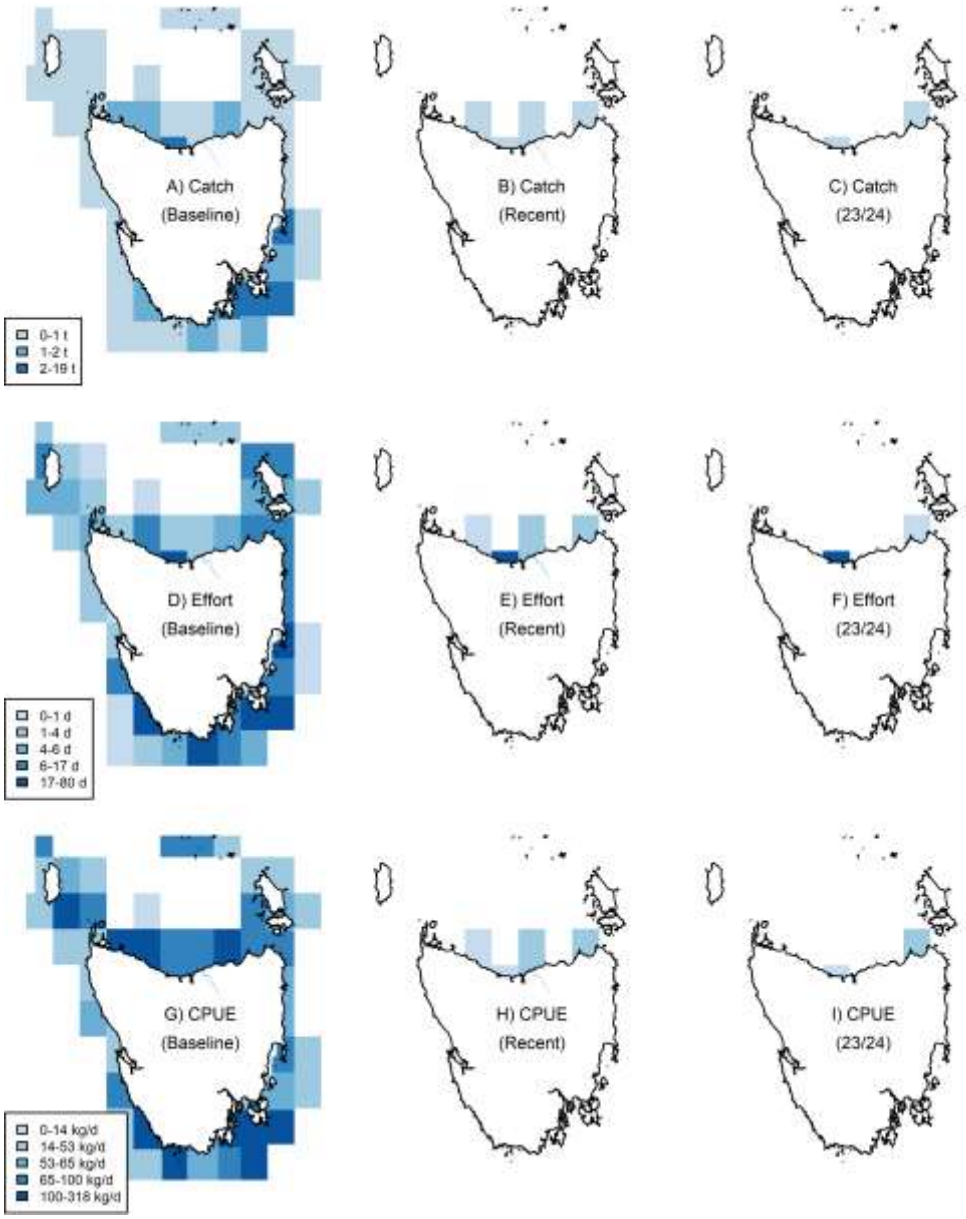


Figure 4.6 Barracouta catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.3 Bastard Trumpeter (*Latridopsis forsteri*)

STOCK STATUS	DEPLETED
Trends in both commercial and recreational catches of Bastard Trumpeter indicate record-low population levels, suggesting the species is overfished. In response, the minimum legal size limit was raised to 420 mm from 1 November 2023. However, the estimated size at maturity is at least 450 mm, and the fishery remains heavily reliant on juvenile fish. Although data-limited stock assessment methods suggest recovery may be possible under current commercial catch levels, these assessments do not account for the significant recreational catch, and there is currently no evidence of stock rebuilding. Given the species' dependence on shallow reef habitats during critical juvenile stages, and ongoing concerns regarding depleted biomass and impaired recruitment, a precautionary approach is warranted in fishery management. Marine heatwaves may further reduce juvenile recruitment in nearshore environments, adding uncertainty to stock assessments and reinforcing the need for conservative management measures.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)

Bastard Trumpeter
(Latridopsis forsteri)
Illustration©R.Swainston/anima.fish

4.3.1 Biology

- **Habitat:** Exposed reef and sandy bottom.
- **Distribution:** Sydney to southern South Australia, Tasmania, southern New Zealand (Edgar 2008).
- **Diet:** Small fish, invertebrates (Edgar 2008).
- **Stock Structure:** No information available.

- **Movement:** Schooling fish, usually in small numbers; juveniles tend to remain associated with areas of reef for periods of time (Edgar et al. 2014; Gomon, Bray, and Kuiter 2008).
- **Size at Maturity (length FL; cm):** 45.
- **Age at Maturity:** 4 (Murphy and Lyle 1999).
- **Spawning Season:** Late winter (Murphy and Lyle 1999).
- **Spawning Location:** No information available.
- **Early Life History:** Small juveniles settle from plankton on reefs at intervals of several years (Edgar 2008).

More detailed information on biological characteristics and management of Bastard Trumpeter is available from the TasFisheriesResearch webpage.

4.3.2 Fishery

Bastard Trumpeter was among the first fish species commercially targeted in Tasmania, with early settlers fishing shallow reefs near Hobart, primarily for juveniles inhabiting these areas. In recent years, Bastard Trumpeter has mostly been caught as by-product in the Banded Morwong Fishery, rather than as a target species, meaning trends in catch and CPUE may not accurately reflect the status of the Bastard Trumpeter population. They are sometimes discarded by Banded Morwong fishers, with research suggesting post-release survival may be high (Lyle et al. 2014).

4.3.3 Management

In response to declines in adult stock, successive management changes have been introduced. Size limit increases have been made to increase the size limit from 35 cm (1998) to 38 cm (2009) and further to 42 cm (2023). However, this remains below size at maturity (>45cm fork length) (Murphy and Lyle 1999). Commercial fishers were limited to a trip limit of 200 kg in 2009, further reduced to 100 kg in the eastern region in 2023. Similarly, recreational bag limits have reduced from 10 fish in 2009 to 5 in 2015, with a further reduction to 2 in the eastern region in 2023.

4.3.4 Commercial Catch, effort and CPUE

Current commercial catch: The total commercial catch landed in 2023/24 was 4.28 t.

Catch, effort and CPUE trends: Total catch has declined steeply since 1995/96, from ~60 t to under 10 t since the early 2010s (Figure 4.7 A) There has been a slight decrease in catch between 2022/23 and 2023/24. Relative effort has significantly decreased over time, from ~0.8 in the late 1990s to <0.2 from 2015/16 onwards (Figure 4.7 B).

Fishing distribution: Taken almost exclusively by gillnet from inshore waters off the east, south, and west coasts in recent years (

Figure 4.8, Figure 4.9).Catches in 2023/24 were spread along the south and southeast coasts with catches south and east of Flinders Island (Figure 4.9).

Gear types: Historically, smaller mesh sizes (<114 mm) were commonly used to target Bastard Trumpeter. Bastard Trumpeter are now mostly caught as by-product rather than a target species through the Banded Morwong fishery using larger mesh nets (140mm), selecting only the largest Bastard Trumpeter.

Recreational Fishery: Recreational catch estimates for Bastard Trumpeter have generally been substantially higher than commercial catches, with 2022/23 as no exception (Figure 4.75) (Lyle et al. 2004; 2009; Lyle, Stark, and Tracey 2014b; Lyle et al. 2019; Tracey and Stark 2024). In 2022/23, 4.01 tonnes were estimated to have been caught in the recreational fishery, which accounted for 64 percent of the total catch in that year. Bastard Trumpeter is predominantly taken by gillnet in the recreational sector, and the gradual phase-out of gillnetting is likely to reduce recreational catches.

4.3.5 Risk Assessment of recruitment impairment

- **Recruitment Impairment:** Scored <60 in the risk analysis, failing assessment with high risk of recruitment impairment
- **Fishing Pressure:** Although Bastard Trumpeter is primarily a by-product species, historical targeting and ongoing overlap with Banded Morwong fishing effort have contributed to sustained fishing pressure.
- **Productivity**: Low. Bastard Trumpeter are slow to mature, relatively long-lived, and occupy a high trophic level, all of which contribute to low productivity. The species also displays high recruitment variability, possibly linked to historic depletion, resulting in fluctuating catch levels over time.
- **Stock Status: Depleted.** Inshore population biomass remains at historically low levels, and limited recruitment in recent years—evident through low juvenile abundance—raises concerns. The fishery's reliance on juveniles, lack of information on the adult population, and minimum size set below size at maturity all support this classification.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

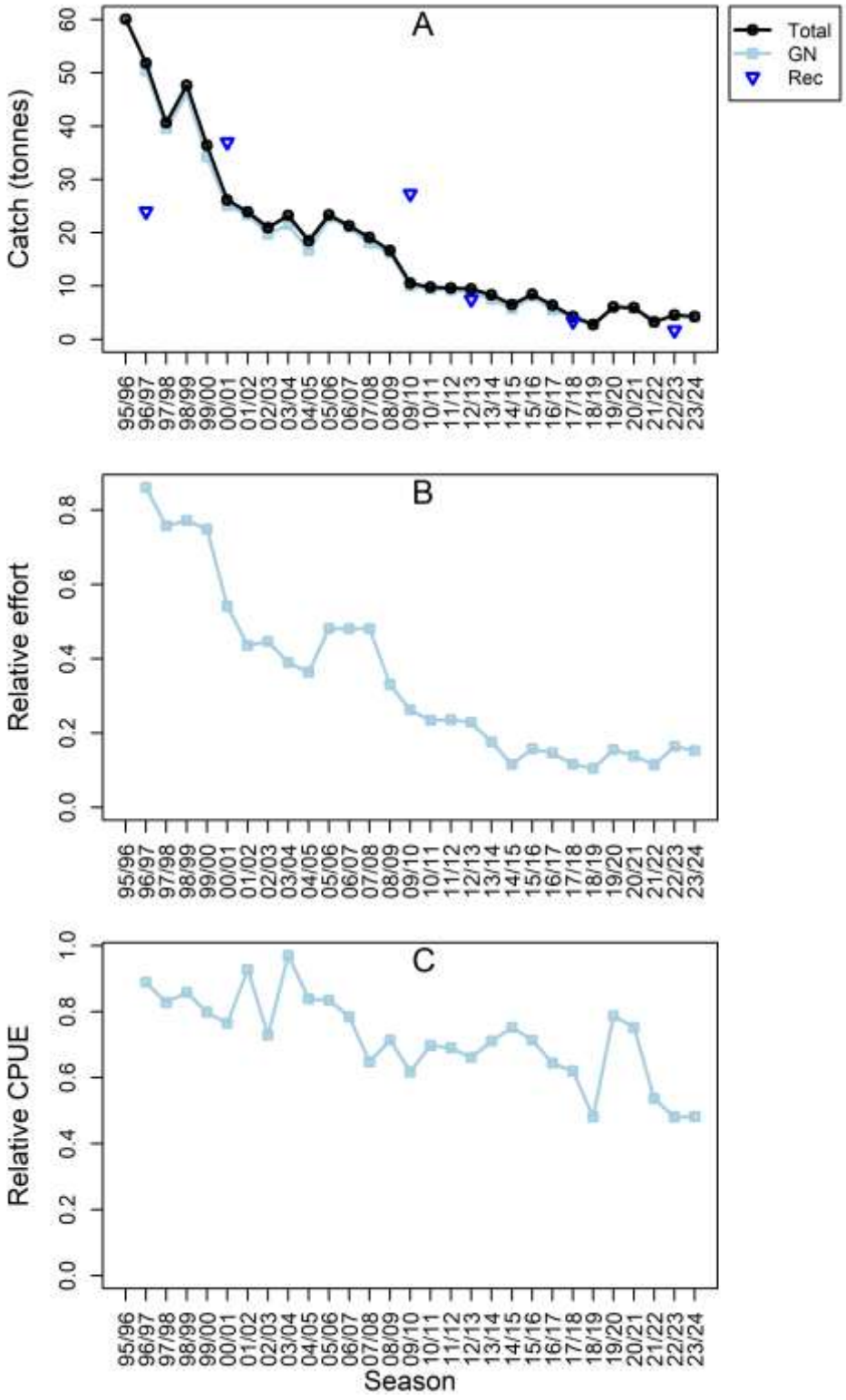


Figure 4.7 (A) Annual commercial Bastard Trumpeter catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. GN = gillnet, Rec = estimated recreational catch. Data includes Australian Fisheries Management Authority (AFMA) catch in State waters.

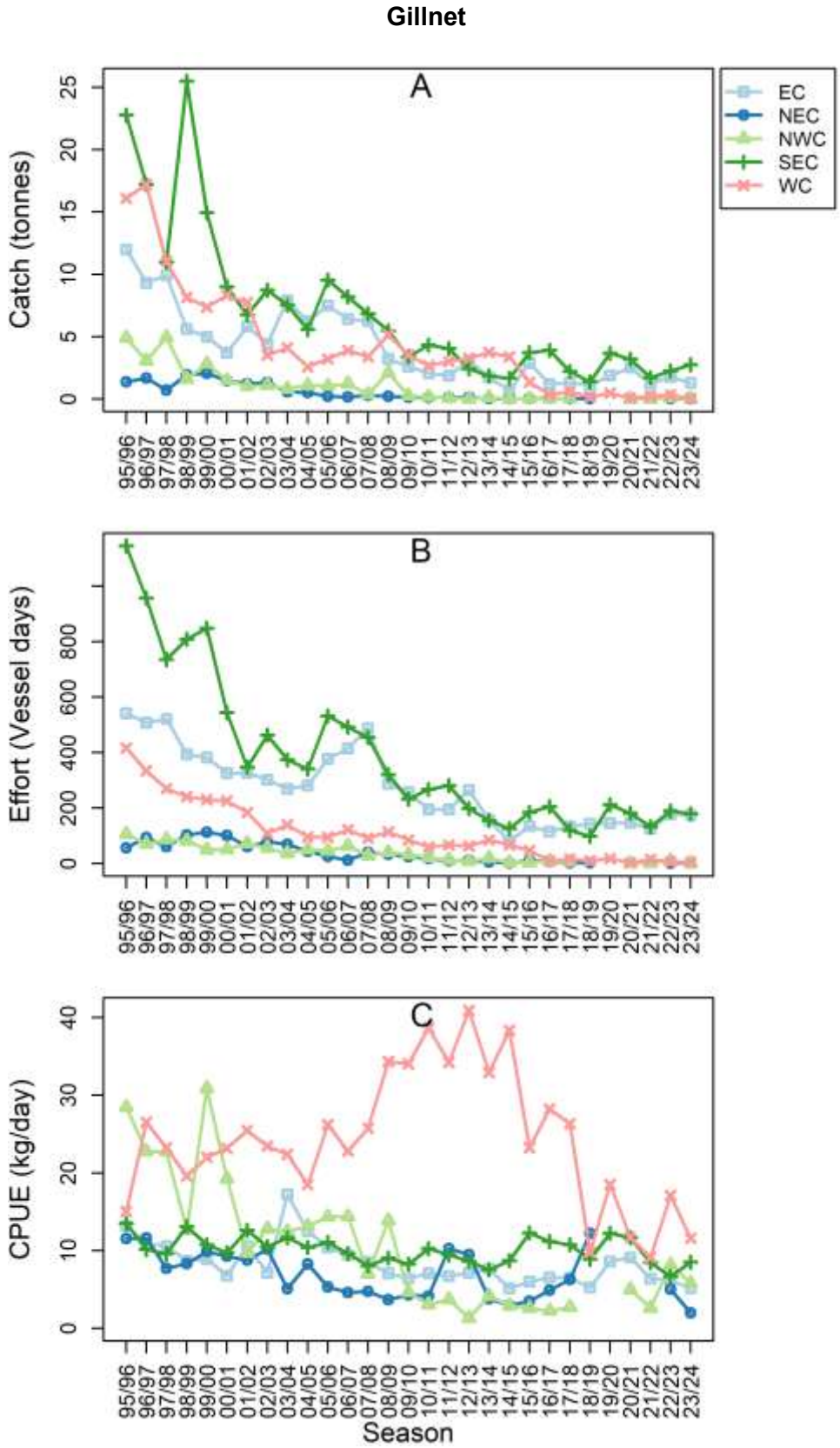


Figure 4.8 Regional commercial Bastard Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

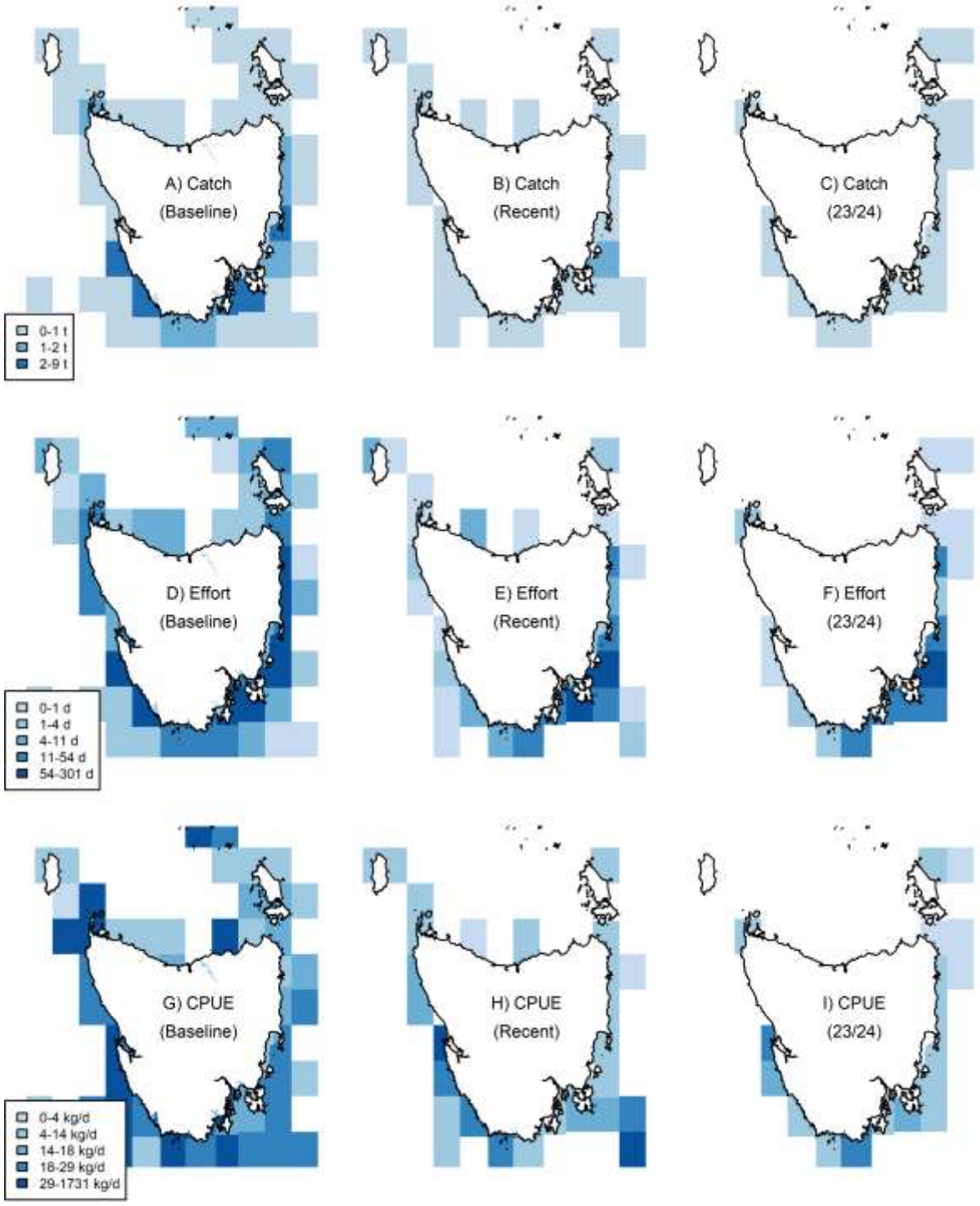


Figure 4.9 Bastard Trumpeter catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.3.6 Catch only MSY

Assumed resilience: Low.

Estimated B/BMSY: 0.27 B/BMSY Lower 95% confidence interval: 0.12(Figure 4.10). Equivalent to approximately 13.5% of unfished biomass, with a lower 95% confidence limit of 6.0%.

Biomass trend: Biomass appears to have stabilised but shows no clear signs of recovery.

Estimated MSY: 32.7 tonnes (Upper 95% CI of MSY: 50.8 t, lower 95% CI of MSY: 21.7 t).

MSY trend:

- Catches exceeded upper 95% CI of MSY (50.8 t) only in 1995/96 and 1996/97.
- Catches remained above MSY (32.7 t) until 1999/2000.
- From 2000s onward, catches steadily declined.
- Since 2007/08, catches have remained below the lower 95% CI of MSY (21.7 t) (Figure 4.10).

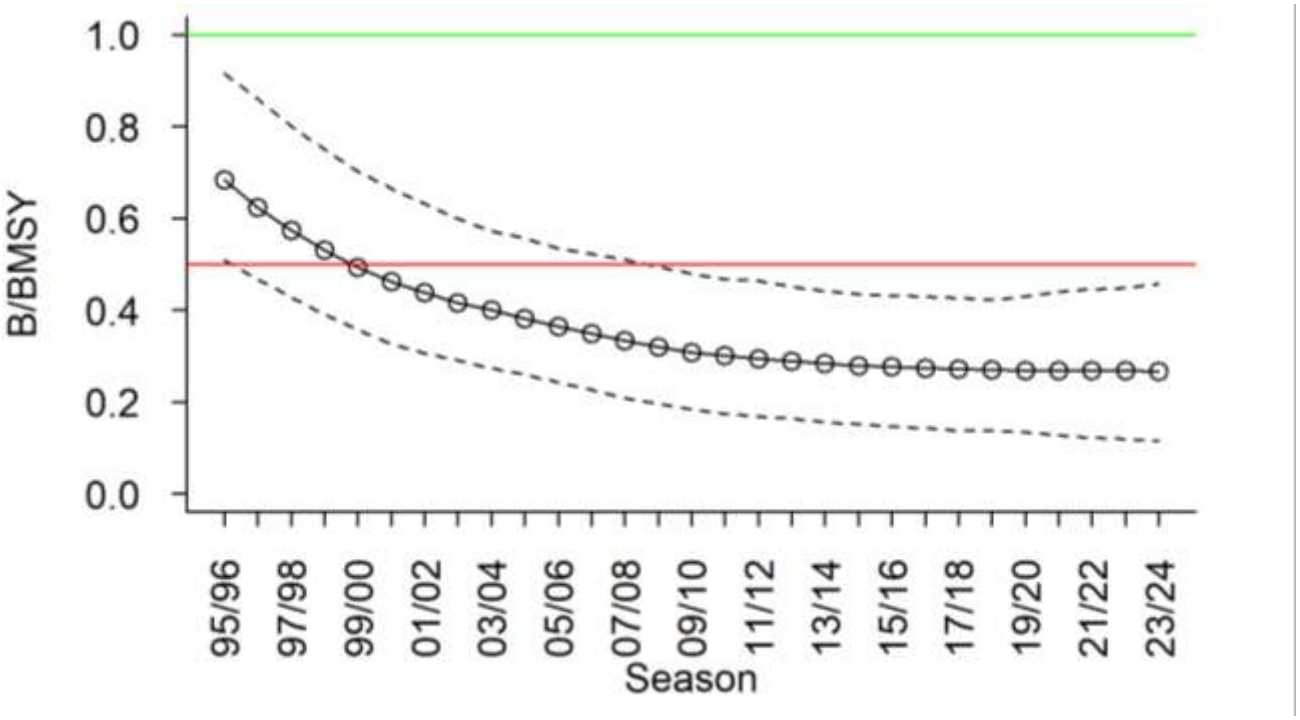


Figure 4.10 Bastard Trumpeter trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

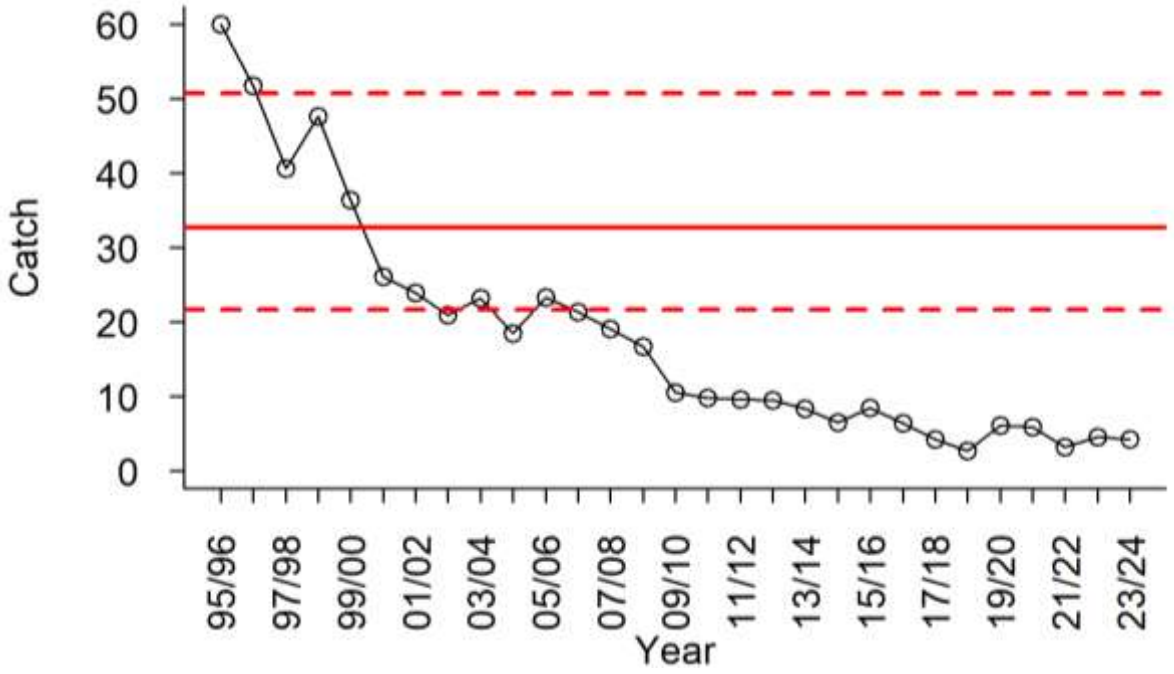


Figure 4.11 Bastard Trumpeter trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.4 Eastern Australian Salmon (*Arripis trutta*)

STOCK STATUS	SUSTAINABLE
Eastern Australian Salmon has a long history of exploitation across south-eastern Australia. In 2022/23, the recreational fishery caught an estimated 40.6 tonnes, 83% of the total Tasmanian catch, making it the second most important recreational species by weight. Recent low commercial landings in Tasmania are likely driven by market demand or changes in fisher behaviour rather than a decline in abundance. Current fishing pressure is significantly lower than historically sustained levels and is therefore unlikely to impair recruitment of the biological stock.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment.
MANAGEMENT	State (Tasmania)

Eastern Australian Salmon *(Arripis trutta)*
Illustration©R.Swainston/anima.fish

4.4.1 Biology

- **Habitat:** Open water.
- **Distribution:** Victoria to Brisbane, around Tasmania (Edgar 2008).
- **Diet:** Fish (pelagic predominantly) (Stewart et al. 2011).
- **Stock Structure:** Two species of Australian Salmon occur in Tasmanian waters: *Arripis trutta* (Eastern) and *Arripis truttaceus* (Western), with Eastern Australian Salmon comprising ~94% of commercial catches (Krueck et al. 2020). Eastern Australian Salmon is thought to be a single, well-mixed stock along south-eastern Australia.
- **Movement:** Schooling. Travel great distances between states; increased population mixing with increasing age and decreasing latitude (Stewart et al. 2011).
- **Size at Maturity (length FL; cm):** 42.1 (Stewart et al. 2011).
- **Age at Maturity:** 2.2 (Stewart et al. 2011).
- **Spawning Season:** October – March.
- **Spawning Location:** New South Wales (Stewart et al. 2011).
- **Early Life History:** Eggs, larvae and juveniles drift and migrate from spawning grounds to Tasmania and Victorian waters during autumn and winter (Kailola 1993).

More detailed information on biological characteristics and current management of Eastern Australian Salmon fisheries is available from the TasFisheriesResearch webpage.

4.4.2 Fishery

The commercial fishery for Australian Salmon in Tasmania is comprised of two distinct sectors:

- A small number of large vessels equipped to catch and store high volumes of fish.
- A larger number of small vessels that either target salmon opportunistically or take them as by-product.

Catch levels have fluctuated over time, driven largely by market demand and price changes. Fishers frequently shift effort to other fisheries when Australian Salmon becomes less profitable.

4.4.3 Management

Australian Salmon is managed under species-specific licences in the commercial Scalefish Fishery. Commercial fishers who do not hold a fishing licence (Australian salmon) are limited to a 500 kg trip limit.

4.4.4 Commercial Catch, effort and CPUE

Current commercial catch: 11.4 t landed in 2023/24 (Figure 4.12 A).

Catch, effort and CPUE trends: There has been low catch in recent years due to a substantial decline in landings by beach seine fishers (Figure 4.12 A). Both effort and CPUE remain low compared with historic peaks (Figure 4.12 B, C). However, CPUE do not reveal clear trends and are unlikely to reflect biomass, which is a common problem for schooling species such as Eastern Australian Salmon.

Fishing distribution: In 2023/24 catches are predominantly from north coast and wrapping around into the northwest (Figure 4.13, Figure 4.14).

Gear types: Tasmanian commercial fishers in inshore waters are using beach seine, as well as some gillnet and purse seine gear. The majority of catch in 2023/24 was taken by small mesh net (5.2 t), beach seine (2.8 t) and gillnet (1.3 t).

4.4.5 Recreational Fishery

- Australian Salmon is the second most important species for recreational fishers in Tasmania (Lyle 2005; Lyle et al. 2009; Lyle, Stark, and Tracey 2014a; Lyle et al. 2019; Tracey and Stark 2024).
- Recreational fishers primarily target this species using line fishing methods.
- The recreational fishery has remained stable with a slight decline, despite steep declines in the commercial sector (Figure 4.12). In 2022/23 the recreational fishery made up 83 percent of the total catch, taking an estimated 40.6 tonnes (Figure 4.12).

4.4.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** >80 passing with low risk of recruitment impairment.
- **Productivity:** Moderately productive, quick to mature and highly fecund, yet relatively long lived (up to 26 yrs) and occupy a high trophic level.
- **Fishing Pressure:** Frequently inhabits inshore waters and caught using beach seine gear making them highly susceptible to capture.
- **Stock Status:** Sustainable.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

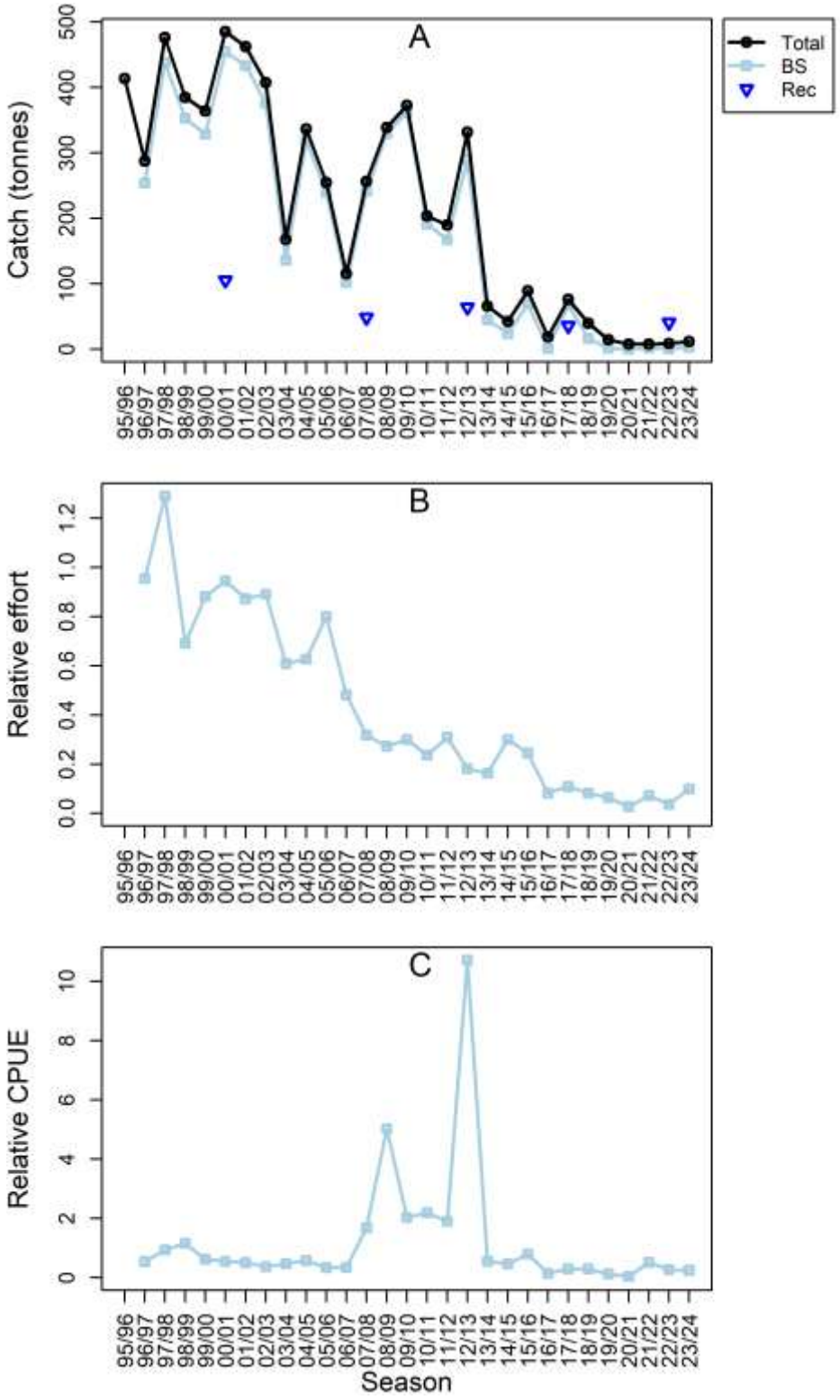


Figure 4.12 (A) Annual commercial Eastern Australian Salmon catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. BS = beach seine, Rec = estimated recreational catch.

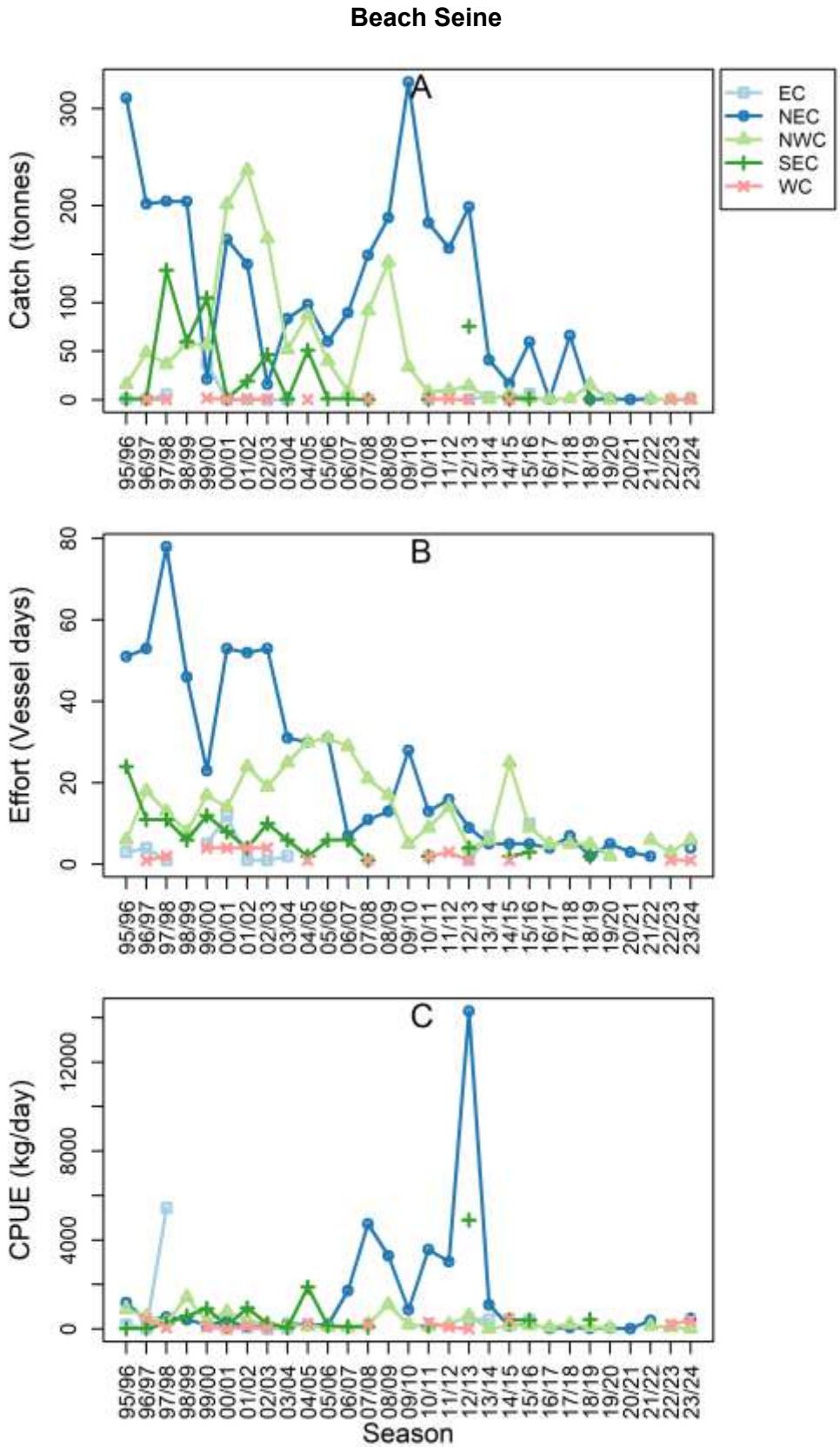


Figure 4.13 Regional commercial Eastern Australian Salmon catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

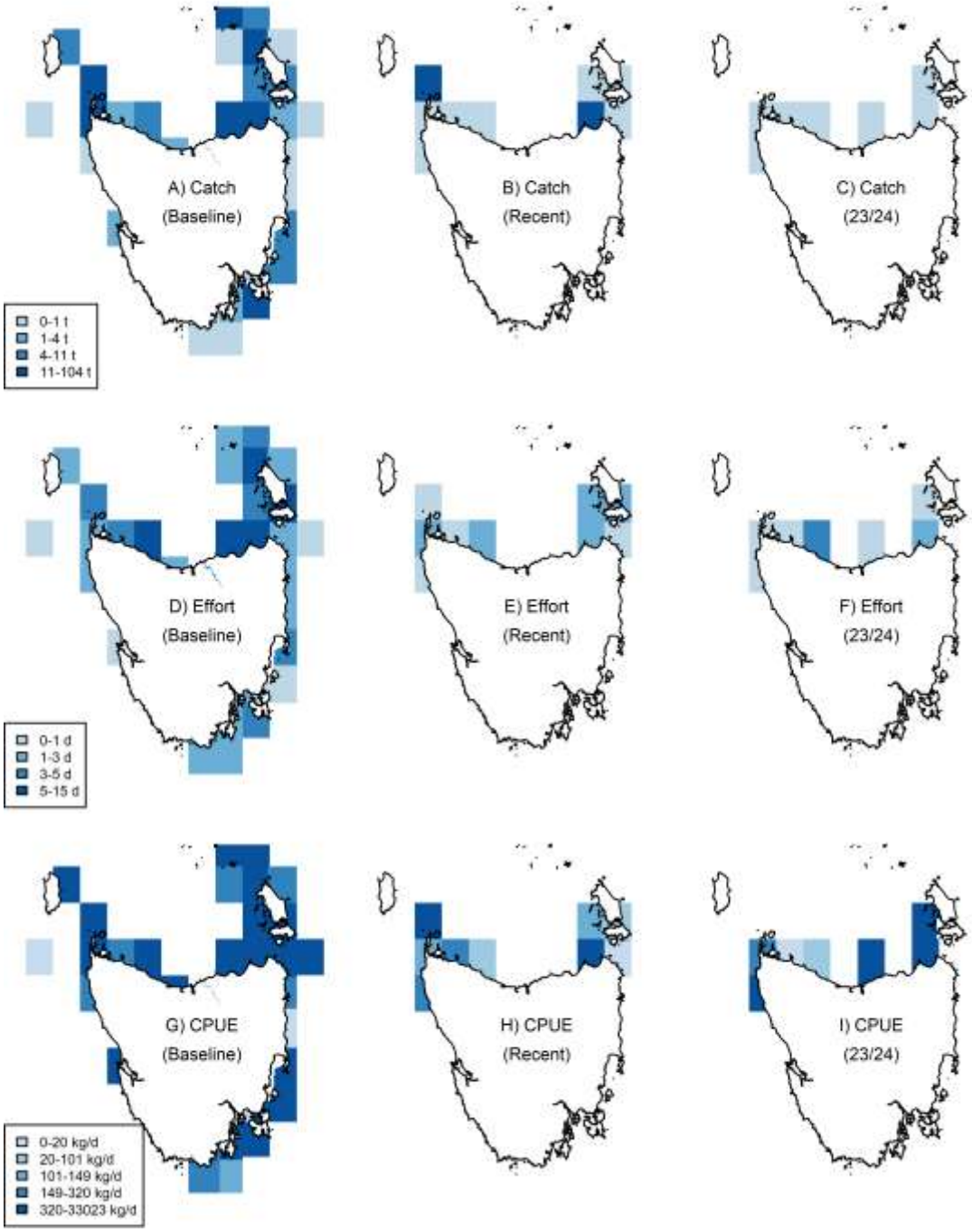


Figure 4.14 Eastern Australian Salmon catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.5 Greenback Flounder (*Rhombosolea tapirina*)

STOCK STATUS	UNDEFINED
Commercial flounder catches in Tasmania include multiple species that are not reliably reported to species level, though Greenback Flounder are thought to comprise most of the catch. Landings have declined steadily since the mid-1990s to less than 5 t annually since 2015–16. Although overnight gillnetting restrictions may have reduced targeting, the relatively high retail price of flounder suggests that further investigation is required to explain the decline in commercial catch. Recreational landings have also declined, from a peak of 15 tonnes in 2000–01 to just 14% of peak levels in 2022-23, but estimates are based on small sample sizes and are subject to uncertainty. Most of the current recreational catch is now thought to be taken by spearing at night. Due to limited available data given commercial fishing effort changes, the potential role of overfishing and depletion remains unclear. For these reasons, the stock is classified as undefined.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment.
MANAGEMENT	State (Tasmania)

Greenback Flounder
(Rhombosolea tapirina)
Illustration©R.Swainston/anima.fish

4.5.1 Biology

- **Habitat:** Sheltered sand, silt, and mud in estuaries and coastal waters.
- **Distribution:** Southern Western Australia to southern New South Wales, around Tasmania, also New Zealand (Edgar, 2008).
- **Diet:** Polychaetes and benthic crustaceans (Edgar, 2008; Ferguson, 2006)
- **Stock Structure:** Several genetically distinct stocks in Australia: west coast Tasmania, east coast Tasmania, Victoria (van den Enden et al., 2000).
- **Movement:** Greenback Flounder use estuaries as juveniles, showing daily shifts from deep to shallow areas. As adults, they move to marine waters, sometimes over long distances. Their movement is influenced by habitat availability and freshwater inflows.
- **Size at Maturity (length FL; cm):** 21.86 (females), 19.0 (males) (Crawford, 1984).
- **Age at Maturity:** 2-3 yrs for females, 2 yrs for males.
- **Spawning Season:** June – October.

- **Spawning Location:** Females are serial spawners and move from shallows to deeper areas of estuaries, and offshore for spawning (Crawford, 1984).

More detailed information on biological characteristics and current management of Flounder fisheries is available from the TasFisheriesResearch webpage.

4.5.2 Fishery

Catches of flounder comprise of various species which are not always differentiated in logbooks. Greenback Flounder (*Rhombosolea tapirina*) constitute the vast majority of the commercial catch. Long-snouted Flounder (*Ammotretis rostratus*) are also taken, but in small quantities. The main fishing methods used to target flounder are spear and gillnet.

4.5.3 Management

A minimum size limit of 25 cm applies for Flounder, which is over the size at maturity. Since attendance requirements for overnight gillnetting were introduced in 2010, with some exceptions through north coast and Macquarie Harbour endorsements, there has been a marked reduction in gillnet-caught Flounder. Further changes to gillnetting rules in Macquarie Harbour were introduced in 2023, to protect Maugean skate, resulting in a closed season for commercial gillnetting between 15 November and 14 April each year, and closed areas inside Macquarie Harbour Internal Waters.

4.5.4 Commercial Catch, effort and CPUE

Current commercial catch: Catch in 2023/24 was 1.2 t.

Catch, effort and CPUE trends: Commercial flounder catches peaked at nearly 30 tonnes in 1995/96 and have declined substantially over time, reaching a historical low of around 1 tonne in 2015/16. Catches have remained low since, with a slight decline observed in 2023/24 (Figure 4.15 A).

Effort for both spear and gillnet sectors has declined steadily since the mid-1990s, mirroring catch trends (Figure 4.15 B).

Relative CPUE for both methods peaked in 2020/21 and 2021/22 but has declined slightly since. Despite this, CPUE remains at approximately 80% of the 1995/96 reference level (Figure 4.15 C).

Fishing distribution: Commercial catches and effort have contracted spatially over recent years to Norfolk Bay, the Tamar estuary, and Macquarie Harbour (Figure 4.16), with catch in the southeast (e.g., Norfolk Bay) taken mostly by spear (Figure 4.16) and catches on the west coast (e.g., Macquarie Harbour) taken mostly by gillnet (Figure 4.17). However, measures to protect the Maugean skate in Macquarie Harbour have restricted gillnetting for flounder in this area between 15 November and 14 April each year. On a broader scale, looking at the west coast during the 2023/24 year, no signs of reduction have yet been observed (Figure 4.17).

Gear types: Since the ban on night gillnetting in 2010, Flounder have been caught predominantly using spear (Figure 4.15 A).

4.5.5 Recreational Fishery

Flounder are a relatively important recreational species, and in recent years, catches for the recreational sector have matched or exceeded those of the commercial sector (Figure 4.15 A). Similar to commercial catches, recreational catches appear to have declined progressively

over recent years. Recreational catches were estimated at 15.2 t in 2000/01 (Lyle 2005) and have shown a continual decline, the most recent survey in 2022/23 recording 5.4 t (49 percent of the total catch) (Figure 4.15, Tracey and Stark 2024). Recreational catch estimates show a declining trend; however, these figures are based on a relatively small number of respondents and should be interpreted with caution due to high variability.

4.5.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** Low risk (> 80).
- **Fishing Pressure:** Low susceptibility to capture; effort is likely concentrated in the shallow portion of the species' depth range.
- **Productivity:** High – small-bodied, short-lived, early maturing, and highly fecund**.**
- **Stock Status:** Undefined – insufficient data to determine whether past high catches and recent declines reflect changes in targeting/demand or actual population depletion.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

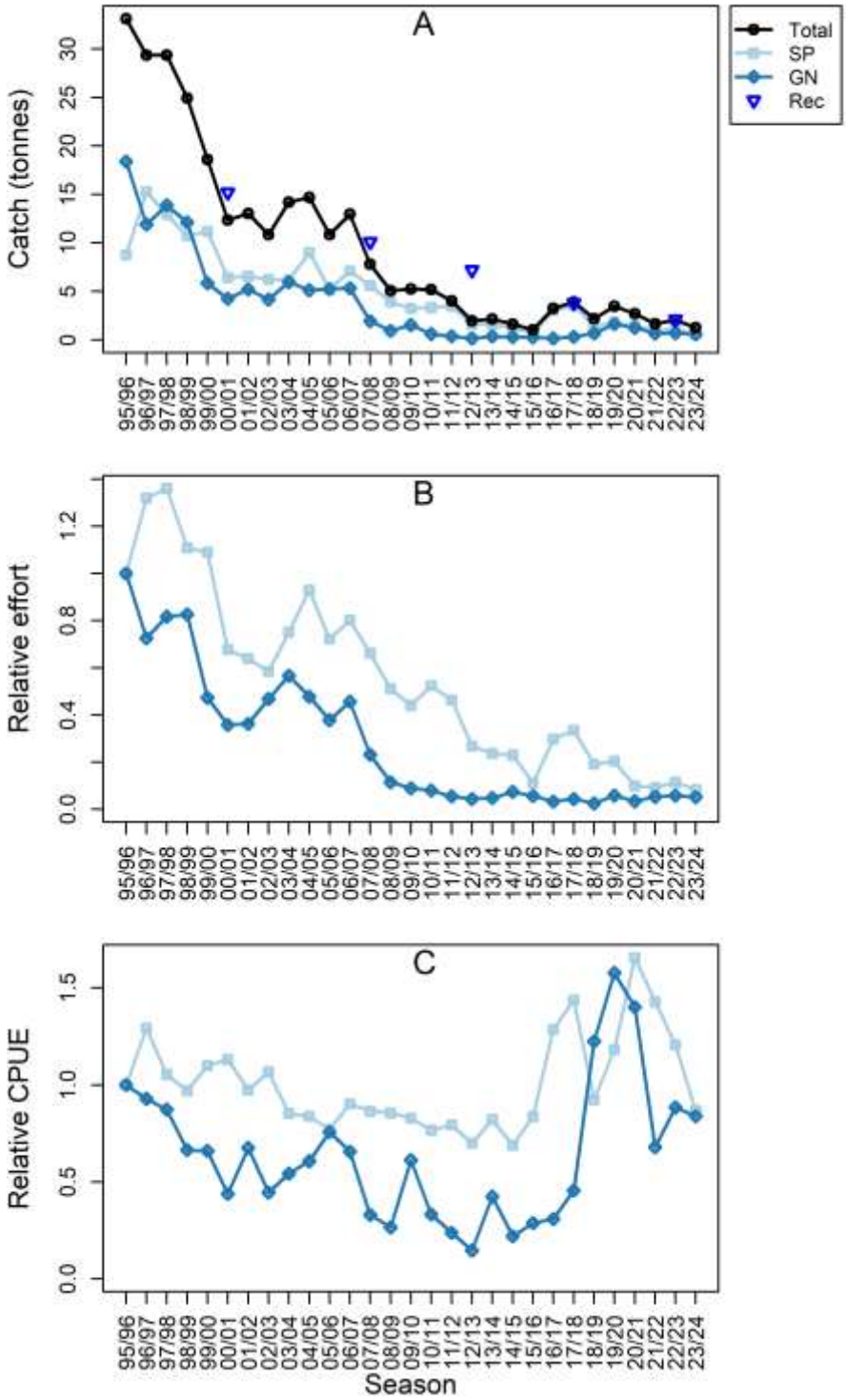


Figure 4.15 (A) Annual commercial Flounder catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. SP = spear, GN = gillnet, Rec = estimated recreational catch.

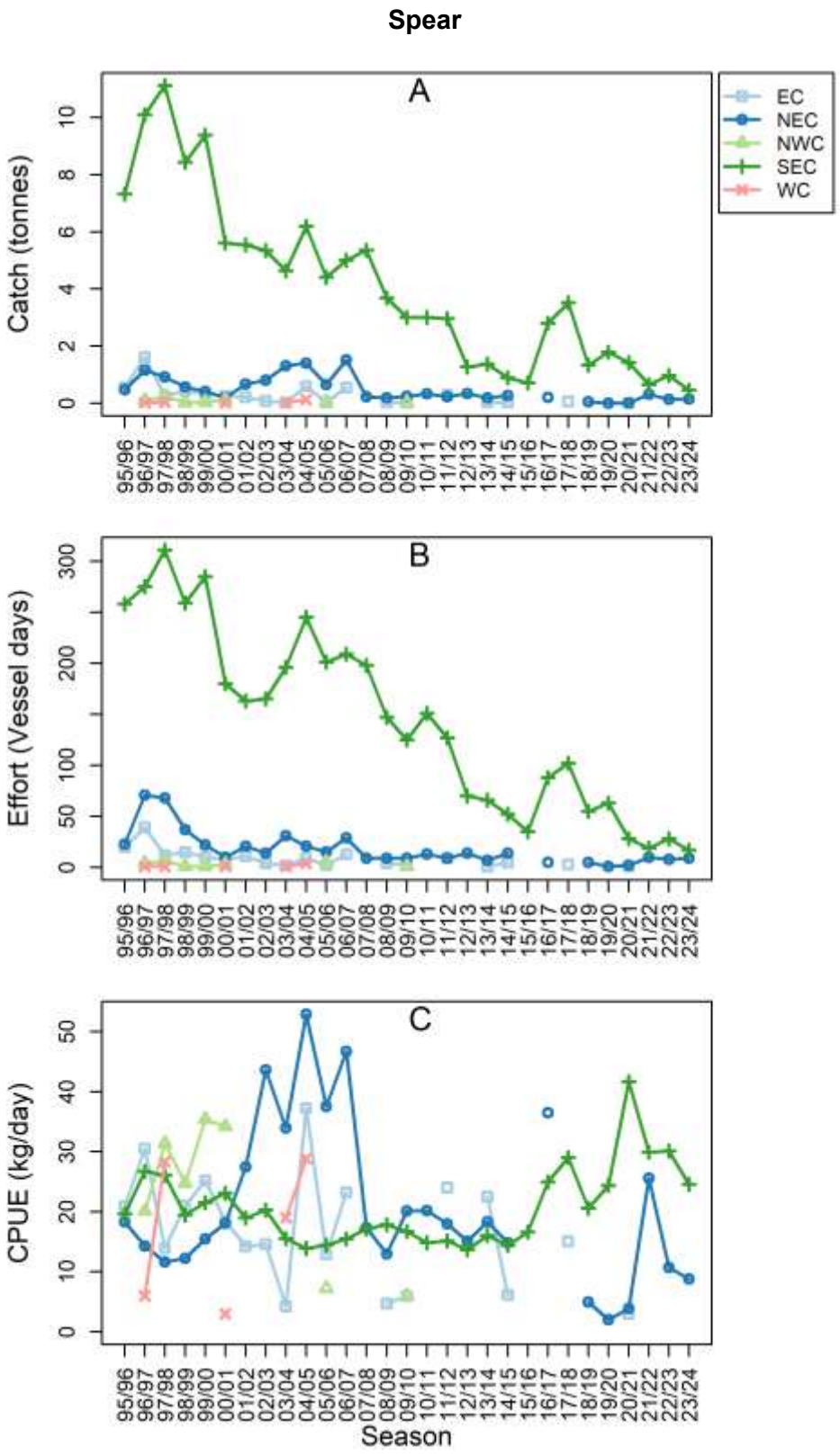


Figure 4.16 Regional commercial Flounder catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for spear. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Gillnet

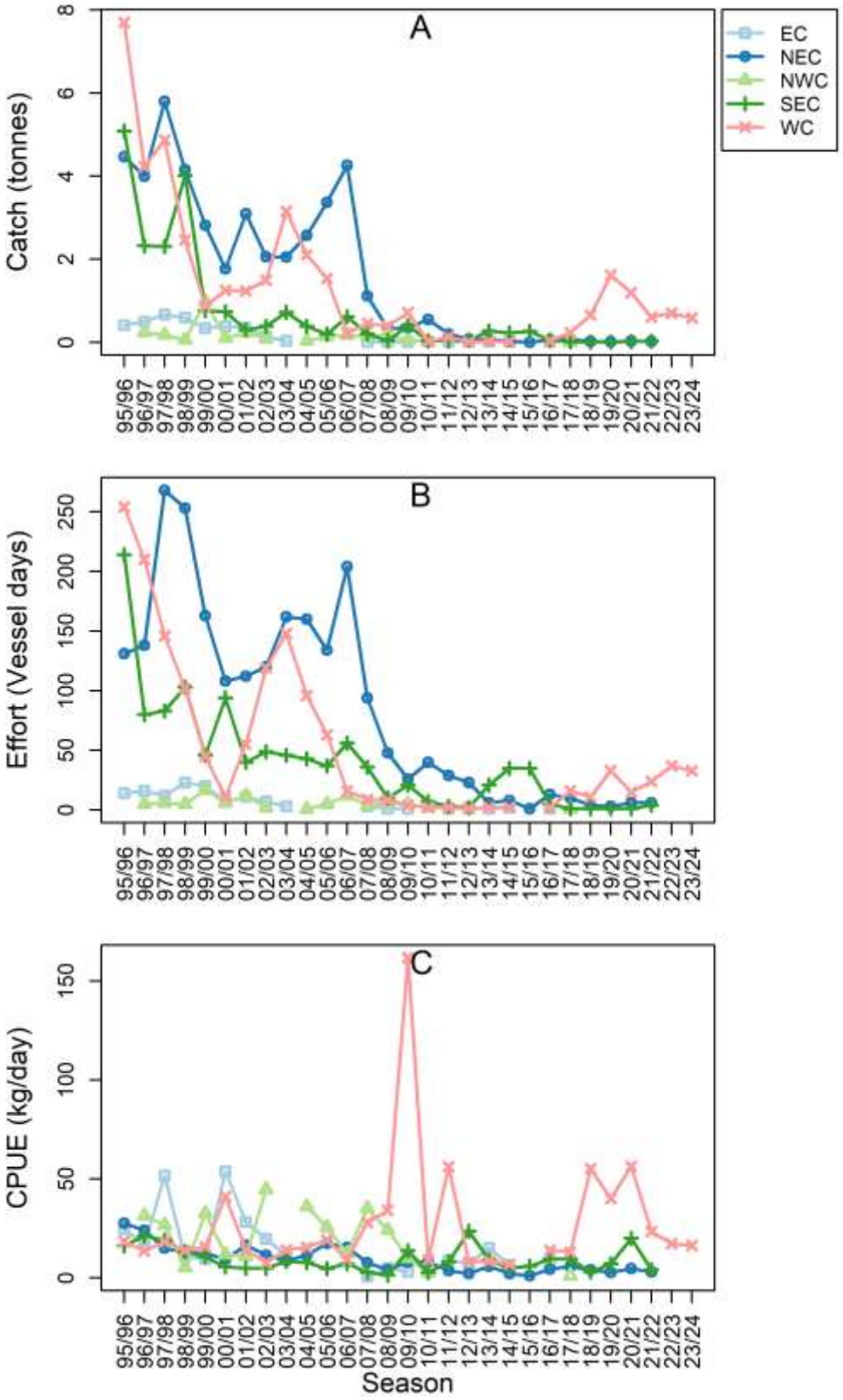


Figure 4.17 Regional commercial Flounder catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

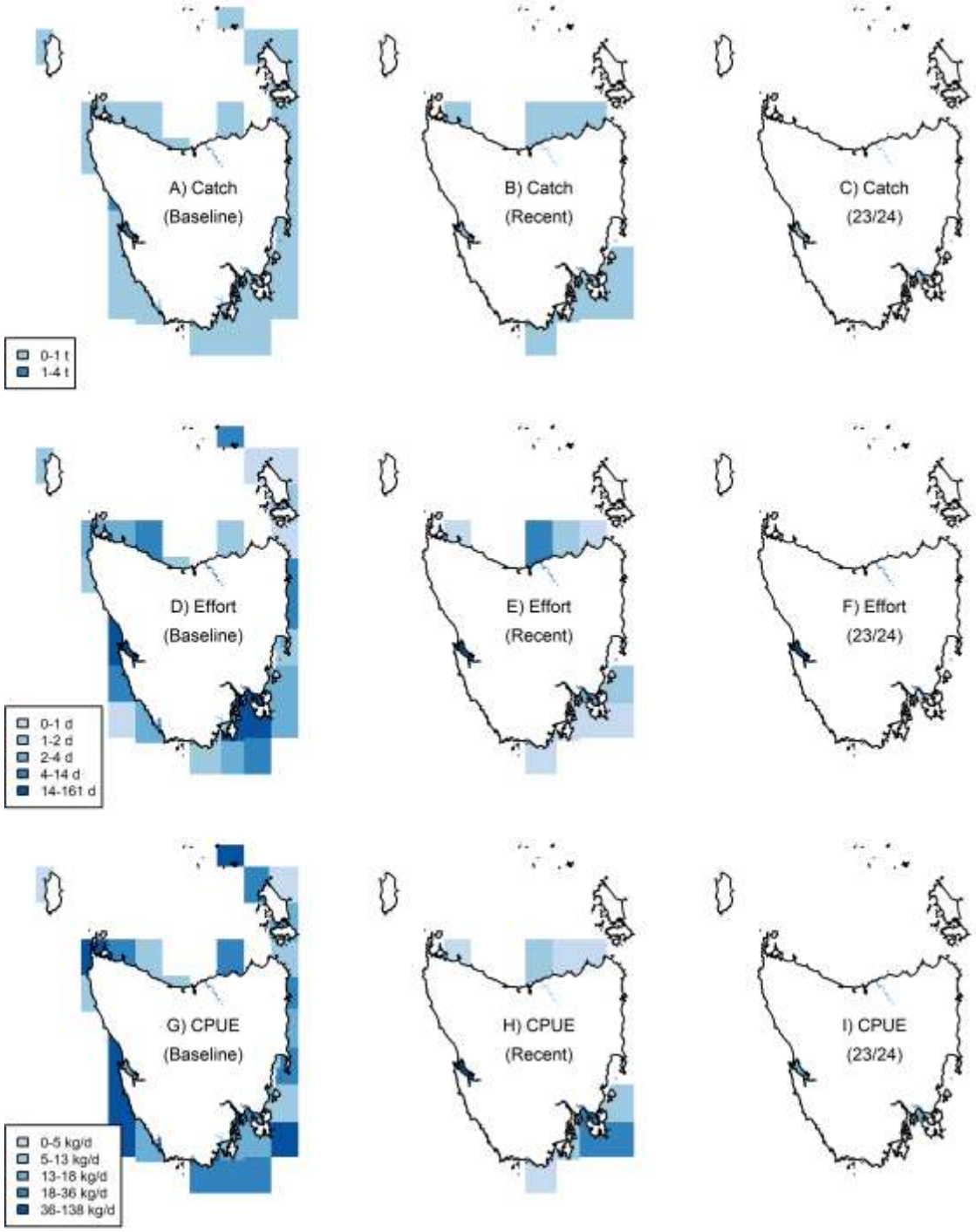


Figure 4.18 Flounder catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.6 King George Whiting (*Sillaginodes punctatus*)

STOCK STATUS	SUSTAINABLE
King George Whiting is an emerging species of interest in Tasmania, with growing commercial and recreational activity, particularly in northern waters. While current fishing pressure is not expected to impair recruitment, the legal minimum size of 35 cm remains below the estimated size at maturity (40 cm), which may warrant review. Recent catch increases—especially around Flinders Island—have been driven by beach seine operations targeting aggregating fish. It remains unclear whether this reflects genuine stock growth or increased fishing efficiency. The use of beach seines on dense schools raises concerns about potential impacts on spawning, as this gear can effectively harvest entire aggregations. Importantly, Tasmanian King George Whiting appear genetically distinct from mainland stocks, and limited understanding of local spawning locations and larval connectivity introduces uncertainty and highlights the vulnerability of potentially spawning aggregations.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment.
MANAGEMENT	State (Tasmania)

King George Whiting
(Sillaginodes punctatus)
Illustration©R.Swainston/anima.fish

4.6.1 Biology

- **Habitat:** This species is closely associated with sandy and seagrass habitats.
- **Distribution:** Commonly found in the southern coastal waters of Australia, including the northern regions of Tasmania.
- **Diet:** Amphipods and other crustaceans, polychaetes, molluscs, and peanut worms (Sipuncula) (Robertson 1977).
- **Stock Structure:** Genetic studies have revealed that while there may be some level of mixing between stocks, the population in Tasmania is distinct from those found in South

Australia and Victoria. There is also evidence of stock delineation between the north-western and north-eastern regions of Tasmania (Jenkins et al. 2016).

- **Movement:** Juvenile King George Whiting often form large schools of similarly sized individuals, congregating over patches of sandy seabeds within sheltered, shallow seagrass environments (Graba-Landry et al. 2022). In contrast, adult King George Whiting tend to inhabit more exposed sandy areas (Edgar 2008). Ontogenetic habitat shifts from shallow nursery areas to deeper offshore spawning grounds are characteristic of this species.
- **Size at Maturity (length FL; cm):** 40 (Jenkins et al. 2016; Nicholls 2018; Graba-Landry et al. 2022).
- **Age at Maturity:** 3-4 (Jenkins et al. 2016; Nicholls 2018; Graba-Landry et al. 2022).
- **Spawning Season:** Late summer – winter (March – late May).
- **Spawning Location:** A spawning site has been identified in north-west of Tasmania and a spawning population identified (Jenkins et al. 2016). However, the full extent of spawning areas, their relative importance for population replenishment, and larval connectivity patterns between spawning and nursery areas remain unknown. On the mainland mature fish migrate offshore to spawn (Graba-Landry et al. 2022).

More detailed information on biological characteristics and current management of King George Whiting fisheries is available from the TasFisheriesResearch webpage.

4.6.2 Fishery

Although reported to have occurred in northern Tasmanian waters for at least 100 years, King George Whiting is a potential range-extending species, with some evidence of increasing numbers down the east coast south of St Helens (Graba-Landry et al. 2022). Commercial and recreational exploitation of King George Whiting in mainland state waters is well established. State catches are supporting a small but fast developing commercial fishery in northern Tasmania.

4.6.3 Management

The current size limit of 35 cm is below the size at maturity (40 cm). No commercial catch limits currently apply to King George whiting. The recreational bag limit is set at 5 fish. Commercial Catch, effort and CPUE

Current commercial catch: The 2023/24 commercial catch in Tasmanian waters was 12.6 tonnes.

Catch, effort and CPUE trends: Commercial catch and effort have been increasing in northern Tasmania since 1995. There has been a continued sharp increase over the past five seasons (Figure 4.19 A). Relative effort and CPUE have fluctuated over the duration of fishery records; however, both show generally increasing trends, though note a slight drop in relative CPUE in the most recent year (Figure 4.19 B, C).

Fishing distribution: Fished in the northeast of the state in exposed coastal waters near Stanley in the northwest and in the Tamar estuary in the north and around Flinders Island (Figure 4.21). In 2023/24, fishing for this species continued to be concentrated around the east and west of Flinders Island.

Gear types: Commercial operators use mostly beach seine gear.

4.6.4 Recreational Fishery

Recreational fishing accounts for the majority of landings, although commercial catch came close to recreational harvest in the most recent year and appears likely to exceed it in the future, following the current trajectory (Figure 4.19, Tracey and Stark 2024). The recreational catch, estimated from data collected from 2017/18 and 2022/23, also shows a sharp increase (Lyle et al. 2019; Tracey and Stark 2024) (Figure 4.19). Recreational catch was estimated at 7.2 tonnes in 2017/18 and rose to 13.2 tonnes in 2022/23, amounting to 63 percent of the total catch in 2022/23. Recreational fishing for King George Whiting showed the majority (76%) of catch being taken from the northeast coast and the remainder from northern Tasmania (Tracey and Stark 2024).

4.6.5 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** 60-80 medium risk.
- **Productivity:** Whiting is a moderately productive species – maturing early (Jenkins et al. 2016; Nicholls 2018) but reaching a reasonably high maximum age (Kailola 1993), with high fecundity (Fowler et al. 1999). However, complex spawning aggregation behaviour and extremely low larval settlement success (1-2%) create vulnerability not captured in basic productivity metrics (Jenkins et al. 2016).
- **Fishing Pressure:** Fast developing fishery with steeply increasing catches. Fishing activity overlaps with >30% of the known distribution of King George Whiting in Tasmanian waters, and although abundance and range appear to be increasing as environmental conditions change (Alexia Graba-Landry et al. 2022), concentrated effort near Flinders Island may target critical spawning aggregations. Modern fishing technology enables efficient targeting of previously inaccessible spawning fish, as demonstrated in South Australian stocks (Drew et al. 2020).
- **Stock Status:** Sustainable. Though noted there are critical knowledge gaps about spawning locations, source-sink connectivity, and population-specific dynamics, combined with evidence from South Australia showing vulnerability of King George Whiting spawning aggregations to modern fishing pressure, warrant further attention.

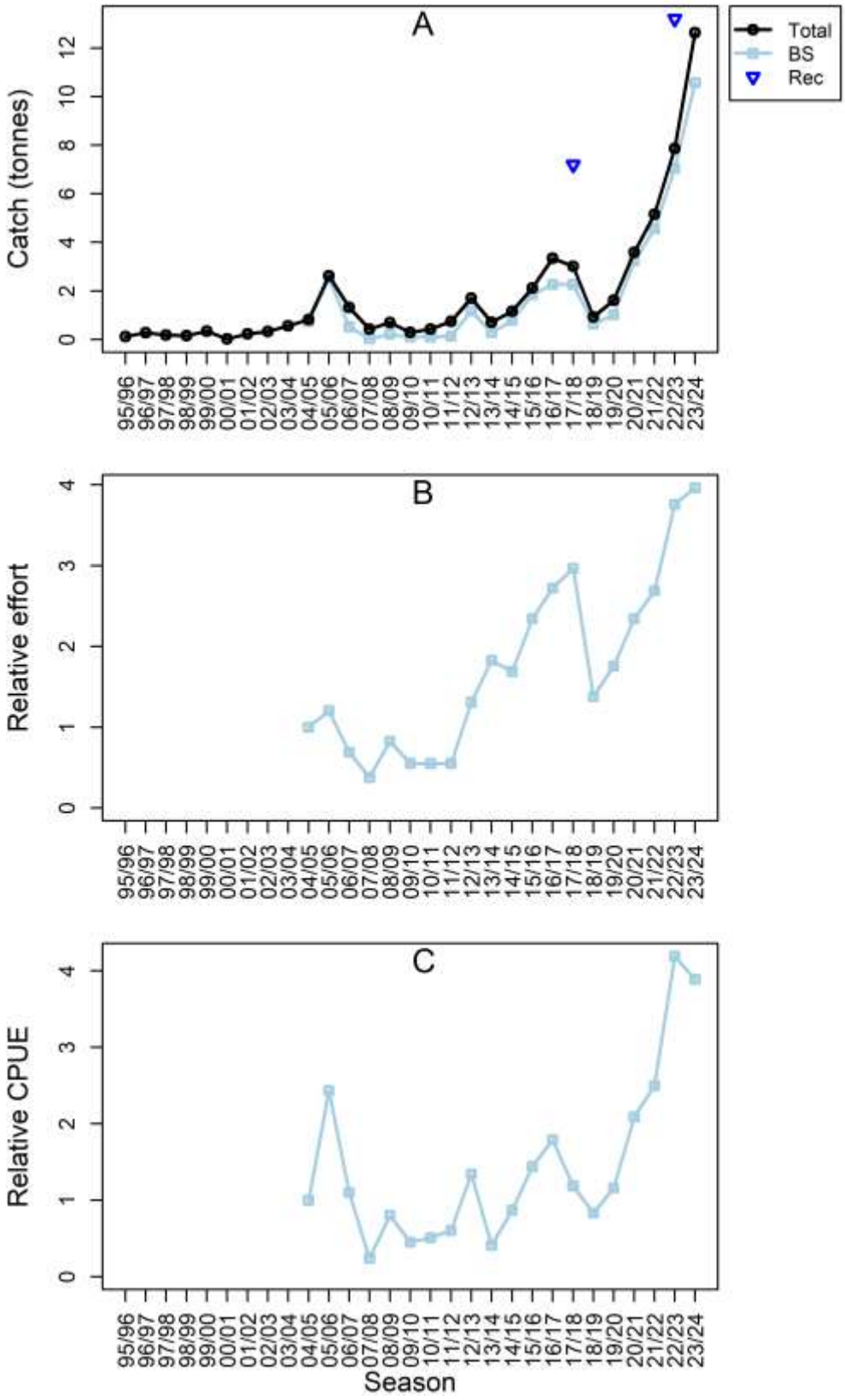


Figure 4.19 (A) Annual commercial King George Whiting catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2004/05; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2004/05. BS = beach seine, Rec = estimated recreational catch.

Beach Seine

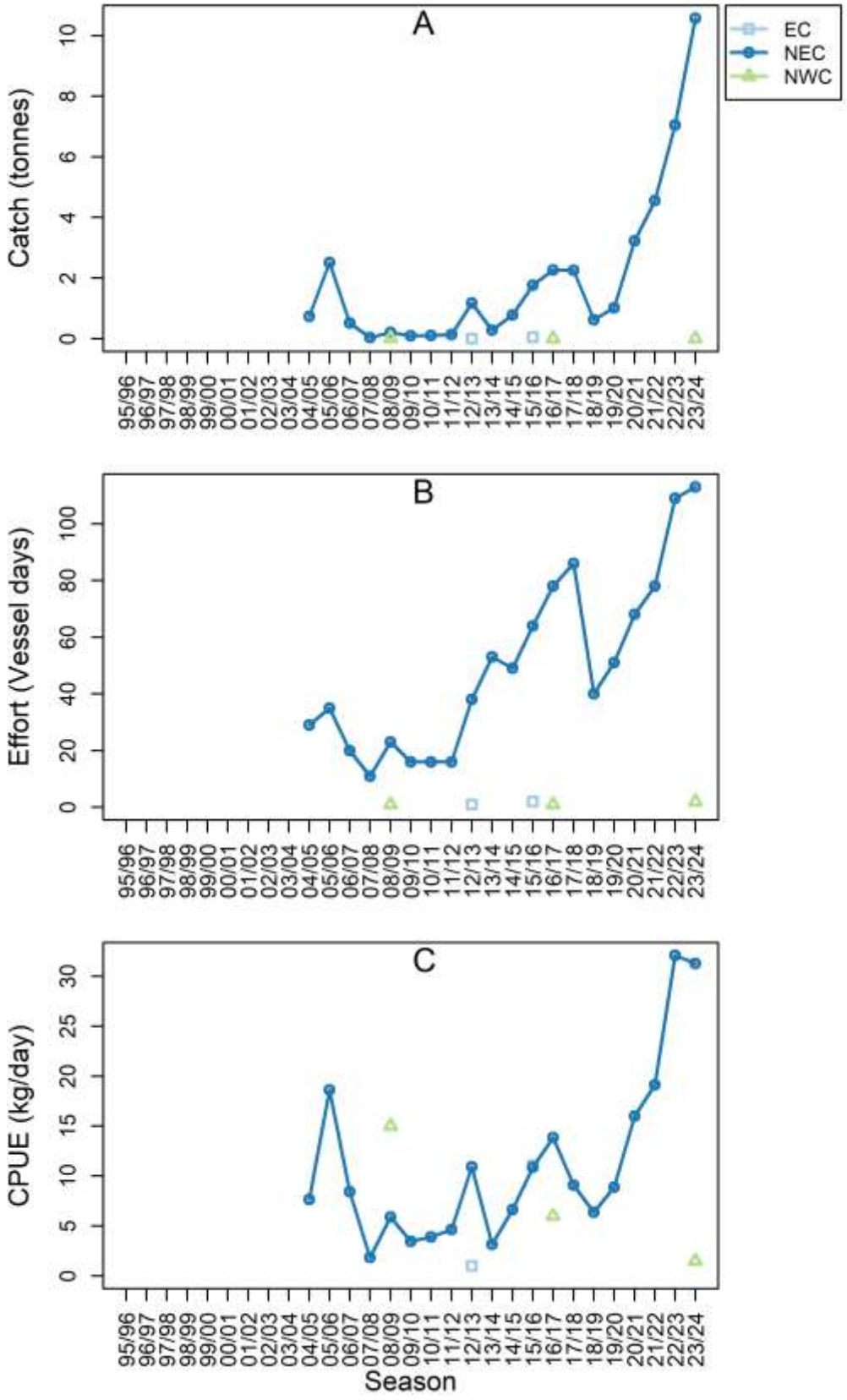


Figure 4.20: Regional commercial King George Whiting catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast.

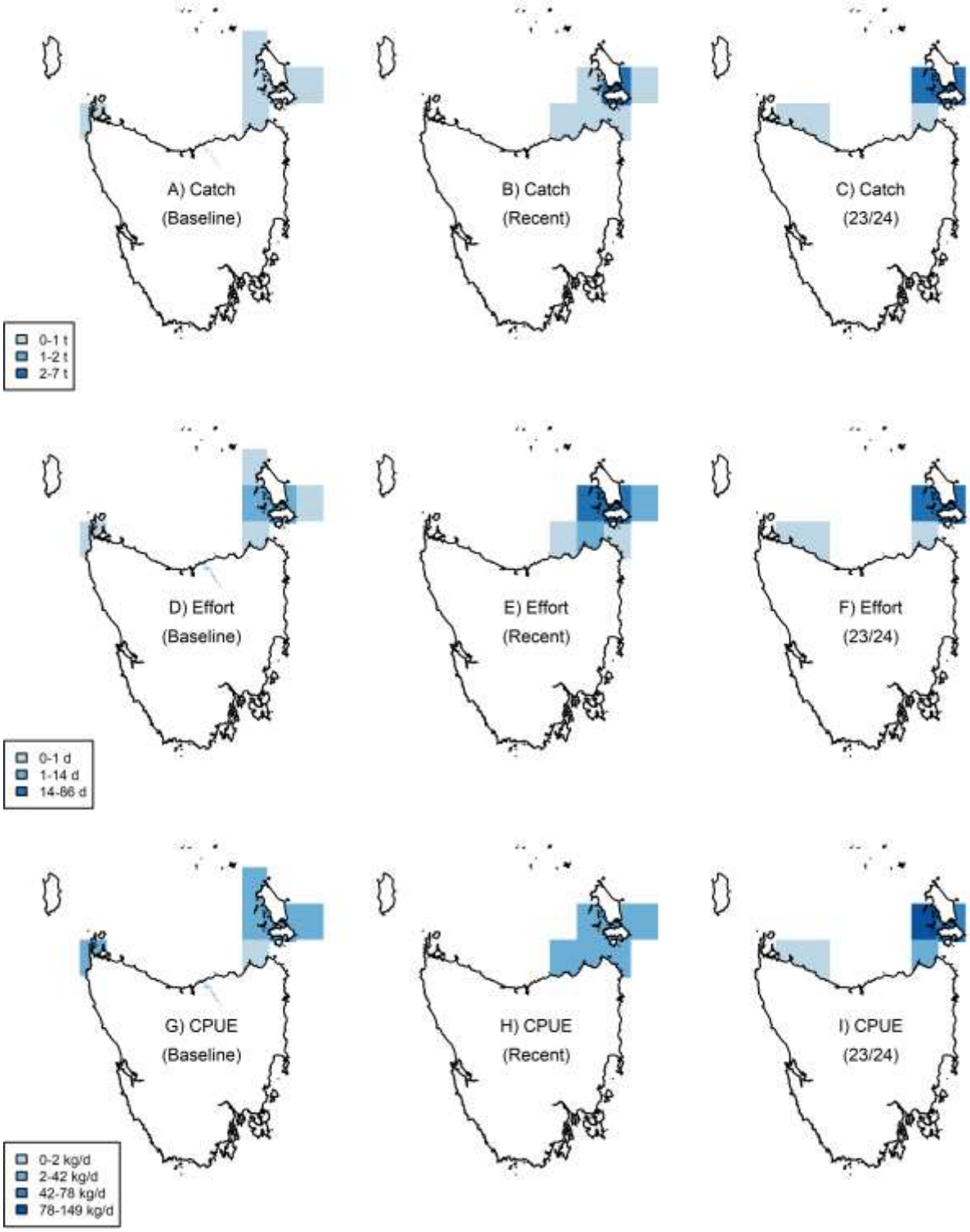


Figure 4.21 King George Whiting catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2004/05 to 2013/14 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

Flinders Island Region:

The dramatic increase in King George Whiting catches from the Flinders Island region, particularly since 2016, raises significant concerns about the sustainability of this population. Beach seine operations (BS) have driven much of this recent growth, with total catches reaching over 10 tonnes by 2023/24 - a more than ten-fold increase from historical levels.

This concentrated fishing effort in a localised area is concerning given our limited understanding of Tasmanian King George Whiting spawning dynamics. We don't know whether the Flinders Island region supports critical spawning aggregations or serves as a source population supplying larvae to nursery areas elsewhere. Research from South Australia shows that only 1-2% of King George Whiting larvae successfully settle, making spawning populations particularly vulnerable to fishing pressure (Drew et al. 2020).

The steep trajectory of catch increases, combined with the efficiency of beach seine operations in targeting aggregated fish, mirrors patterns seen in other jurisdictions where initial abundance masked underlying stock depletion. Given the potential genetic distinctiveness of the Tasmanian population and our incomplete knowledge of spawning locations and larval connectivity, this rapid fishery development warrants fishery-independent monitoring and research to fill information gaps.

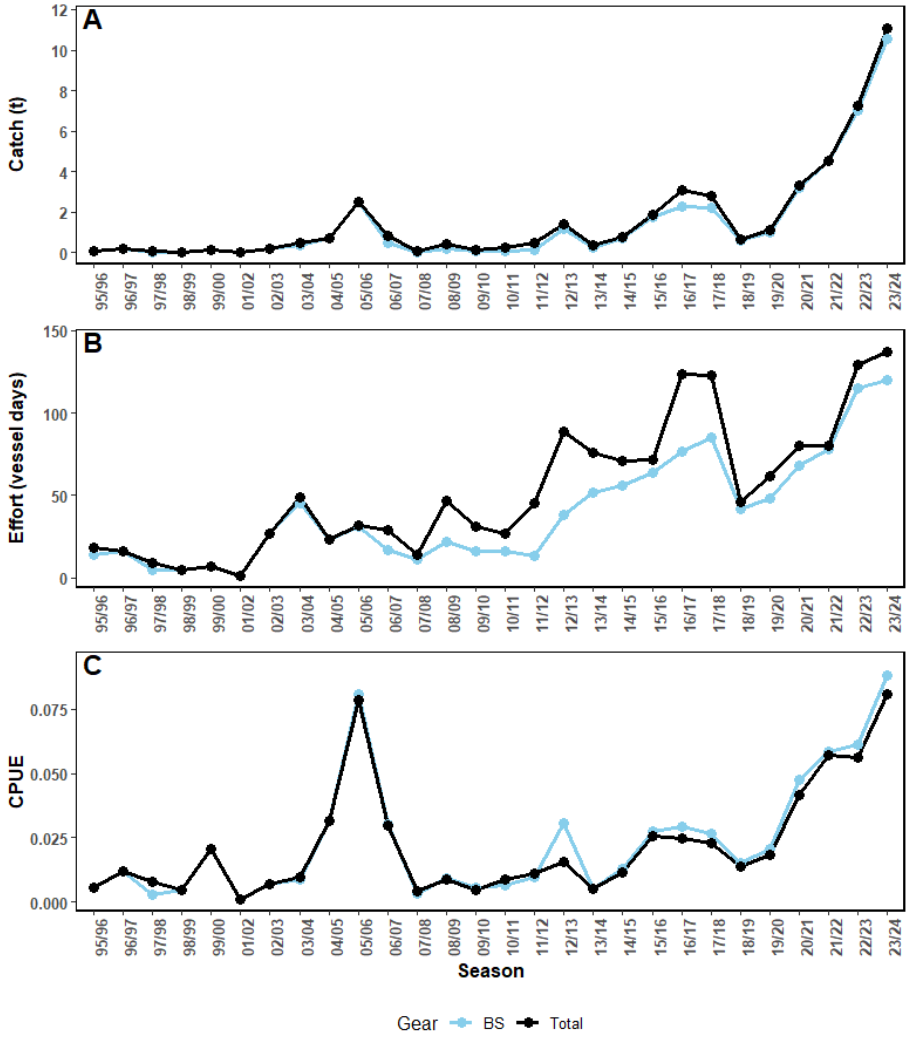
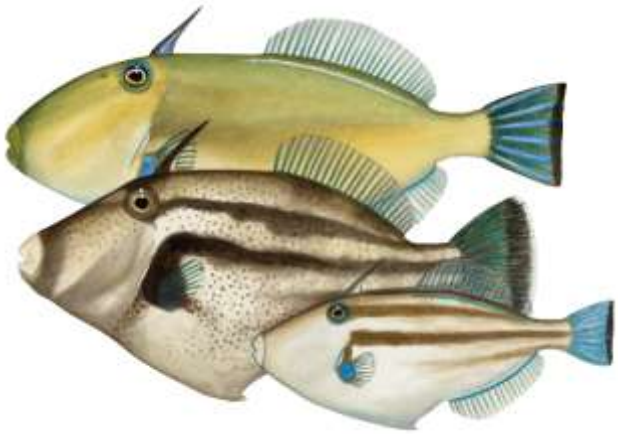


Figure 4.22: (A) Annual commercial King George Whiting catch (t) by gear; (B) annual commercial effort for main gear type based on days fished; (C) annual commercial catch per unit effort (CPUE). BS = beach seine.

4.7 Leatherjackets (*Monacanthidae* family)

STOCK STATUS	UNDEFINED
Several species of Leatherjacket occur in coastal waters around Tasmania, with the Brown-striped (*Meuschenia australis*), Toothbrush (*Acanthaluteres vittiger*), and Six-spine (*Meuschenia freycineti*) most recorded in commercial catches. These species are taken mainly as byproduct rather than targeted catch. Historic catches (e.g., ~40 t in 1995/96) were considerably higher than in recent years, likely reflecting higher biomass or greater popularity and market value at the time. The stock status of Leatherjackets is undefined due to the grouping of multiple species under generic catch categories and limited confidence in commercial data. Most landings were reported simply as 'Leatherjacket', making it difficult to assess trends or biomass for individual species.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	State (Tasmania)



Brown Striped Leatherjacket
(Meuschenia australis)
Illustration©R.Swainston/anima.fish

4.7.1 Biology

- **Habitat:** Seagrass and reefs.
- **Diet:** Epiphytes attached to seagrass, algae, fish flesh, molluscs, crustaceans depending on species. Many species are omnivorous (Froese and Pauly, 2019).
- **Stock Structure:** Unknown.
- **Movement:** Many species are site-attached (Barrett, 1995a).
- **Size at Maturity (length FL; cm):** NA as multiple species included.
- **Age at Maturity:** NA as multiple species included.

More detailed information on biological characteristics and current management of Leatherjacket fisheries is available from the TasFisheriesResearch webpage.

4.7.2 Fishery

There is no substantial commercial fishery for Leatherjackets in Tasmania and only a small recreational fishery. Leatherjackets are generally a discarded by-product of fish trap and netting operations. While they have traditionally had little market demand in Tasmania, they

are consumed on the mainland, and anecdotally, local demand in Tasmania appears to be growing.

4.7.3 Management

A size limit of 20 cm applies to all leatherjacket species. Recreational fishers are subject to a bag limit of 10 fish (all species combined). For the commercial fishers, species-specific reporting was introduced from 2021/22. Species-level reporting aims to better understand impacts on individual leatherjacket species. However, this change may have led to a reduction in reported catches, possibly due to difficulties in species identification.

Alternate fishery-independent data sources are also being assessed to support and strengthen future assessments. However, these improvements will take time to implement and produce sufficient data for robust species-level stock evaluations.

4.7.4 Commercial Catch, effort and CPUE

Current commercial catch: 0.8 t reported in 2023/24 (Figure 4.23 A)

Catch, effort and CPUE trends: Peak commercial Leatherjacket catches of around 15 tonnes were recorded from 1995/96 to the early 2000s. Additional removals during this period from rock lobster traps (León et al. 2020) and the recreational sector likely contributed to higher total catch levels. Since then, Leatherjacket catches have declined notably, reaching a minimum of 0.8 tonnes in 2023/24 (Figure 4.22 A). As a result of reporting changes described under Management, recent trends in catch, effort, and CPUE may not reliably indicate changes in abundance.

Fishing effort using both fish traps and gillnets has decreased over time (Figure 4.23 B). CPUE has remained relatively stable for gillnets but has been more variable for fish traps (Figure 4.23 C).

Fishing distribution: Mainly in the south and east of Tasmania.

Gear types: Mainly caught as bycatch in fish pots and gillnets.

Bycatch/Byproduct: The last three seasons of Leatherjackets recorded as bycatch in the rock lobster fishery are reported below alongside the reported catch in the scalefish fishery (Table 2). There is under a tonne reported by the rock lobster fishery in the last three seasons (Table 2). Leatherjackets are only reported as a species group (i.e., at family level) in the rock lobster fishery.

Table 2: Leatherjackets reported in the rock lobster and scalefish fisheries.

Year	Family Leatherjacket in rock lobster fishery (kg)	Family Leatherjacket in scalefish fishery (kg)	Combined species-specific and family leatherjacket records in the scalefish fishery (kg)
2020/21	487	619	1044
2021/22	725	81	526
2022/23	759	-	326
2023/24	805	2	809

4.7.5 Recreational Fishery

Leatherjackets are also caught by the recreational sector, with catch estimates showing a fluctuating trend over recent surveys, remaining at similar levels to commercial catches (Figure 4.23 A). Estimated recreational catches were 8.2 tonnes in 2000/01 (Lyle 2005), 2.6 tonnes in 2007/08 (Lyle et al. 2009), 2.3 tonnes in 2009/10, 1.8 tonnes in 2012/13 (Lyle, Stark, and Tracey 2014), 4.9 t in 2017/18 and 2.32 in 2022/23 (Tracey and Stark 2024).

4.7.6 Risk Assessment of recruitment impairment

Leatherjacket catch data do not distinguish among genera or species and the high level of diversity within the *Monacanthidae* family meant that an accurate risk analysis could not be conducted.

- **Stock Status:** Undefined.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

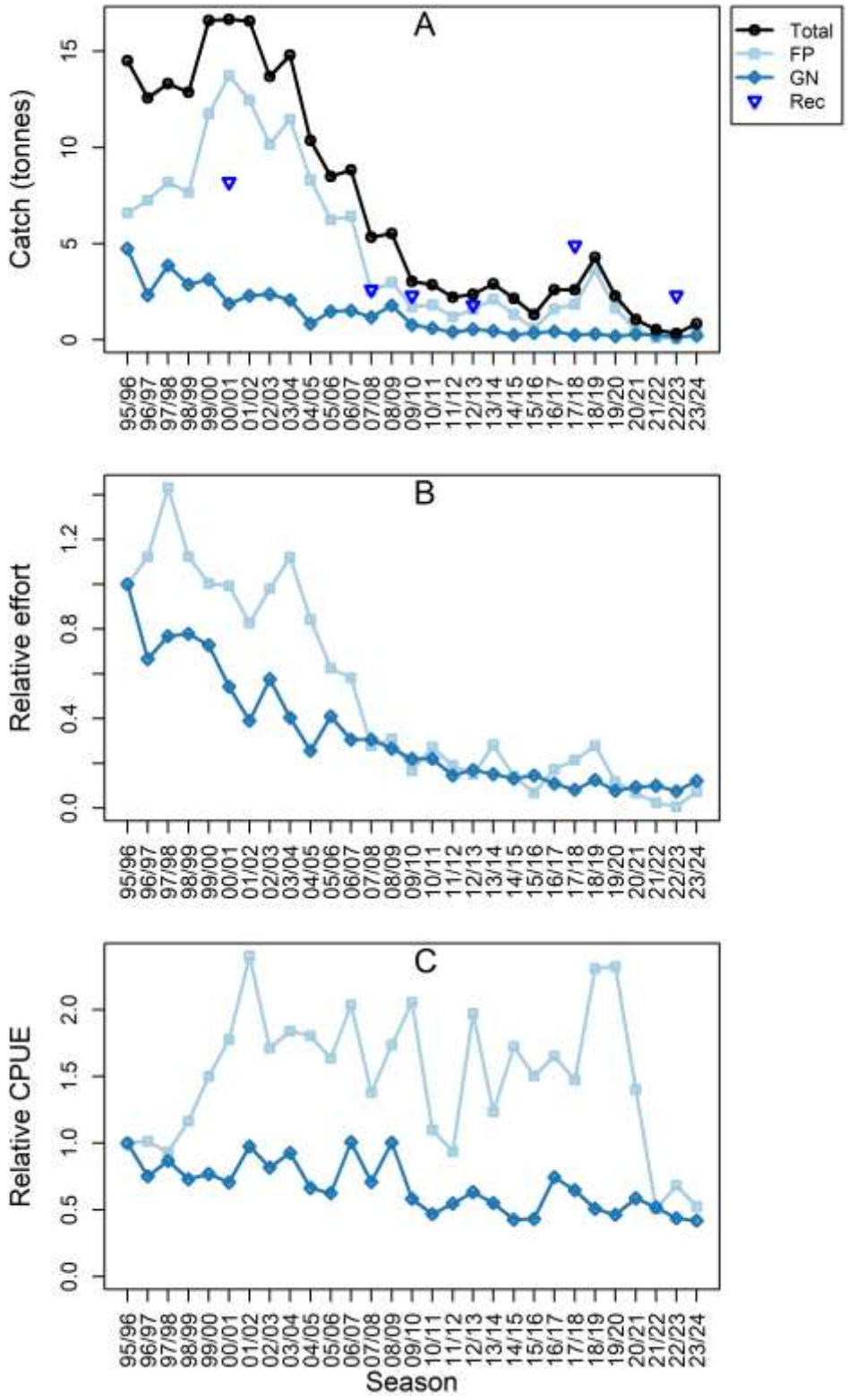


Figure 4.23 (A) Annual commercial Leatherjacket catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. FP = fish trap, GN = gillnet, Rec = estimated recreational catch.

Fish Trap

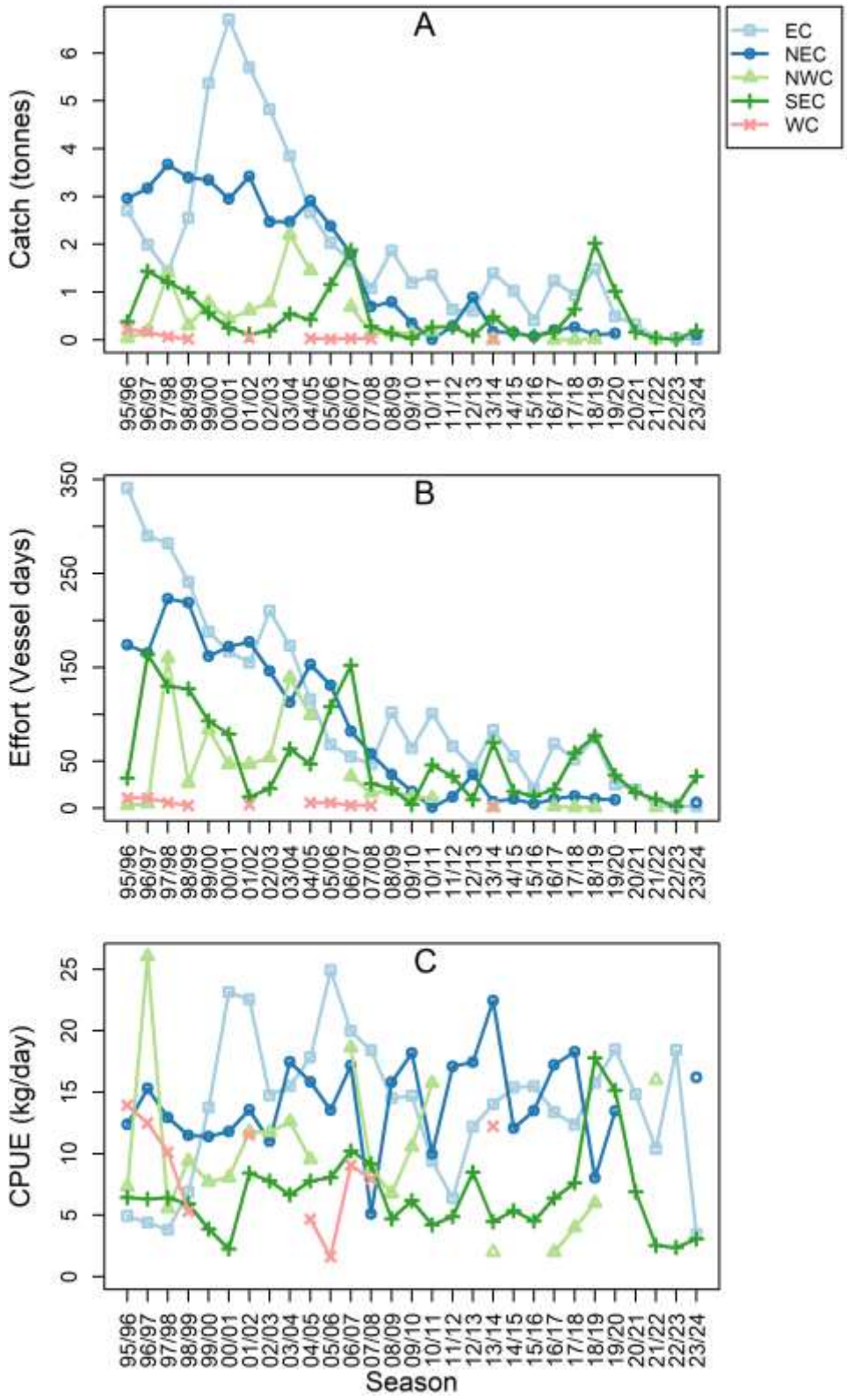


Figure 4.24 Regional commercial Leatherjacket catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for fish trap. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Gillnet

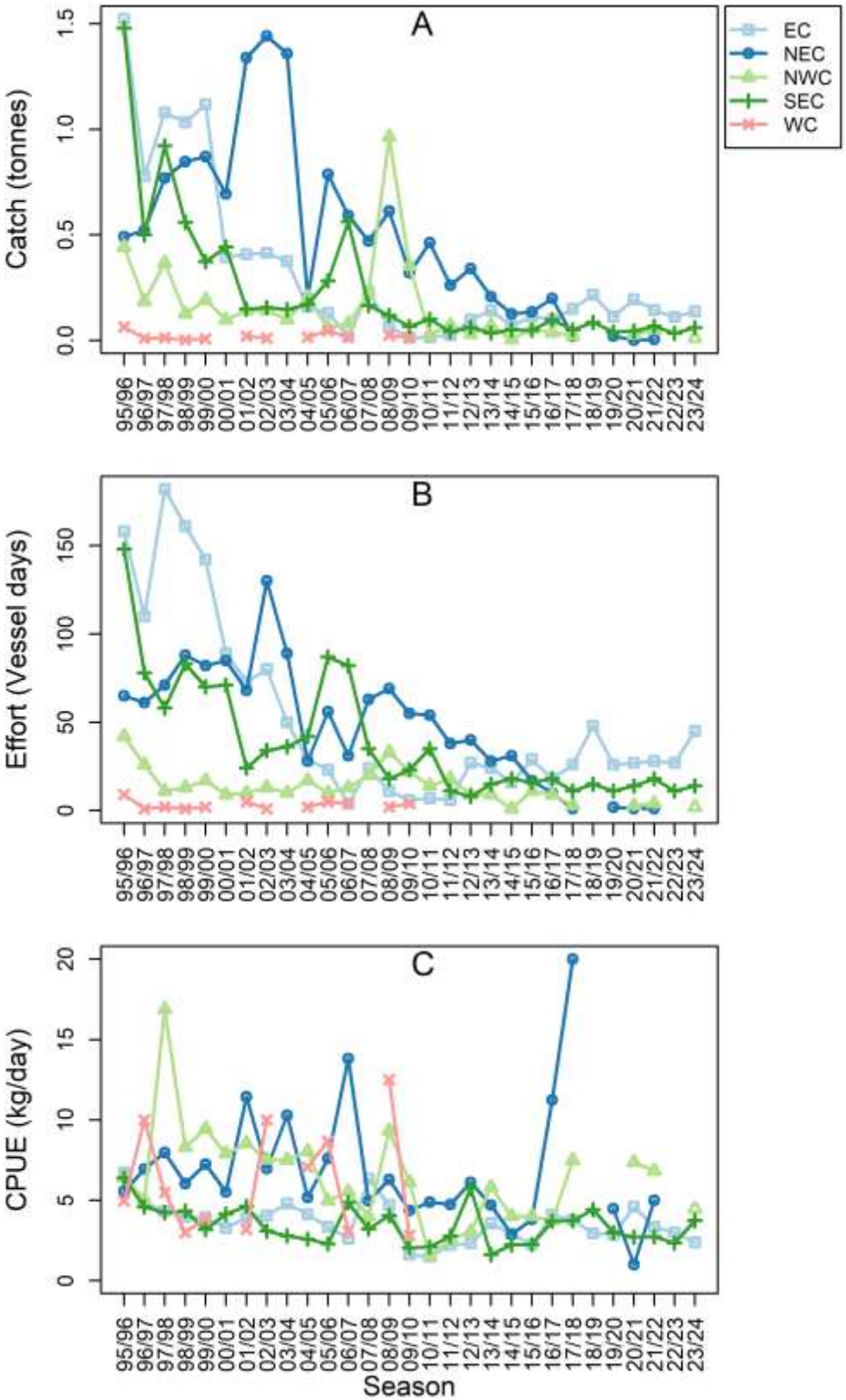


Figure 4.25 Regional commercial Leatherjacket catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

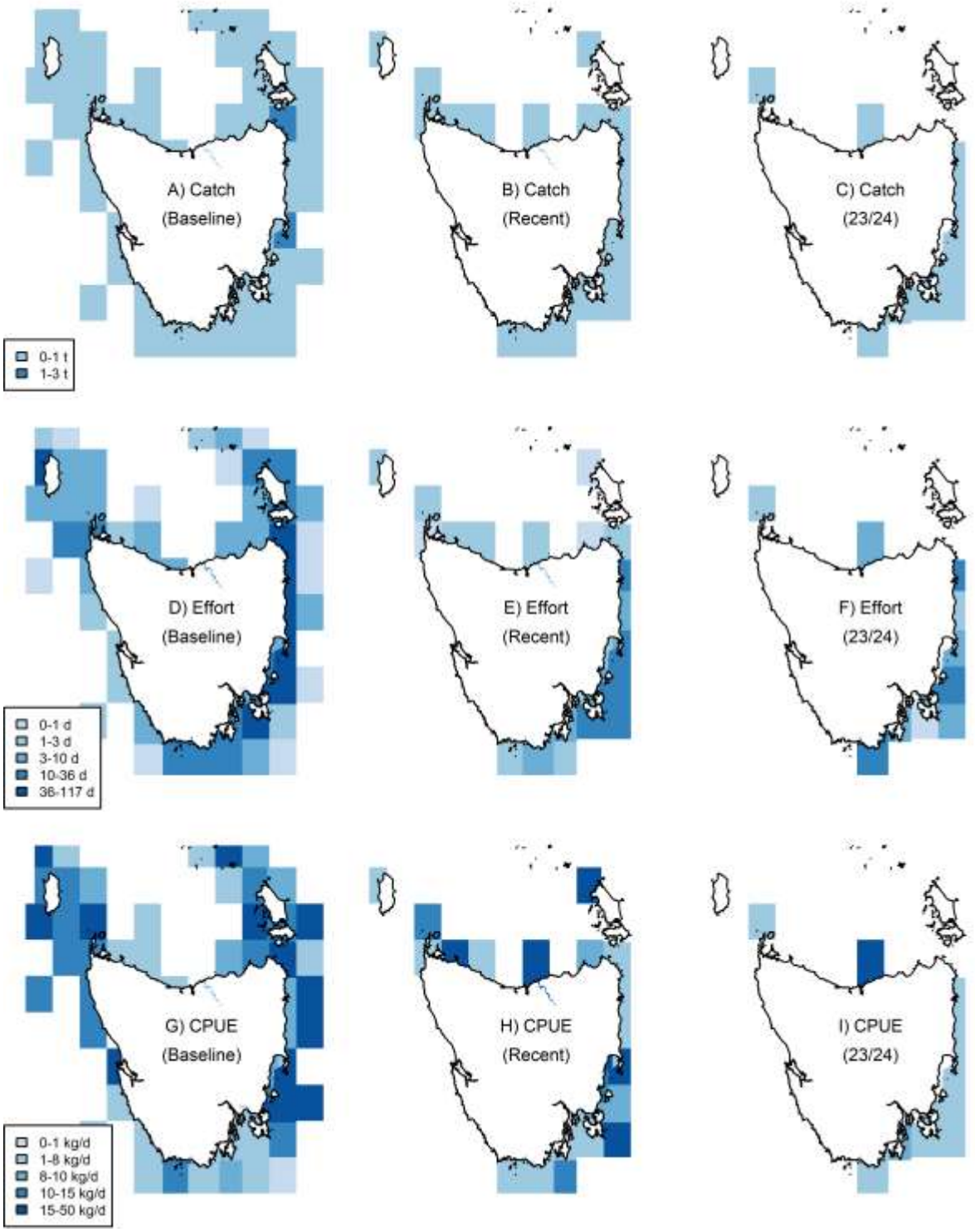
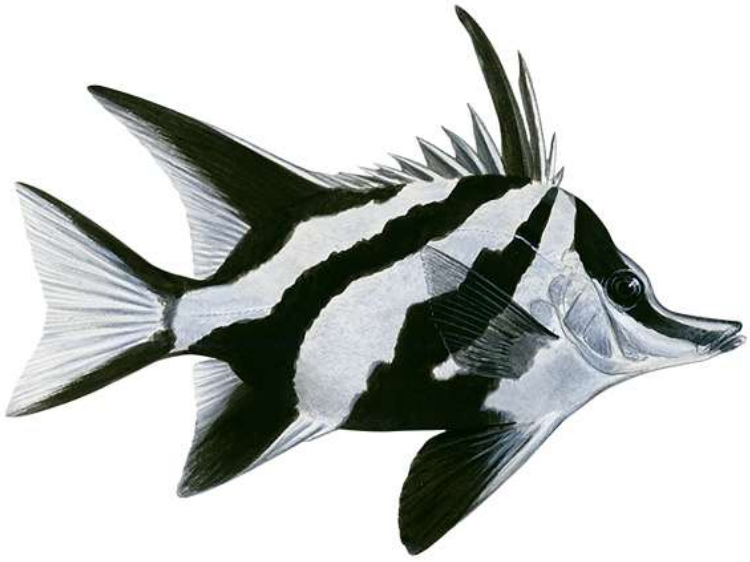


Figure 4.26 Leatherjacket catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.8 Longsnout Boarfish (*Pentaceropsis recurvirostris*)

STOCK STATUS	UNDEFINED
Longsnout Boarfish are a by-product species of the gillnet fishery targeting Banded Morwong, with catches remaining low in part due to the large minimum legal size. There is limited biological information available for this species, with key gaps including size at maturity, stock structure, and movement patterns. As Boarfish are caught incidentally but are not actively targeted, catch and effort data may not link closely to their biomass. Given these limitations, the available information is insufficient to confidently determine the status of the Longsnout Boarfish stock.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	State (Tasmania)



Longsnout Boarfish
(Pentaceropsis recurvirostris)
Illustration©R.Swainston/anima.fish

4.8.1 Biology

- **Habitat:** Reef-associated and inhabit depths of 4–260 m (Edgar 2008).
- **Distribution:** Mid-New South Wales to southern Western Australia, around Tasmania (Edgar, 2008).
- **Diet:** Brittle stars, polychaetes, brown algae (Edgar, 2008; Scott and Glover, 1980).
- **Stock Structure:** Not known.
- **Movement:** Not known.
- **Size at Maturity (length FL; cm):** The exact size at maturity is not specified in the available data. However, the species can grow up to 50 cm in total length.
- **Age at Maturity:** Not known.
- **Spawning Season:** Not known.

- **Spawning Location:** Not known.

4.8.2 Fishery

Longsnout Boarfish is predominantly encountered as by-catch in gillnetting operations that primarily target Banded Morwong.

4.8.3 Management

A size limit of 45 cm applies to Longsnout Boarfish and there is a prohibition on spearing for this species. For the commercial sector a trip limit of 50 kg applies, and a bag limit of 2 for the recreational sector.

4.8.4 Commercial Catch, effort and CPUE

Current commercial catch: A total catch of 1.1 t recorded in 2023/24 (Figure 4.27 A).

Catch, effort and CPUE trends: Catches have declined from a peak of ~10 tonnes in 1996/97 and stabilised at low levels since 2013/14.

Following a peak in 2008/09, commercial gillnetting effort declined and has since remained below or close to effort levels from the reference year (Figure 4.27 B). CPUE also shows a general declining trend, with notable annual fluctuation (Figure 4.27 C).

There has historically been similar by-product catch from the shark net fishery as that in the gillnet fishery. By-product catch from the shark net fishery on the northeast coast reappeared in the last 5 years for the first time since 2011/12.

Fishing distribution: In 2023/24, gillnet catches were concentrated on the east and southeast coasts, reflecting a contraction in spatial distribution compared to earlier years when low-level catches occurred more broadly around the state.

By-product catch from the shark net fishery on the northeast coast has reappeared over the past five years, after being absent since 2011/12.

Gear types: Mainly taken in gillnets and rarely caught on a line due to their very small mouth. There is also some by-product from the shark net fishery, all be it at very low levels in recent years.

4.8.5 Recreational Fishery

Longsnout Boarfish are not caught by rod and line and no recreational catch estimates are available for gillnet for this species. However, about 1000 individuals were recorded (both kept and released) in the 2012/13 recreational fishing survey (Lyle, Stark, and Tracey 2014), which indicates that Longsnout Boarfish are not a common recreational species. A ban on spearing this species means it is unlikely that it is commonly caught by recreational fishers.

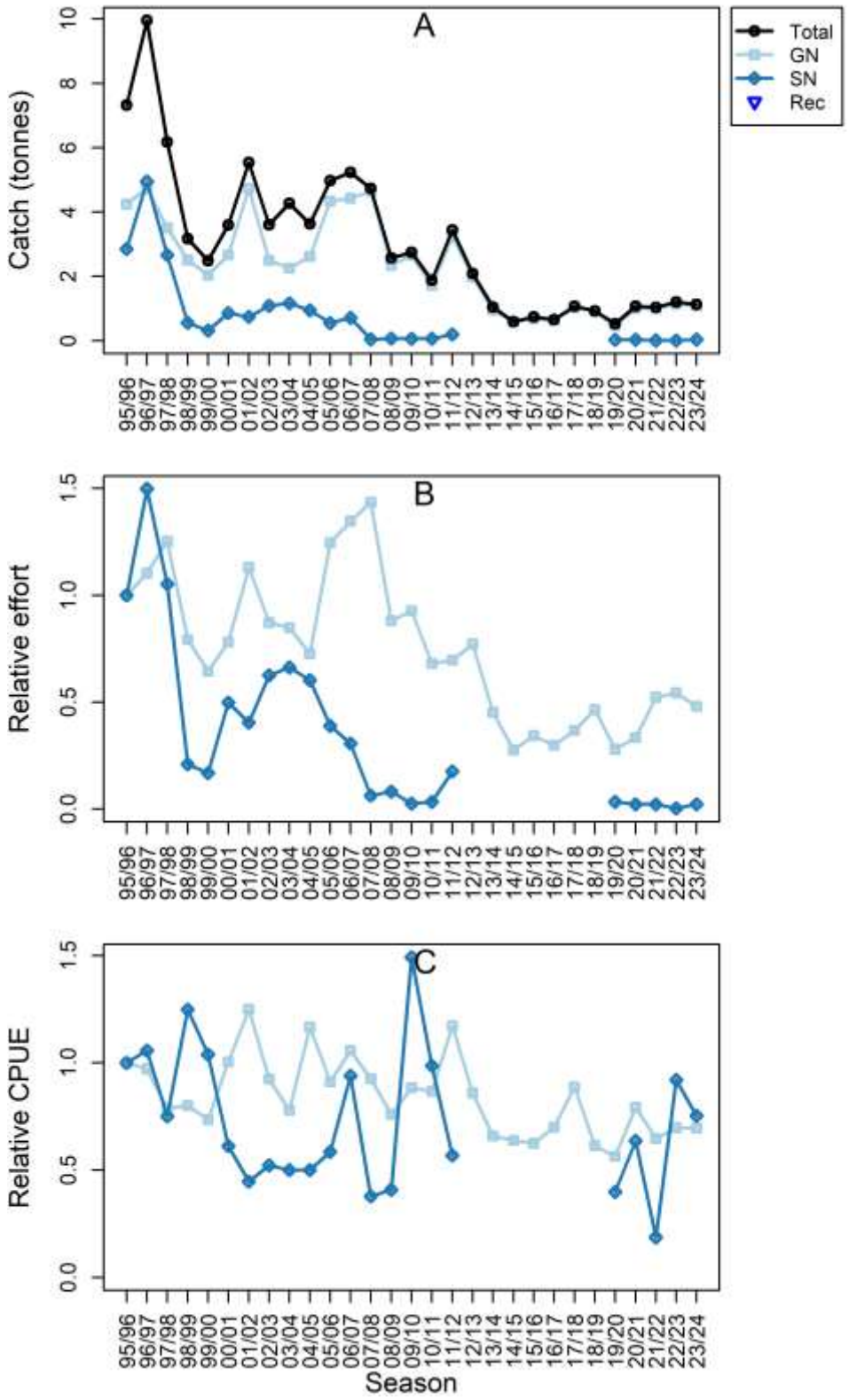


Figure 4.27 (A) Annual commercial Longsnout Boarfish catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2000/01; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of kg per days fished relative to 2000/01. GN = gillnet; SN = shark net. No recreational catch estimates (Rec) were available for this species.

Gillnet

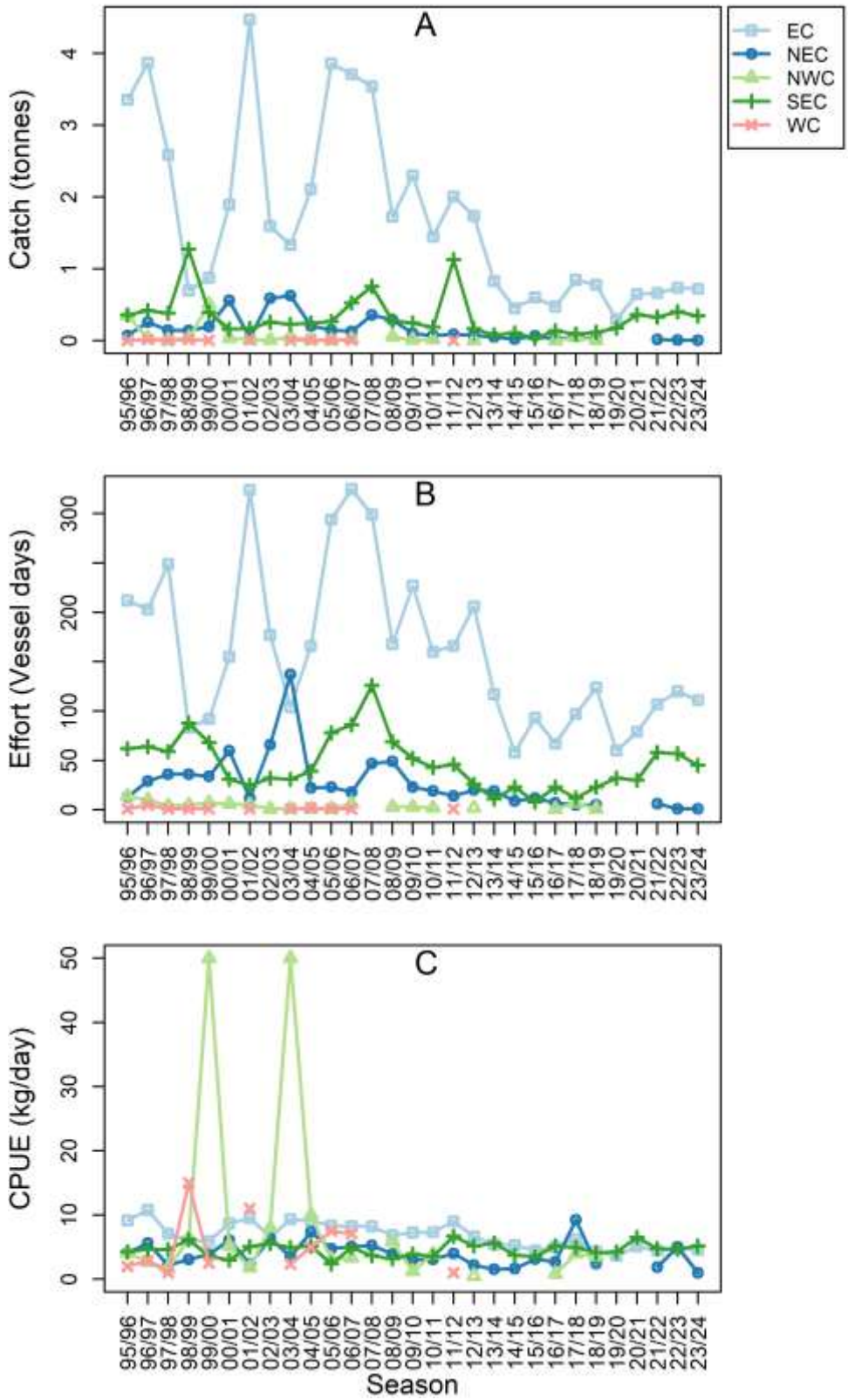


Figure 4.28 Regional commercial Longsnout Boarfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Shark Net

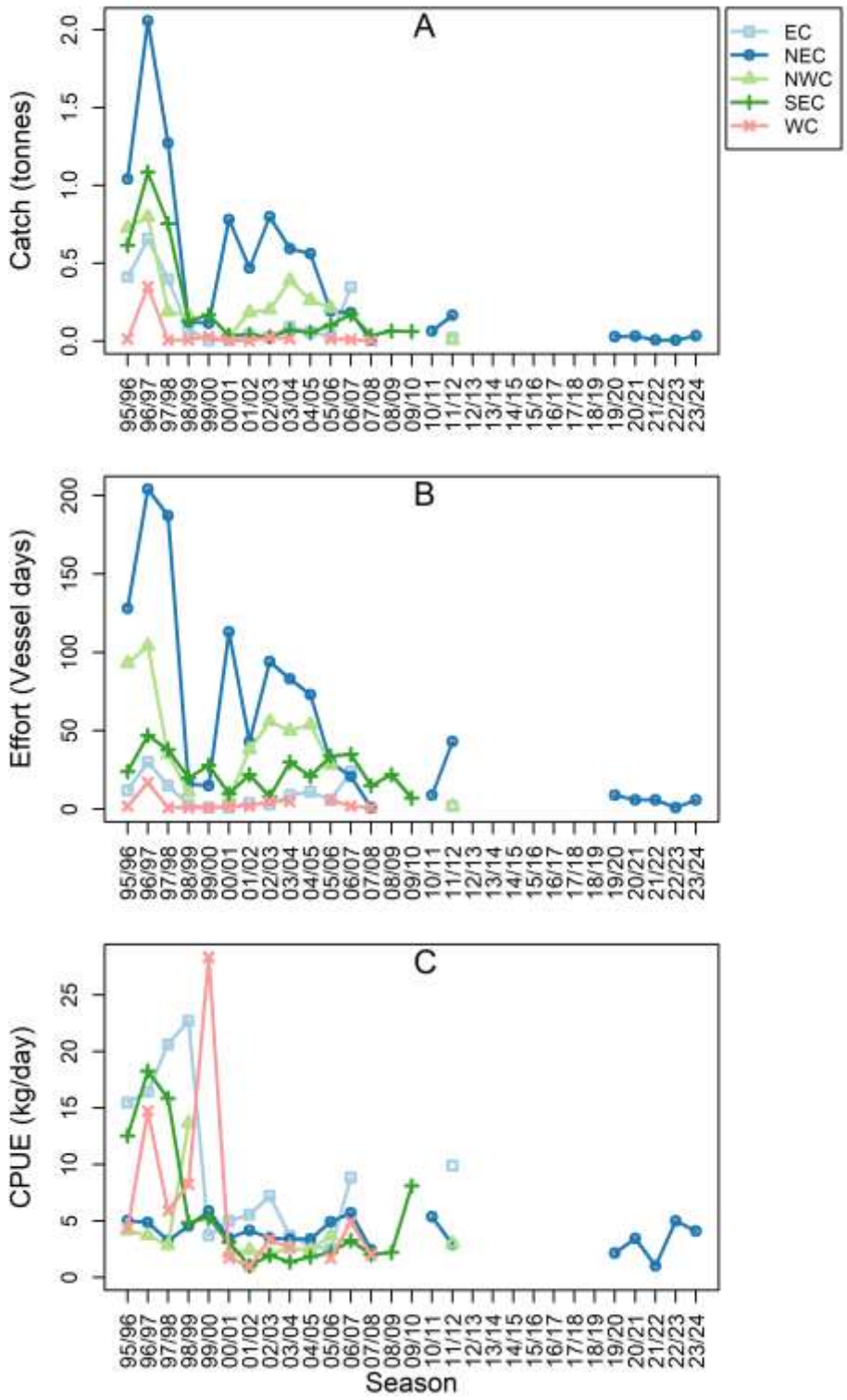


Figure 4.29 Regional commercial Longsnout Boarfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for shark net. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

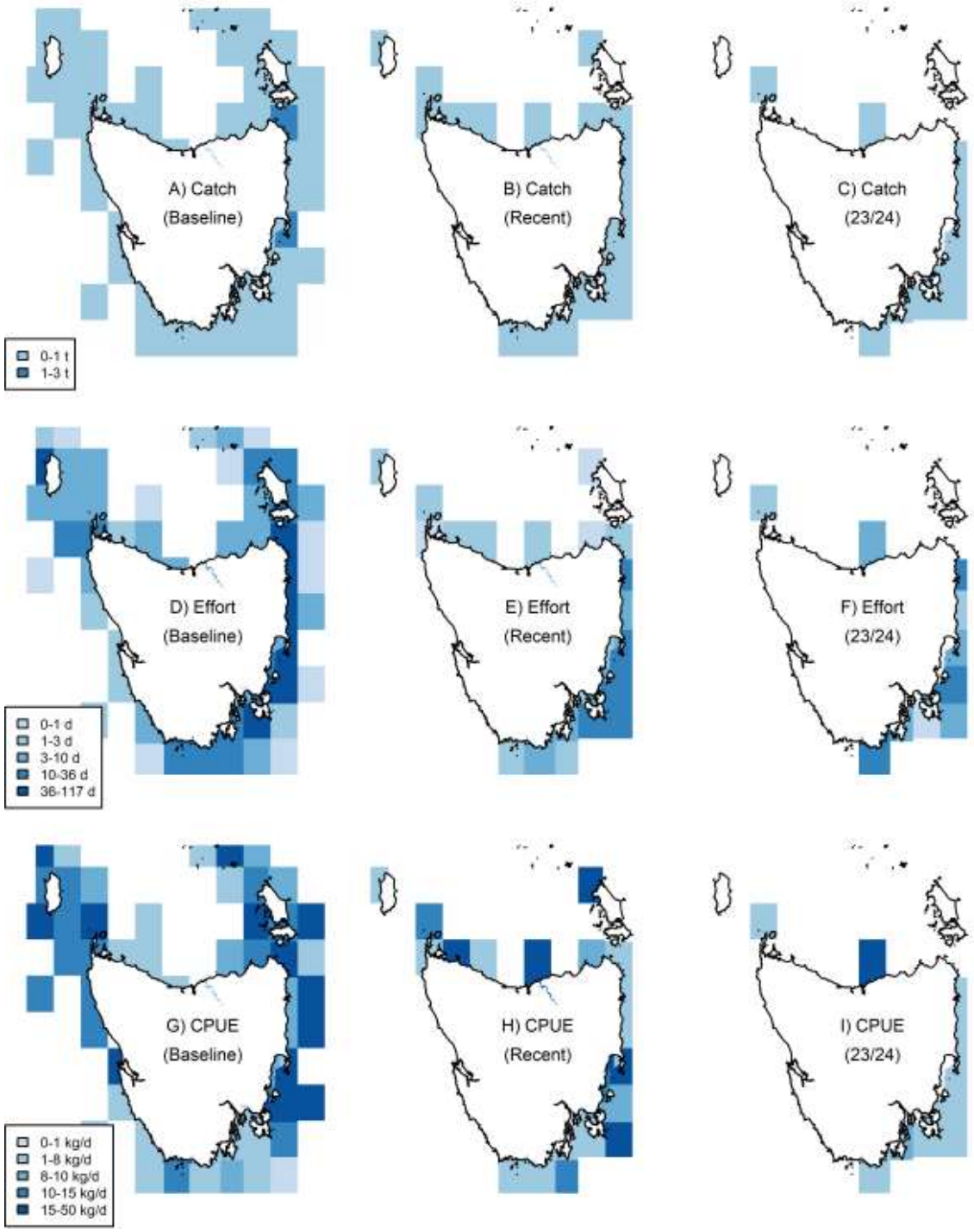


Figure 4.30 Longsnout Boarfish catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2000/01 to 2009/10 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.9 Snook (*Sphyraena novaehollandiae*)

STOCK STATUS	SUSTAINABLE
Recorded commercial catches of Snook remain low, likely reflecting limited targeted effort due to low market demand. At times, estimated recreational catch has exceeded commercial catch by a considerable margin. Catch only data-poor assessments indicate that current levels of fishing mortality are unlikely to pose a risk to stock recruitment.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)

Snook
(Sphyraena novaehollandiae)
Illustration©R.Swainston/anima.fish

4.9.1 Biology

- **Habitat:** Inhabits exposed reef, sand, seagrass, and surface (≤ 20 m) offshore waters.
- **Distribution:** Western Australia to southern Queensland, northern Tasmania (Edgar, 2008).
- **Diet:** Fish (Scott and Glover, 1980; Coleman and Mobley, 1984).
- **Stock Structure:** No information available.
- **Movement:** Schooling. Highly migratory species that often occurs in shoals of 50 or more individuals (Kailola et al., 1993).
- **Size at Maturity (length FL; cm):** 42 (females), 40 (males).
- **Age at Maturity:** 2.5 (Bertoni, 1994).
- **Spawning Season:** October – January (assumed) (Kailola et al., 1993).

More detailed information on biological characteristics and current management of Snook fisheries is available from the TasFisheriesResearch webpage.

4.9.2 Fishery

Snook is caught at low levels in Tasmania, likely due to limited market demand and minimal targeting. While Longfin Pike (*Dinolestes lewini*) is also present, most 'Pike' catches are presumed to be Snook. Found in shallow coastal and offshore waters (≤20 m), Snook often forms large schools and is mainly taken by troll and small mesh net gear, with some by-product

from beach seines and gillnets. It is not a key recreational species, though some landings occur.

4.9.3 Management

With relatively minimal catch and effort, current management restrictions for commercial snook fishing are limited to the requirement of a Scalefish fishing licence. There is no size limit in place for snook. Recreational fishers are limited to a bag limit of 5 fish.

4.9.4 Commercial Catch, effort and CPUE

Current commercial catch: Catch in the 2023/24 season was 4.3 t a slight increase from the last seasons (Figure 4.31 A).

Catch, effort and CPUE trends: Records of Snook catches peaked at 17 t in 1997/98 and have remained relatively stable around 3 – 9 t since 1998/99 (Figure 4.31 A). CPUE has been variable through time (Figure 4.31 C). Troll CPUE is influenced by species availability and targeting practices, whereas CPUE for both beach seine and small mesh net, for which snook is a by-product species, is not particularly informative (Figure 4.31 C).

Fishing distribution: Effort and catch for Snook have been concentrated on the north coast in recent years, including the current season (Figure 4.32, Figure 4.34). The northeast coast has been the focus for troll gear (Figure 4.32), while small mesh net fishing has occurred in both the northeast coast and northwest coast regions across the time series (Figure 4.33).

Gear types: This species is mainly targeted using troll and small mesh net gear but is also a by-product of beach seining and gillnetting.

Beach seine has dominated the catch and effort in the most recent two years (2022/23 and 2023/24), with commercial troll and small mesh net effort (previously the main capture methods for Snook) seeing a reduction in these years (Figure 4.31 B).

4.9.5 Recreational Fishery

Past surveys of Recreational fishing surveys suggest that neither pike species is an important target for recreational fishers (Lyle et al. 2009), and that around 57% of all pike caught by recreational fishers are released (Lyle et al. 2019). While no estimates of recreational landings by weight exist, catch estimates by number are available and if an average weight of 0.5 kg per fish is assumed approximate estimates can be made (Figure 4.31). Based on this recreational contribution to the catch appears to have varied considerably. 2017/18 saw a 7 tonne catch and the most recent recreational survey estimated under 1 tonne recreational catch.

4.9.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** 60-80, passed with medium risk.
- **Productivity:** Moderate – maturing early, with a high fecundity (Bertoni 1994), but relatively long lived (Kailola 1993) and occupying a high trophic level (Coleman and Mobley 1984).
- **Fishing Pressure:** Fishing effort overlaps significantly (>30%) with Snook distribution in Tasmanian waters, and their primary shallow habitat is frequently fished (Edgar 2008), making them highly susceptible to capture.
- **Stock Status:** Sustainable.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

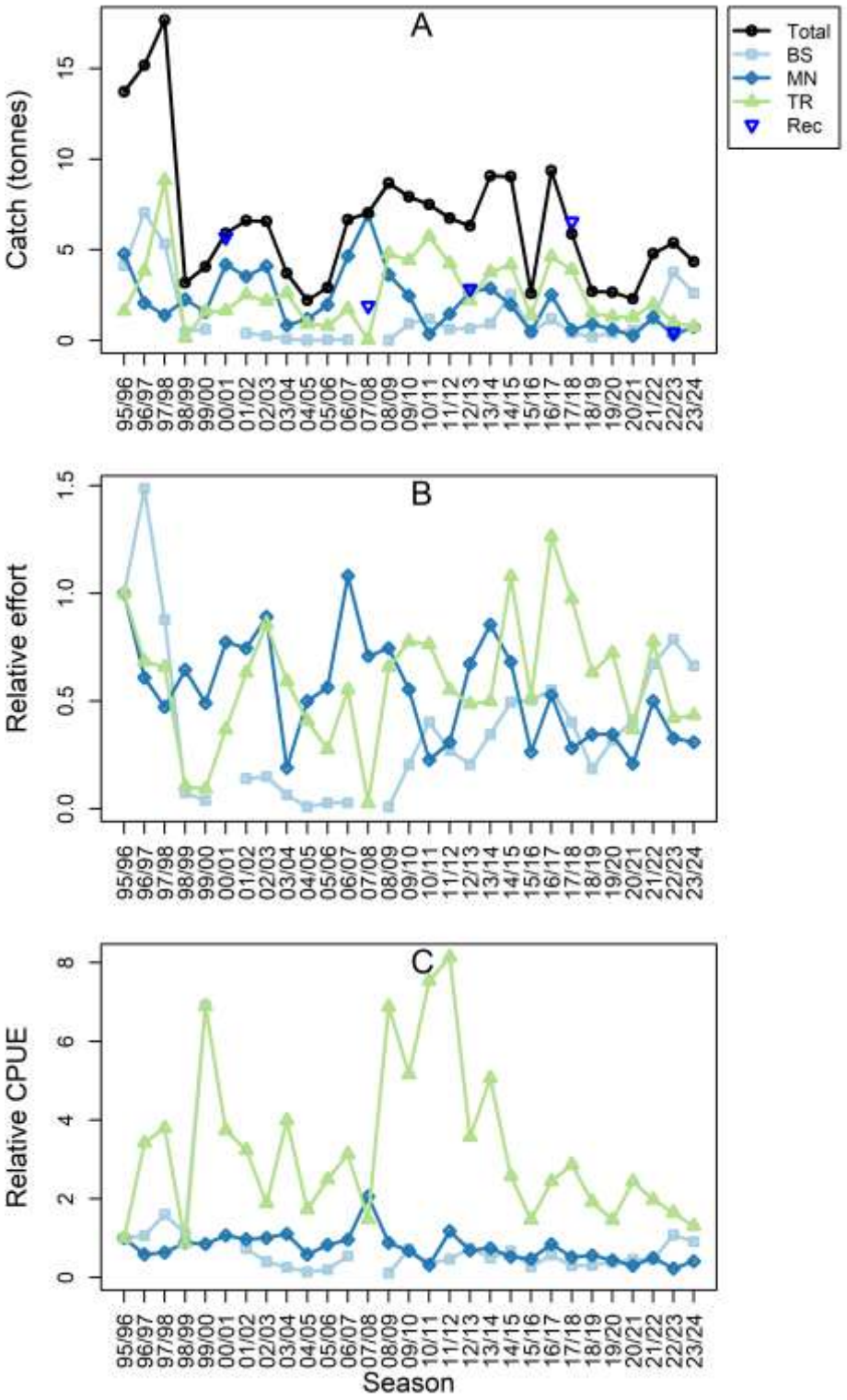


Figure 4.31 (A) Annual commercial Snook catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on weight per days fished relative to 1995/96. BS = beach seine, MN = small mesh net, TR = Troll, Rec = estimated recreational catch.

Trolling

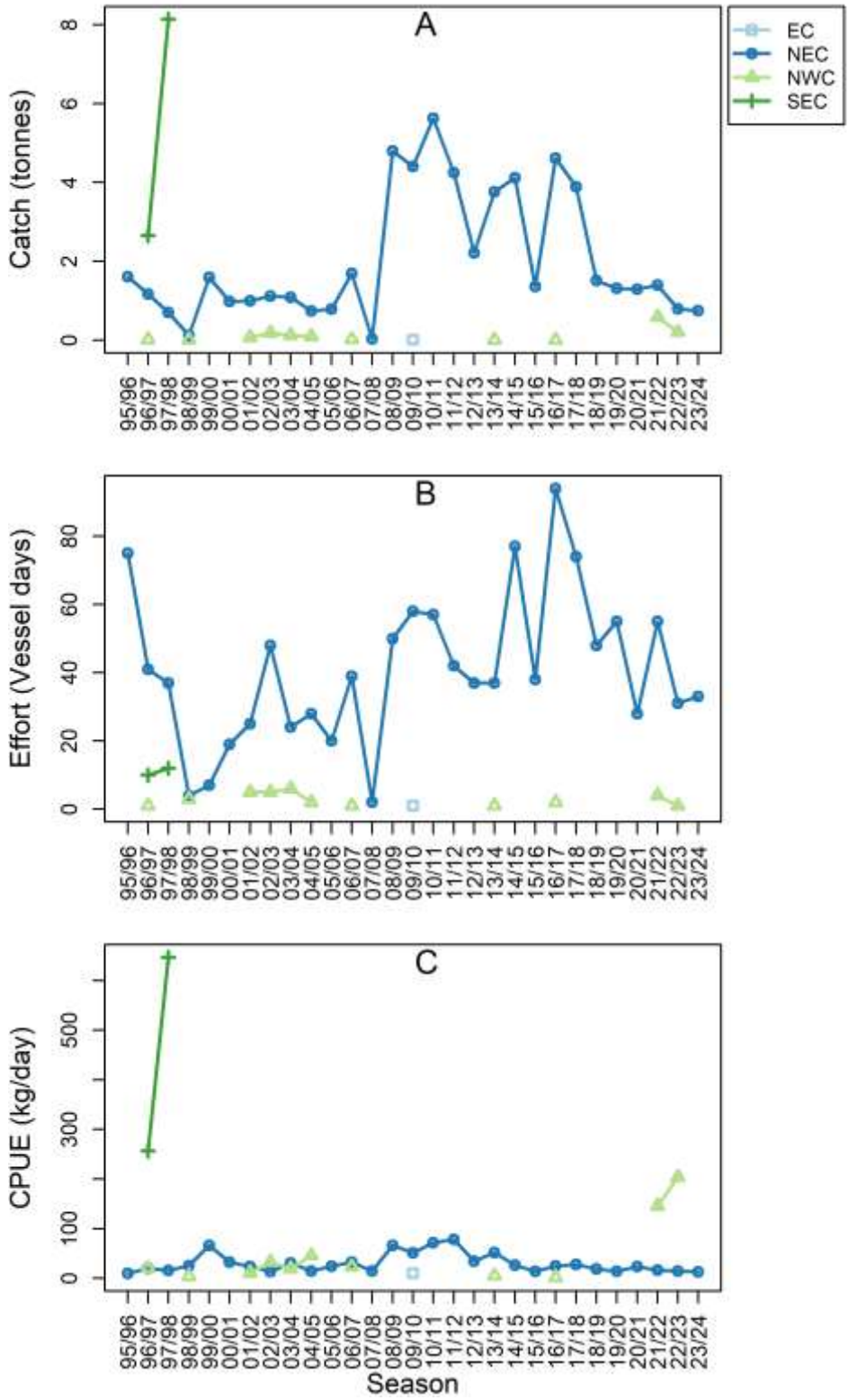


Figure 4.32 Regional commercial Snook catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for troll. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

Small Mesh Net

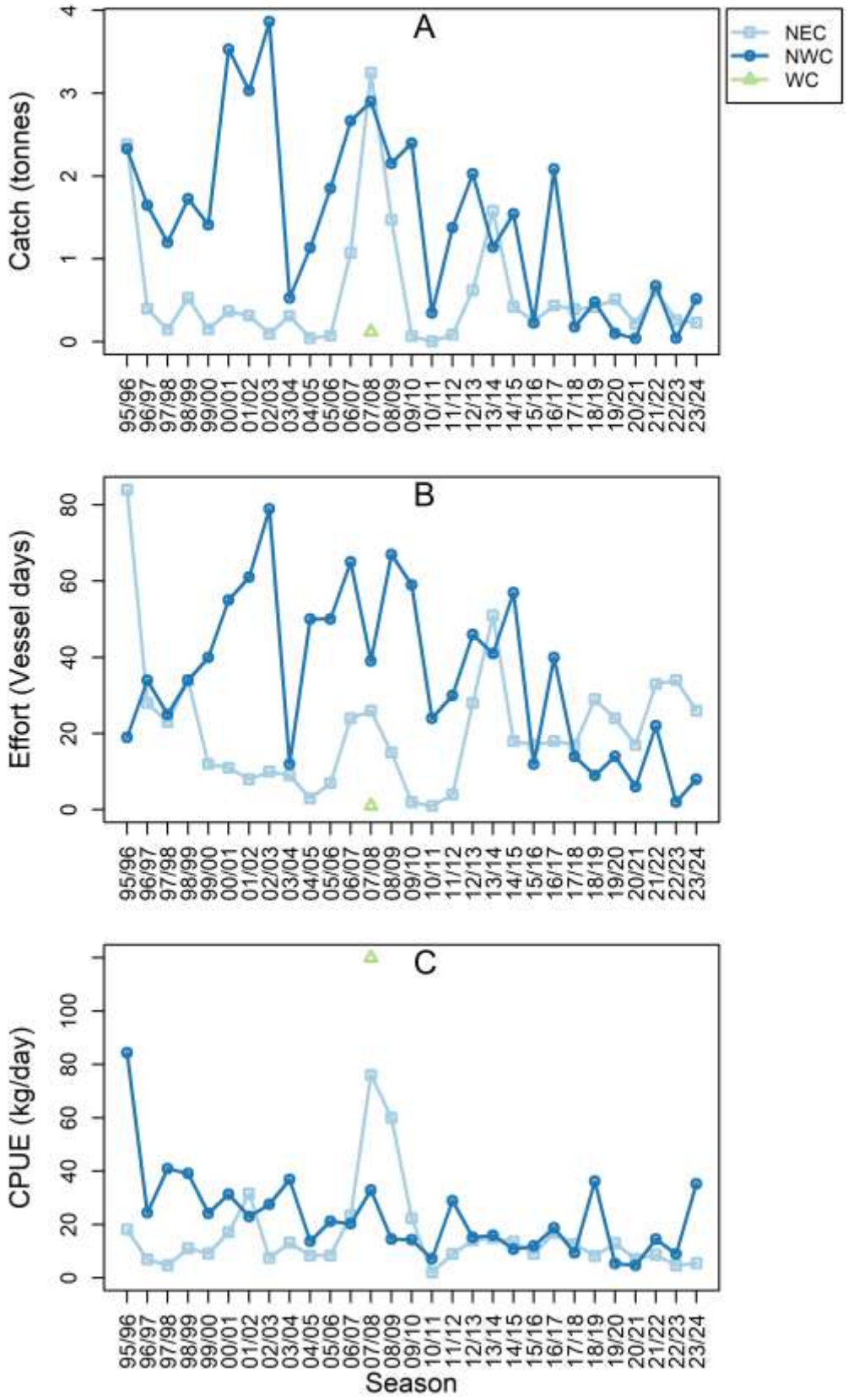


Figure 4.33 Regional commercial Snook catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for small mesh net. NEC = northeast coast, NWC = northwest coast, WC = west coast.

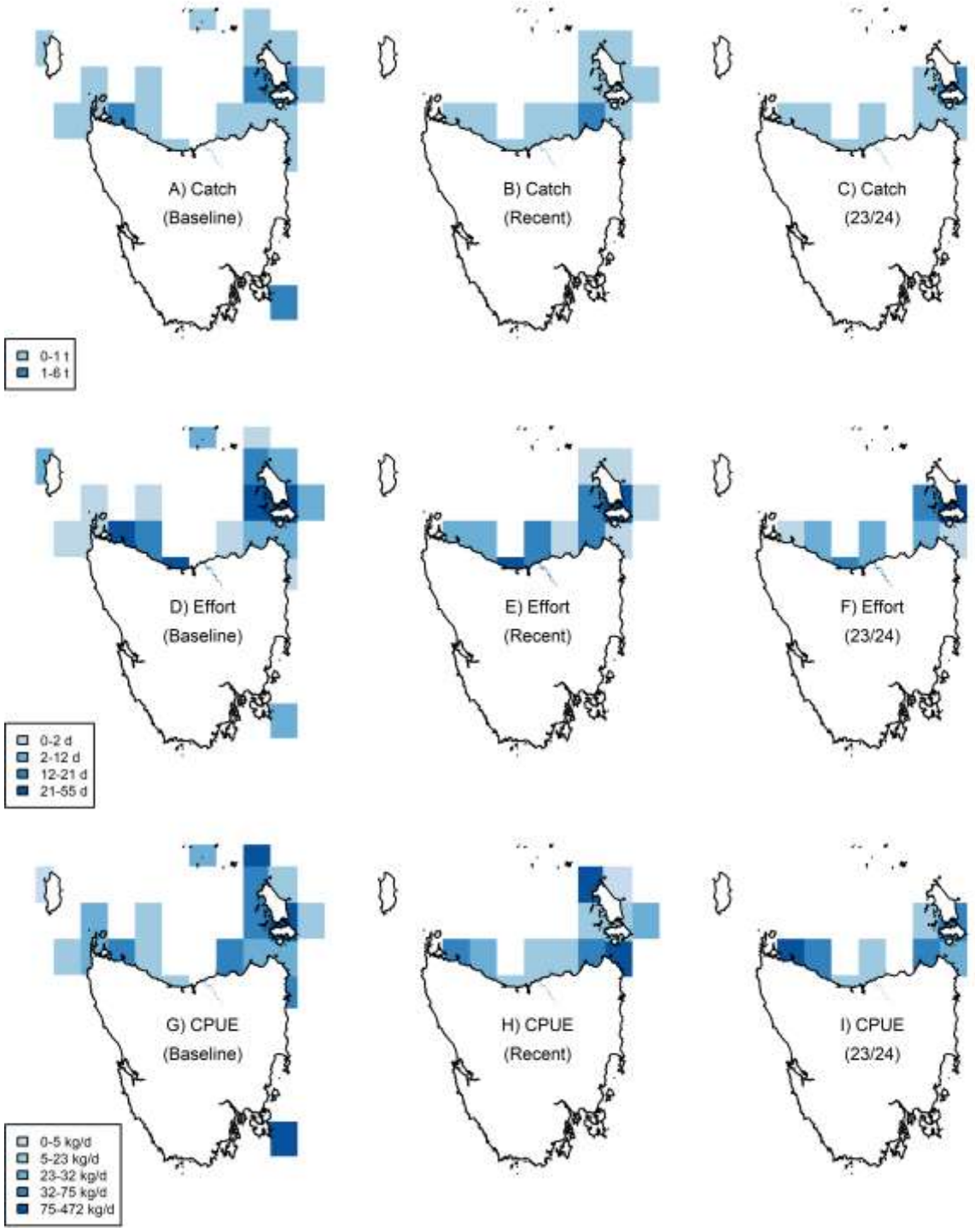


Figure 4.34 Snook catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.9.7 Catch only MSY

Assumed Resilience: Low.

Estimated B/BMSY: 0.78.

- Lower 95% CI: 0.48 (Figure 4.34).
- Equivalent to ~39.0% of unfished biomass.
- Lower 95% CI of unfished biomass: 24%.

Biomass Trend: Biomass remains near the BMSY target (~50% of unfished biomass).

Estimated MSY: 9.4 t.

- **Upper 95% CI:** 13.6 t.
- **Lower 95% CI:** 6.4 t.

MSY Trend:

- Catches peaked in 1997/98, exceeding the upper 95% CI of MSY (13.6 t).
- Since then, catches have steadily declined.
- Catches have remained below the estimated MSY (9.4 t) for many years.
- For the last 6 years, catches have also remained below the lower 95% CI of MSY (6.4 t) (Figure 4.36).

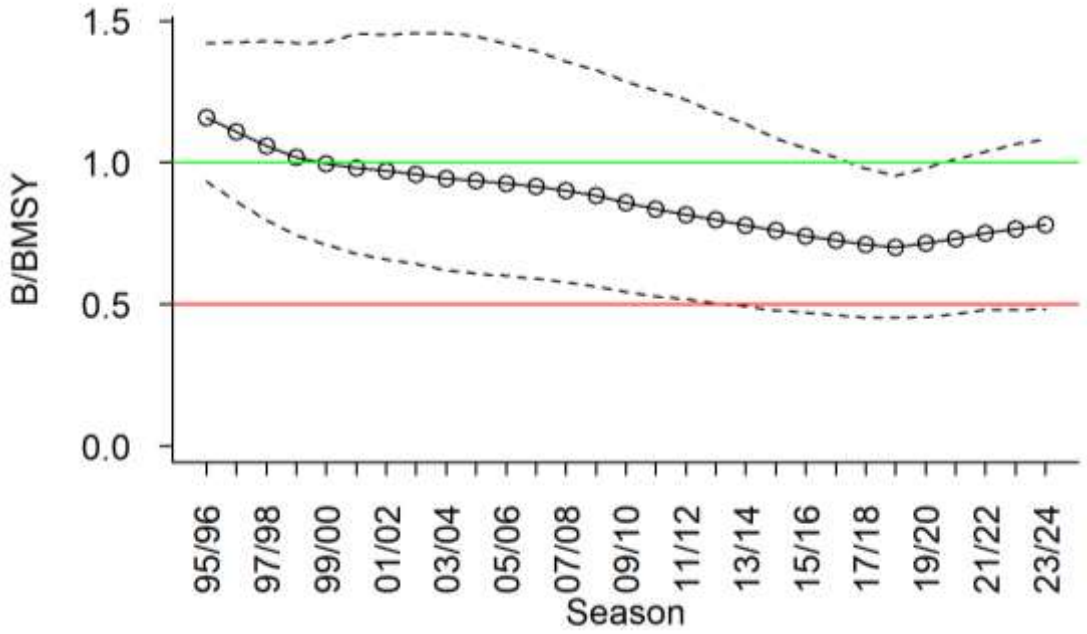


Figure 4.35 Snook trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

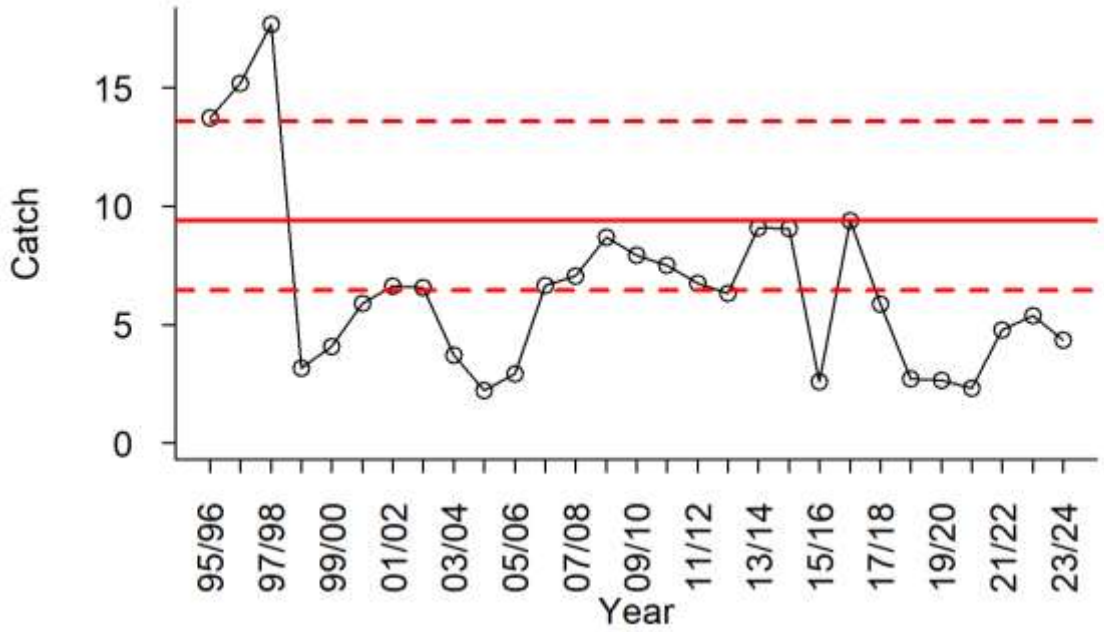


Figure 4.36 Snook trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.10 Southern Calamari (*Sepioteuthis australis*)

Since 2022/23 (Sharples et al. 2023), the calamari assessment has been reported separately for the Northern Region and the Southern and Eastern Region, reflecting persistent declines in catches and CPUE in the south and east, and concurrent increases in catch and effort in the north.

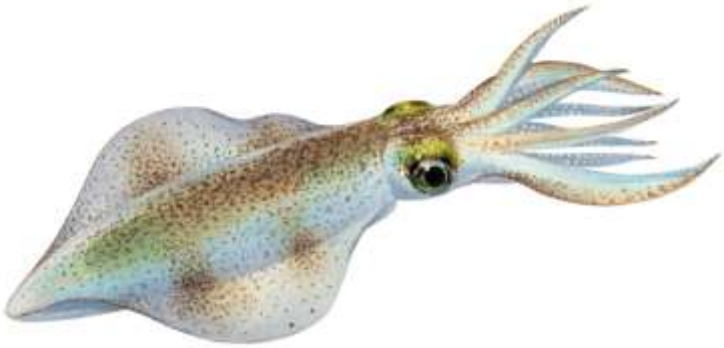
Southern and Eastern Region

STOCK STATUS	DEPLETED
Catch in this region peaked at over 80 t in 2004/05, followed by a long-term decline to < 20 t in the current assessment year. Temporary increases in catch from 2016/17 to 2018/19 were driven by higher effort and lower CPUEs, suggesting a declining stock. Signals of stock decline may be masked by hyperstability, as the species is vulnerable to targeting at spawning aggregations. Management changes, including seasonal closures and a limit on species-specific licences, likely resulted in effort shifting northward. Data-poor CMSY assessment results indicate sustained overfishing, with the stock likely depleted below critical levels and no signs of recovery. The stock is therefore classified as depleted.	
STOCK	Southern and Eastern
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; fishery-independent monitoring; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)

Northern Region

STOCK STATUS	DEPLETING
Rising catch and effort in the Northern region reflect a northward shift in fishing activity from the depleted southern and eastern regions. Although catch and CPUE are likely hyperstable, trends suggest a decline from peak levels observed between 2012/13 and 2016/17. Effort has increased substantially over the past five years, with CPUE mostly stable over time but decreasing in the current season. Closures cover part of the spawning season, but as the spawning period is likely to vary and not be fully covered, protection may be insufficient to mitigate recruitment risks. Catch and effort now equal or exceed historical peaks from the Southern and Eastern region. Environmental conditions are likely contributing to recent catch trends and continued low recruitment, or poor environmental seasons could exacerbate declines, potentially shifting the stock from its current classification of depleting to depleted. Data-limited assessments indicate that current exploitation is likely unsustainable. The stock is therefore assessed as depleting.	

STOCK	Northern
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; fishery-independent monitoring; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)



Southern Calamari
(Sepioteuthis australis)
Illustration©R.Swainston/anima.fish

4.10.1 Biology

- **Habitat:** Shallow to inshore water (Gomon et al., 2008) with eggs often laid on seagrass (Pecl 2004).
- **Distribution:** Endemic to southern Australia and northern New Zealand (Gomon et al., 2008).
- **Diet:** Various crustaceans and fishes (Norman, 2000).
- **Stock Structure:** Preliminary genetic studies revealed a minimum of 5 distinct stocks in Australia, with 98% of the Tasmanian population belonging to a single genetic stock that is also found in South Australia, New South Wales and Western Australia, suggesting some degree of connectivity. A more comprehensive genetic study revealed a single stock across southern Australia and that Tasmanian is particularly important in terms of reproduction (Triantafillos and Adams, 2001; Smith et al. 2015b).
- **Movement:** Highly mobile, including migrations between feeding and spawning grounds.
- **Size at Maturity (length FL; cm):** 18.45 (females) (Pecl and Moltschaniwsky, 2006).
- **Maximum Age (years):** < 1 (275 days for males, 263 days for females) (Pecl et al., 2004; Pecl and Moltschaniwsky, 2006).
- **Spawning Season:** September – February with low levels year-round.

More detailed information on biological characteristics and current management of Southern Calamari fisheries is available from the TasFisheriesResearch webpage.

4.10.2 Fishery

The southern calamari fishery expanded rapidly in the mid-1990s, with peak catches around 100 tonnes from 1997/98 to 2003/04, predominantly from the Southern and Eastern region. Since 2015/16, total catches have peaked around 100 tonnes, predominantly from the Northern region. In 2023/24, Southern Calamari landings represented the highest of all Scalefish Fishery species, although were markedly lower than recent years. The stock status of this species was classified as ‘Depleting’ in the most recent six assessments. This marks

the second year of regional stock status reporting, with Southern and Eastern stocks classified as ‘Depleted’ and Northern stocks as ‘Depleting’.

4.10.3 Management

In the south east, between Lemon Rock and Whale Head, a species-specific licence is required to commercially fish for calamari. Since the introduction of this licence, fishing effort has shifted to other areas of Tasmania where only a general scalefish licence in required.

Temporal closures are used to protect regional Southern Calamari stocks during part of the spawning season. Currently the north coast is closed from 1 September to 31 October each year, between Cape Grim and Cape Naturaliste. The southeast region is closed between 15 October and 14 November each year, with the closed area being expanded from Lemon Rock to Whale Head from in 2024, to provide further protection for the depleted stock (See Figure 4.37). Closures apply to commercial and recreational fishers.

4.10.4 Commercial Catch, effort and CPUE

Current commercial catch: Catch of Southern Calamari in 2023/24 was 55.7 t.

Catch, effort and CPUE trends: In 2023/24, catch was notably low—its lowest level since 2011/12—while both effort and CPUE declined, with CPUE reaching the lowest relative level on record (Figure 4.38 A).

Statewide CPUE for the fishery has remained relatively stable since 1998/99, though a slight declining trend has been evident since 2017/18 (Figure 4.38 C). While the relationship is unclear, a decline in CPUE despite increasing catch and effort may suggest a declining or more dispersed population. This trend is of particular concern given the potential for catch rates to appear hyperstable, masking the full extent of any decline in abundance.

Fishing distribution: Comparing catch in the Southern and Eastern regions with the Northern regions of Tasmania, the catches in the south and east were at a high level (in the order of 60 tonnes) until 2008/09 and have shown a continuing downward trend since then. Around this period of decline in the south and east, an increase in catch in the north was observed.

Substantial regional variation is evident in the catch and effort trends for this species throughout the time series. Figure 4.39 illustrates the differing trends in catch and effort between the Northern and the Southern and Eastern regions. Historically the highest catch and effort were in the Southern and Eastern region (Figure 4.39). However, following declines in this region, much of the catch and effort shifted to the northern region (Figure 4.39). The spatial distribution of catch within the fishery can be seen in Figure 4.40. The densest fishing effort for the 2023/24 season is observed on the far eastern north coast, south of Flinders Island, and in the far northwestern seagrass beds near Smithton, with lower fishing effort and catch in other areas of the north coast.

Gear types: Southern Calamari are mainly caught using squid jigs on rod or handline, with minor catches from Danish seine, purse seine, beach seine, spear, and dip net.

4.10.5 Recreational Fishery

Recreational catches have generally been lower than commercial catches (Figure 4.38 A), except in 2012/13 when they were equal (Lyle, Stark, and Tracey 2014a). In 2022/23, recreational catch was estimated at 29 t (25 % of total catch), with 77 % taken from inshore coastal waters in the Southern and Eastern Region (Tracey and Stark 2024). This represents

a substantial component of total fishing mortality and should be considered in stock assessment and management.

4.10.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** <60, indicates a high risk of recruitment impairment and stock damage.
- **Productivity:** Moderately productive species with a short lifespan, rapid maturation, and moderately energy-intensive reproduction.
- **Fishing Pressure:** Southern Calamari is heavily fished at spawning aggregations, increasing risk of recruitment failure. Despite closures, fishing effort remains high and has shifted north, causing catch fluctuations and sustainability concerns.
- **Stock Status:** Depleting/Depleted.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

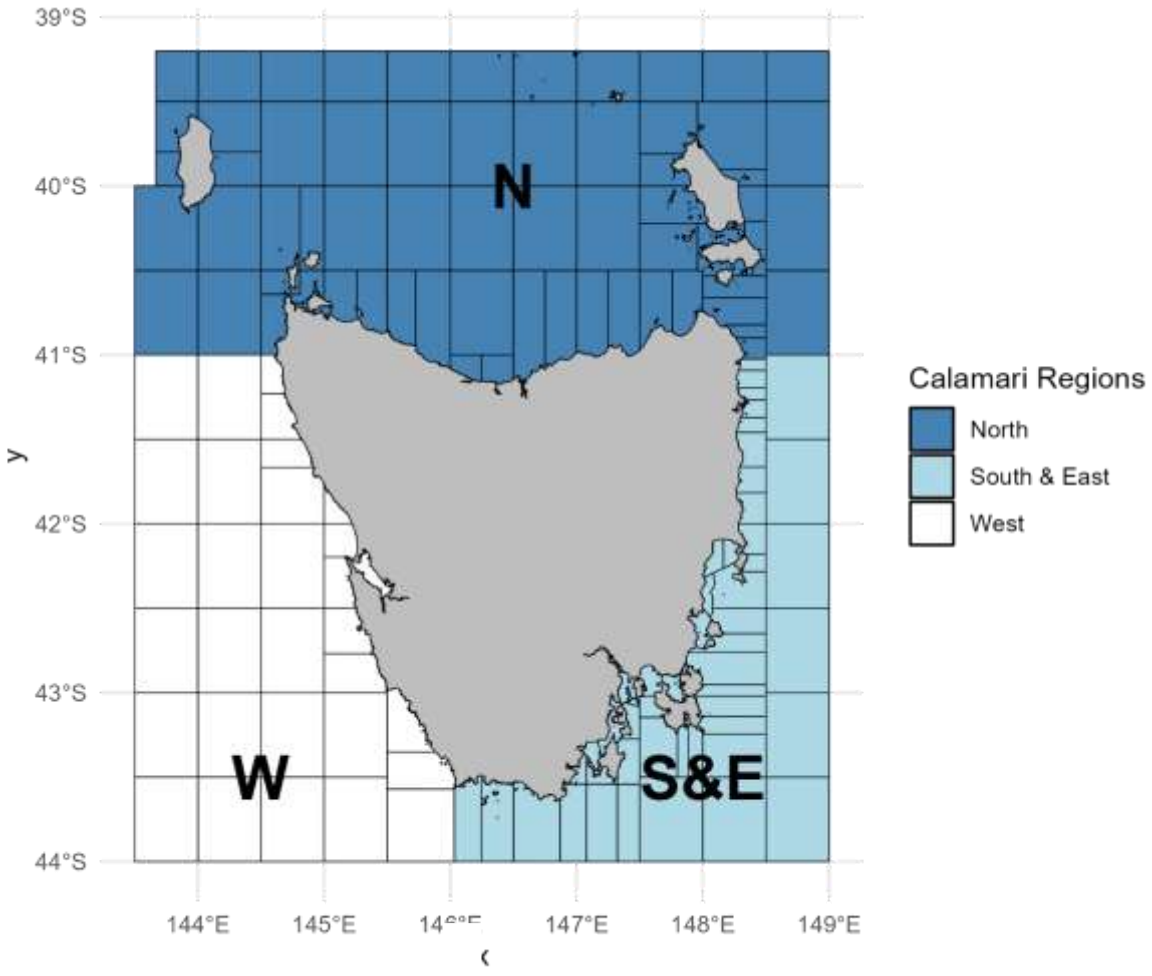


Figure 4.37: Calamari Regions. The map illustrates the updated calamari fishing regions. The West region remains unchanged. The Northern region now combines areas previously reported as the northeast coast and northwest coast. The Southern and Eastern Region combines the east coast, Great Oyster Bay, Mercury Passage, and southeast coast (see Figure 6.2).

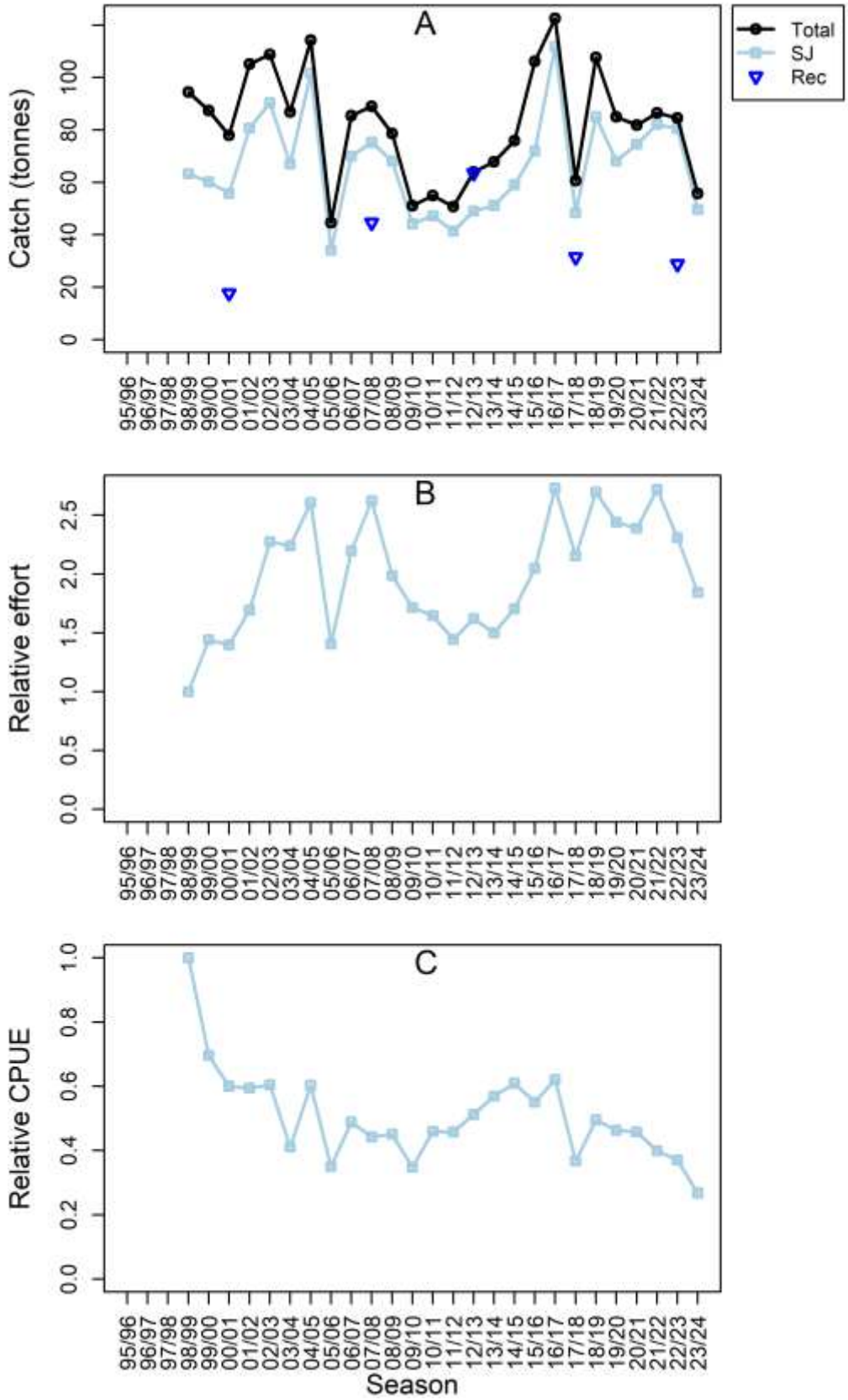


Figure 4.38 (A) Annual commercial Southern Calamari catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1998/99; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1998/99. SJ = Squid jig, Rec = estimated recreational catch.

Squid Jig

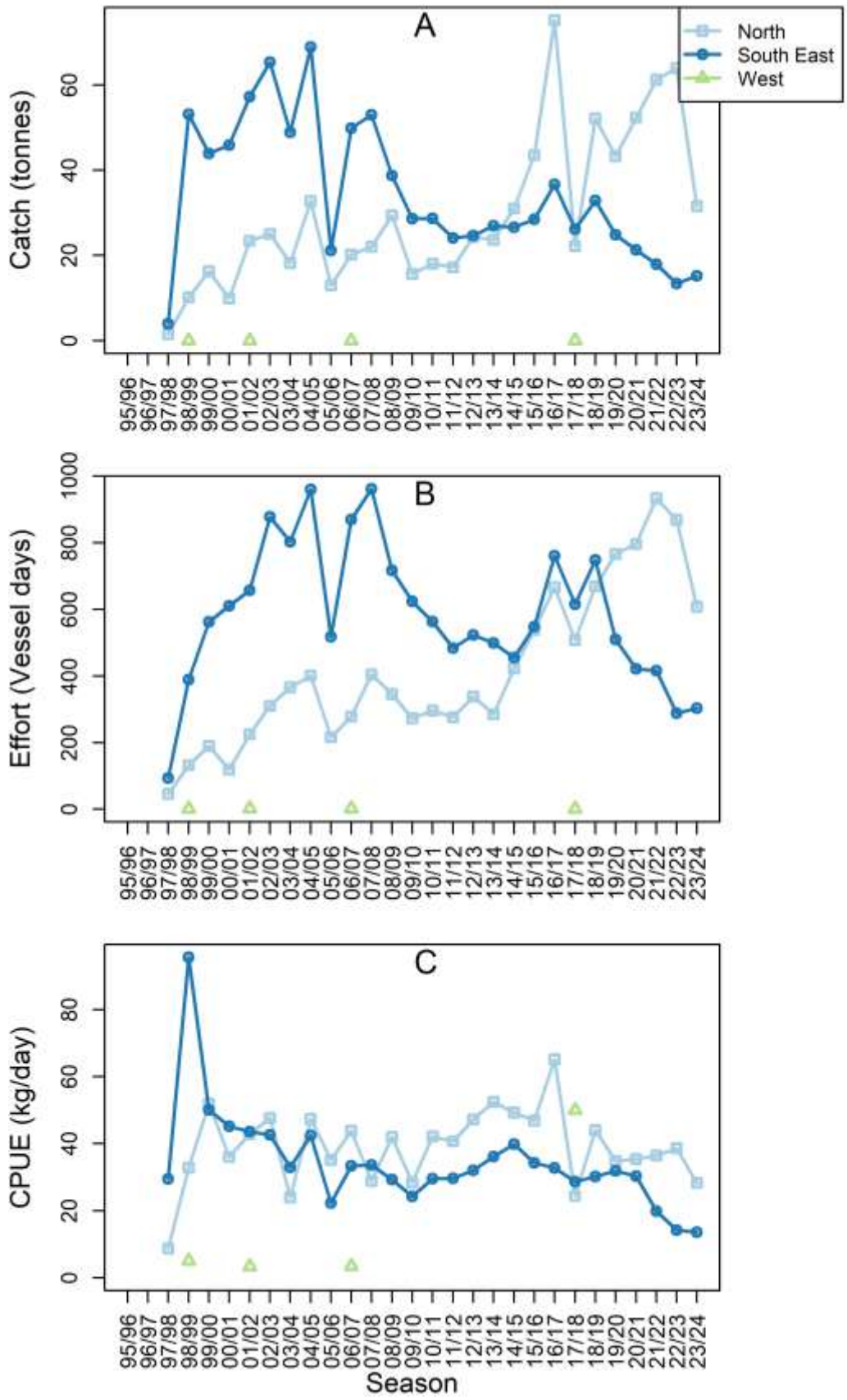


Figure 4.39 Regional commercial Southern Calamari catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for squid jig. S&E = all Southern and Eastern regions, N = all Northern regions and W = Western region.

*Appendix 5 (*p194) presents data for the finer scale regions reported in previous years.

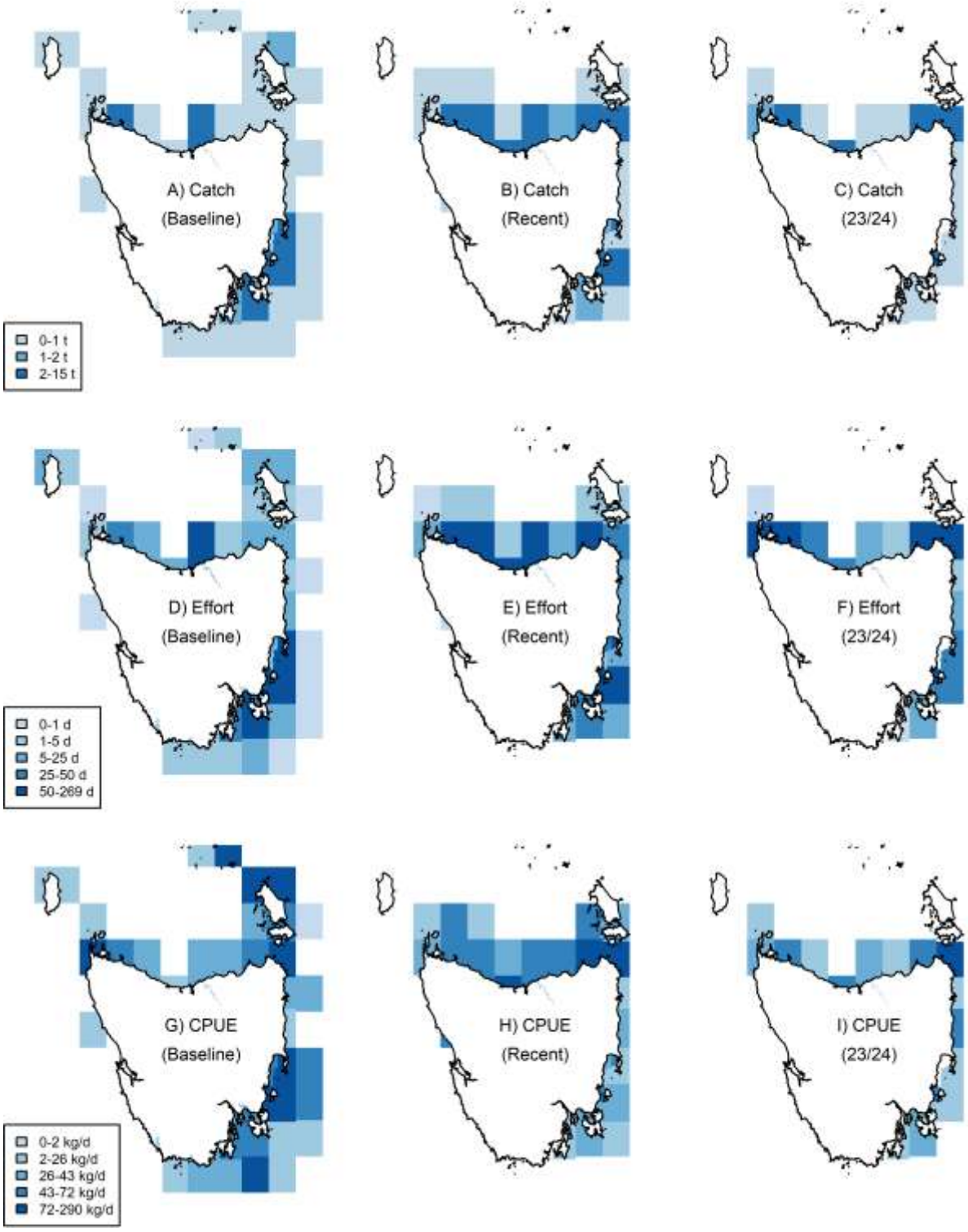


Figure 4.40 Southern Calamari catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1997/98 to 2006/07 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.10.7 Catch only MSY

CMSY results, based on the assumption of “medium” resilience, are presented below for both the southern and eastern region, and the northern region.

4.10.7.1 Southern and Eastern Region

Assumed Resilience: Medium.

Estimated B/BMSY: 0.40 (Figure 4.41).

- Lower 95% CI: 0.09.
- Equivalent to ~20.6% of unfished biomass.
- Lower 95% CI of unfished biomass: 8.9%.

Biomass Trend: Biomass appears depleted and remains well below unfished levels.

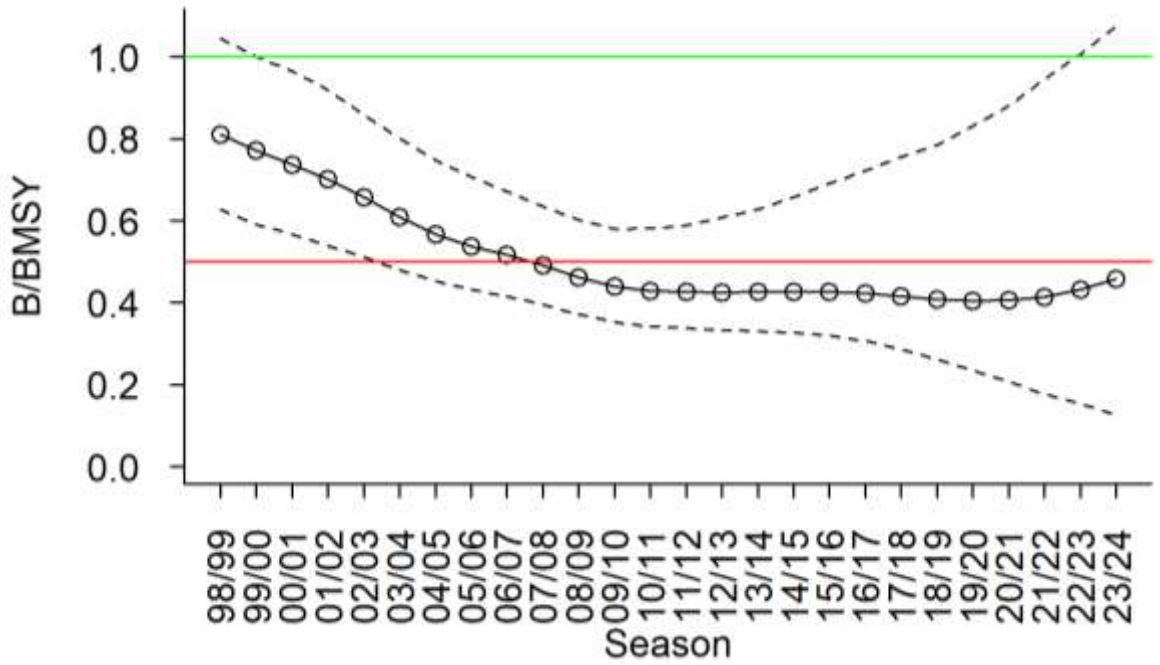


Figure 4.41: Southern Calamari, Southern and Eastern Region. Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

Estimated MSY: 55.7 t (Figure 4.42).

- Upper 95% CI: 73.4 t.
- Lower 95% CI: 42.8 t.

MSY Trend:

- Catches peaked above MSY (55.7 t) between 1998/99 and 2004/05.
- Most of these years exceeded the upper 95% CI of MSY (73.4 t).
- Since 2008/09, catches have remained below the lower 95% CI of MSY (43.5 t) (Figure 4.42).

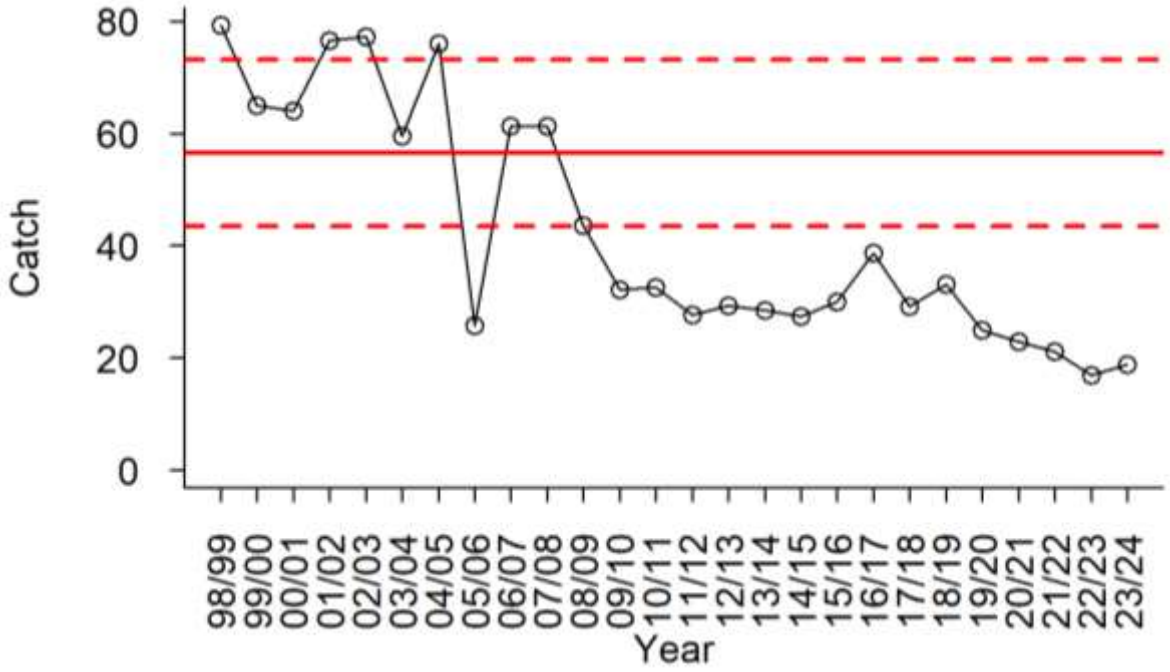


Figure 4.42: Southern Calamari, Southern and Eastern Region. Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.10.7.2 Northern Region

Assumed Resilience: Medium.

Estimated B/BMSY: 0.44 (Figure 4.43).

- Lower 95% CI: 0.10.
- Equivalent to ~22% of unfished biomass
- Lower 95% CI of unfished biomass: 9.54%

Biomass Trend:

- Estimated biomass has just fallen below the common limit reference point.
- Ongoing downward trend in biomass since a peak in 2013/14 (Figure 4.43).
- Hyperstability likely present - catches maintained despite declining biomass due to targeting of spawning aggregations.

- CMSY results highlight the need for precautionary management to avoid a similar depletion as observed in the SE region.
- If the current downward trend continues, the stock's status will need to be reconsidered, potentially being classified as depleted.

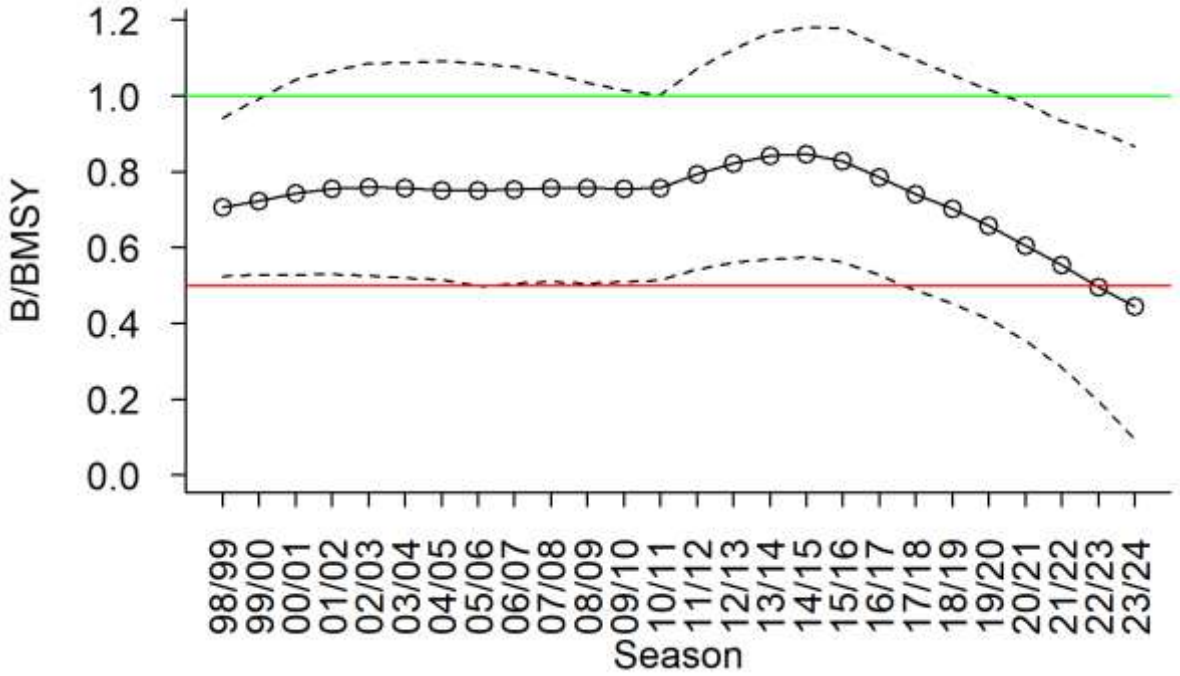


Figure 4.43: Southern Calamari, Northern Region. Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

Estimated MSY: 47.9 t.

- Upper 95% CI: 34.8 t.
- Lower 95% CI: 68.0 t.

MSY Trend:

- Catch exceeded MSY in 2014/15. Since then, catches have generally been above estimated MSY (47.9 t) and the upper 95% CI (68.0 t).
- Exceptions occurred in 2017/18 and 2023/24, possibly impacted by environmental conditions (Ewing et al. 2002).
- The low catch in 2023/24 has a strong influence on CMSY outputs, lowering estimated MSY and biomass status due to the model interpreting the decline as reduced stock productivity.

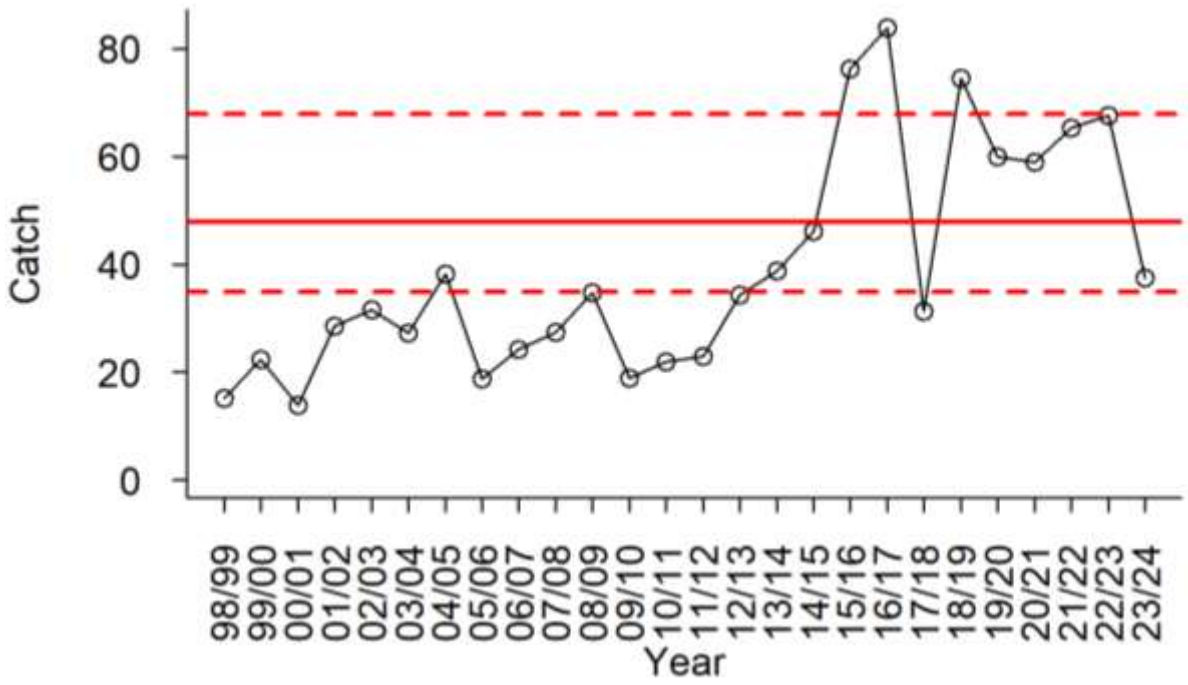


Figure 4.44: Southern Calamari, Northern Region. Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield (MSY). Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.11 Southern Garfish (*Hyporhamphus melanochir*)

STOCK STATUS	DEPLETED
Steep declines between 2005 and 2008 led to the fishery being classified as depleting, prompting management actions such as one-month closures in eastern and northern regions to protect peak spawning periods. Although an initial recovery followed, subsequent declines in catch and CPUE underscored the stock's vulnerability. Over the past four years, modest increases in catch and effort have been observed around the northeast coast and Flinders Island. CPUE has fluctuated but shows a recent upward trend; however, given the species' schooling behaviour and the use of lights to attract fish to dip nets, CPUE may not reliably indicate changes in biomass. Data-limited assessments suggest recovery is possible under current commercial catch levels, though uncertainty remains around recent trends and recreational harvest is largely unquantified. Additional data are needed to evaluate the effectiveness of existing measures and to determine whether region-specific management, rather than statewide controls, would better support stock sustainability.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; research and monitoring of changes in size/age composition; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)

Southern Garfish
(Hyporhamphus melanochir)
Illustration©R.Swainston/anima.fish

4.11.1 Biology

- **Habitat:** Inhabits shallow (≤20 m) inshore waters in association with seagrass beds (Gomon et al. 2008).
- **Distribution**: Endemic to Australia, from Eden (New South Wales) to Perth (Western Australia), including Bass Strait and Tasmania (Gomon et al., 2008).
- **Diet:** Predominantly herbivorous (seagrass, algal filaments) but also consuming planktonic crustaceans, worms, diatoms and stray insects landing on the surface (Edgar, 2008; Klumpp and Nichols, 1983).

- **Stock Structure:** Four genetically distinct populations distributed across Western Australia, western South Australia, eastern South Australia/Victoria, and Tasmania; likely at least two subpopulations exist in Tasmania, as indicated by different size and age characteristics on the north vs. east coasts (Grant, 1991; Jones et al., 2002).
- **Movement:** Schooling fish, highly mobile, near surface at night and close to bottom during day.
- **Size at Maturity (length FL; cm):** 19.9 (females), 17.1 (males) (Hartmann and Lyle, 2011).
- **Age at 50% Maturity:** Approximately 1.3 years for males and 1.5 for females.
- **Spawning Season:** October – February (peak October – December).
- **Spawning Location:** Concentrated in shallow (<5m) waters over beds of drift algae in eastern Tasmania.

More detailed information on biological characteristics and current management of Southern Garfish is available from the TasFisheriesResearch webpage.

4.11.2 Fishery

Beach seine fishing in the northeast and around Flinders Island has landed the highest catches of Southern Garfish since the mid-1990s. Dip net fishing on the southeast and east coasts was important in the late 1990s and early 2000s but this has since declined. Following the introduction of dip-nets, catches have also increasingly been taken over the summer months.

4.11.3 Management

A minimum size limit of 250mm applies to Southern Garfish. Following initial assessment as depleting, month-long closures were introduced for the commercial fishery in the north and the east to protect peak spawning aggregations in 2009. These were extended to the recreational fishery from 2022 and now apply to all fishers between 15 November to 14 December in the east, and from 15 January to 14 February in the north. A daily limit of 300 kg was introduced for the commercial sector in 2023, in response to continued depleted status.

Further data are needed to assess the effectiveness of current measures and whether region-specific management, rather than statewide controls, would be more appropriate.

4.11.4 Commercial Catch, effort and CPUE

Current commercial catch: Commercial catch in the 2023/24 season was 19.5 tonnes (Figure 4.45).

Catch, effort and CPUE trends: After many years of relative stability (80-90 t per fishing year), catches fell sharply in 2006/07 and 2007/08. A partial recovery to ~60 t occurred in 2008/09, followed by a prolonged declining trend. Catches declined steeply through to 2018/19 reaching an all-time low of under 10 t. Since 2019/20 catch has shown a slow but consistent increase to 2023/24.

Effort declined alongside catch during the downturn but has remained relatively stable in recent years. CPUE followed a similar pattern—declining during the years of reduced catch, but showing modest improvements in recent seasons, indicating greater efficiency or increased stock availability.

Fishing distribution: Most of the catch in 2022/23 was taken using beach seine gear in the northeast coast region and in particular around Flinders Island (Figure 4.45 A, Figure 4.46 A, Figure 4.48).

Gear types: Currently, Garfish on the northeast coast are caught mostly by beach seine while on the southeast and east coasts they are caught mainly by dip-nets.

4.11.5 Recreational Fishery

Recreational Southern Garfish catches are low compared with commercial catches, estimated at ≤ 2 t in all surveys (Lyle 2005; Lyle et al. 2009; Lyle, Stark, and Tracey 2014; Lyle et al. 2019; Tracey and Stark 2024). Thus, the recreational fishery does not contribute significantly to total catches of this species.

4.11.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment**: <60 failing with high risk of recruitment impairment.
- **Productivity**: High.
- **Fishing Pressure:** Vulnerability moderate or high due to schooling nature meaning they can be effectively targeted even when stocks are low.
- **Stock Status:** Depleted.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

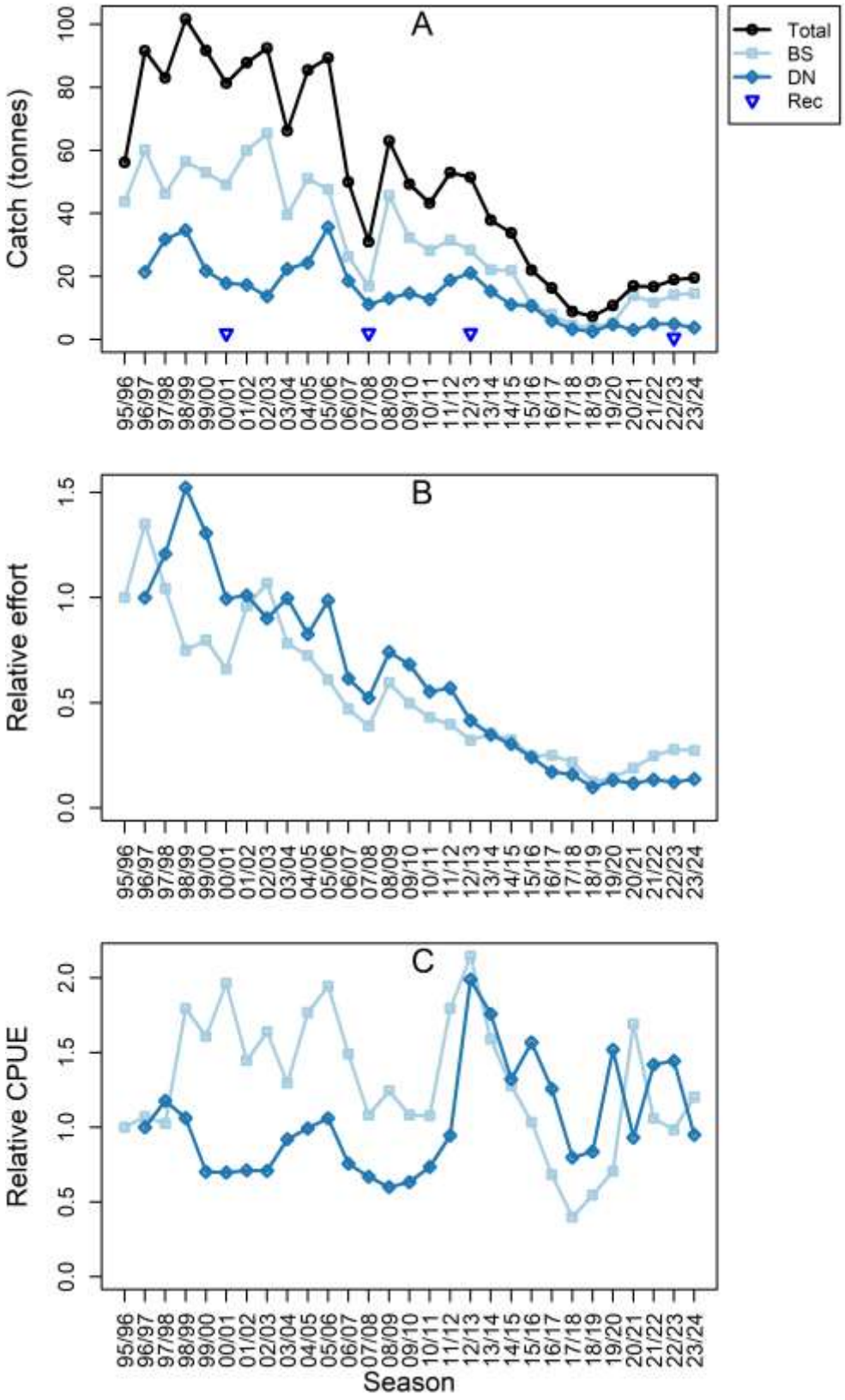


Figure 4.45 (A) Annual commercial Southern Garfish catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. BS = beach seine, DN = dip net, Rec = estimated recreational catch.

Beach Seine

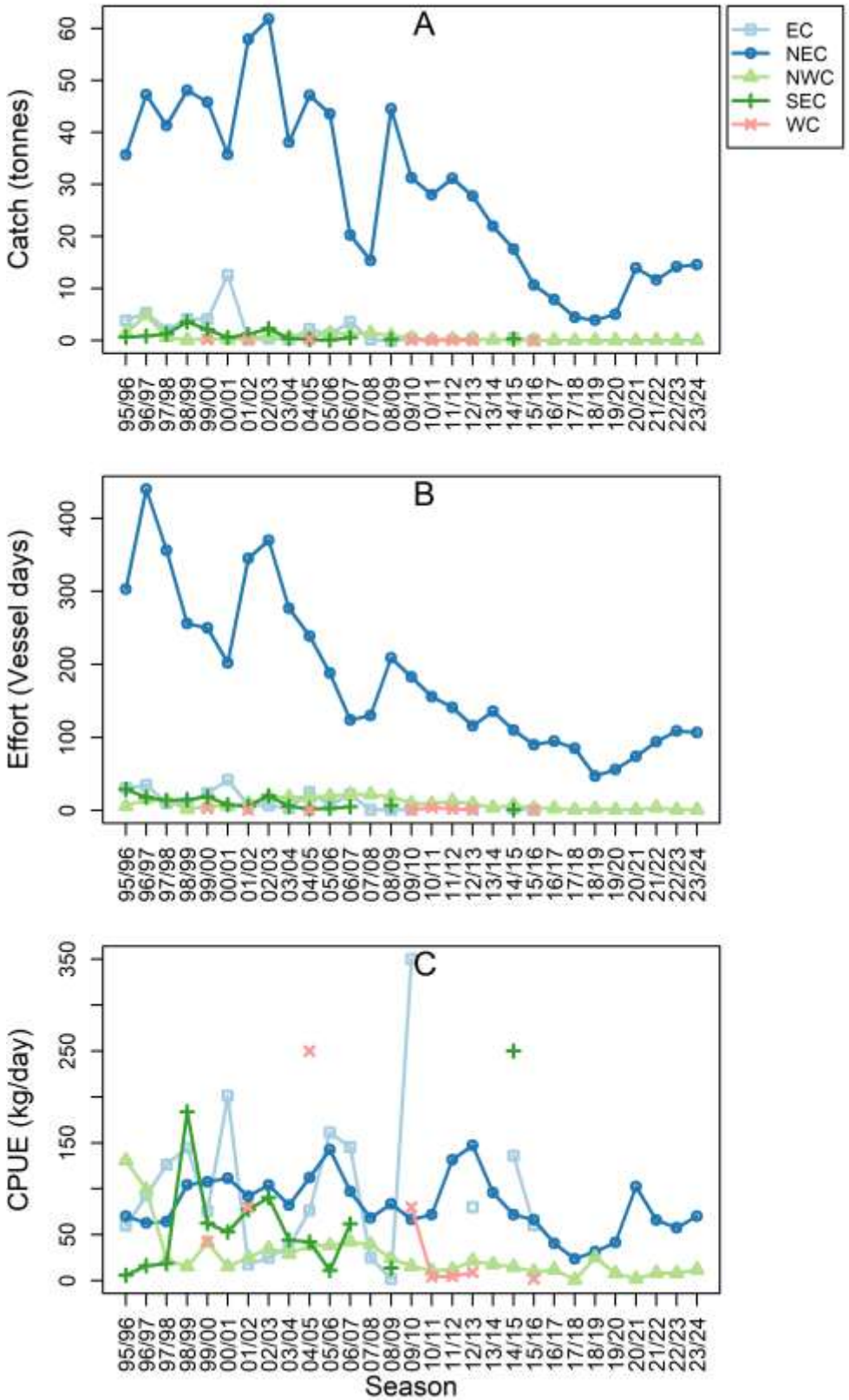


Figure 4.46 Regional commercial Southern Garfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

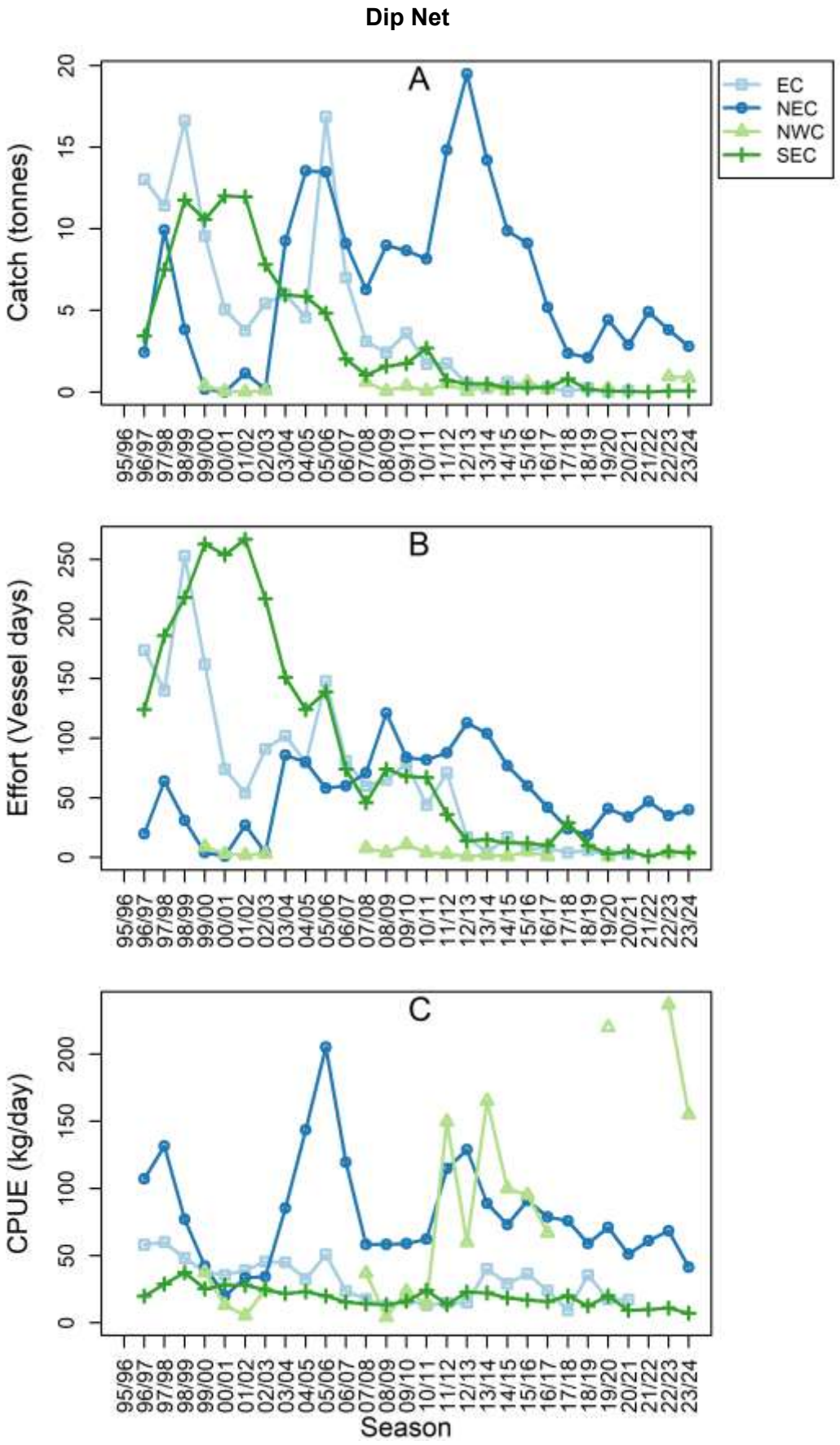


Figure 4.47 Regional commercial Southern Garfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for dip net. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

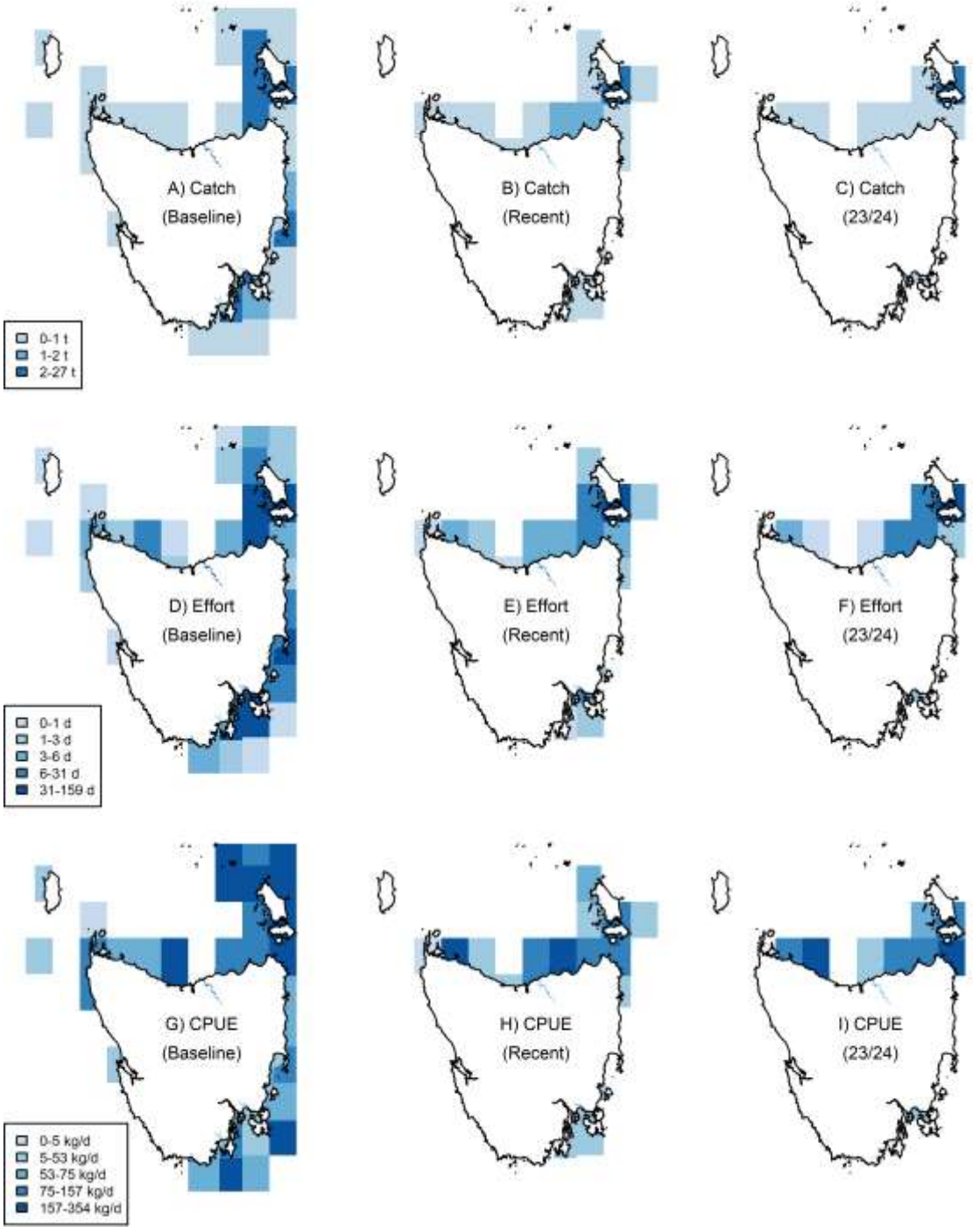


Figure 4.48 Southern Garfish catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.11.7 Catch only MSY

Assumed Resilience: Medium

Estimated B/BMSY: 0.30

- Lower 95% CI: 0.10 (Figure 4.49).
- Equivalent to approximately 15.1% of unfished biomass.
- Lower 95% CI of unfished biomass: 5.0%.

Biomass Trend:

- Biomass is estimated to be substantially depleted.
- No indication of recent recovery (Figure 4.49).

Estimated MSY: 73.2 t.

- Upper 95% CI: 97.1 t.
- Lower 95% CI: 56.1 t.

MSY Trend:

- Catch levels exceeded the upper 95% CI of MSY (97.1 t) in 1998/99.
- Catches remained above MSY (73.2 t) from 1996/97 to 2005/06.
- Post-2005/06, catches declined steadily.
- Since 2009/10, catches have consistently remained below the lower 95% MSY CI (56.1 t) (Figure 4.50).

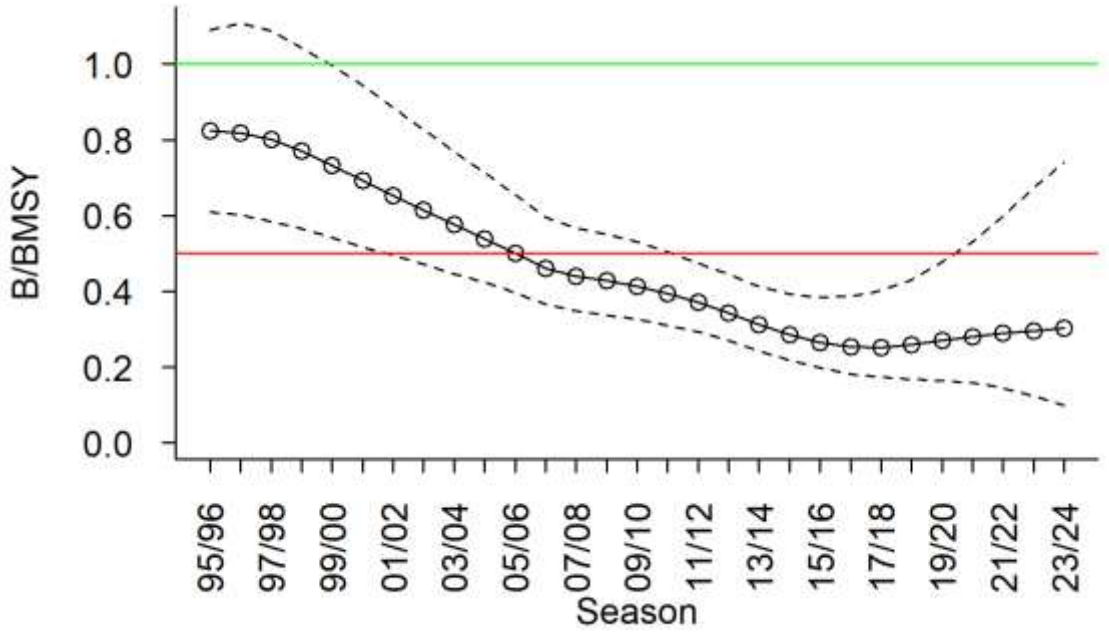


Figure 4.49 Southern Garfish trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

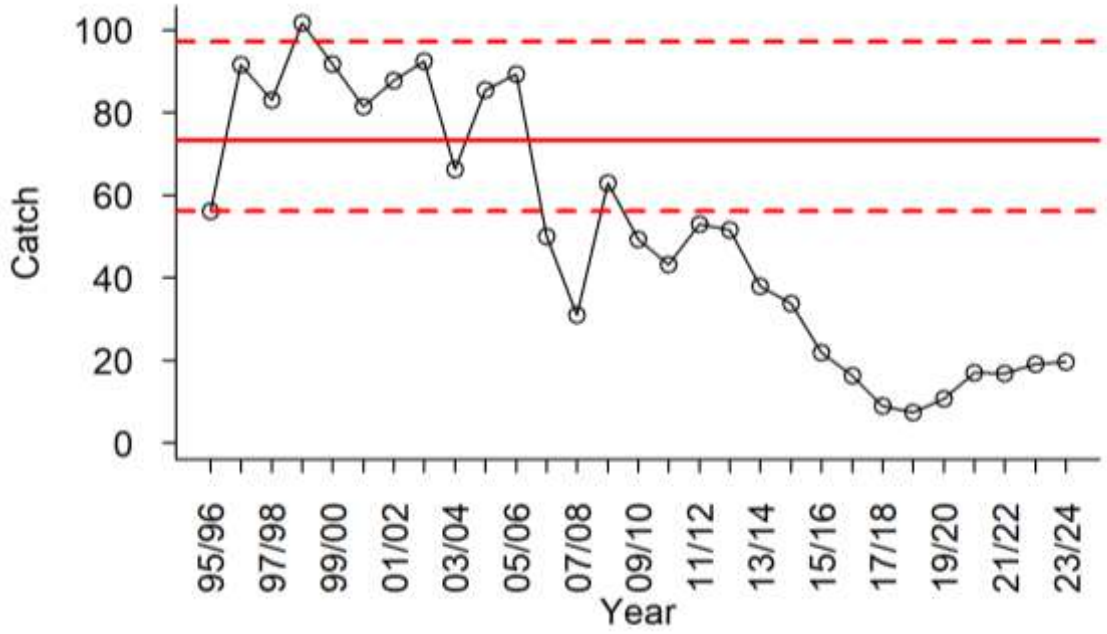


Figure 4.50 Southern Garfish trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.12 Striped Trumpeter (*Latris lineata*)

STOCK STATUS	DEPLETED
Despite the appearance of young fish in biological samples after years of suspected recruitment failure, there is still no clear evidence of population recovery for Striped Trumpeter. Commercial catches remain near historical lows, yet total fishing pressure predominantly from recreational and charter sectors may still be high enough to undermine rebuilding. Management measures, including a seasonal closure, aim to protect the spawning stock, but may not be sufficient under current exploitation levels. The minimum size limit remains below the size at maturity and could thus inhibit stock recovery.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; fishery-dependent and -independent monitoring; length- and age-based estimates of mortality, length-based estimates of biomass depletion; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)

Striped Trumpeter
(Latris lineata)
Illustration©R.Swainston/anima.fish

4.12.1 Biology

- **Habitat:** Juveniles inhabit shallow inshore reefs moving offshore with maturity to deeper exposed reefs ≤ 300 m (Edgar 2008).
- **Distribution:** Sydney (New South Wales) to Albany (Western Australia), Tasmania, New Zealand, Amsterdam Islands (southern Indian Ocean) and most of temperate southern hemisphere (excluding South Africa and South America) (Edgar, 2008; Gomon et al., 2008).
- **Diet:** Small fish, cephalopods, crustaceans (Nichols et al., 1994).
- **Stock Structure:** Uniform stock structure in Tasmanian waters (no significant genetic separation of populations).
- **Movement:** Juveniles have limited movement, remaining around shallow reefs for several years before moving into deeper waters on offshore reefs; adults have the

capacity to undergo wide-scale movements (Tasmania to St Paul Island, Indian Ocean) (Tracey and Lyle, 2005; Lyle and Jordan, 1999; Tracey et al., 2007a)
- **Size at Maturity (length FL; cm**): 54 for females, 53 for males.
- **Age at Maturity:** 6.8 (females), 6.2 (males) (Tracey et al., 2007a).
- **Spawning Season:** July – early October depending on geographic location (early start and finish at lower latitudes).

More detailed information on biological characteristics and current management of Striped Trumpeter fisheries is available from the Tas Fisheries Research webpage.

4.12.2 Fishery

In the early 1990s, total catches of the species in Tasmanian waters exceeded 110 tonnes, with Victorian vessels contributing significantly—accounting for between 17% and 39% of the total and peaking at around 37 tonnes. Through the mid-1990s, catches fluctuated between 70 and 80 tonnes before rising again to over 100 tonnes in the late 1990s.

Since the mid-1990s, Victorian catch data have no longer been available and are assumed to have been incorporated into Commonwealth logbook records. Commonwealth catches have remained generally low, typically under 5 tonnes. However, in both 2022/23 and 2023/24, Commonwealth catches exceeded those reported from Tasmanian waters—8.4 t vs 3.1 t and 8.9 t vs 1.9 t, respectively.

In addition, there is catch reported between 300-674 kg between the years of 2020/21 to 2023/24 in the rock lobster fishery, as bycatch in pots.

4.12.3 Management

Management of Striped Trumpeter stocks has changed significantly over time Take and possession of Striped Trumpeter is prohibited between 1 September and 31 October each year to protect peak spawning.

Successive size limit increases have been introduced since the early 2000s, however, the minimum legal size of 55 cm is below the estimated size at maturity (~62 cm), potentially inhibiting potential stock recovery.

In 2023, regional catch limits were introduced for commercial and recreational fishers. A trip limit of 150 kg applies in the eastern region, and a trip limit of 250 kg in the western region for commercial fishers. Recreational fishers are limited to a bag limit of 2 in the eastern region, and a bag limit of 4 in the western region. Commonwealth operators are subject to a trip limit of 150 kg but do not observe the minimum legal size or spawning closure.

4.12.4 Commercial Catch, effort and CPUE

Current commercial catch:10.8 t (including Commonwealth fishery)

Catch, effort and CPUE trends:

- In the early 1990s, Victorian vessels made significant contributions, with total catch peaking around 37 t.
- Since the mid-1990s, Victorian catch data have been unavailable but are assumed to have transitioned to Commonwealth logbooks.
- Commonwealth catches have remained generally low (<5 t), though in 2022/23 and 2023/24, they exceeded Tasmanian catches (8.4 t vs 3.1 t and 8.9 t vs 1.9 t).

- Early 1990s: Total catch in Tasmanian waters exceeded 110 t, with Victorian vessels contributing 17–39%.
- Mid-1990s: Catches fluctuated between 70–80 t.
- Late 1990s: Catches again rose to over 100 t.
- 2000/01: Catches halved to under 50 t and have remained consistently low since.
- 2015/16: Catch reached a historic low of 7.1 t (6.0 t Tasmanian vessels).
- 2016/17–2018/19: Minor recovery to around 7–8 t annually.
- 2021/22–2023/24: Tasmanian catches declined further to 4.3 t, 3.1 t, and 1.9 t, respectively—the lowest on record.

Fishing distribution:

- Historically, Striped Trumpeter have been caught statewide, except the central north coast (Figure 4.59).
- In 2023/24, fishing effort was concentrated on the southeast and west coasts (Figure 4.56), especially for gillnet methods.

Gear types: Striped Trumpeter have primarily been caught offshore using handline, with additional catch from offshore dropline and inshore gillnet.

In recent years, gillnet has become the dominant gear type used in the fishery.

4.12.5 Recreational Fishery

The recreational sector has targeted Striped Trumpeter as an important species. In 2000/01 and 2012/13, estimated recreational catch was less than the Commercial catch (Figure 4.52 A) (Lyle 2005; Lyle, Stark, and Tracey 2014). However, estimates of recreational catch in 2011/12, 2017/18 and now 2022/23 were substantially higher than the commercial catch (Figure 4.52 A, Lyle et al. 2014a; Lyle et al. 2019; Tracey and Stark 2024). In 2022/23 the recreational catch was estimated to be 39.3 tonnes, 93 percent of the total catch (Tracey and Stark 2024). Notably, recreational catch estimates do not fully represent catches by charter fishing boats, which may constitute a significant source of fishing mortality.

4.12.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment**: <60 failing with high risk of recruitment impairment.
- **Productivity**: Low productivity and long lived.
- **Fishing Pressure:** High susceptibility of capture with >30% overlap between fishing and species range.
- **Stock Status:** Depleted.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

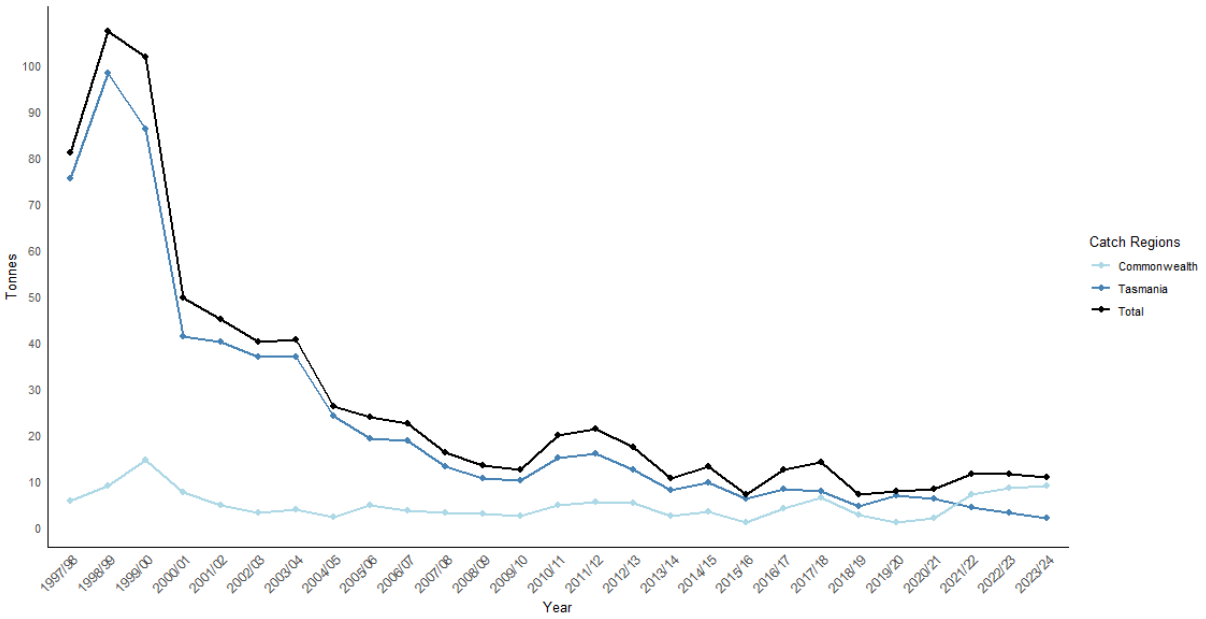


Figure 4.51 Annual commercial catches (t) of Striped Trumpeter south of latitude 39° 12'S. Data based on Tasmanian (General Fishing return) and Commonwealth catch returns.

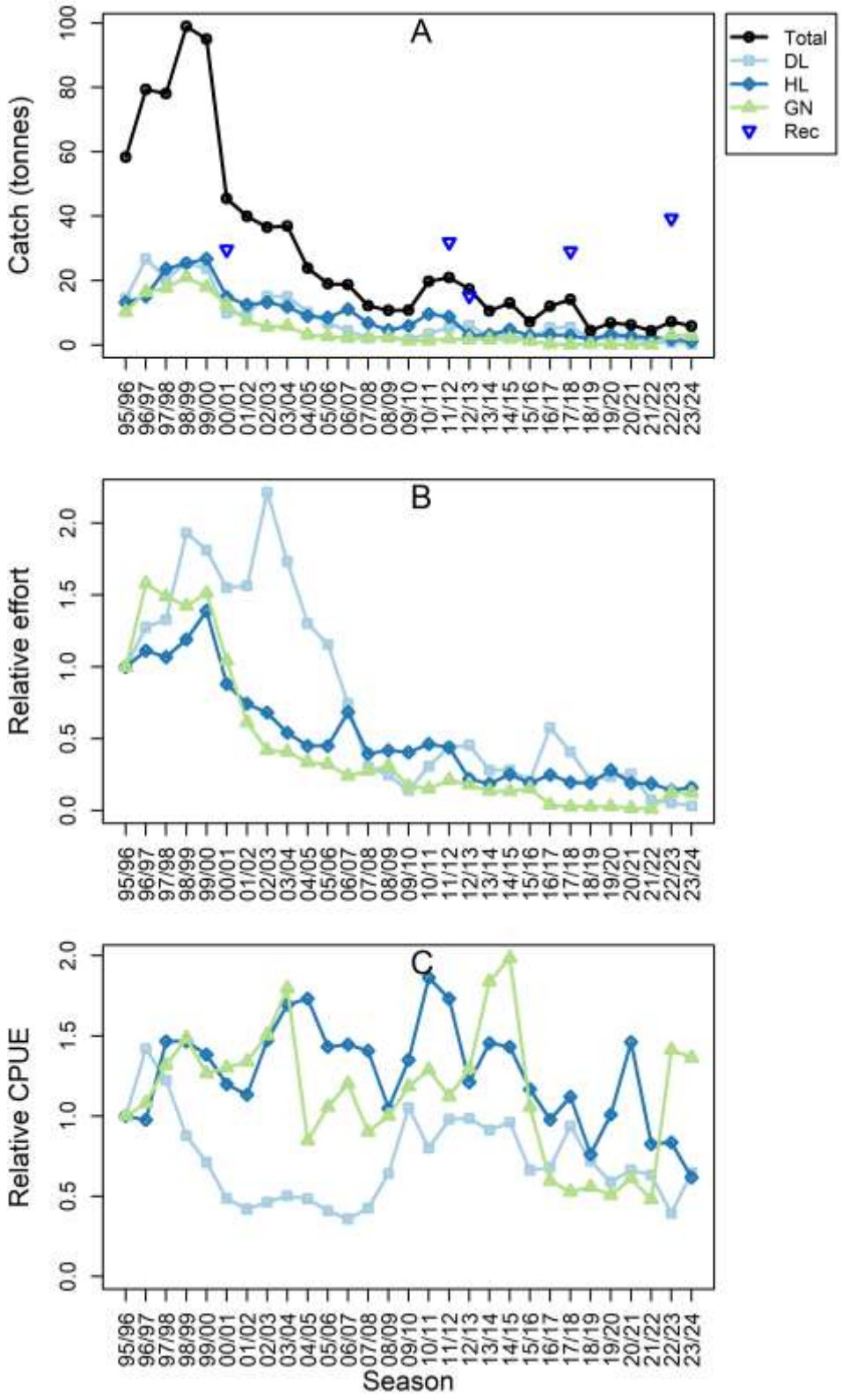


Figure 4.52 (A) Annual commercial Striped Trumpeter catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. DL = dropline, HL = handline, GN = gillnet, Rec = estimated recreational catch. Data include Commonwealth catch in state waters.

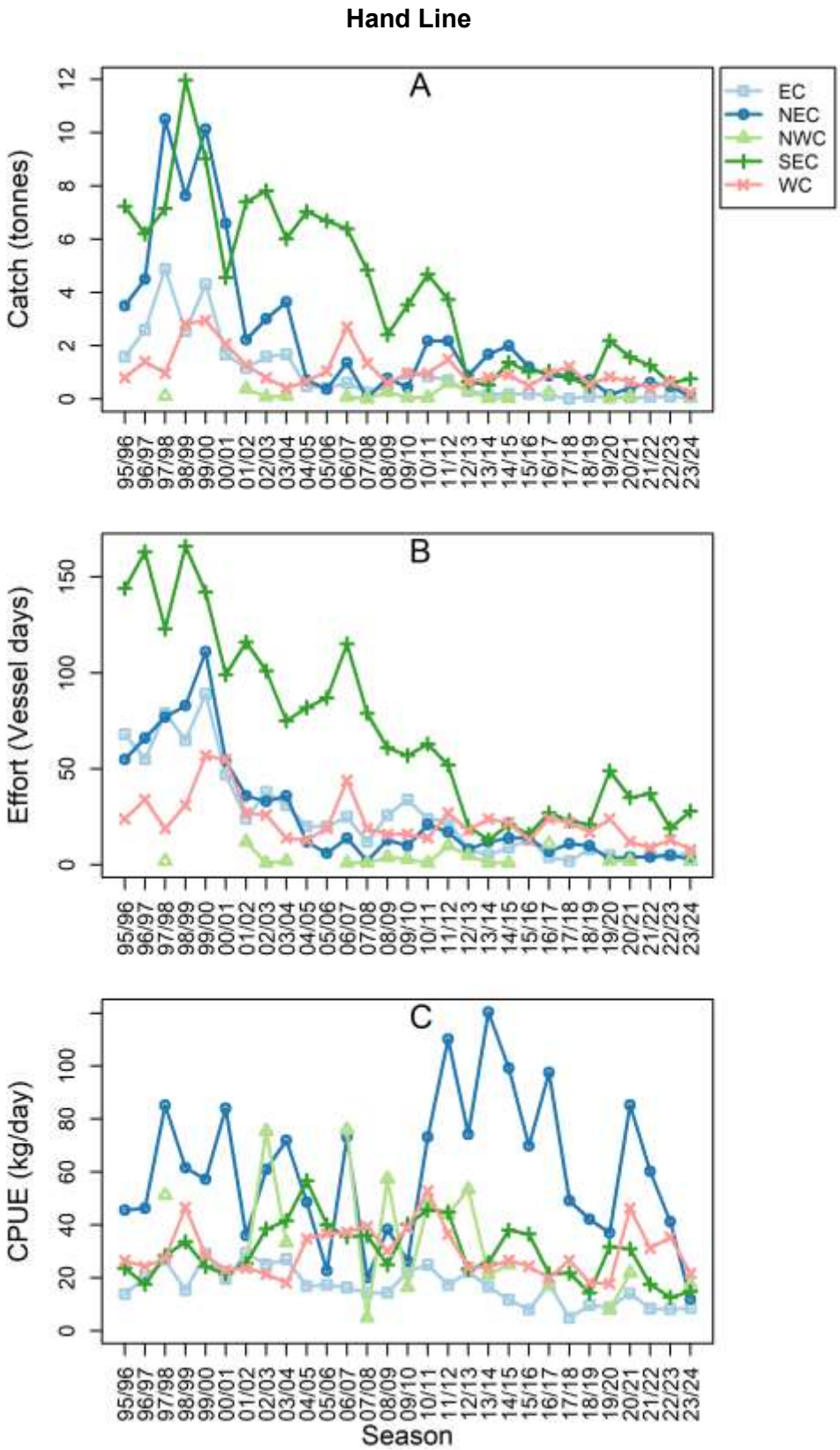


Figure 4.53 Regional commercial Striped Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for handline. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Drop Line

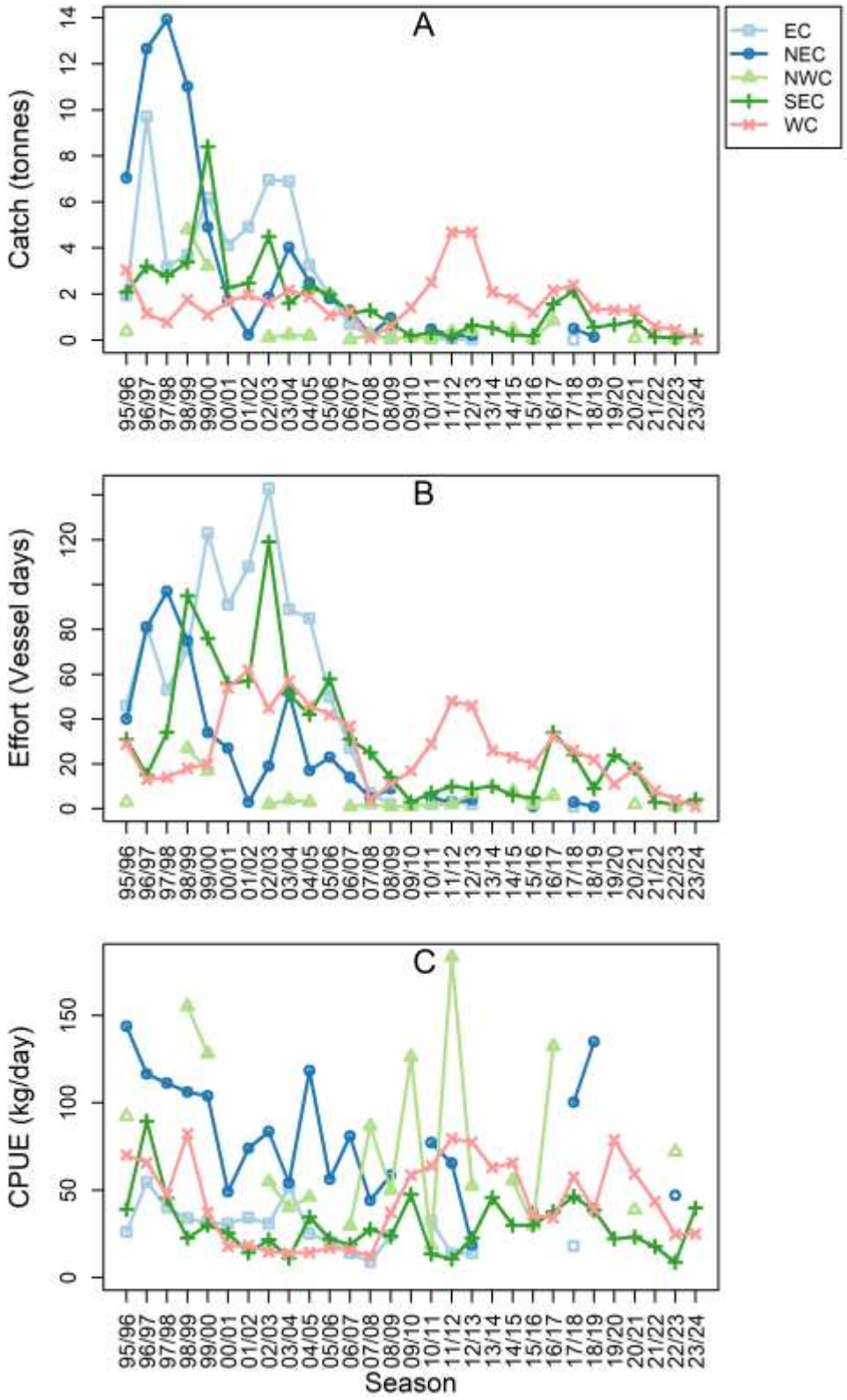


Figure 4.54 Regional commercial Striped Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for drop line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Gillnet

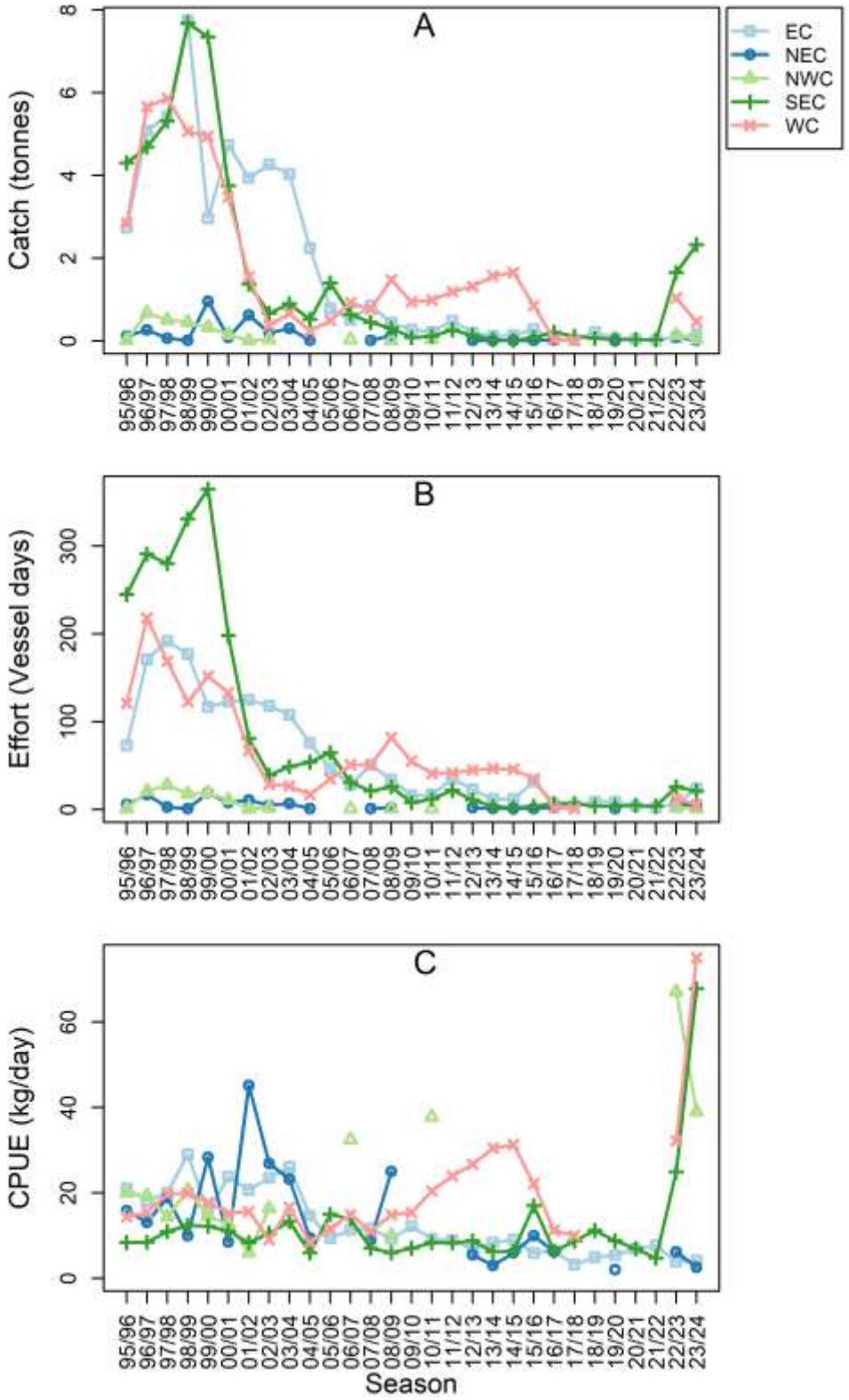


Figure 4.55 Regional commercial Striped Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

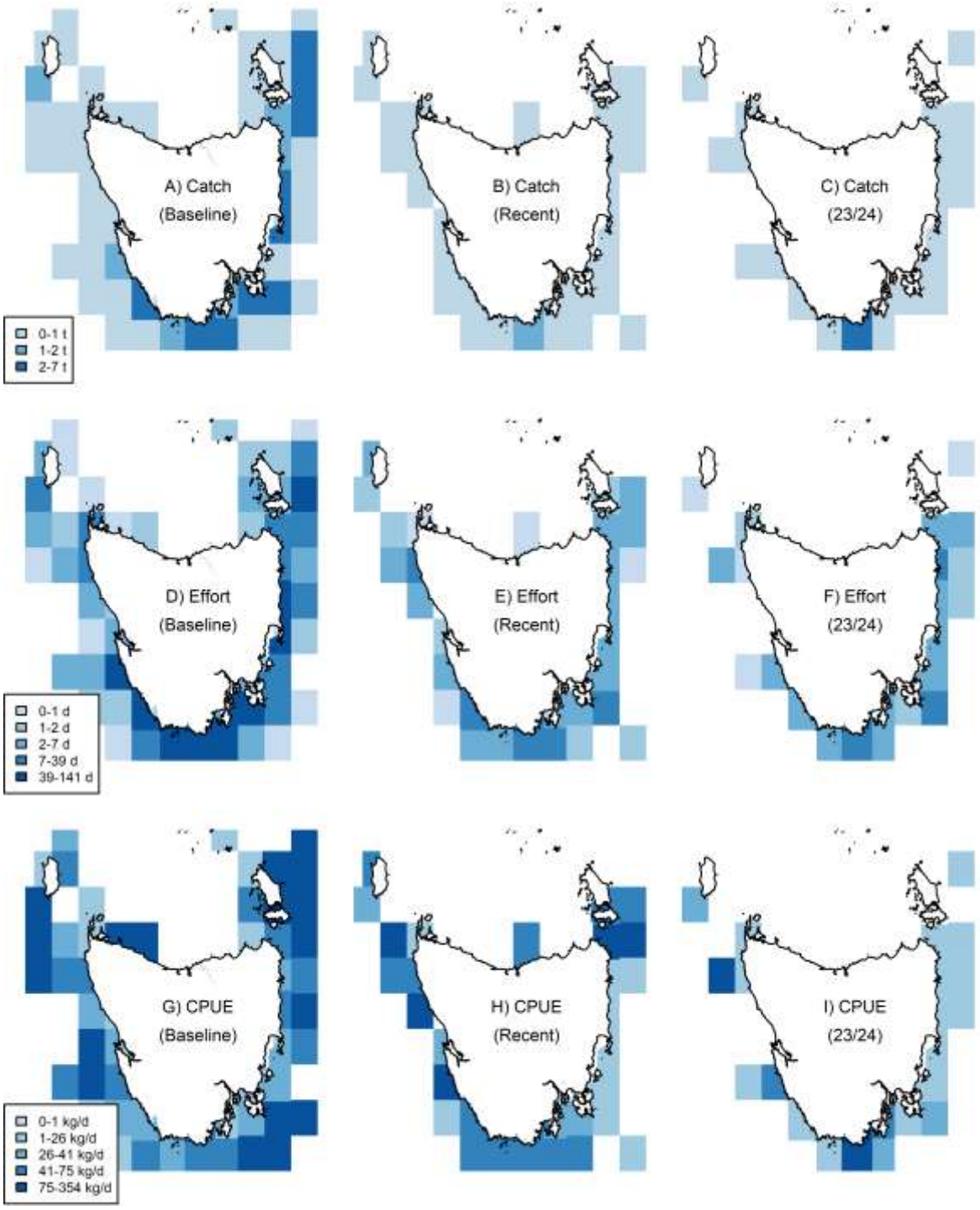


Figure 4.56 Striped Trumpeter catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.12.7 Catch only MSY

Catch-only MSY results are presented; however, these estimates primarily reflect patterns in commercial fishing pressure and do not capture the full picture of total removals. Figure 4.52 illustrates the increasing divergence between sectors: as commercial catches have declined, recreational catches have risen. Importantly, these estimates also do not account for removals from the charter sector, which are not well quantified but may contribute significantly to overall fishing mortality. The CMSY method highlights the period of commercial overfishing between 1995 and 2000, with consequent depletion of the stock. See section below on Length- age based assessment.

Assumed Resilience: Very low.

Estimated B/BMSY: 0.46.

- Lower 95% CI: 0.23 (Figure 4.60).
- Equivalent to approximately 22.8% of unfished biomass.
- Lower 95% CI of unfished biomass: 11.7%.

Biomass Trend:

- Biomass appears to be depleted.
- No clear signs of recovery (Figure 4.60).

Estimated MSY: 69.2 t

- Upper 95% CI: 106.7 t.
- Lower 95% CI: 45.0 t.

MSY Trend:

- Peak commercial catches (1996/97–1999/2000) exceeded MSY (69.2 t) but stayed below upper 95% CI (106.7 t).
- Since 2002/03, catches have declined.
- Catches have consistently remained below the lower 95% CI of MSY (45.0 t) (Figure 4.61).

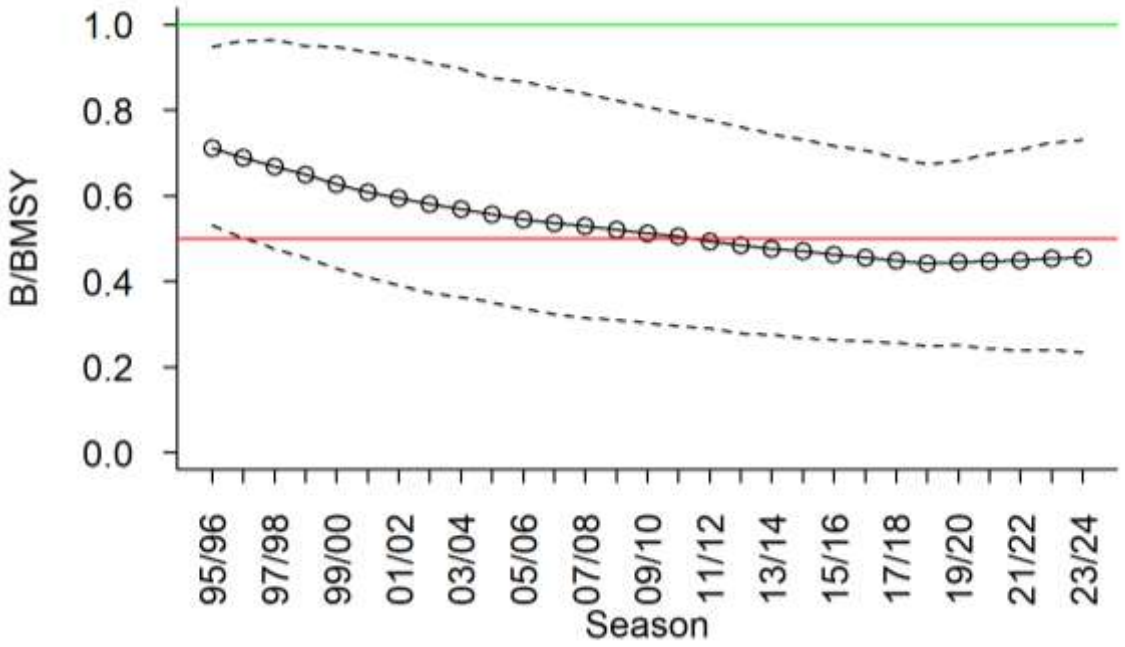


Figure 4.57 Striped Trumpeter trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

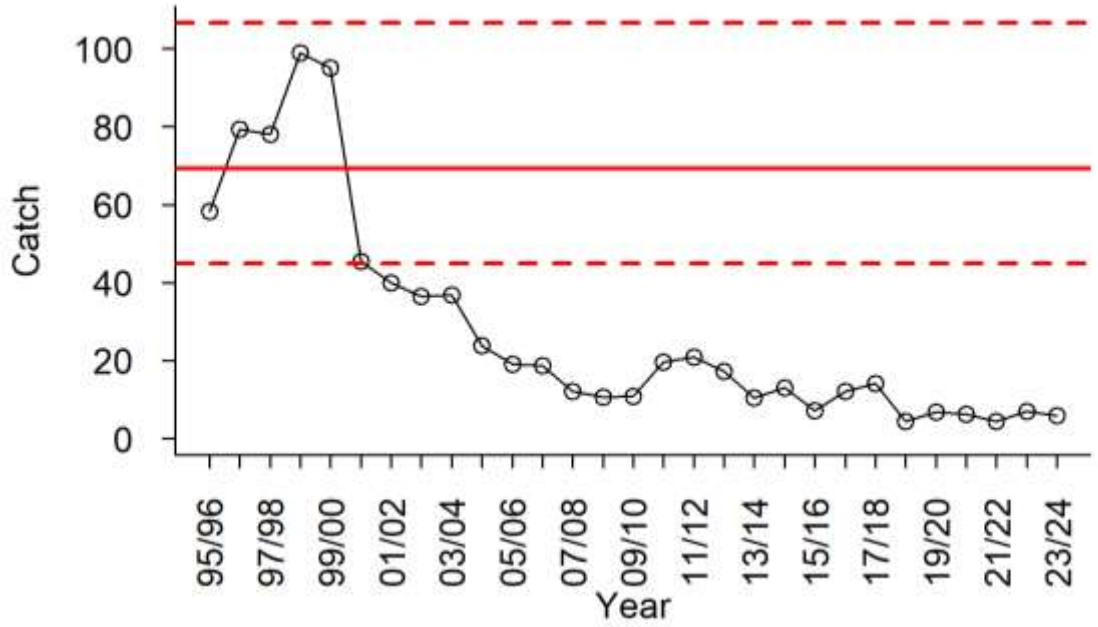


Figure 4.58 Striped Trumpeter trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.12.8 Length and age frequency surveys

4.12.8.1 Length frequency composition

The length frequency distribution of Striped Trumpeter has been monitored since 1998/99. However, sampling has been limited and opportunistic in some years, meaning that some samples may not adequately reflect true population dynamics.

Overall, there appears to have been a persistent shortage of small fish (recruits) until 2009/10 (Figure 4.59). In that year, a notable recruitment event occurred, resulting in a contraction of the length distribution, with more smaller fish present and a shift in the median size.

From 2012/13 onwards, the length frequency distributions have begun to flatten again, reflecting a broadening range of fish sizes. This stabilising trend suggests an ageing population, similar to that observed prior to 2009/10, although there is recent evidence of some recruitment of smaller individuals.

4.12.8.2 Age frequency composition

Age data collected alongside length measurements since 1998/99 show patterns consistent with those observed in the length frequency data. Up to 2009/10, there was a marked absence of younger individuals (3–5 years old), suggesting reduced recruitment during that period (Figure 4.62). The population during this time was likely sustained by stronger year classes originating in the 1990s.

A significant recruitment event appears to have occurred in 2009/10, evident in the contraction of the age distribution—similar to what was observed in earlier decades. Samples collected through to 2015/16 were primarily composed of 4–6-year-olds, which aligns with the known age of recruitment to the offshore line fishery.

However, the small number of individuals sampled between 2012/13 and 2015/16 introduces uncertainty in interpreting cohort strength. Earlier assessments have concluded that the adult population likely remains in a depleted state due to prolonged periods of poor recruitment. Although there is some recent evidence of recruitment, the overall age structure continues to reflect an ageing population, similar to the pattern seen prior to 2009/10.

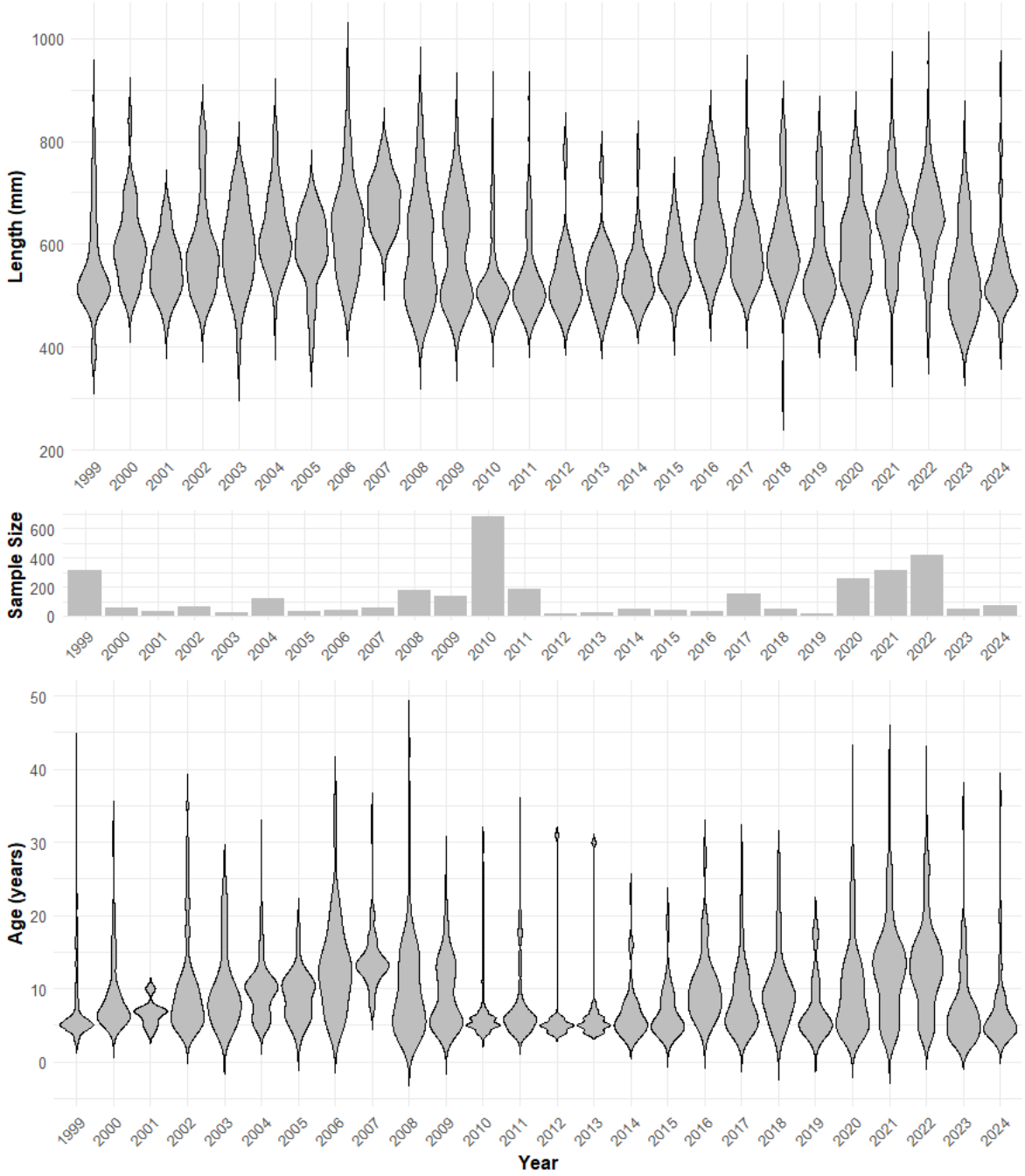


Figure 4.59 Striped Trumpeter age and length (fork Length) composition from 1999 to 2024 sampled from both research, commercial and recreational catches. Length is fork length in mm. Calander Year.

4.12.8.3 Length and age frequency data in research samples

The above data are based on length and ages from all sampling methods including collection of frames from the commercial and recreational sector as well as targeted research samples. Those from the commercial and recreational sector must adhere to the minimum size limits. Research samples are permitted to catch fish of all sizes. The below data present only the research data. The trends observed here are less pronounced.

Length: Fairly stable across years, with some variation suggesting mixed age cohorts.

Age: Older individuals dominate early years; younger age classes become more common from 2010 onward, indicating improved recruitment.

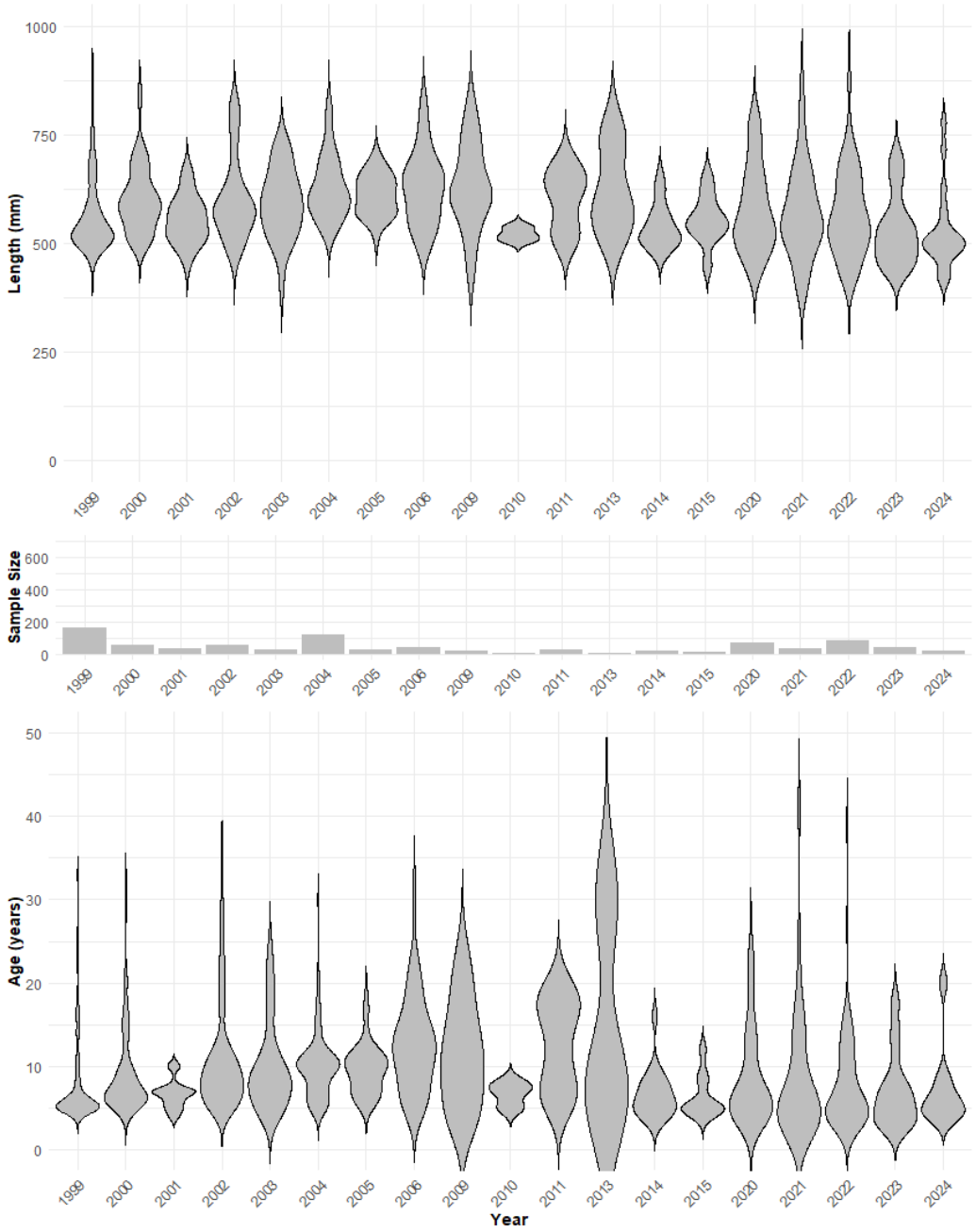


Figure 4.60: Striped Trumpeter age and length (fork Length) composition from 1999 to 2024 from only research samples to minimise bias of alternate sampling sources. Length is fork length in mm. Calander Year.

4.12.9 Length- age based assessment

Stripey populations have experienced heavy fishing pressure, leading to stock depletion requiring progressive management intervention. This analysis examines three decades of biological data (1994-2024) to:

- Quantify changes in growth patterns across management periods.
- Assess effectiveness of sequential management measures.
- Evaluate current population status relative to historical baselines.

Research samples were grouped into three decades to provide adequate sample sizes for robust statistical analysis: 1994-2003 (n=587), 2004-2013 (n=236), and 2014-2024 (n=276). This decadal approach captures distinct management periods and allows sufficient time for demographic responses to become apparent.

Figure 4.61 illustrates the length distribution changes across decades, showing clear population restructuring:

- 1994-2003 (Pink): Small fish dominated (mode ~350mm) with sharp truncation at 600mm
- 2004-2013 (Green): Bimodal/transitional distribution extending to 700mm+
- 2014-2024 (Blue): Large fish dominated (mode ~550mm) extending to 800mm+

These distributional shifts correspond directly to progressive management interventions. Striped trumpeter management introduced enhanced minimum size limits (35cm to 45cm in 2004, to 50cm in 2009, then 55cm in 2015) along with a two-month spawning closure (September–October) and reduced bag limits.

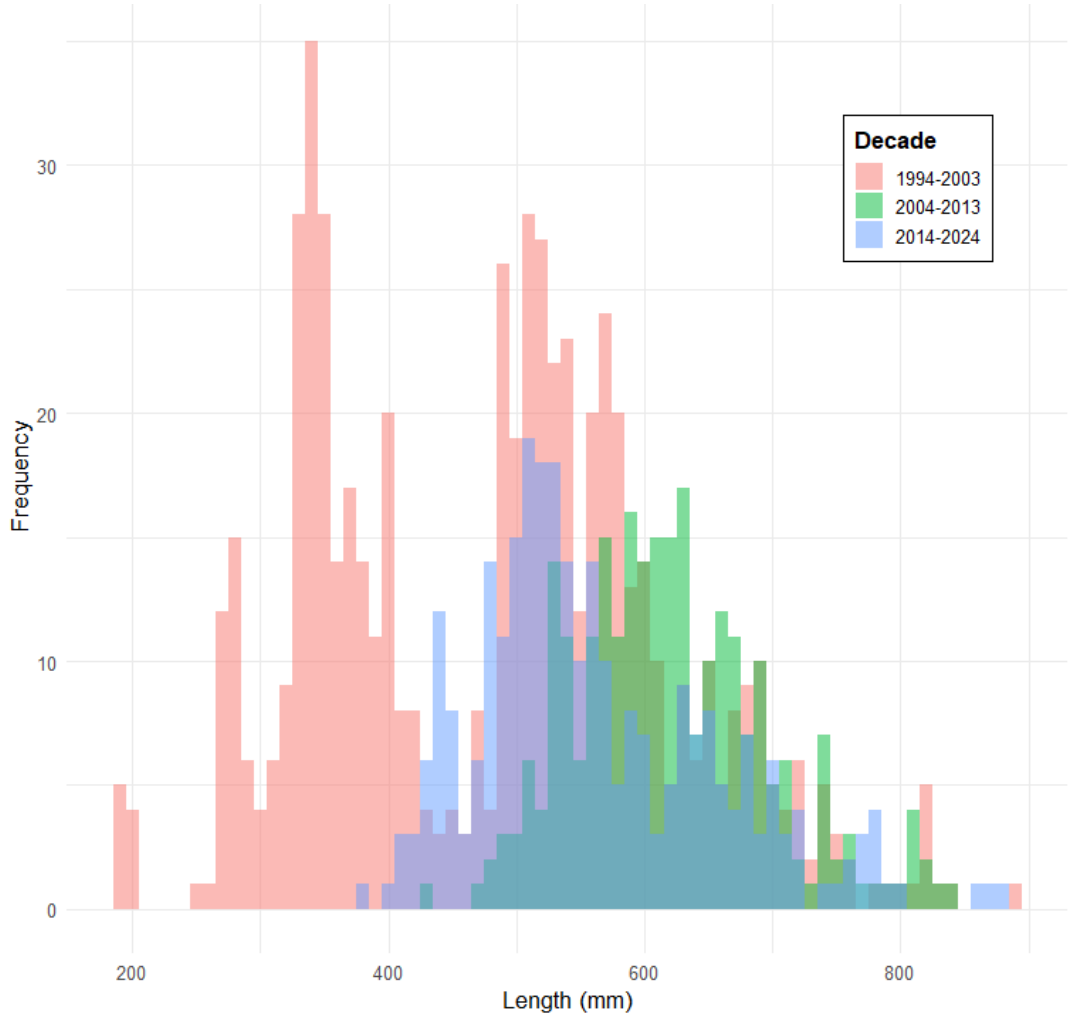


Figure 4.61: Size distribution of decadal research samples.

Data Analysis:

- **Sample Period:** 1994-2024, grouped into three decades for sufficient sample sizes.
- **Data Filtering:** Removed records with missing age/length data and biological outliers (>3 SD).
- **Final Sample Sizes:** 1994-2003 (n=587), 2004-2013 (n=236), 2014-2024 (n=276).
- **Sex Pooling:** Data pooled across sexes due to minimal differences in growth parameters (females: mean length 560 mm, mean age 8 years; males: mean length 550 mm, mean age 7.8 years) and substantial overlap in length ranges (269-920 mm vs 203-865 mm) and age ranges (1-43 vs 1-41 years), with balanced sample sizes supporting robust statistical analysis without sex-based bias.

Statistical Models:

- **Linear Models:** Length ~ Age for each decade
- **Von Bertalanffy Growth Models:** Length = $L_\infty \times (1 - \exp(-K \times (Age - t0)))$
- **Model Selection:** AIC comparison and R^2 evaluation

Model Outcomes:

- Asymptotic length (L_∞) has increased over time (784.8 mm → 969.7 mm), suggesting larger maximum attainable size in more recent decades.
- Growth coefficient (K) has declined (0.125 → ~0.046–0.047), meaning fish are slower at attaining maximum size.
- Model fit (R^2) was poorest in 2004–2013 (0.50), indicating more uncertainty or variability in growth estimates during that decade.
- Sample sizes vary substantially, with the earliest decade (1994–2003) having more than double the later sample sizes.
- Age ranges expanded in the most recent decade (up to 41 years), which likely improved the growth model fit compared to 2004–2013.

Table 3: Von Bertalanffy growth parameters across three decades.

Decade	Model Type	R^2	L_∞ (mm)	K	Sample Size	Age Range
1994-2003	**Von Bertalanffy**	0.92	784.8	0.125	587	1-35
2004-2013	**Von Bertalanffy**	0.50	901.1	0.046	236	3-31
2014-2024	**Von Bertalanffy**	0.78	969.7	0.047	276	2-41

ANCOVA analysis confirmed highly significant differences in length-age relationships between all decades ($p < 2.2e-16$), indicating that observed parameter changes represent genuine demographic shifts rather than sampling variation.

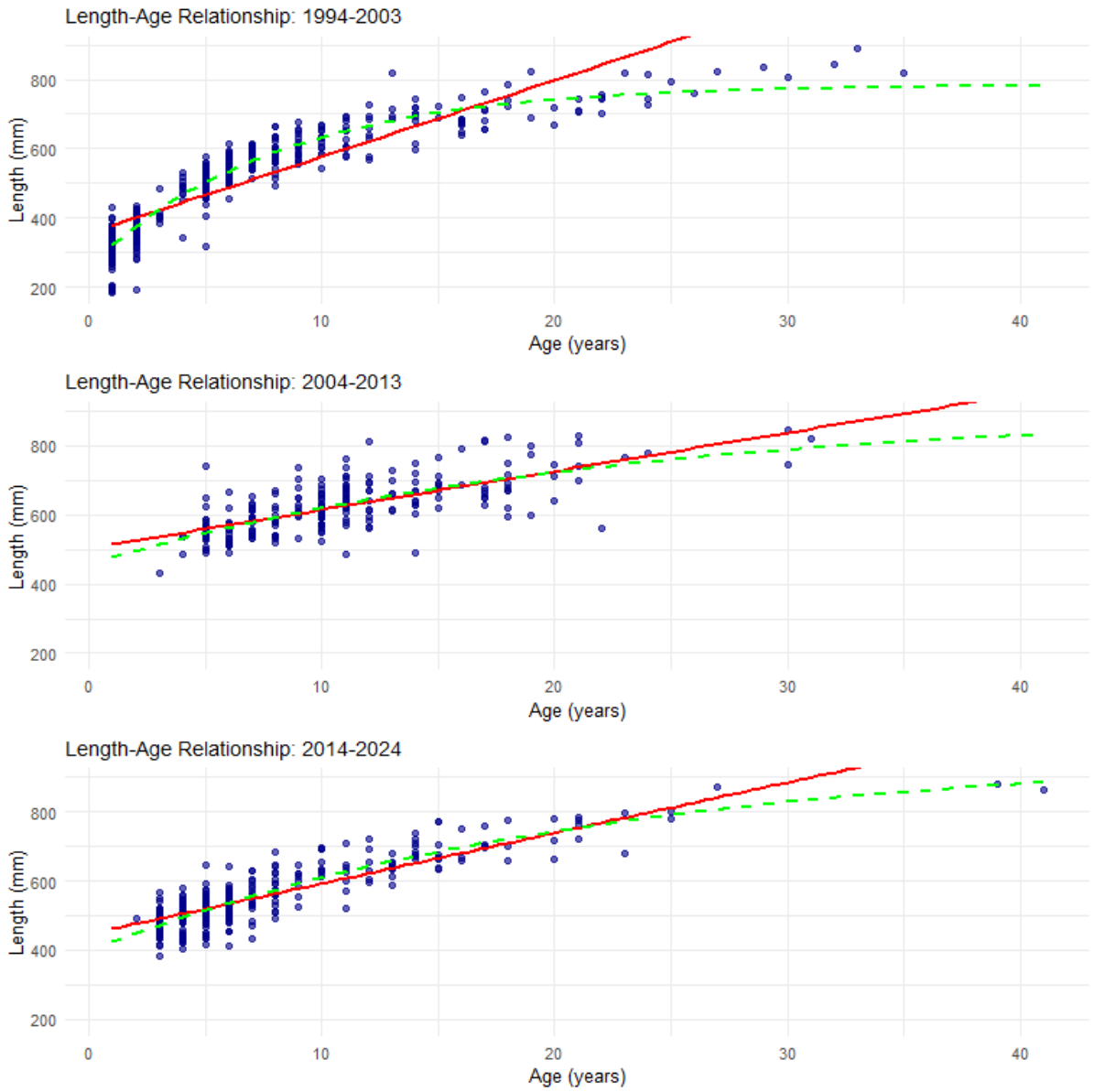


Figure 4.62 shows length-age relationships for each decade with both linear (red) and von Bertalanffy (green dashed) model fits. The 1994-2003 period shows excellent model fit with rapid approach to asymptote, while 2004-2013 displays high scatter and poor model performance during the management transition. The 2014-2024 period shows improved fit with extended age range to 41 years.

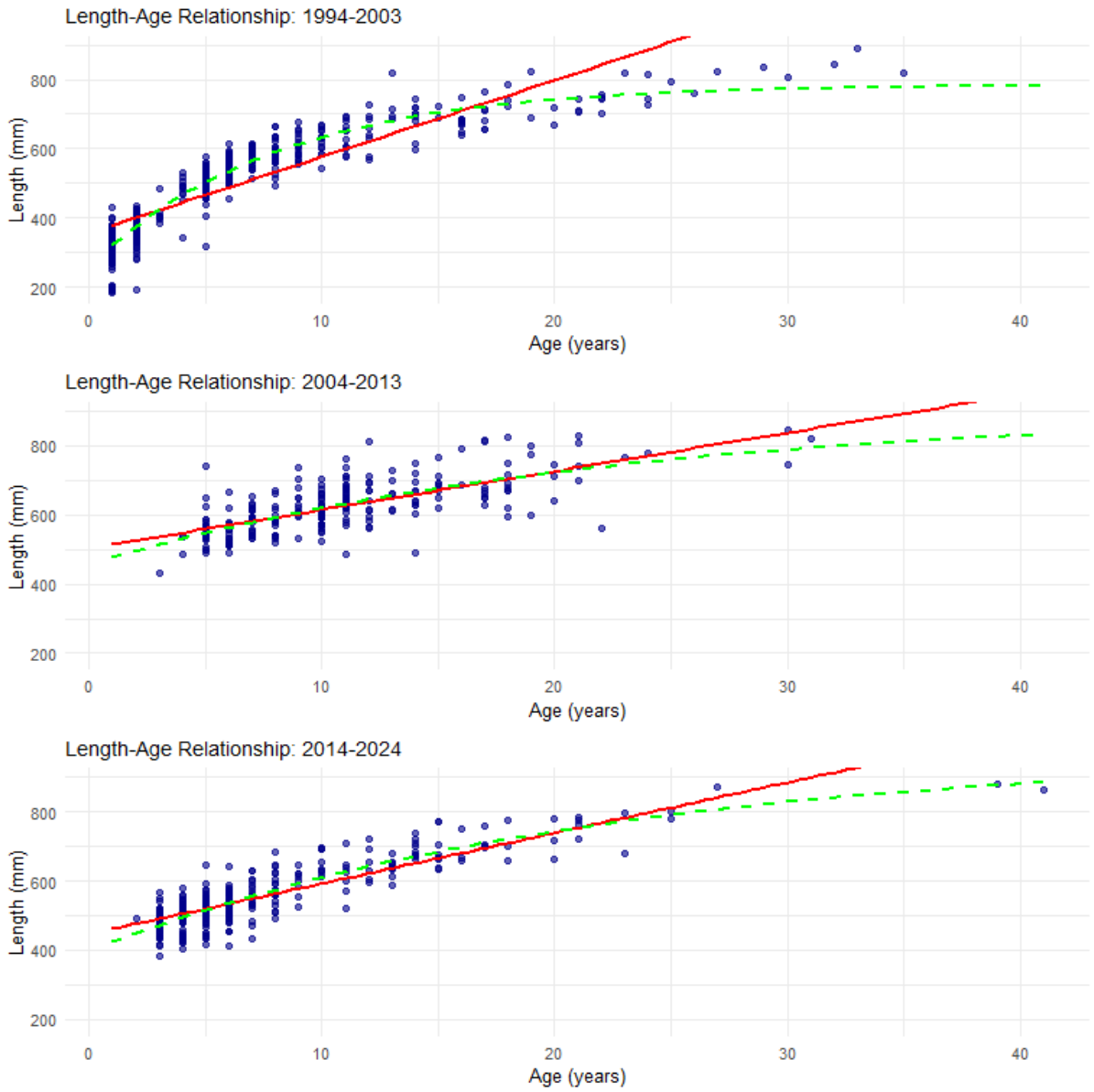


Figure 4.62: Von Bertalanffy (green dashed) and linear (red solid) length-age relationships by decade.

Summary of Stripey Population Dynamics and Management Outcomes

Stripey show clear demographic changes across decades, reflecting strong responses to progressive management. Growth shifted markedly: asymptotic length (L_∞) rose from 785 mm (1994–2003) to 970 mm (2014–2024), while the growth coefficient (k) declined from 0.125 to 0.047 year^{-1}. This indicates a transition from fast growth in a depleted stock to slower growth in a protected, longer-lived population.

Age structure has extended from 35 years to 41 years (+17%), coinciding with management measures: minimum size increases (45 cm in 2004; 50 cm in 2009), spawning closures, and bag limits. Length distributions shifted from truncated (mode ~350 mm, 1994–2003) to larger fish (mode ~550 mm, individuals >800 mm, 2014–2024). These changes demonstrate reduced fishing mortality and protection of spawning stock.

Current status (2014–2024):

Positive indicators: Extended longevity, presence of large spawners, stable demographics.

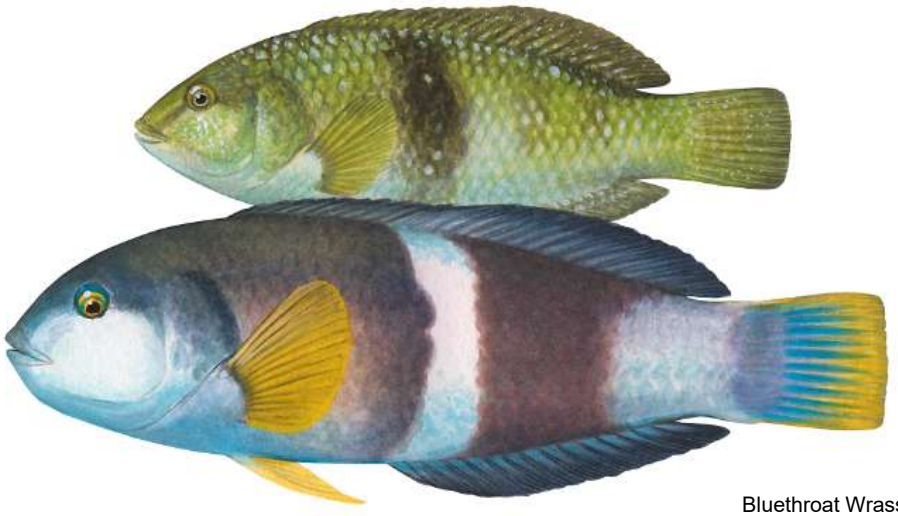
Concerns: Very low k (0.047), unknown abundance due to variable sampling, recovery dependent on recruitment. Stock remains heavily depleted, despite clear demographic improvement.

Implications: Progressive management has successfully reduced mortality and protected large spawners, establishing a biological basis for recovery. However, true stock abundance is uncertain, requiring standardized monitoring. Sustained protection and recruitment assessment are essential, as recovery is slow due to life history traits.

Conclusion: Stripey populations show measurable demographic recovery after ~20 years of management, highlighting both the effectiveness of interventions and the long timelines required for rebuilding depleted long-lived species. Continued precautionary management and consistent abundance monitoring are critical for future recovery.

4.13 Wrasse - Bluethroat (*Notolabrus tetricus*)

STOCK STATUS	SUSTAINABLE
Catches, effort, and CPUE for Bluethroat Wrasse have remained relatively stable for nearly a decade, suggesting that current fishing pressure is unlikely to be excessive. However, uncertainty remains around the potential for localised depletion and the volume of catch taken by rock lobster fishers for use as bait. The relatively low catches in 2019/20 and 2020/21 were likely influenced by COVID-related disruptions and shifts in fishery dynamics. In the past three years, catches have shown a slight upward trend, likely driven by increased demand in the live fish market.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)



Bluethroat Wrasse
(Notolabrus tetricus)
Illustration©R.Swainston/anima.fish

4.13.1 Biology

- **Habitat:** Sheltered and exposed reefs, 1 – 160 m (Edgar, 2008).
- **Distribution:** Sydney (New South Wales) to Ceduna (South Australia) and all Tasmania (Edgar, 2008).
- **Diet:** Molluscs and crustaceans (Shepherd and Clarkson, 2001).
- **Stock Structure:** Not fully known but likely to be reginal and composed of multiple subpopulation due to its biological and ecological traits.
- **Movement:** Site-attached, with females showing overlapping home ranges and males territorial, at least during the reproductive season. No apparent migration of individuals between reefs (Barrett, 1995b).

- **Size at Maturity (length FL; cm):** 29.89 (females before sex change - protogynous hermaphrodites: all individuals start as females, with some changing to males after maturity).
- **Age at Maturity:** 8 (females before sex change) (Barrett, 1995a; Harwood, and Lokman, 2006).
- **Spawning Season:** August – January (Barrett, 1995b).

More detailed information on biological characteristics and current management of Wrasse fisheries is available from the TasFisheriesResearch webpage.

4.13.2 Fishery

Bluethroat Wrasse are taken commercially in Tasmanian waters and they have only been separated in identification from Purple Wrasse in the data since 2007. Bluethroat Wrasse are protogynous hermaphrodites, with all individuals beginning life as females and some undergoing a sex inversion after maturity. Live fish trade is the main interstate market for Wrasse, while the local market comprises dead Wrasse for rock lobster bait and some human consumption. The live-fish fishery has accounted for > 65% of total reported catches since 2016/17.

Wrasse are reef-associated species, and regional shifts in effort over the years may have masked localised depletions, with fishers moving to new lightly fished areas to maintain catches and CPUE.

4.13.3 Management

All wrasse species are subject to a minimum size limit of 30 cm, corresponding to the female size at maturity. A species-specific commercial licence is required to take live wrasse and non-licence holders are restricted to a bycatch limit of 30 kg. A bag limit of 5 (combined all species) applies for recreational fishers.

4.13.4 Commercial Catch, effort and CPUE

Current commercial catch: Bluethroat Wrasse catch in 2023/24 was 36.2 t which shows a slight upward trend (Figure 4.63).

Catch, effort and CPUE trends:

From 2007/08 to 2018/19, Bluethroat Wrasse catches showed an increasing trend, with a peak of 64.3 t in 2014/15, before a steep decline in 2019/20 and 2020/21 (Figure 4.63).

Catch and effort for fish traps have been at low and declining levels for over a decade (Figure 4.63). Handline catch, effort, and CPUE has been relatively stable or slightly increasing over the last decade (Figure 4.63).

Wrasse caught, traded dead, and used as bait in the rock lobster fishery have historically been under-reported and are not included in the catch data presented above. In 2023/24, 0.3 tonnes of Bluethroat Wrasse were recorded as taken in the rock lobster fishery.

Fishing distribution: In 2023/24, the majority of the catch came from the south and southeast regions. Meanwhile, the northwest and northeast regions have experienced a significant decline in catches over the past 5-6 years of assessments (Figure 4.64 & Figure 4.66).

Gear types: Bluethroat Wrasse are predominantly caught using line fishing methods and are taken in larger quantities in the live fishery. Gillnets account for the bulk of the remaining catch, but because survival in nets is poor, gillnet caught Wrasse are rarely marketed live.

4.13.5 Recreational Fishery

In recreational survey data, the two Wrasse species have not been distinguished. However, as Bluethroat Wrasse has historically represented ~70% of commercial catch, it can be assumed for rough approximation that the species' relative proportion in recreational catches is similar.

Combined recreational Wrasse catches have remained stable and have typically represented about 10% of total Wrasse catch (9 percent in 2022/23, (Tracey and Stark 2024)). Thus, neither Wrasse species are considered to be an important recreational target species. Bluethroat Wrasse are a common by-catch species of recreational gillnet fishers, with research showing that this species has a moderate to low post-release survival, particularly when gillnets are deployed for more than 4 hours (Lyle et al. 2014).

4.13.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** >80, low risk of recruitment impairment.
- **Productivity:** Slow to mature, moderately short lived (<11yrs) and highly fecund.
- **Fishing Pressure:** Moderately susceptible to capture with >30% overlap with fishing effort.
- **Stock Status:** Sustainable.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

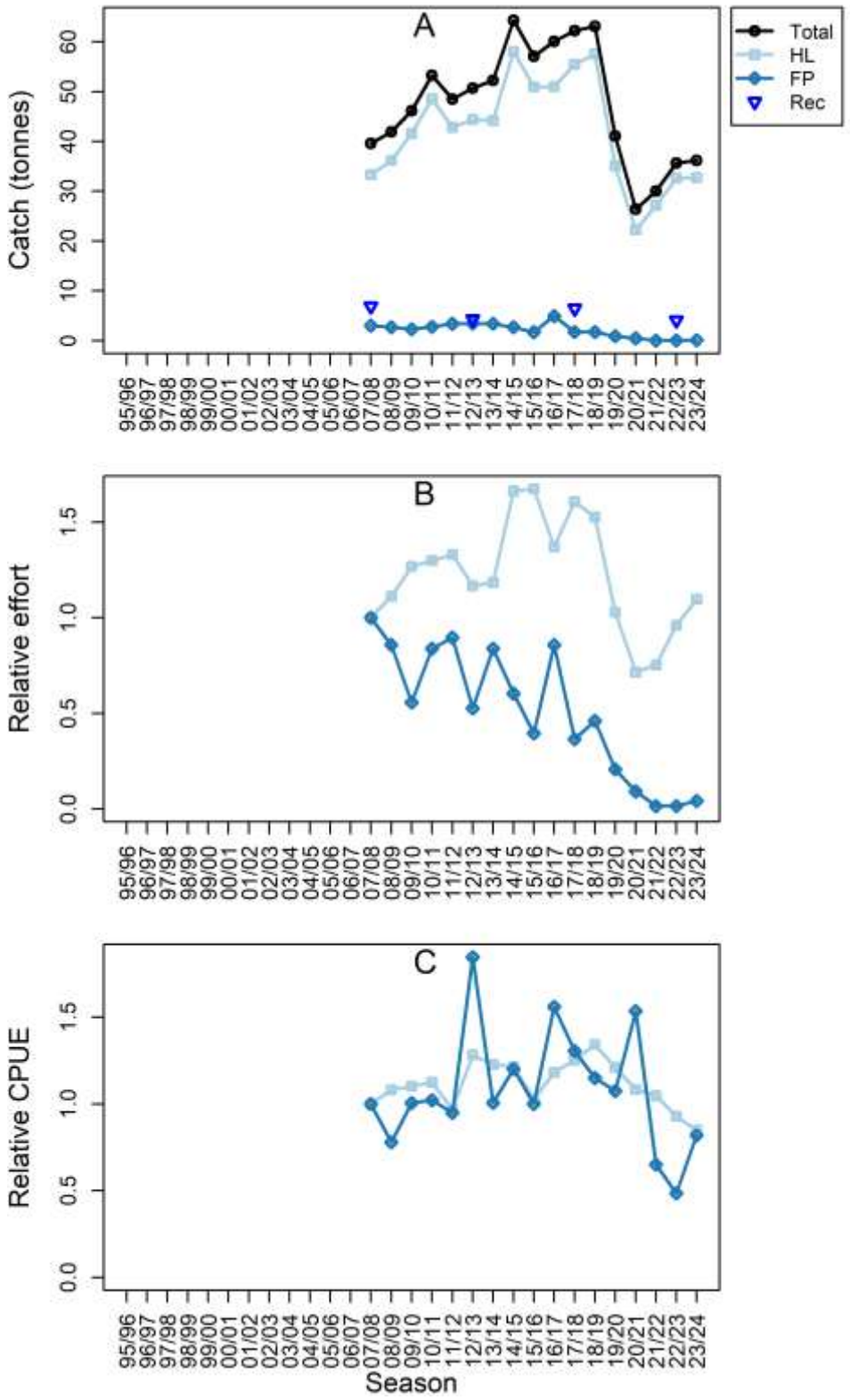


Figure 4.63 (A) Annual commercial Bluethroat Wrasse catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. HL = handline, FP = fish trap, Rec = estimated recreational catch.

Hand Line

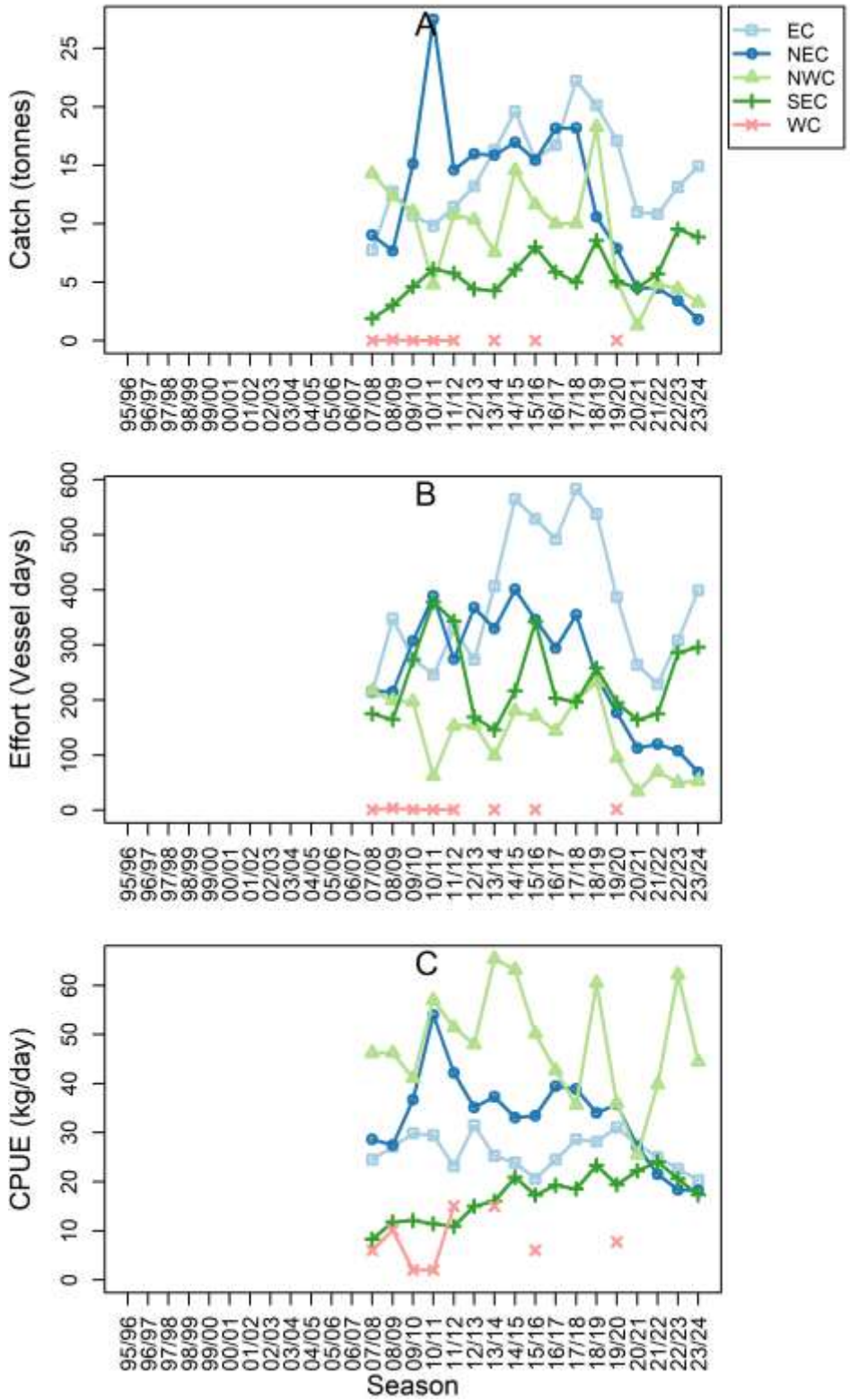


Figure 4.64 Regional commercial Bluethroat Wrasse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for hand line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

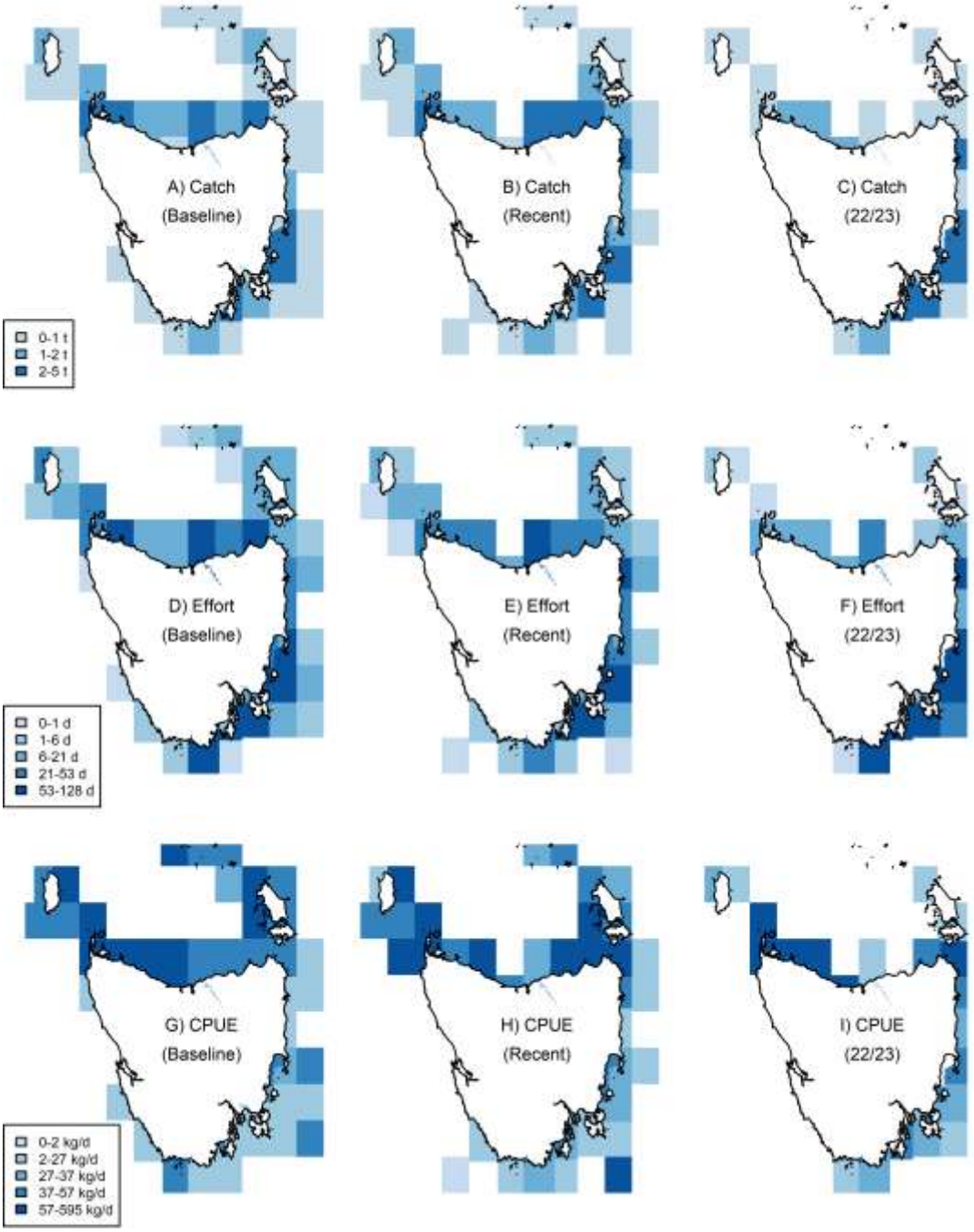


Figure 4.65 Bluethroat Wrasse catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.13.7 Catch only MSY

Assumed resilience: Low.

Estimated B/BMSY: 0.75 (Lower 95% CI: 0.58; Figure 4.66). Equivalent to approximately 37.6% of unfished biomass, with a lower 95% confidence interval of 23.5%.

Biomass trend: Biomass remains near the BMSY target (50% of unfished biomass), with no clear signs of depletion.

Estimated MSY: 49.7 tonnes (Upper 95% CI: 73.9 t; Lower 95% CI: 32.9 t).

MSY trend:

- Catches closely approached the estimated MSY but never exceeded the upper 95% CI (73.9 t).
- Catches dropped below the lower 95% CI (32.9 t) in 2020/21 and 2021/22, likely due to COVID-related market impacts.
- Catches recovered within the lower confidence interval range during 2022/23 and 2023/24 (Figure 4.67).

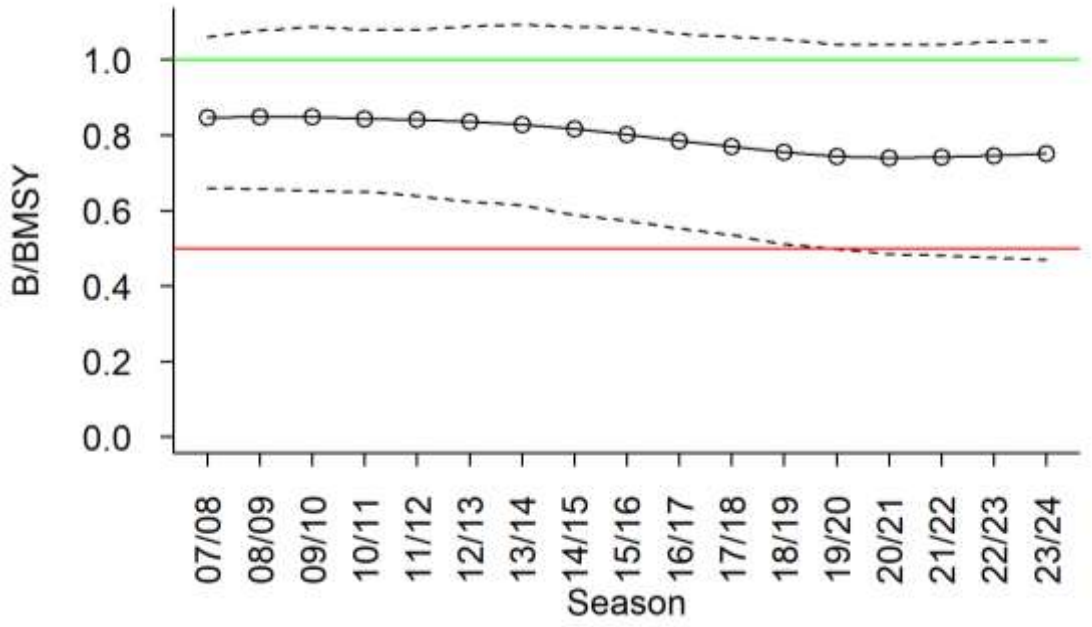


Figure 4.66 Bluethroat Wrasse trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

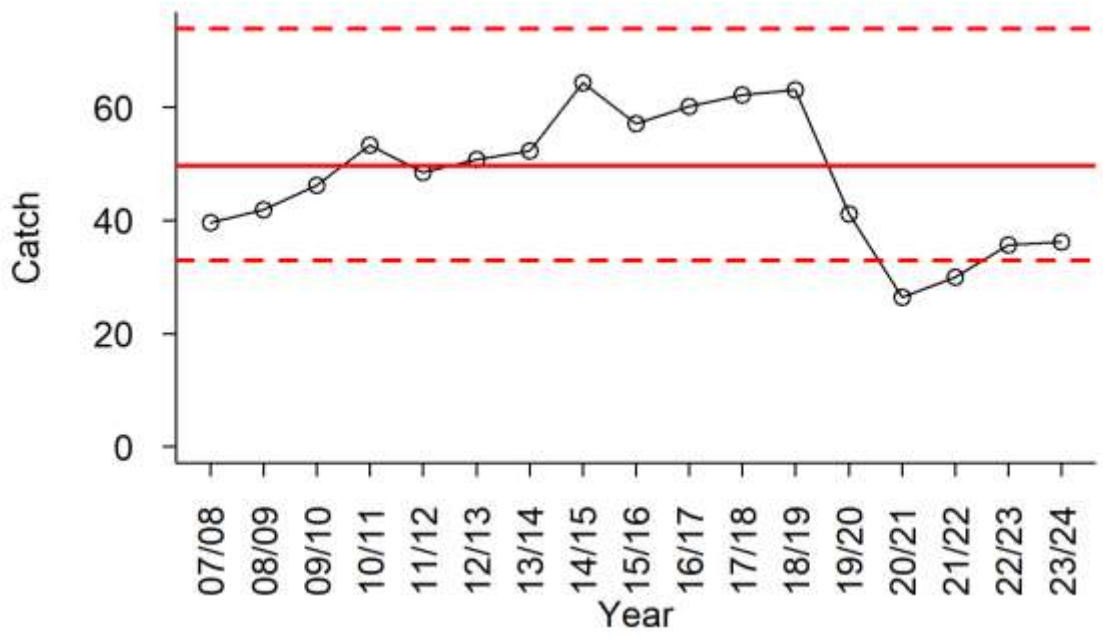


Figure 4.67 Bluethroat Wrasse trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.14 Wrasse - Purple (*Notolabrus fucicola*)

STOCK STATUS	SUSTAINABLE
Catches, effort, and CPUE for Purple Wrasse have remained relatively stable for nearly a decade, suggesting that current fishing pressure is unlikely to be excessive. However, uncertainty persists around the potential for localised depletion and the extent of catch taken by rock lobster fishers for use as bait. A sharp increase in catch has been observed over the past four years, likely linked to recovery in demand from the live fish market following COVID-related disruptions. Notably, the 2023/24 season recorded the highest catch of Purple Wrasse since species-specific reporting began in 2007/08. The rate of increase in the fishery is showing signs of being unsustainable. Further precautionary measures should be considered, particularly as increasing water temperatures may also be impacting recruitment.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; catch-only based assessments of biomass depletion and maximum sustainable yield.
MANAGEMENT	State (Tasmania)

Purple Wrasse
(Notolabrus fucicola)
Illustration©R.Swainston/anima.fish

4.14.1 Biology

- **Habitat:** Predominantly on exposed reefs, ≤ 90 m (Edgar, 2008).
- **Distribution:** New Zealand and Australian waters, from southern New South Wales to Kangaroo Island (SA) (Edgar, 2008).
- **Diet:** Molluscs and crustaceans (Denny and Schiel, 2001).

- **Stock Structure:** Purple Wrasse show some degree of localised stock structure, with males exhibiting strong site fidelity. This spatial behaviour suggests subpopulations may exist, making them vulnerable to localised fishing pressure and depletion in heavily fished or easily accessible areas.
- **Movement:** Site-attached, with no evidence of territorial behaviour. Movements between reefs is limited and likely to be restricted to a small proportion of the population (Barrett, 1995b).
- **Size at Maturity (length FL; cm):** 18.41 (females).
- **Age at Maturity:** 3 (females) Barrett, 1995a; Harwood, and Lokman, 2006).
- **Spawning Season:** August – January.

More detailed information on biological characteristics and current management of Wrasse fisheries is available from the TasFisheriesResearch webpage.

4.14.2 Fishery

Two species of Wrasse are taken commercially in Tasmanian waters: Notolabrus tetricus (Bluethroat Wrasse) and Notolabrus fucicola (Purple Wrasse). Though differing in size, depth distribution, and gear susceptibility, they were not distinguished in catch data until 2007. Both species are harvested mainly for the live fish trade, which has accounted for over 85% of reported catches since 2016/17.

Purple Wrasse are taken predominately by handline for the live fishery. Fish traps and gillnets account for the bulk of the remaining catch, but because survival in nets is poor, gillnet caught Purple Wrasse are rarely marketed live.

Locally, dead Wrasse are used as rock lobster bait and occasionally for human consumption. In 2023/24, 0.3 tonnes of Bluethroat Wrasse were recorded as taken in the rock lobster fishery.

Monitoring is recommended to assess whether the recent increase in catch is sustainable, or if precautionary measures are needed to avoid further biomass depletion. If current catch levels are sustained or continue increasing, there is potential for additional pressure on the stock, especially given biomass remains below BMSY.

4.14.3 Management

All wrasse species are subject to a minimum size limit of 30 cm, corresponding to the female size at maturity. A species-specific commercial licence is required to take live wrasse and non-licence holders are restricted to a bycatch limit of 30 kg. A bag limit of 5 (combined all species) applies for recreational fishers.

4.14.4 Commercial Catch, effort and CPUE

Current commercial catch: Purple Wrasse catch in 2023/24 increased to 32.5 t.

Catch, effort and CPUE trends: Purple Wrasse has a long history of commercial fishing in Tasmania, with species-specific data available only since 2007/08 (Fraser et al. 2021). From 2007/08 to 2018/19, catches were relatively stable, peaking at 21.4 tonnes in 2017/18 before a sharp decline during 2019/20 and 2020/21 due to COVID-19 impacts on live fish markets (Figure 4.68 A). Since then, catches have sharply increased, likely reflecting renewed market demand. Effort and catch in handline fisheries have increased notably in recent years, while fish trap effort and catches have remained low and declining for over a decade. CPUE for fish

traps has generally trended upwards despite fluctuations. Regional shifts in fishing effort may have masked localised depletions, as fishers move to less exploited reefs to maintain catches.

Fishing distribution: Catch is highest along the south-east and east coast.

Gear types: Purple Wrasse are targeted primarily using hand line.

4.14.5 Recreational Fishery

In recreational survey data, the two Wrasse species have not been distinguished. However, given Purple Wrasse has historically represented ~30% of commercial catch, it can be assumed for rough approximation that the species' relative proportion in recreational catches is similar. Combined recreational Wrasse catches have typically represented about 10% of total Wrasse catch (Lyle 2005; Lyle et al. 2009; Lyle, Stark, and Tracey 2014; Lyle et al. 2019) - see the 2019/20 Scalefish Fishery Assessment report for trends (Fraser et al. 2021). Thus, Purple Wrasse is not considered to be an important recreational target species.

4.14.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** Low risk, fishery scored > 80 in the risk analysis indicating minimal recruitment concerns.
- **Productivity:** Productive species; small, quick to mature, relatively long-lived (up to 24 years), and highly fecund.
- **Minimal Fishing Pressure:** Moderate susceptibility to capture; fishing effort overlaps with >30% of distribution. No evidence of significant stock impact, though localized depletion possible in high-effort areas.
- **Stock Status:** Sustainable

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

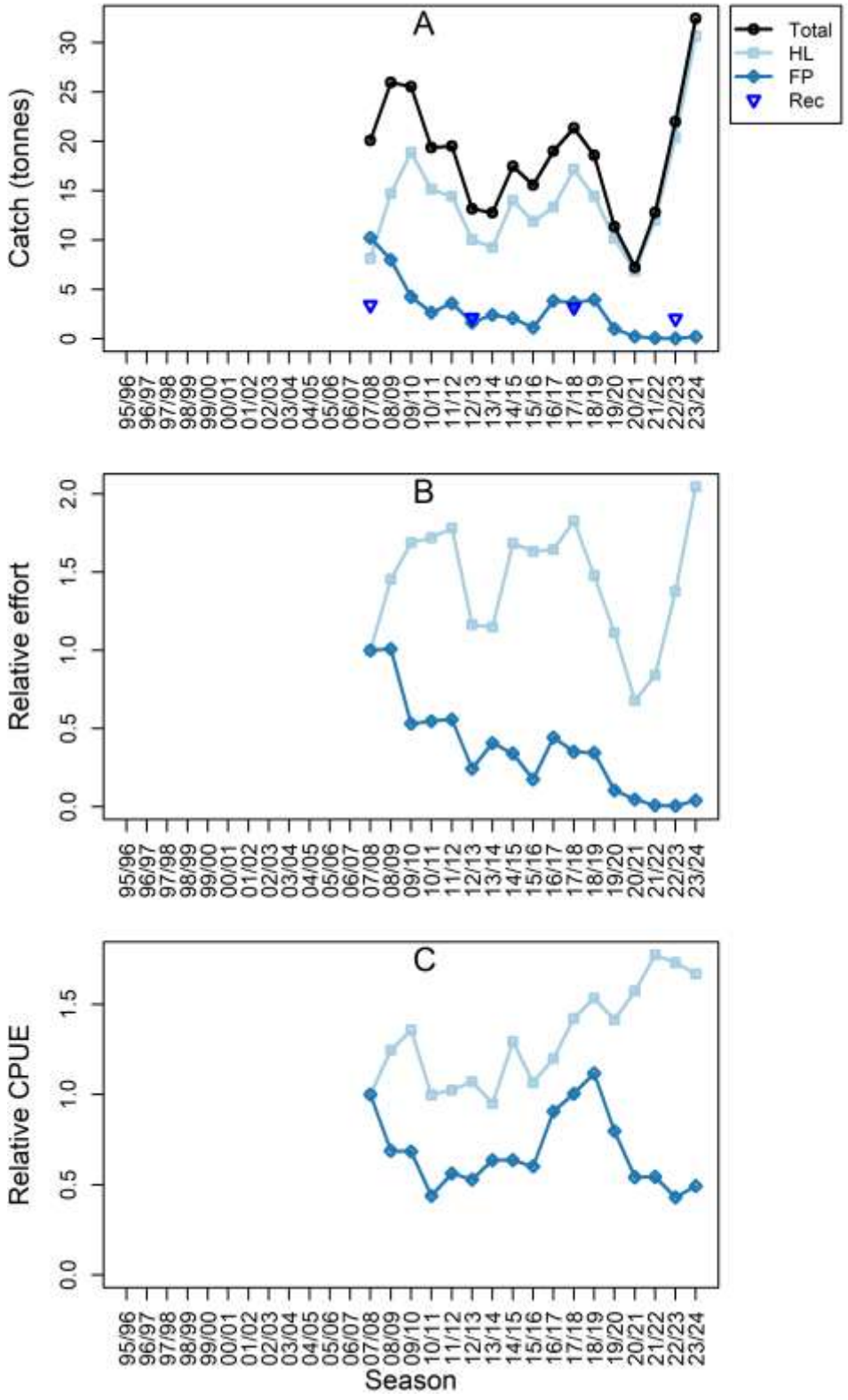


Figure 4.68 (A) Annual commercial Purple Wrasse catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. HL = handline, FP = fish trap, Rec = estimated recreational catch.

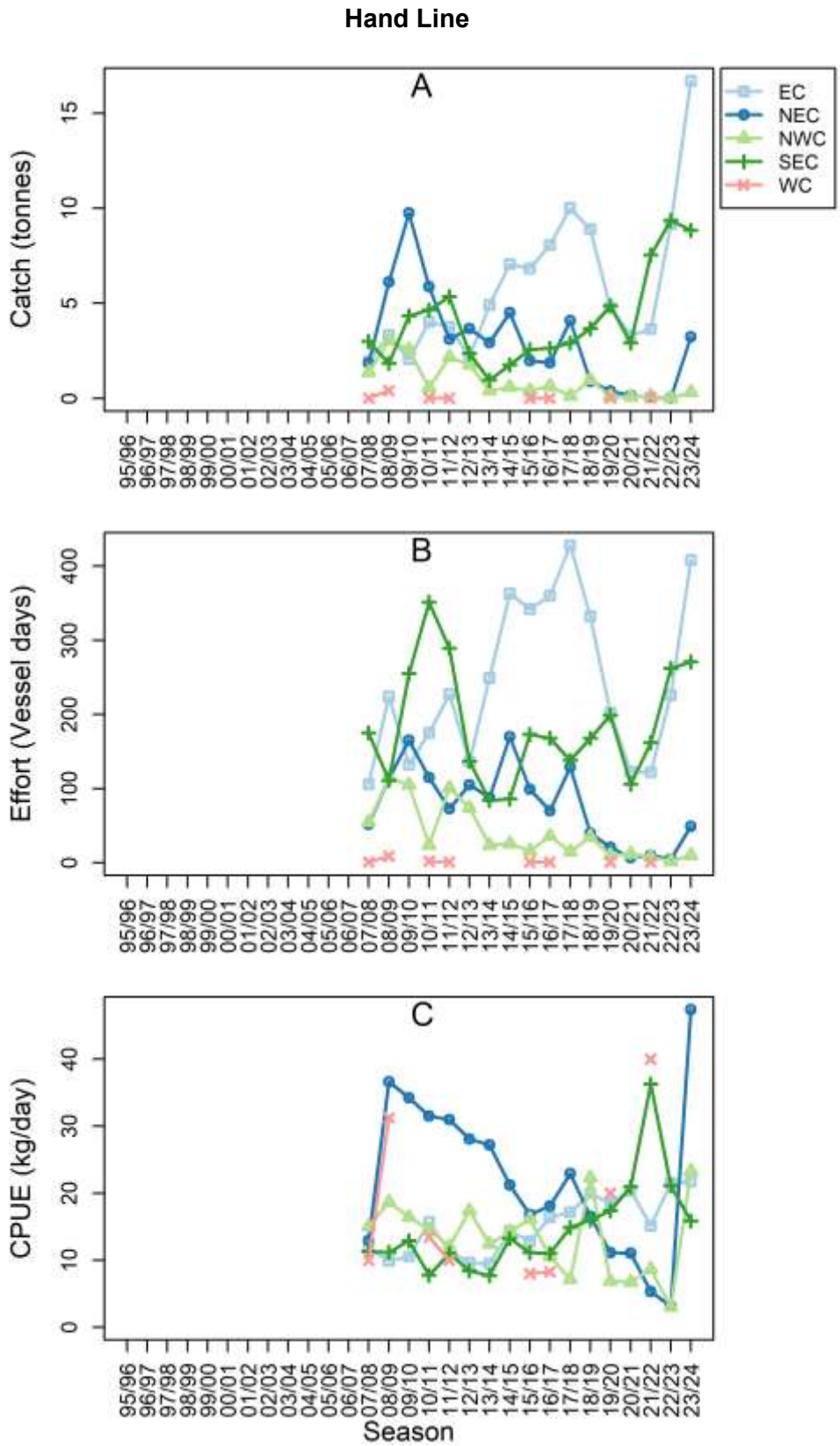


Figure 4.69 Regional commercial Purple Wrasse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for hand line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Fish Trap

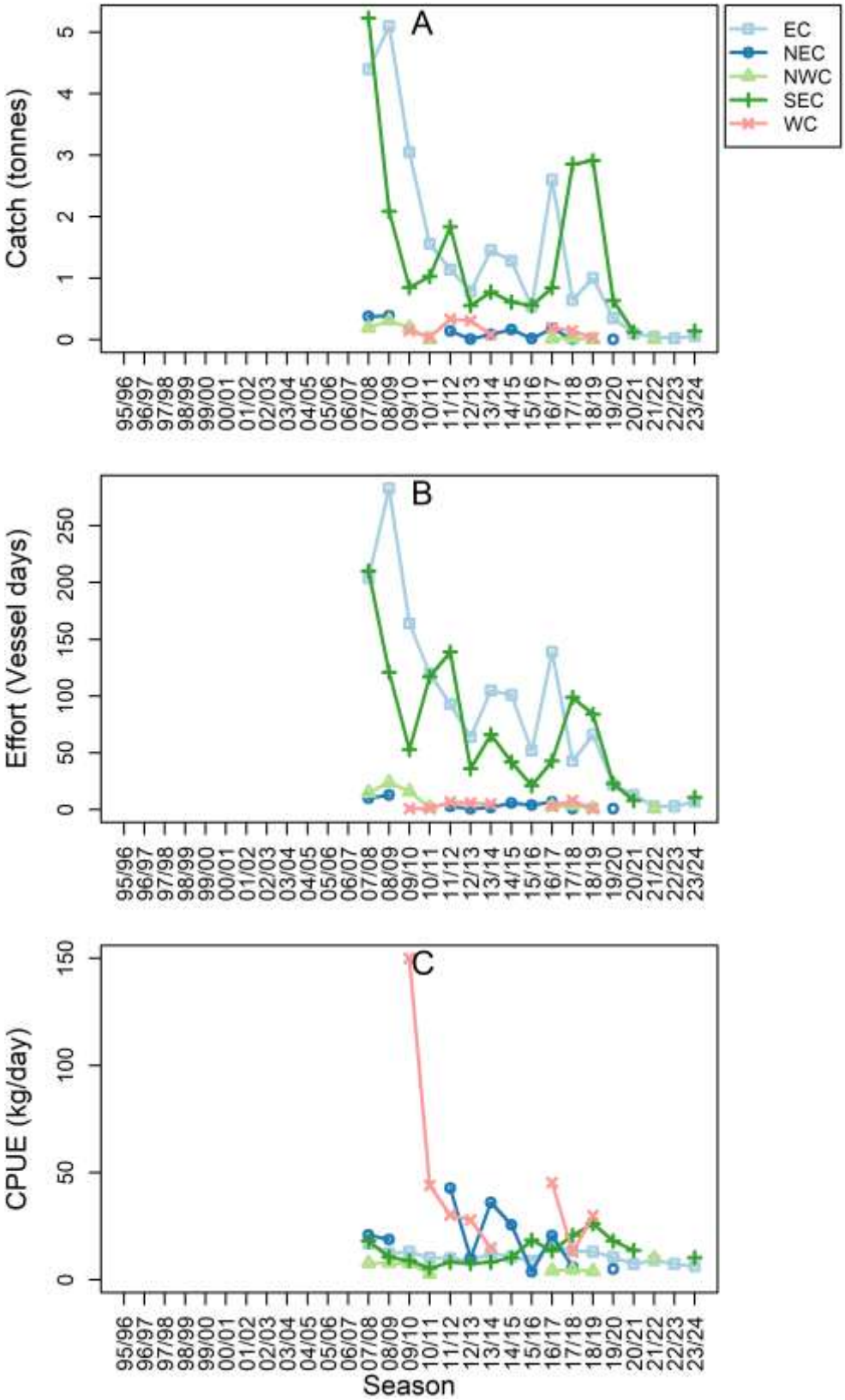


Figure 4.70 Regional commercial Purple Wrasse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for fish trap. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

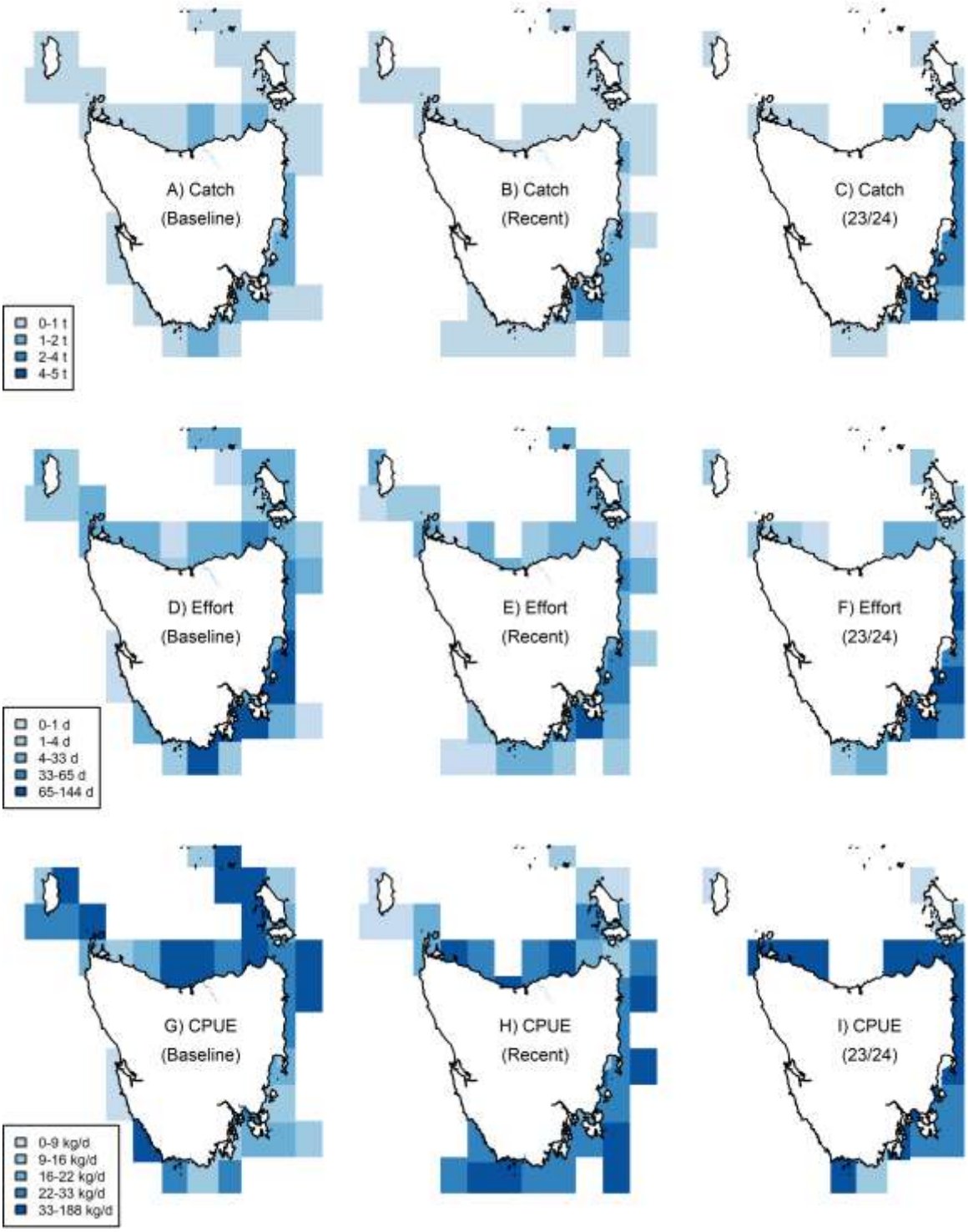


Figure 4.71 Purple Wrasse catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

4.14.7 Catch only MSY

Assumed resilience: Low.

Estimated B/BMSY: 0.69

- Lower 95% confidence interval: 0.45 (Figure 4.72).
- Equivalent to approximately 34.5% of unfished levels.
- Lower 95% confidence limit: 22.7% of unfished levels.

Biomass trend:

- Biomass appears relatively stable but below the target BMSY reference (50% of unfished levels).
- No strong indication of sustained recovery, though slight increase observed in recent years (Figure 4.72).

Estimated MSY: 30.9 t.

- Upper 95% CI: 46.8 t
- Lower 95% CI: 12.6 t

MSY trend:

- Catches fluctuated below MSY (30.9 t) for much of the assessment period.
- Fell below the lower 95% MSY CI (12.6 t) during 2019/20 and 2020/21, likely due to COVID-19 market impacts.
- Catches rebounded in 2022/23 and exceeded MSY in 2023/24, reaching the highest levels since 2009/10 (Figure 4.73).
- The sharp rise in catch over the past three seasons may reflect changes in market demand, fishing behaviour, or environmental factors.
- If current catch levels are sustained or continue increasing, there is potential for additional pressure on the stock, especially given biomass remains below BMSY.
- Monitoring is recommended to assess whether the recent increase in catch is sustainable, or if precautionary measures are needed to avoid further biomass depletion.

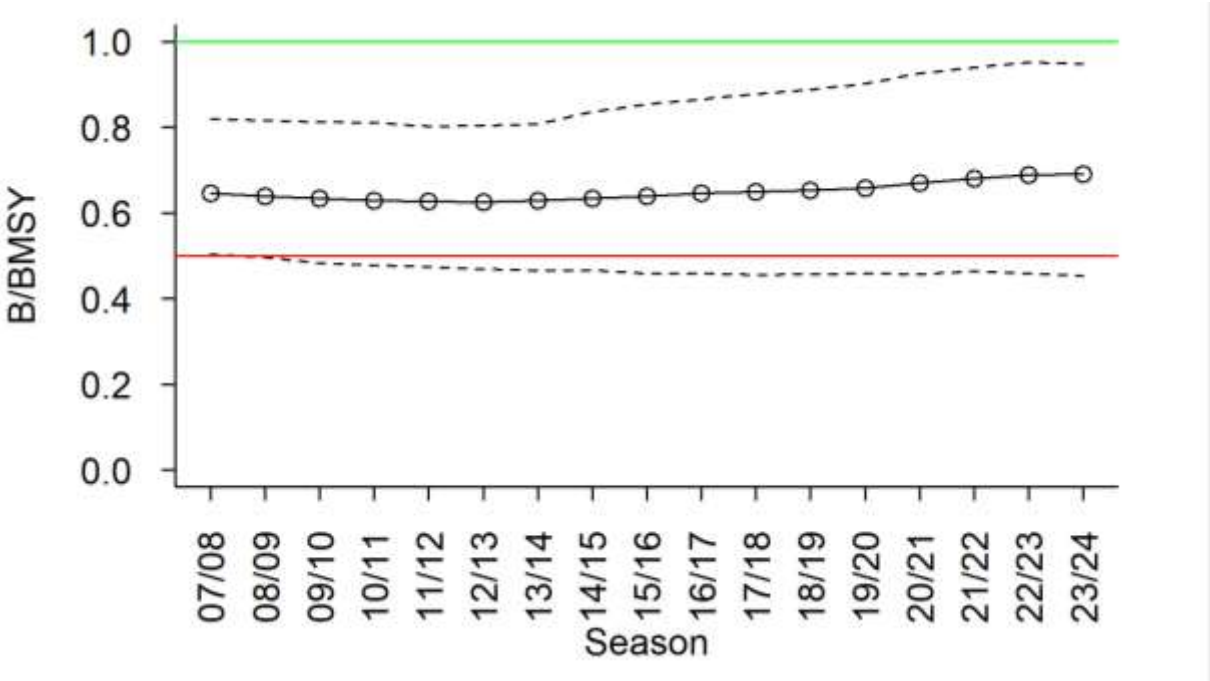


Figure 4.72 Purple Wrasse trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

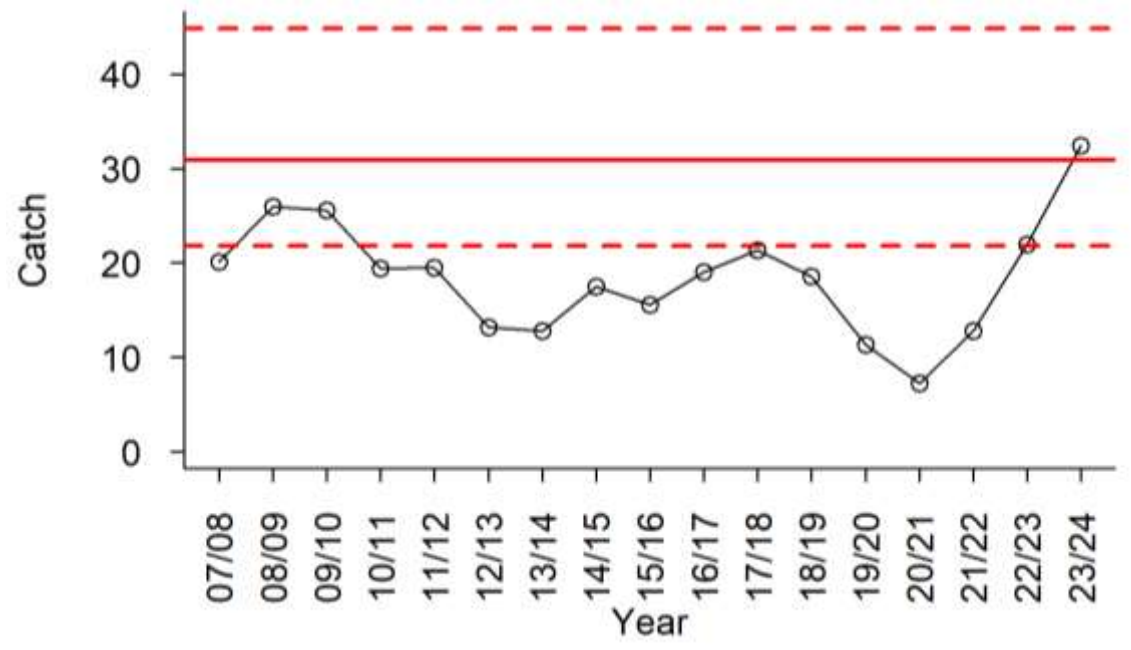
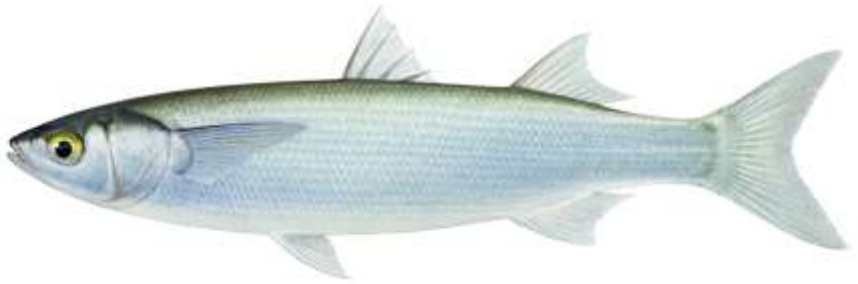


Figure 4.73 Purple Wrasse trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.15 Yelloweye Mullet (*Aldrichetta forsteri*)

STOCK STATUS	SUSTAINABLE
Yelloweye Mullet are most abundant in estuarine habitats, where netting is restricted or prohibited, affording the species a high level of protection across much of its Tasmanian range. Commercial logbook data show consistently low catches, suggesting that the stock is not recruitment impaired and that current fishing pressure is unlikely to pose a future risk.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment.
MANAGEMENT	State (Tasmania)



Yelloweye Mullet
(Aldrichetta forsteri)
Illustration©R.Swainston/anima.fish

4.15.1 Biology

- **Habitat:** Sheltered sand, seagrass, may ascend rivers into freshwater.
- **Distribution:** Western Australia (Shark Bay) to New South Wales, around Tasmania, New Zealand (Edgar, 2008).
- **Diet:** Planktonic animals (juvenile fish), benthic crustaceans and molluscs (medium-sized fish), almost exclusively algae (larger fish) (Edgar, 2008).
- **Stock Structure**: Biological stock structure for Yelloweye Mullet in Australia is uncertain. It has been suggested that there are two biological stocks—Western and Eastern—based on morphological differences (Thomson 1957; Pellizzari 2001).
- **Movement:** Schooling fish (Kailola et al., 1993).
- **Size at Maturity (length FL; cm):** Females 24, males 25.
- **Age at Maturity:** 2 – 3 (Kailola et al., 1993).
- **Spawning Season:** Summer and autumn.
- **Spawning Location:** Coastal waters, probably in estuaries.

More detailed information on biological characteristics and current management of Yelloweye Mullet fisheries is available from the TasFisheriesResearch webpage.

4.15.2 Fishery

Yelloweye Mullet is primarily caught by the recreational sector, which targets the species using mullet nets and rod and line. Recreational catches have typically ranged between 4–6 tonnes, while commercial catches have remained below 5 tonnes. Commercially, the species has been taken mainly by beach seine, followed by small mesh nets, with a recent increase in the use of purse seine gear.

The vast majority of commercial Mullet catch in Tasmanian waters is Yelloweye Mullet; however, some catch may include Sea Mullet (*Mugil cephalus*).

4.15.3 Management

Yelloweye Mullet is primarily caught by beach seine and small mesh nets in the commercial fishery, which are restricted gear types in estuaries thereby providing considerable protection to the species throughout its range in Tasmania. With relatively minimal catch and effort, current management restrictions of commercial Yelloweye Mullet fishing are limited to the requirement of holding a scalefish fishing licence.

A size limit of 25 cm applies to Yelloweye Mullet. Recreational fishers are subject to a bag limit of 15 fish for all mullet species combined.

4.15.4 Commercial Catch, effort and CPUE

Current commercial catch: The commercial Mullet catch in 2023/24 was 4.4 t (Figure 4.74 A).

Catch, effort and CPUE trends: Commercial Mullet catches peaked in 1999/2000 at 4.9 t, and again in 2012/13 at 4.4 t. Aside from these peaks, catches have shown a decreasing trend, remaining below 2 t since 2006/07 (Figure 4.74 A). However, from 2018/19 to the current season, Mullet catch has been increasing, largely due to increased catches in the small mesh net fishery in the northwest and beach seine near Flinders.

Fishing distribution: Recent fishing activity for both main gear types has been concentrated on the northeast and northwest coasts (Figure 4.75, Figure 4.76, Figure 4.77), while the southeast coast was also important historically for beach seine (Figure 4.75, Figure 4.77).

Gear types: Yelloweye Mullet are occasionally targeted commercially using purse seine nets as well as small mesh nets. Purse seine has historically been the dominant fishing gear used to harvest Mullet, but small mesh nets started to increase in relative importance in 2010/11. In 2023/24, beach seine catches were slightly higher than those taken with small mesh nets, although both remained very small (Figure 4.74 B).

4.15.5 Recreational Fishery

Recreationally, Yelloweye Mullet are targeted using rod and line or small mesh gillnets (‘mullet nets’). Recreational catch estimates for Mullet have generally been substantially higher than commercial catches, with 2022/23 as no exception (Figure 4.75) (Lyle et al. 2004; 2009; Lyle, Stark, and Tracey 2014b; Lyle et al. 2019; Tracey and Stark 2024). In 2022/23, 4.01 tonnes were estimated to have been caught in the recreational fishery, which accounts for 64 percent of the total catch. Thus, the recreational fishery represents a more considerable source of impact on Mullet than the commercial fishery.

4.15.6 Risk Assessment of recruitment impairment

- **Risk of Recruitment Impairment:** Low risk; fishery scored > 80 in the risk analysis, indicating minimal risk of recruitment impairment and stock damage.
- **Productivity:** Highly productive species; small, short-lived, quick to mature, highly fecund, and occupies a relatively low trophic level.
- **Fishing Pressure:** Moderate susceptibility to capture by beach seine fishery; however, netting bans in estuaries and low fishing effort since 2006/07 reduce capture risk significantly. Recreational fishing accounts for most mortality but remains at low levels unlikely to impair recruitment.
- **Stock Status:** Sustainable; stocks are abundant and stable with limited commercial fishing impact, supported by protection in estuarine habitats.

This is a brief summary of the findings from a risk assessment of recruitment impairment, conducted using the Marine Stewardship Council (MSC) framework, as outlined in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). The full assessment is available in that report.

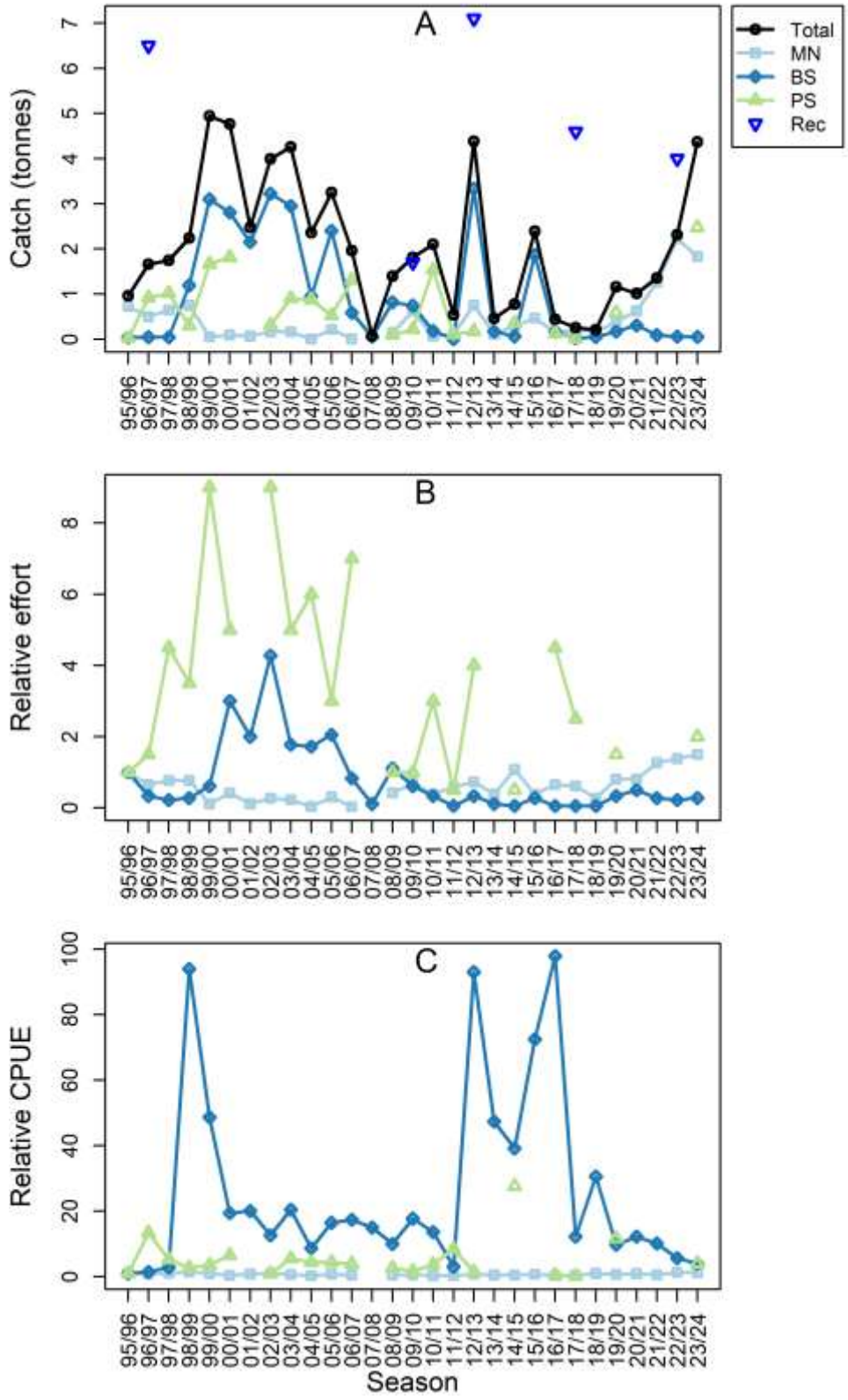


Figure 4.74 (A) Annual commercial Yelloweye Mullet catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. MN = small mesh net, BS = beach seine, PS = purse seine, Rec = estimated recreational catch.

Beach Seine

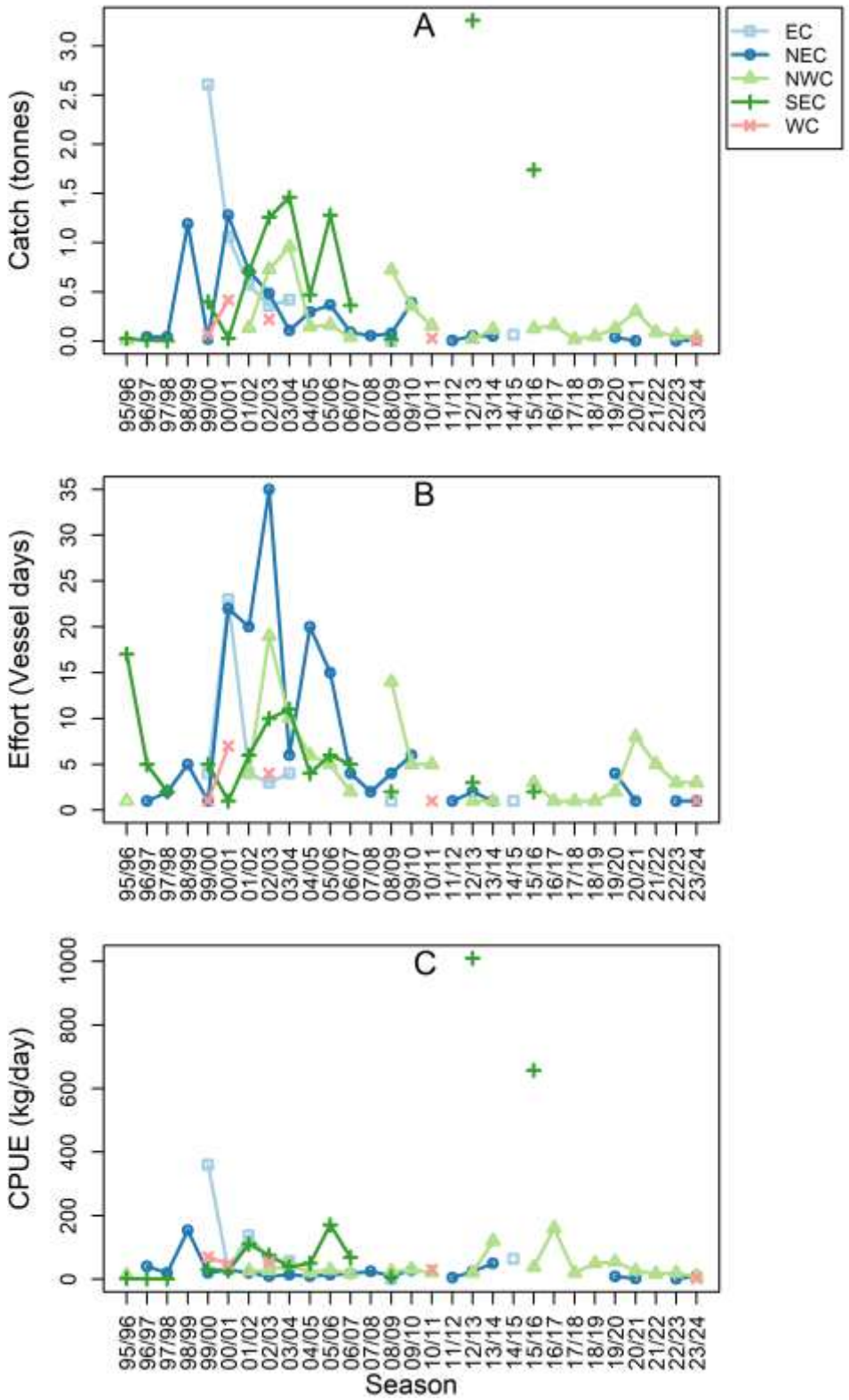


Figure 4.75 Regional commercial Yelloweye Mullet catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

Small Mesh Net

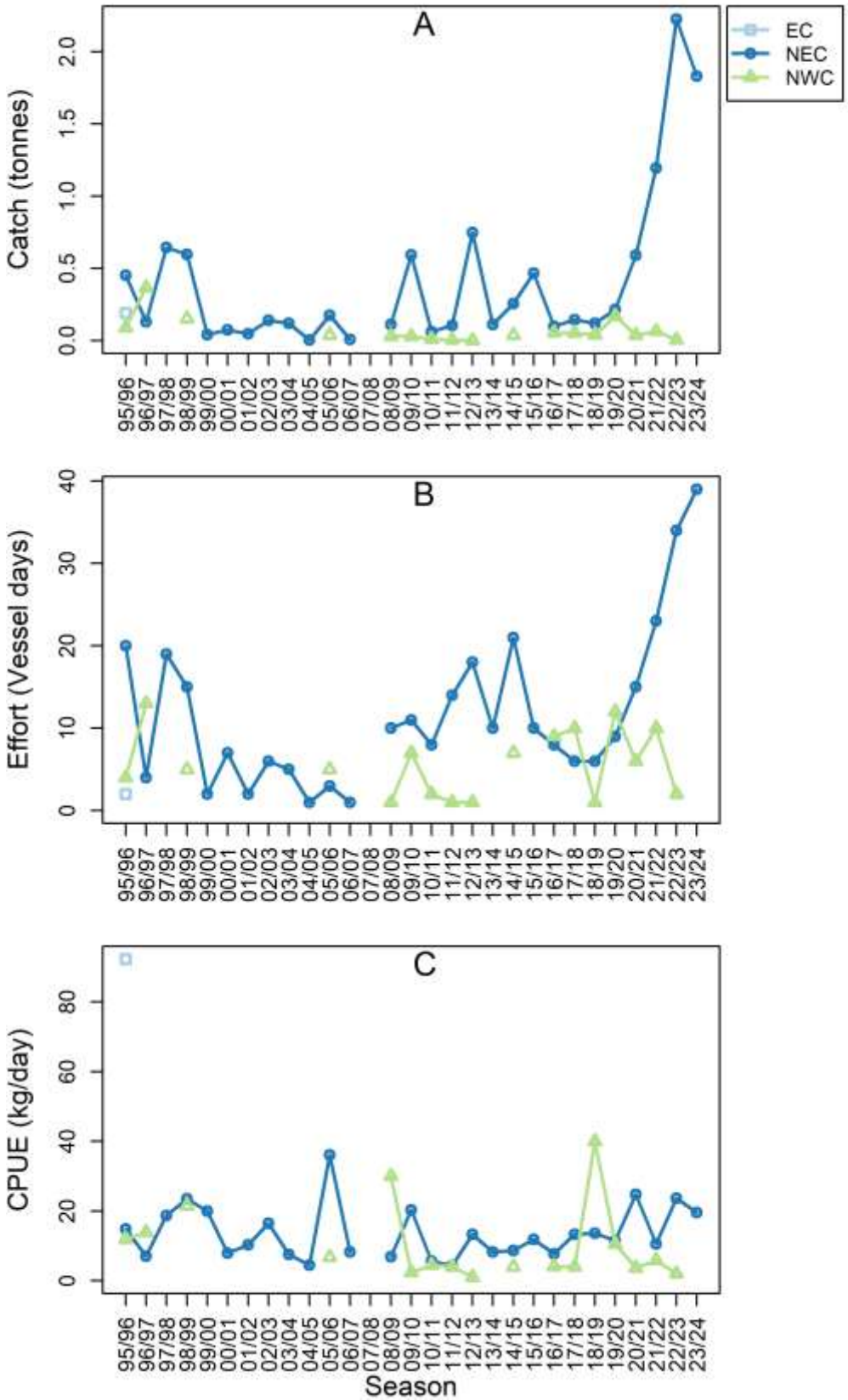


Figure 4.76 Regional commercial Yelloweye Mullet catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for small mesh net. EC = east coast, NEC = northeast coast, NWC = northwest coast.

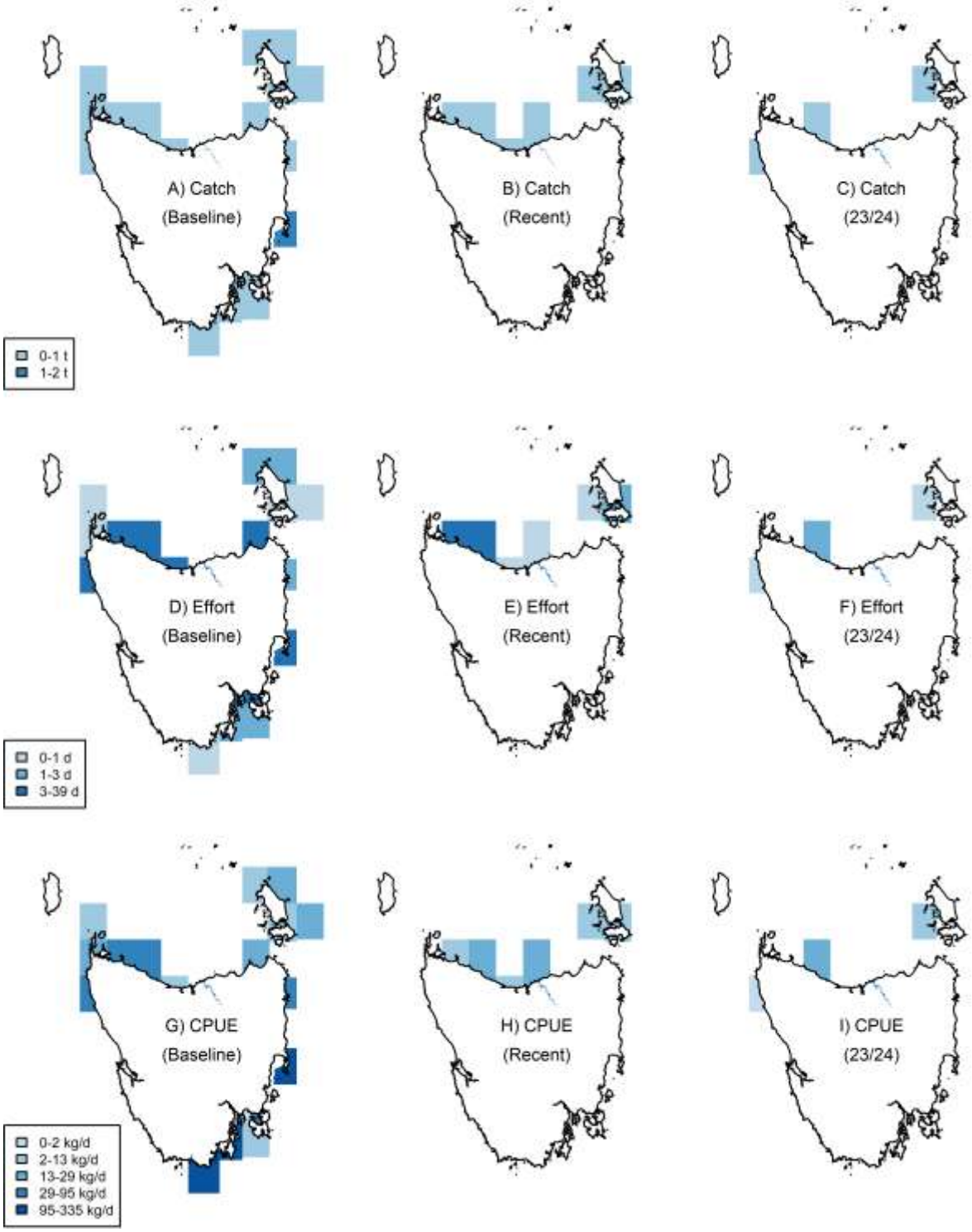


Figure 4.77 Yelloweye Mullet catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

5 Commonwealth-assessed species

5.1 Blue Warehou (*Seriolella brama*)

STOCK STATUS	DEPLETED
Blue Warehou is a predominantly Commonwealth-managed species that has been classified as "Overfished" in the ABARES Fishery Status Reports 2024 (Butler et al. 2024). It was reported as Depleted in the 2023 Status of Australian Fish Stocks Report (Butler et al. 2024). This species is sporadically abundant in Tasmanian waters. Despite a reduction in Total Allowable Catch (TAC) for the Commonwealth fishery to 50 t in 2021 and the initiation of a stock rebuilding strategy in 2008, there is no evidence of stock recovery. There is evidence that climate-driven changes may be limiting the effectiveness of current management measures in rebuilding the Blue Warhou stock (Fulton et al. 2024).	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth

Blue Warehou
(Seriolella brama)
Illustration©R.Swainston/anima.fish

5.1.1 Biology

- **Habitat:** Inshore reefs/harbours and open water.
- **Distribution:** New South Wales to South Australia, Tasmania, New Zealand (Edgar, 2008; Gomon et al., 2008).
- **Diet:** Invertebrates: mainly salps; also krill, crabs, squid (Gavrilov and Markina, 1979; Annala, 1994; Bulman et al., 2001).
- **Stock Structure:** Two stocks of Blue Warehou are believed to occur in southern Australian waters, the east and the west Bass Strait stocks (Bruce, Neira, and Bradford 2001).

- **Movement:** Schooling fish, highly mobile; small juveniles pelagic, commonly in association with jellyfish in open coastal waters; sub-adults often found in sheltered waters of large marine embayments.
- **Size at Maturity (length FL; cm):** 36.
- **Age at Maturity:** 3.67 (Knuckey and Sivakumaran, 2001).
- **Spawning Season:** Winter (major regional differences in magnitude and timing).
- **Spawning Location:** Central west and northwest coasts of Tasmania.

More detailed information on biological characteristics and current management of Blue Warehou fisheries is available from the TasFisheriesResearch webpage.

5.1.2 Fishery

The Blue Warehou stock has been classified as Depleted (Overfished) since 2008 and remains subject to a Commonwealth rebuilding strategy. Despite the implementation of the Blue Warehou Stock Rebuilding Strategy, most recently updated in 2022, there has been limited evidence of recovery. The strategy prohibits targeted fishing, allowing only incidental catch. While catches in Tasmania are relatively low, AFMA continues to monitor the stock, with management actions focused on limiting fishing mortality and supporting long-term recovery.

5.1.3 Management

Within the Tasmanian fishery, a minimum size limit of 25 cm applies to all fishers, however this remains below size at maturity. Tasmanian-licensed commercial fishers are restricted to a daily limit of 300 kg, first introduced in 2023.

5.1.4 Commercial Catch, effort and CPUE

Current commercial catch: 2.3 t.

Catch, effort and CPUE trends: Due to the low availability of Blue Warehou since the early 2000s, the species has been rarely targeted in Tasmania. Landings have remained very low for over a decade, with less than 5 tonnes recorded in each of the last six seasons. In 2023/24, only 2.4 t were landed, continuing this trend. Peak Tasmanian landings occurred in 1991/92 at 317.6 t, coinciding with the peak of national landings of nearly 3,000 t (AFMA 2014).

Following an increase in commercial gillnet effort and CPUE on the southeast and east coasts between 1995/96 and 1998/99 that resulted in an increase in landings, effort has fallen to substantially lower levels ever since (Figure 5.1 B). This situation is influenced by the limited availability of Blue Warehou in Tasmanian waters. Since the stock was declared depleted in 2008, Blue Warehou has only been retained as bycatch or byproduct rather than being targeted, resulting in reduced catch and effort, and CPUE values that are less indicative of actual stock abundance due to the non-targeted nature of fishing (Figure 5.1 C).

Fishing distribution: The Tasmanian fishery is now mainly centred off the southeast coast (Figure 5.2, Figure 5.3), and thus probably targets the eastern stock. Catches are also taken off the north and northwest coasts (Figure 5.3), which are presumably harvested from the western stock.

Gear types: In Tasmania, Blue Warehou are primarily taken using gillnet gear (Figure 5.1 A). A variety of methods are used by Commonwealth fisheries, including other gillnet categories (e.g., shark gillnets), Danish seine, and trawl.

5.1.5 Recreational Fishery

A small recreational gillnet fishery for Blue Warehou represents < 10% of the total annual harvest of this species in Tasmanian waters. In Tasmania, Blue Warehou are also targeted by recreational fishers using gillnets, and to a lesser extent, line fishing. Historically, recreational catches have been lower than commercial catches (Figure 5.1 A). However, in 2012/13, the recreational catch of Blue Warehou was almost double the commercial catch (Lyle et al. 2014b). In 2017/18, recreational catch declined again, representing approximately 6% of total catch (Lyle et al. 2019). The 2022/23 recreational catch survey does not specifically report catch of this species (Tracey and Stark 2024).

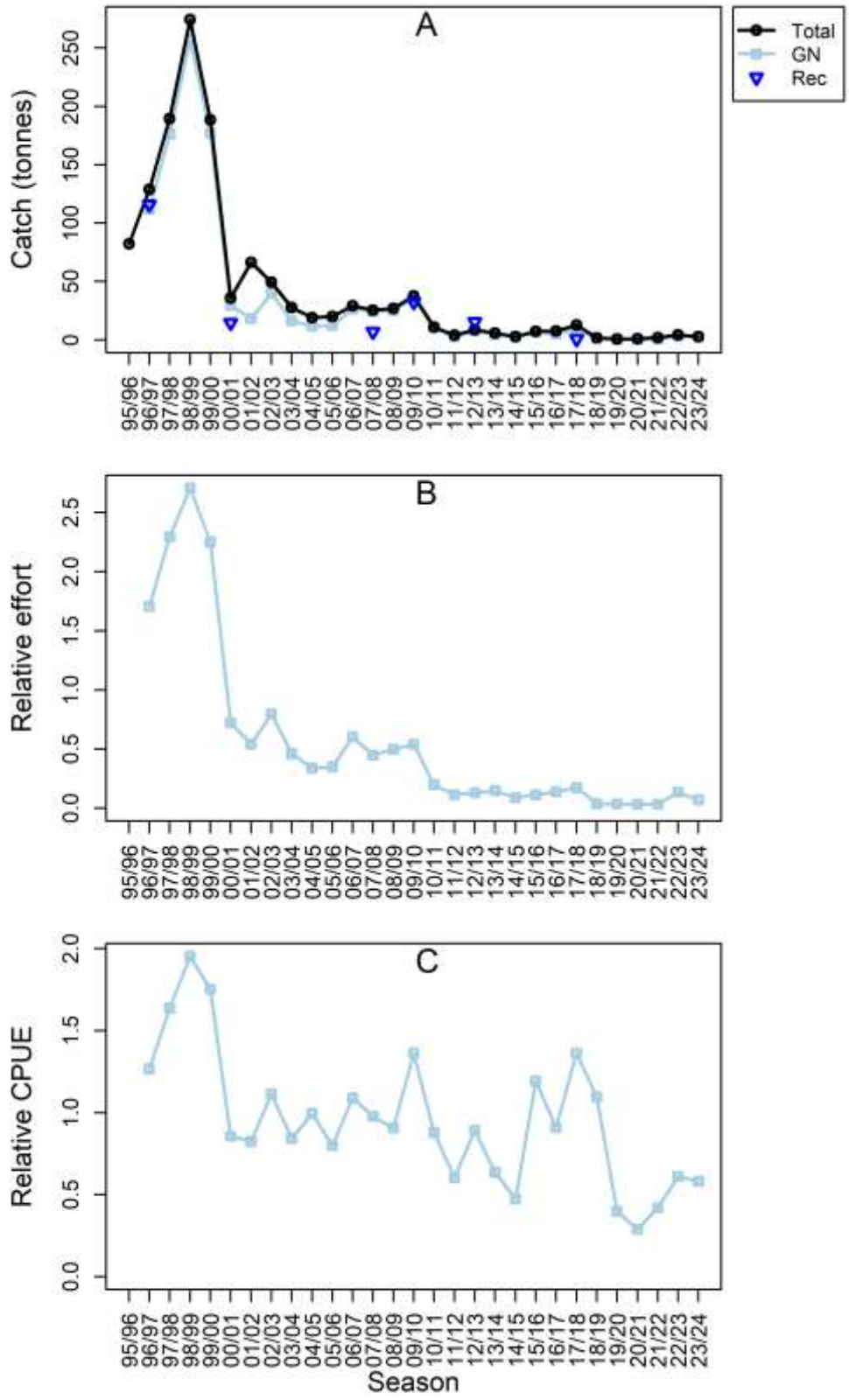


Figure 5.1 (A) Annual commercial Blue Warehou catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. GN = gillnet, Rec = estimated recreational catch.

Gillnet

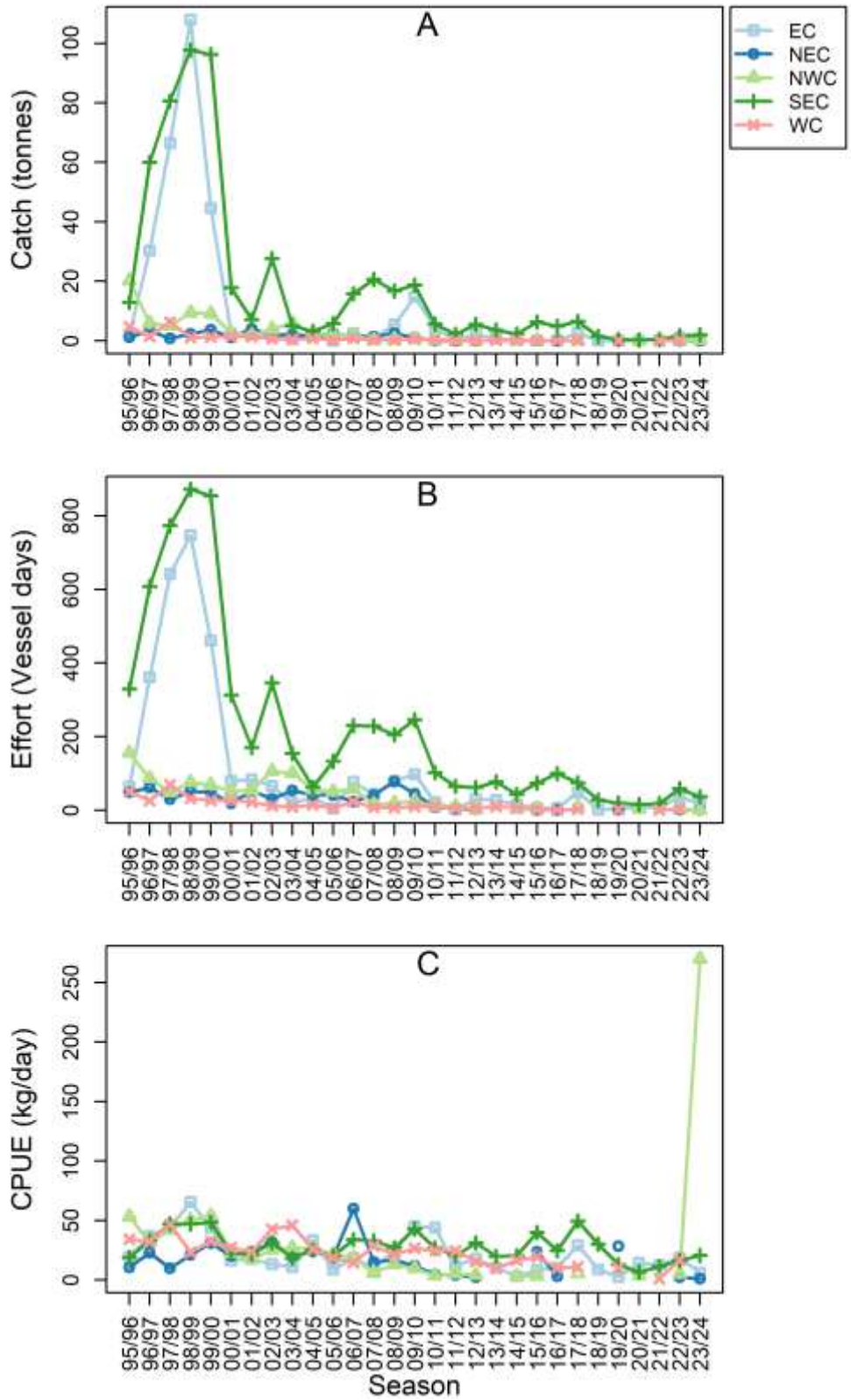


Figure 5.2 Regional commercial Blue Warehou catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

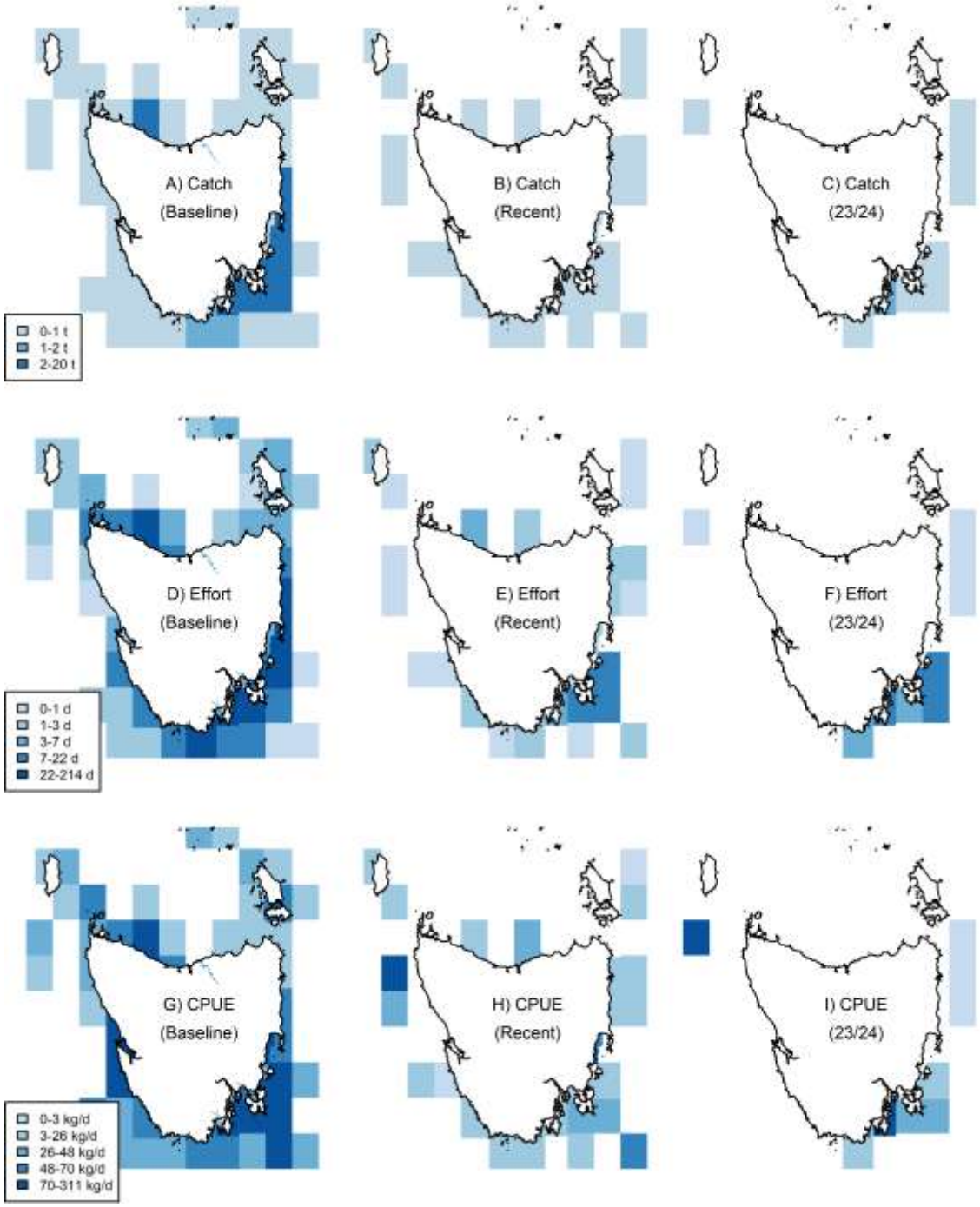


Figure 5.3 Blue Warehou catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

Stock status **DEPLETED**

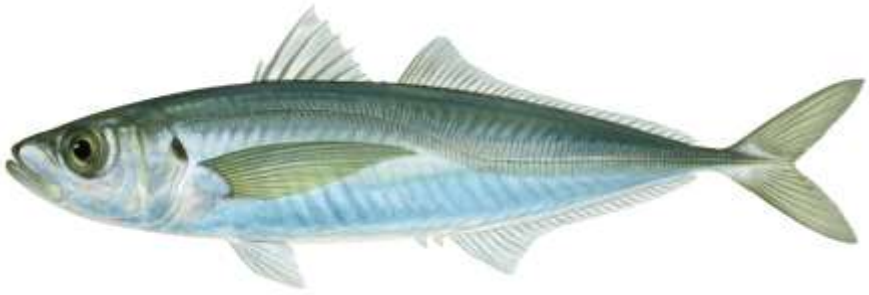
The decreasing catch of Blue Warehou over the last 20 years is almost certainly linked to reduced biomass, which is predominantly a result of overfishing by Commonwealth and state fisheries during the 1990s when catches exceeded 2,500 t in several years and consistently reached > 1,000 t annually between 1987 and 1998 (AFMA 2014). These figures include state landings, with Tasmanian catches accounting for about 10% of the total (AFMA 2014). While the reduced Commonwealth and Tasmanian catches should facilitate stock recovery, a lack of both fishery-dependent and fishery-independent data makes the level of current stock depletion difficult to assess.

Blue Warehou is under a Commonwealth stock rebuilding strategy (first introduced in 2008 and later reviewed in 2014), which aims in the first instance to rebuild both east and west coast stocks to or above the default limit reference biomass point of 20 per cent of the unfished spawning biomass by 2024 (AFMA 2014). Consequently, the Commonwealth Total Allowable Catch (TAC) for Blue Warehou has been progressively reduced since 2003, and it was further reduced to 118 t (split 27 t in the east and 91 t in the west) in 2012/13 (AFMA 2012). AFMA considers the reduction in recent Commonwealth catches (1.9 t in 2015/16, 16 t in 2016/17, 25 t in 2017/18, 54 t in 2018/19, 10 t in 2019/20, 2.4 t in 2020/21, 4.0 t in 2021/22 and 2.8 t in 2022/23) to be due in part to their active management and education program. Further management measures include SESSF fishery closures and gear restrictions. There was also a voluntary Commonwealth industry closure implemented between 2008 and 2012 in areas of high Blue Warehou abundance, which were believed to be spawning grounds. However, this assumption was challenged following a review in 2013 due to the patchiness and unpredictability of the species in these areas (AFMA 2014). In Tasmania, management measures include recreational bag and possession limits and a minimum size limit. However, if Blue Warehou stocks start to recover, these regulations may be insufficient to prevent excessive catches from commercial and recreational fishers.

Despite the Commonwealth and Tasmanian management measures outlined above, there have been few signs of recovery of the species, which is why the ABARES Fishery Status Reports classified Blue Warehou stocks as “Overfished” (for biomass) and “Uncertain” (for fishing mortality) (Butler et al. 2023). Thus, Blue Warehou in Tasmanian waters remains classified as Depleted.

5.2 Common Jack Mackerel (*Trachurus declivis*)

STOCK STATUS	SUSTAINABLE
Common Jack Mackerel is primarily managed by the Commonwealth and has been classified as "Not overfished nor subject to overfishing" in the ABARES Fishery Status Reports 2024 (Butler et al. 2024). Over the past decade, only minor catches have been recorded from Tasmanian waters due to limited purse seine fishing activity. Consequently, catch and effort patterns in Tasmania are unlikely to reflect the overall stock status. However, the current low fishing pressure in Tasmanian waters is unlikely to cause recruitment impairment of the stock.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



Jack Mackerel
(Trachurus declivis)
Illustration©R.Swainston/anima.fish

5.2.1 Biology

- **Habitat:** Inhabits open water over the continental shelf.
- **Distribution:** Found from southern Queensland to Shark Bay, Western Australia, including Tasmania.
- **Diet:** Krill, planktonic crustaceans, fish (Kailola et al., 1993).
- **Stock Structure:** Most likely two subpopulations: eastern Australian (eastern Tasmania and eastern seaboard of mainland Australia), western Australian (western Tasmania, Great Australian Bight, Western Australia) (Kailola et al., 1993; Jorden et al., 1998; Bulman et al., 2008).
- **Movement:** Schooling fish; normally inhabit in continental shelf waters, may move close to seabed during winter.
- **Size at Maturity (length FL; cm):** ~ 21-25.
- **Age at Maturity:** ~2-3 years.
- **Spawning Season:** Late December – early March.
- **Spawning Location:** Occurs over wide area in Tasmania (Stevens and Hausfeld, 1982).

5.2.2 Fishery

The Jack Mackerel fishery in Tasmania peaked in 1986/87 with a catch > 40,000 t (Kailola 1993). However, by 2000 surface schools were less available in Tasmanian waters and fishers began midwater trawling in Commonwealth waters. There was another, smaller peak in the Tasmanian commercial fishery in 2008/09 due to a sharp increase in purse seine effort. However, since then, both catch and effort have been low.

A 2014 study assessed the spawning stock biomass for eastern Australia to be in the order of 150,000 tonnes (Ward et al. 2015). The Commonwealth manages Common Jack Mackerel under a tested harvest strategy that uses ecosystem and population modelling. The strategy aims to keep stocks at 50% of unfished levels on average, with less than a 10% chance of dropping below 20% over 50 years (Butler et al. 2023).

5.2.3 Management

The Tasmanian Mackerel Fishery consists of one licence authorised to target mackerel species in Tasmanian waters. Holders of a mackerel fishing licence operate in this fishery, with a combined Total Allowable Catch applying for jack mackerel, blue mackerel and redbait.

Under a general scalefish licence, there are no catch limits for mackerel unless operating from a fishing vessel more than 20 metres in length, in which case a catch limit of 100 kg applies. Holders of a rock lobster licence are not limited if they are using mackerel as bait.

5.2.4 Commercial Catch, effort and CPUE

Current commercial catch: In 2023/24, only 2.2 t of Jack Mackerel was landed in Tasmania, following similarly low catches in the preceding ~ten years (Figure 5.4 A).

Catch, effort and CPUE trends: Jack Mackerel catches in Tasmanian waters were generally low (2.6–59.8 t) until 2007/08, when increased purse seine effort on the east coast led to a peak of 919.6 t in 2008/09. Catches dropped sharply after 2009/10 as the main purse seine operator ceased fishing (Figure 5.4,Figure 5.5,Figure 5.7).

The use of purse seine gear between 2008/09 and 2009/10 resulted in a peak in effort and catch during this short period (Figure 5.4). Beach seine effort has been declining slowly over time, noting that Jack Mackerel represents a by-product of the beach seine fishery and no meaningful CPUE trends can be drawn from these data (Figure 5.4 C). With the exception of the years in which the purse seine fishery actively targeted Jack Mackerel, purse seine CPUE has remained low as the species has not been targeted in Tasmanian waters (Figure 5.4).

Fishing distribution: Targeted purse and beach seine catches were historically taken mostly from the southeast coast but incidental catch in recent years was taken as by-product by beach seine mostly from the northwest coast (Figure 5.6, Figure 5.7).

Gear types: A schooling species that are mainly targeted using small mesh net, purse seine and beach seine gear.

5.2.5 Recreational Fishery

There is a small recreational fishery for Jack Mackerel using line gear in Tasmania. Jack Mackerel catch in the recreational sector is comparable to the commercial catch outside of the peak period of purse seine operating between 2007 to 2011. In 2022/23 3.1 tonnes were caught by the recreational sector accounting for 66 percent of the total catch (Figure 5.4 A , Tracey and Stark 2024).

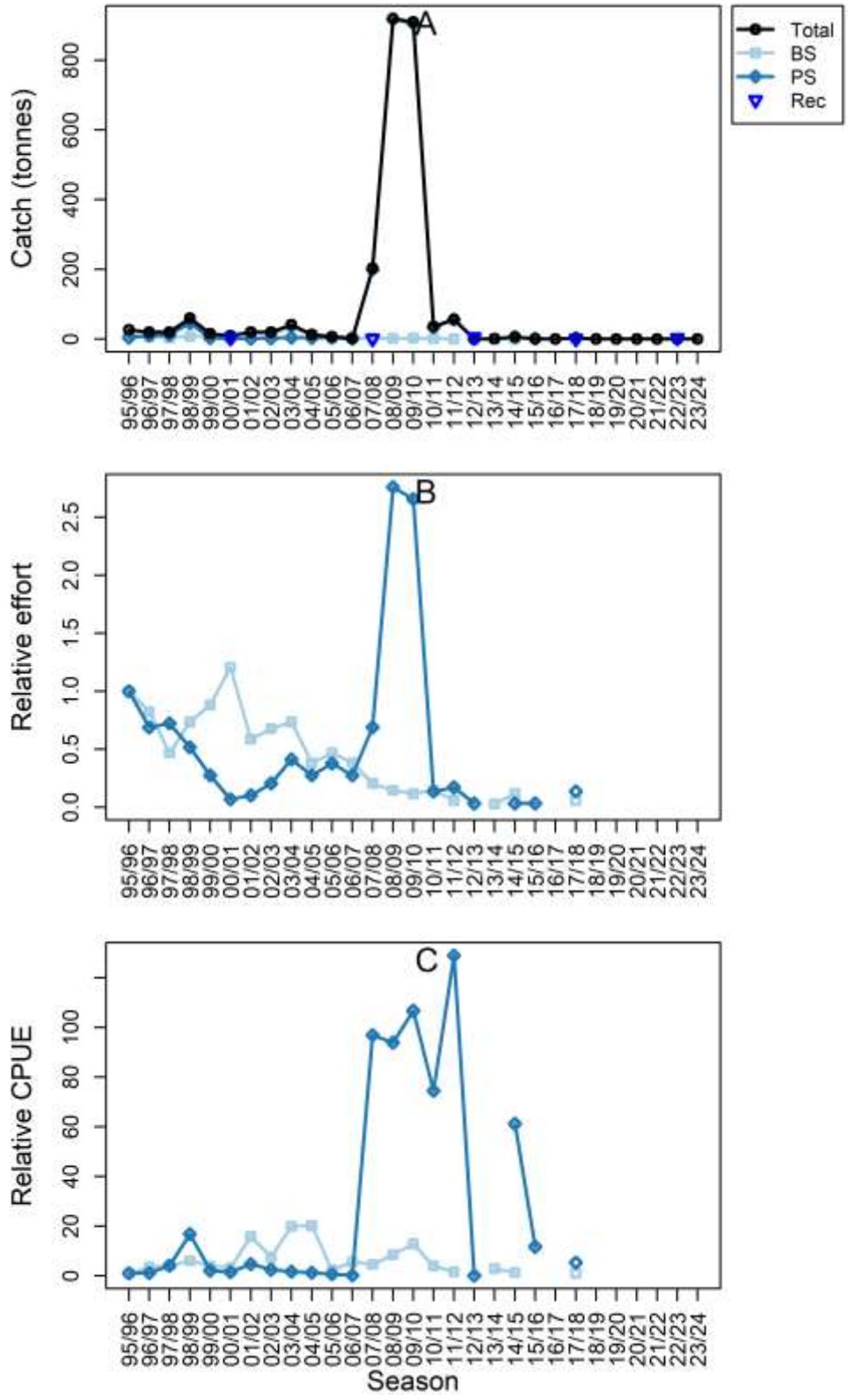


Figure 5.4 (A) Annual commercial Common Jack Mackerel catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. BS = beach seine, PS = purse seine, Rec = estimated recreational catch.

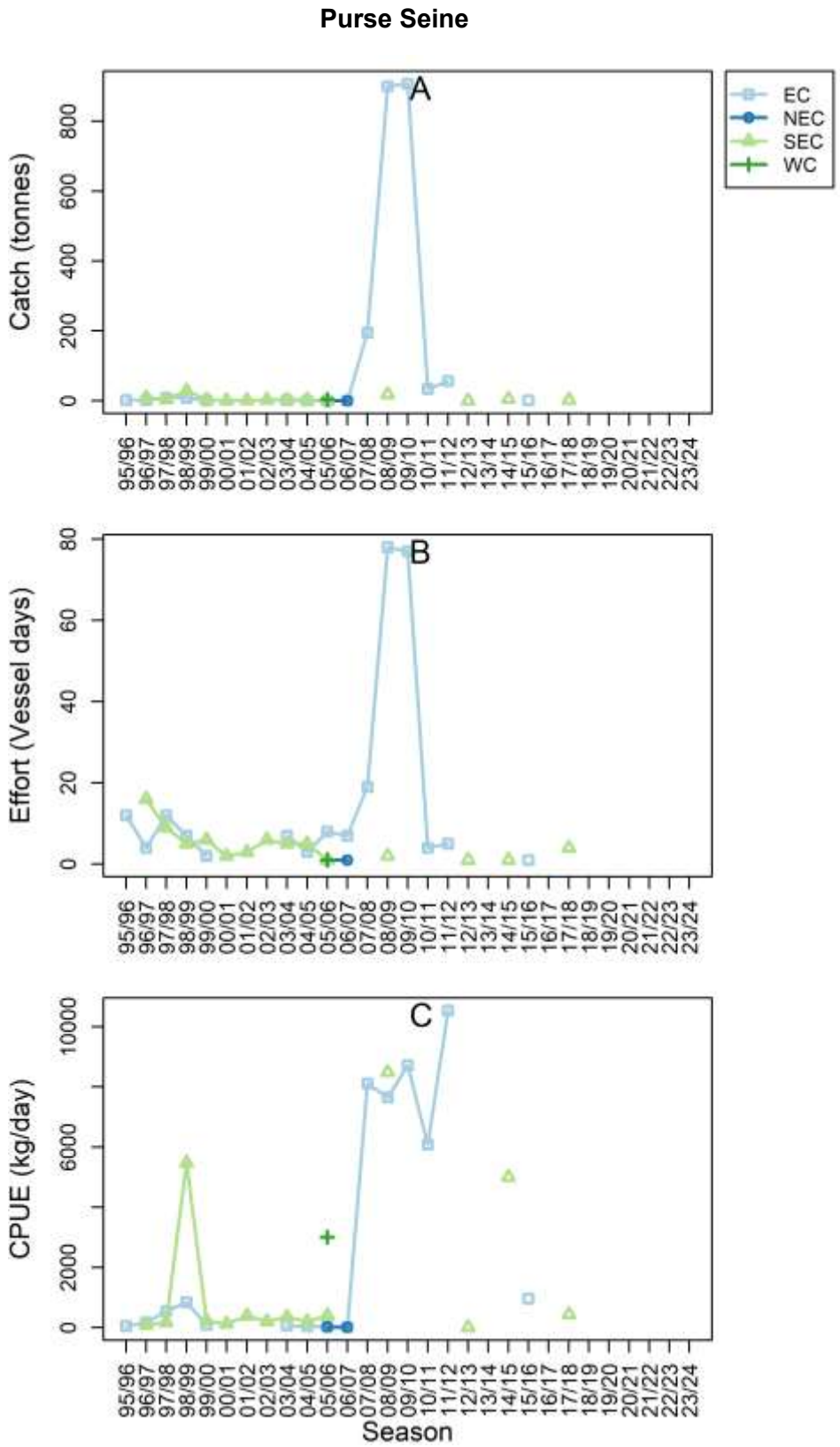


Figure 5.5 Regional commercial Common Jack Mackerel catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for purse seine. EC = east coast, NEC = northeast coast, SEC = southeast coast, WC = west coast.

Beach Seine

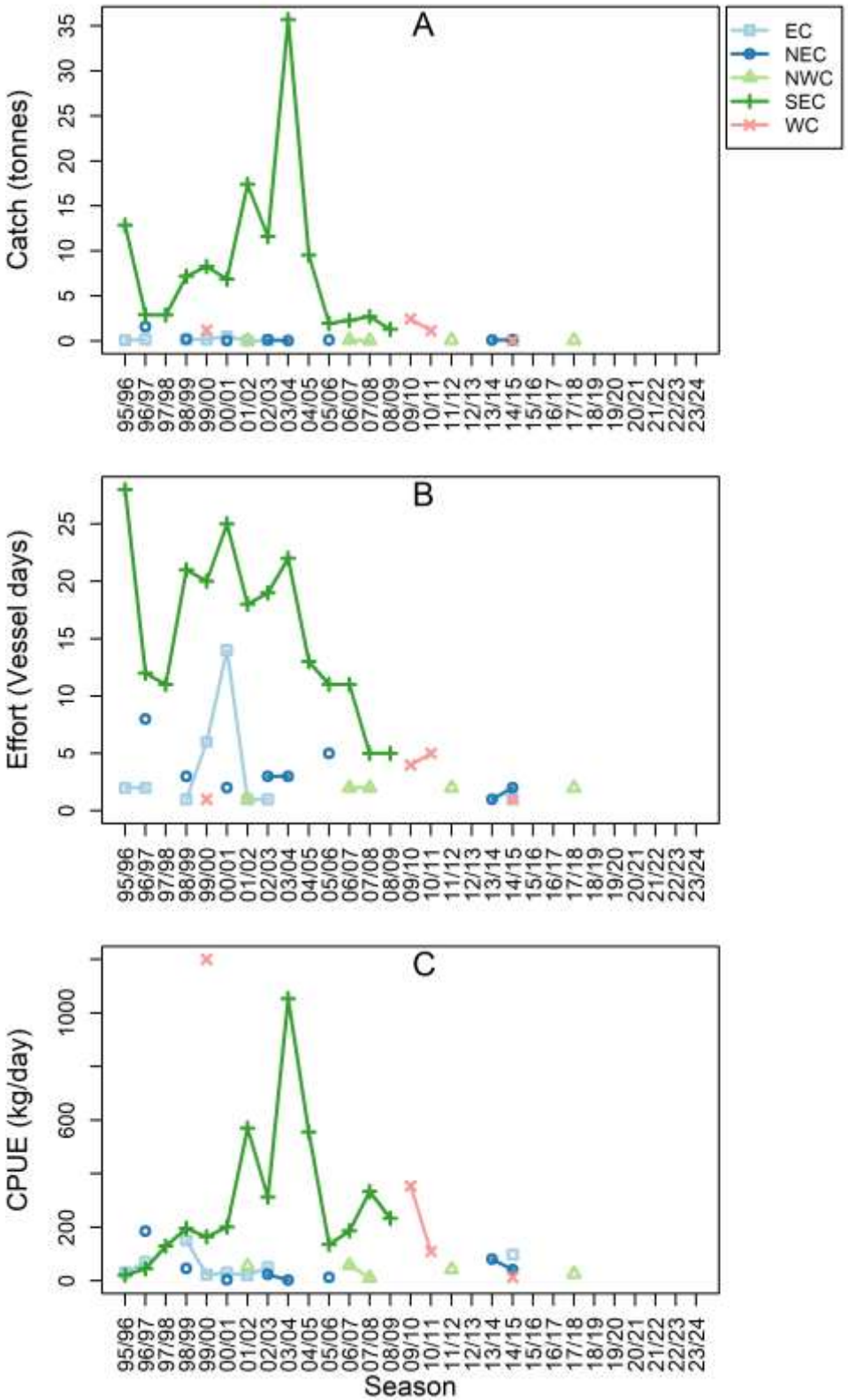


Figure 5.6 Regional commercial Common Jack Mackerel catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

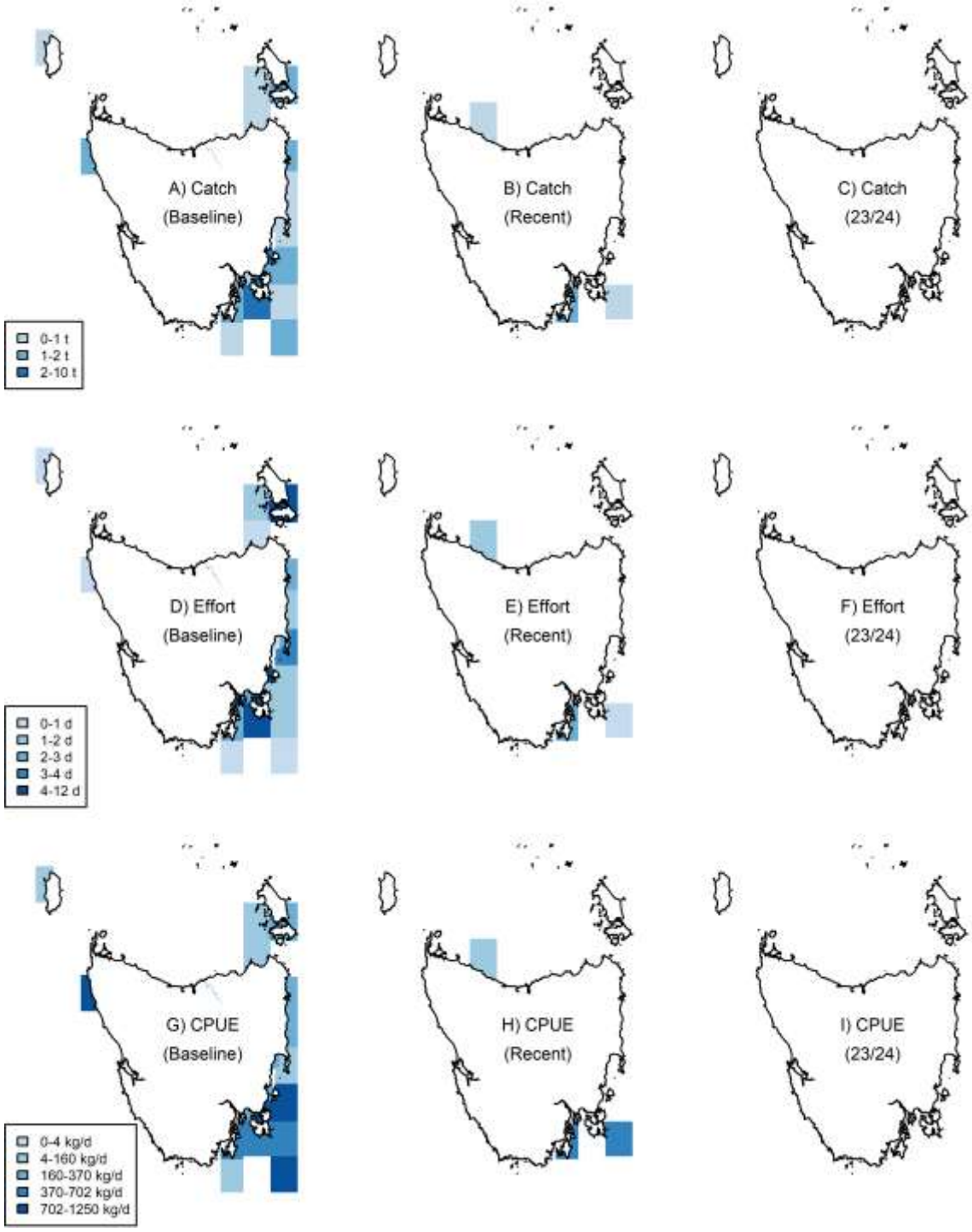


Figure 5.7 Common Jack Mackerel catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

Stock status **SUSTAINABLE**

Minimal fishing for Common Jack Mackerel has occurred in Tasmanian waters in recent years. Very low commercial catch means that the proportion of recreational catch tends to be higher than historically even if recreational catches are not notably higher. Common Jack Mackerel are assessed by the Commonwealth Small Pelagic Fishery Scientific Panel and based on current catch levels and spawning biomass, the eastern Jack Mackerel stock has been classified as Sustainable (Butler et al. 2023). This assessment has been applied to the Tasmanian component of the fishery.

5.3 Eastern School Whiting (*Sillago flindersi*)

STOCK STATUS	SUSTAINABLE
Eastern School Whiting is predominantly a Commonwealth-managed species and has been classified as "Not overfished nor subject to overfishing" in the ABARES Fishery Status Reports 2023 (Butler et al. 2023). It was also classified as Sustainable in the 2024 Status of Australian Fish Stocks Report (SAFS 2024). Catches in Tasmanian waters fluctuate in response to market demand but generally constitute only a small proportion of the total Commonwealth commercial catch.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth

Eastern School Whiting
(Sillago flindersi)
Illustration©R.Swainston/anima.fish

5.3.1 Biology

- **Habitat:** Associated with sandy habitats and is found in deeper coastal waters as well as coastal lakes and estuaries (Gomon et al. 2008).
- **Distribution:** Endemic to south-eastern Australia, from southern Queensland to western Victoria and around Tasmania.
- **Diet:** Mainly crustaceans: amphipods, decapods, mysids, copepods (juveniles) (Burchmore et al., 1988).
- **Stock Structure:** Some evidence suggests the presence of four genetically distinct Gould's Squid stocks—two in New South Wales, one in Victoria, and one in Tasmania (Dixon, 1987; Morison et al., 2012). Commonwealth assessments consider the evidence for separate stocks to be weak and manage Eastern School Whiting as a single biological stock.
- **Movement:** Schooling.
- **Size at Maturity (length FL; cm):** 14 – 16 (Hobday and Wankowski, 1987; Burchmore et al., 1988).
- **Age at Maturity:** 2 (Hobday and Wankowski, 1987; Burchmore et al., 1988).
- **Spawning Season:** Spring – late summer (Hobday and Wankowski, 1987).

More detailed information on biological characteristics and current management of Eastern School Whiting fisheries is available from the TasFisheriesResearch webpage.

5.3.2 Fishery

Eastern School Whiting is Danish seine fishing operations target either Eastern School Whiting or Tiger Flathead and each target species represents the main by-product species when the other is targeted, leading to opposing trends in catch and effort for Eastern School Whiting and Tiger Flathead.

5.3.3 Management

The main catch method for Eastern School Whiting species is Danish seine, all Danish seine licences are non-transferable licences. There are significant area restrictions in place for the Danish seine fishery including waters within one nautical mile of the Tasmanian coast.

5.3.4 Commercial Catch, effort and CPUE

Current commercial catch:35.3 t in 2023/24.

Catch, effort and CPUE trends: Eastern School Whiting landings in Tasmania have fluctuated widely since 1998/99 (Figure 5.8 A).

The Tasmanian Danish seine fishing effort has been variable over time, showing notable drops in 2005/06 and 2014/15 (Figure 5.8 B), but has been very consistent from 2018/19 to the present year. Effort in 2023/24 was similar to the effort from the reference year, and CPUE showed a decrease from the previous year (Figure 5.8 C).

It should be noted that Trawl data from commonwealth fisheries are not presented here as it is assessed and presented elsewhere as part of commonwealth fisheries (Australian Fisheries Management Authority (AFMA) reports, further information available here).

Fishing distribution: Catches from this fishery are influenced by a small number of Danish seine operators, who mostly operate on the southeast coast, in particular in the Derwent Estuary (Figure 5.9, Figure 5.10), although the Tamar Estuary has also been targeted in previous years (Figure 5.10).

Gear types: Caught primarily using Danish Seine gear in the south of the state.

5.3.5 Recreational Fishery

There is a small recreational line fishery for Eastern School Whiting in southern Tasmania. Recreational catches generally low, and this species is not an important target for the recreational fishery. Estimates of recreational catch have fluctuated between approximately 4-50% of commercial catch (Figure 5.8 A, Lyle et al. 2019; Tracey and Stark 2024). Recreational catch represented only 4 percent or 1.8 tonnes of the total catch in 2022/23 (Tracey and Stark 2024).

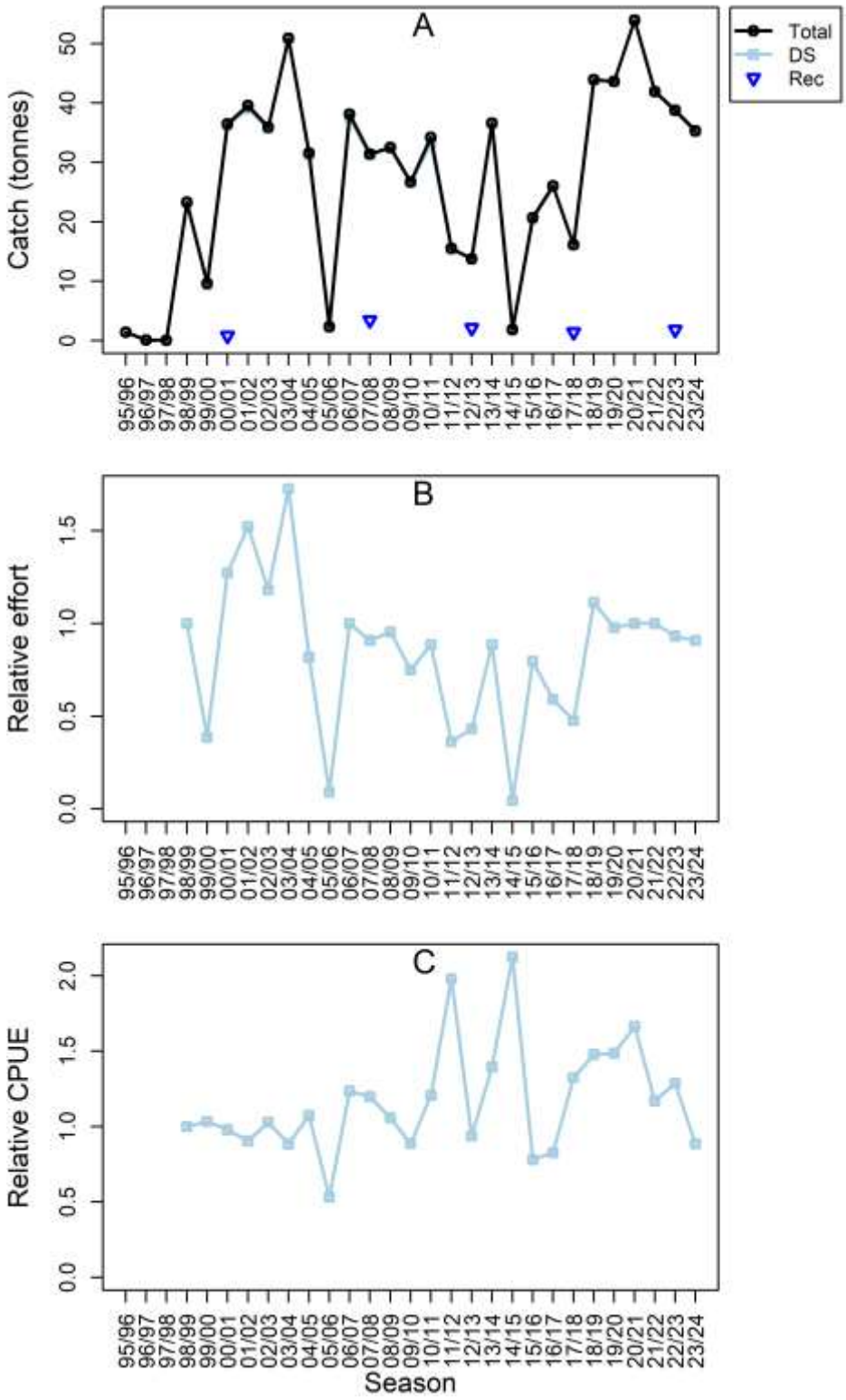


Figure 5.8 (A) Annual commercial Eastern School Whiting catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1998/99; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1998/99. DS = Danish seine, Rec = estimated recreational catch.

Danish Seine

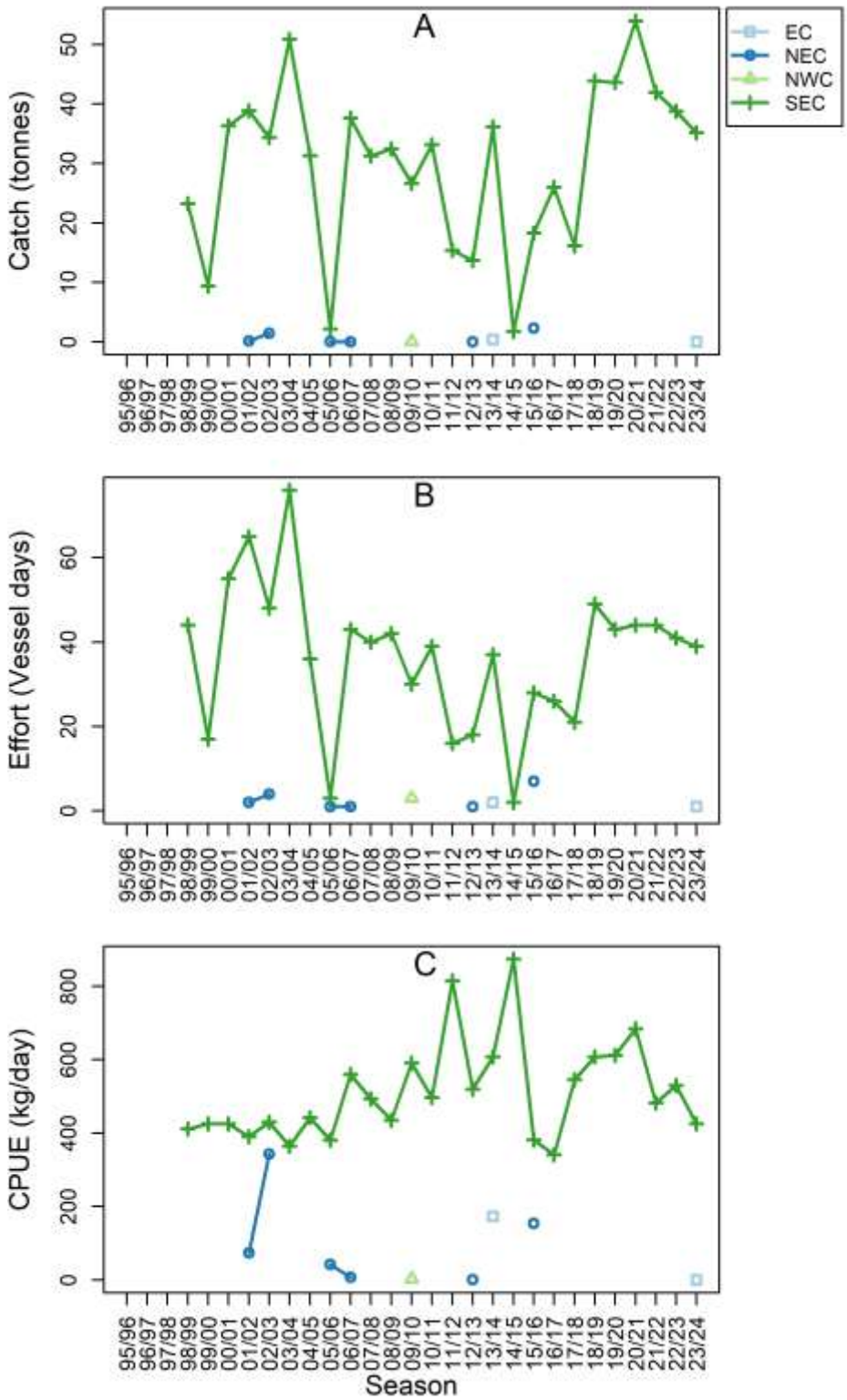


Figure 5.9 Regional commercial Eastern School Whiting catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for Danish seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

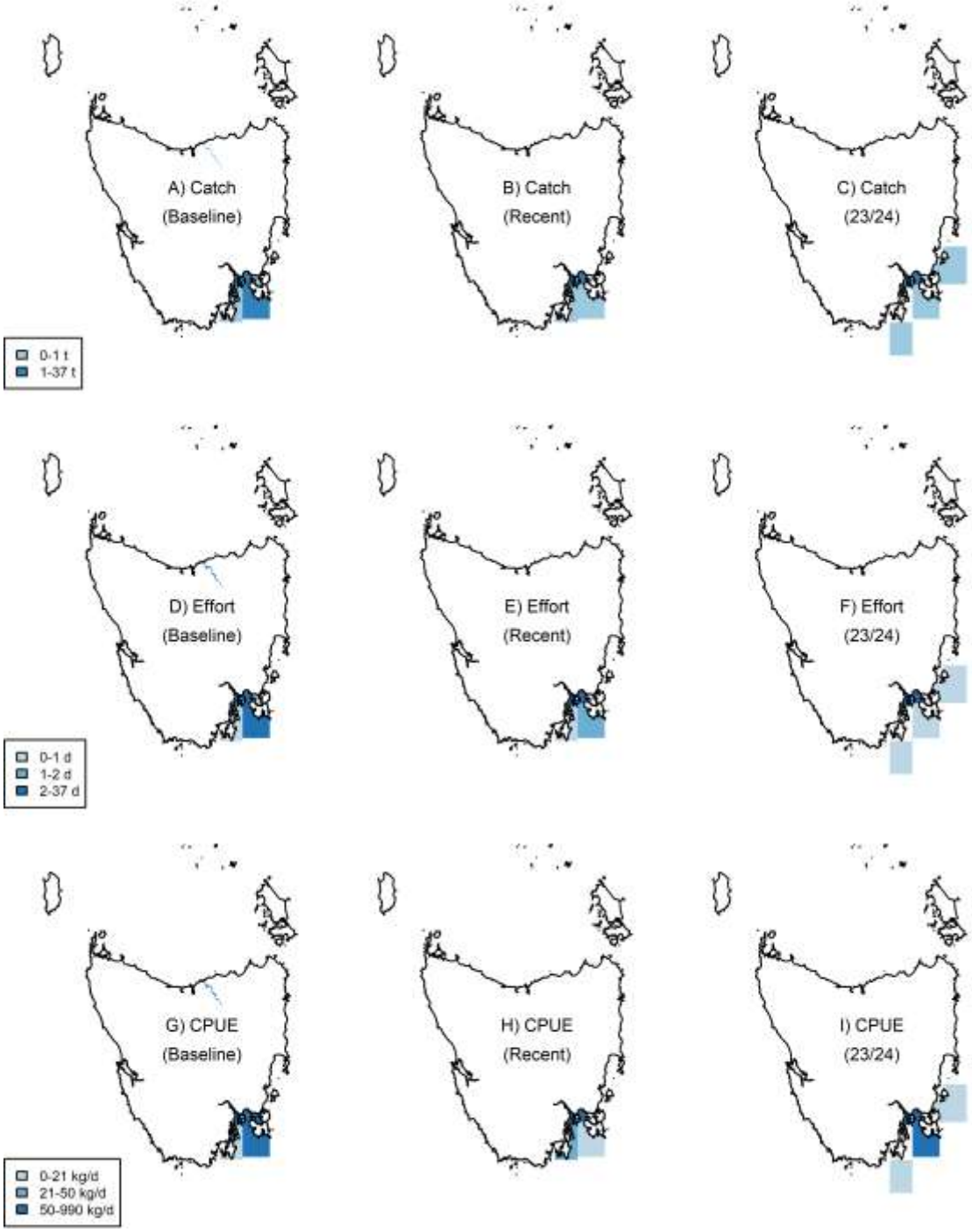


Figure 5.10 Eastern School Whiting catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1998/99 to 2007/08 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

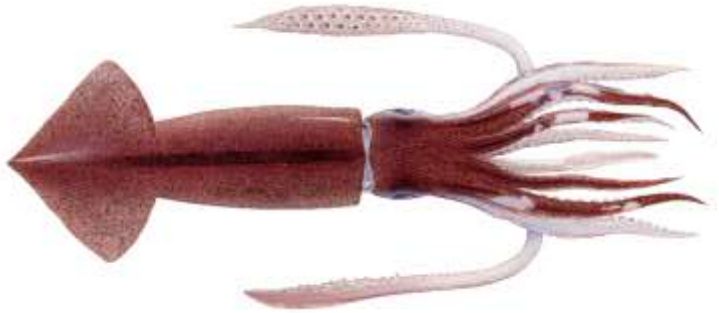
Stock status	**SUSTAINABLE**

Catch, effort, and CPUE patterns for Eastern School Whiting have been determined to a large extent by the level of targeting. The primary fisher is known to switch between Tiger Flathead and Eastern School Whiting, presumably depending on market demand and the season – Eastern School Whiting tends to be a winter fishery, while Tiger Flathead is targeted in summer. Catches by the recreational sector remain low and are inconsequential given the assumed size and distribution of the Eastern School Whiting stock.

Overall, the Tasmanian component of the fishery lands only a small proportion of the catch compared with Commonwealth landings (54.0 t vs. 519.6 t in 2021/22 and 38.8 t vs. 502.3 t in 2022/23). The latest Fishery Status Report (Butler et al. 2023) classified the Eastern School Whiting fishery as Sustainable in terms of both stock status and current fishing mortality. In accordance with this assessment, the Tasmanian component of this fishery is classified as Sustainable.

5.4 Gould's Squid (*Nototodarus gouldi*)

STOCK STATUS	SUSTAINABLE
Gould's Squid is a predominantly Commonwealth-managed species that has been classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2021 (Patterson et al. 2021). Dual-licensed vessels fish for this species in Tasmanian waters, especially in years of peak abundance. Gould's Squid is characterised by high inter-annual variability in abundance in state waters resulting in periodically high catches compared to other scalefish species.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



Gould's Squid
(Nototodarus gouldi)
Illustration©R.Swainston/anima.fish

5.4.1 Biology

- **Habitat:** Open water; coastal, inner shelf and shelf break waters.
- **Distribution:** Southern Queensland to mid-Western Australia, around Tasmania (Dunning, 1998; Dunning and Förch, 1998).
- **Diet:** Small planktonic crustaceans, fish, squid (Machida, 1983; O'Sullivan and Cullen, 1983; Smith, 1983; Uozumi, 1998; Pethybridge et al., 2012).
- **Stock Structure:** Uncertain, appears only one population in southern Australia.
- **Movement:** Move widely within a 300 km2 area but no large-scale migration between feeding and spawning areas as for other similar squid species (Jackson et al., 2005a; Triantafillos et al., 2004).
- **Size at Maturity (length ML; cm):** 30.6-31.4 (females), 20.5-21.5 (males) (Stark, 2008).
- **Age at Maturity:** 6-8 months.
- **Spawning Season:** Year-round.

More detailed information on biological characteristics and current management of Gould's Squid fisheries is available from the TasFisheriesResearch webpage.

5.4.2 Fishery

Gould's Squid is targeted by the Commonwealth Southern Squid-Jig Fishery, a single gear, single species fishery that operates in Bass Strait waters using automatic squid jig gear. Like most cephalopod species, Gould's Squid has a very brief life cycle, is semelparous (reproduces once before death), and can vary significantly in abundance among years,

presumably depending on environmental conditions. Occasionally, Gould's Squid are available in high abundance in south-eastern Tasmanian waters, however there is limited local market demand for the commercial fishery. Consequently, dual-licensed fishing vessels tend to operate in state waters during summer before moving back to Commonwealth fishing grounds in Bass Strait.

5.4.3 Management

In the Tasmanian fishery, an automatic squid jig licence is required to use more than four automatic squid-jigging machines to target Gould's squid. Fishers are generally dual-licensed across the Southern Squid Jig Fishery (SSJF) and the Tasmanian automatic squid jig fishery, operating in Commonwealth or State waters under the appropriate authority depending on the abundance of Gould's squid.

The SSJF operates under a harvest strategy that includes catch and effort triggers, aiming to prevent overfishing. The SSJF employs a limited entry system with a specified number of squid jigging machines permitted. Effort is monitored, and if certain thresholds are exceeded, management responses, including potential reductions in effort, are considered.

5.4.4 Commercial Catch, effort and CPUE

Current commercial catch: 2023/24 season saw 0.04 tonnes caught.

Catch, effort and CPUE trends: Gould's Squid availability in Tasmanian waters is highly variable with a few notable peaks in abundance and thus effort, as reflected by its catch history (Figure 5.11 A). The highest Gould's Squid catch over the assessed time series was 1,072 t in 2012/13, with the Australia-wide catch for that year predominantly coming from Tasmanian waters (Flood et al. 2014). The 2023/24 season marks a particularly low catch year, comparable to 2018/19, and based on past trends, a similarly low catch is expected in the following season.

Effort for automatic squid jig tends to match temporal patterns in catch, presumably largely reflecting the availability of Gould's Squid in Tasmanian waters (Figure 5.11 B). In some seasons, higher catches have been achieved with relatively low effort, including the 2012/13 peak in catch and 2020/21 (Figure 5.11 A, B).

Following initially low levels up until 2006/07, CPUE has been highly variable and thus non-informative, i.e., largely reflecting broad trends in catch effort and effort (Figure 5.11 C).

Fishing distribution: Catch is mainly from the south-east and north-west, with only minimal catch from the east coast in 2023/24.

Gear types: Automatic squid jigs.

5.4.5 Recreational Fishery

Gould's Squid catches from the recreational fishery are considerably lower than commercial catches during recreational survey years, ranging from 2-8% of commercial catches (Figure 5.11 A). Recreational catches, however, are similar to commercial catches during normal (i.e., low catch) seasons. In 2022/23 recreational catch was estimated to be 6 percent of the total catch, 14.7 tonnes(Tracey and Stark 2024).

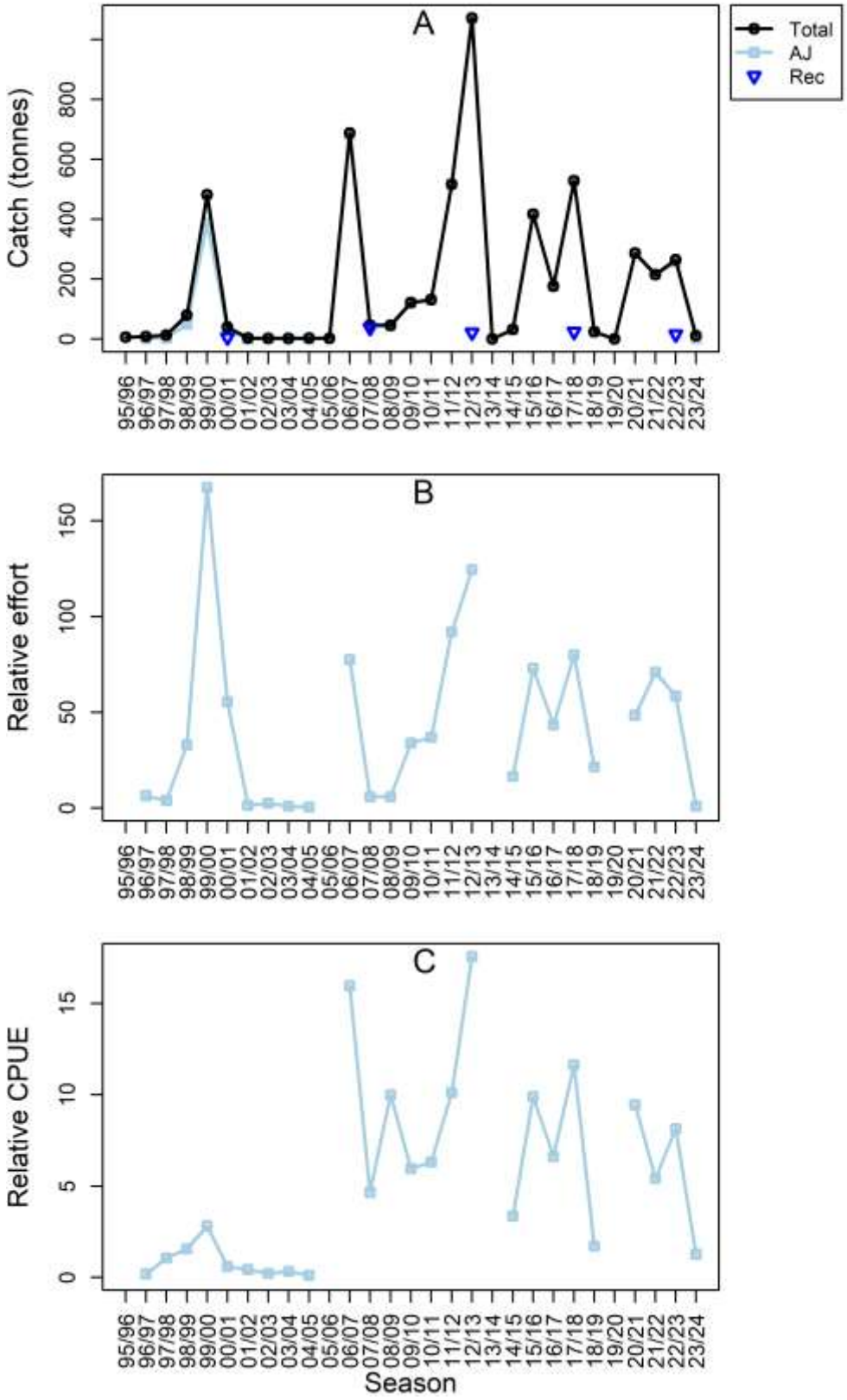


Figure 5.11 (A) Annual commercial Gould's Squid catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. AJ = automatic squid jig, Rec = estimated recreational catch.

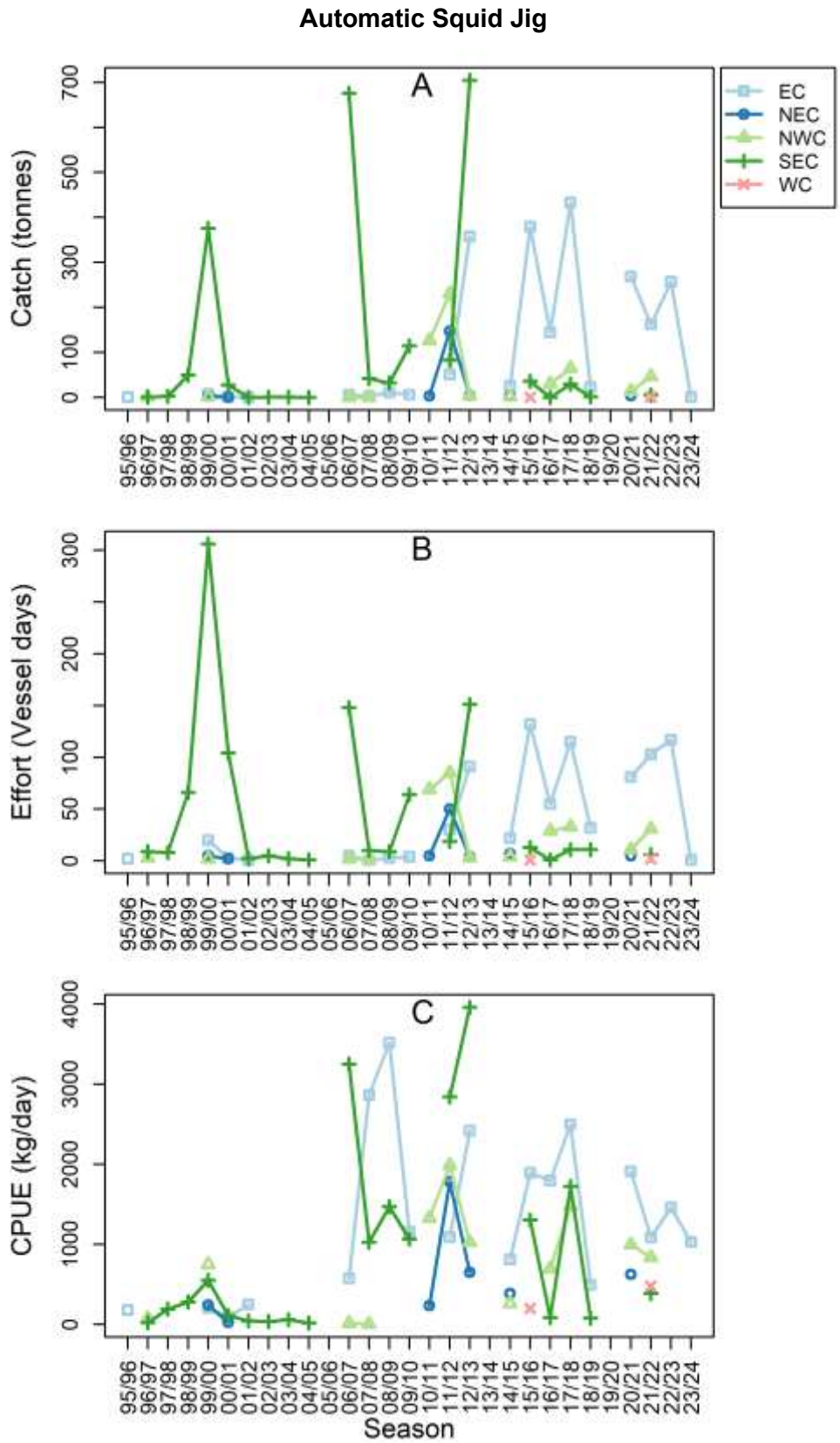


Figure 5.12 Regional commercial Gould's Squid catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for automatic squid jig. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

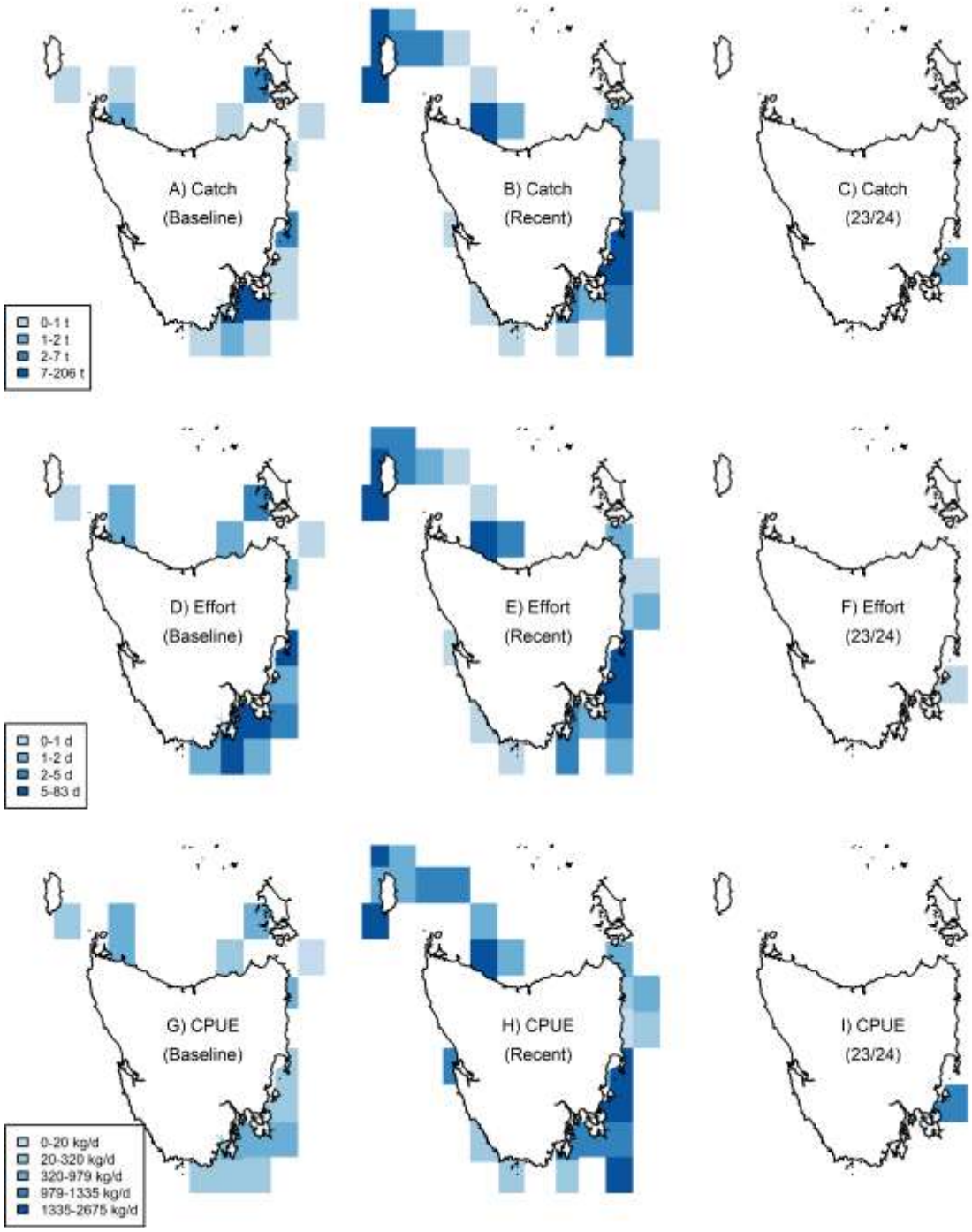


Figure 5.13 Gould's Squid catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

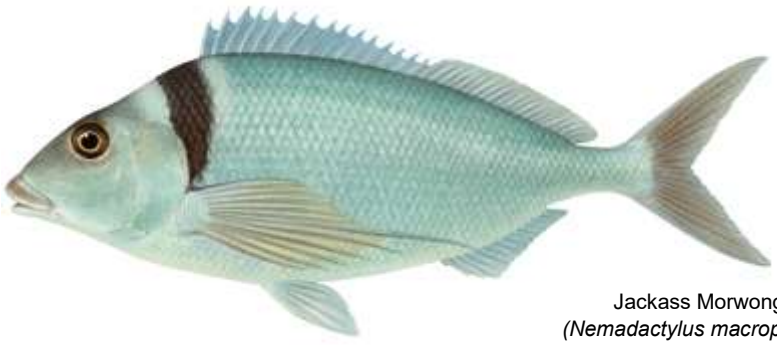
Stock status **SUSTAINABLE**

Gould's Squid are short lived, spawn year-round, displaying highly variable growth and size/age at maturity, which means that they can show rapid increases in abundance during favourable environmental conditions. As a result, Gould's Squid might be less susceptible to overfishing than longer-lived species (Flood et al. 2012). However, their short life span (1 year) implies a reliance on a single cohort, which leaves the species susceptible to environmental and fishing impacts on subsequent recruitment.

Fishing effort in the Commonwealth Southern Squid-jig Fishery has decreased markedly since the late 1990s, presumably due to economic factors. A study on the depletion of the Gould's Squid stock concluded that no overfishing had occurred (Sahlqvist and Skirtun 2011). In accordance with Commonwealth assessments and the most recent Status of Australian Fish Stock Reports (Noriega et al. 2018; 2021), the Tasmanian Gould's Squid fishery is classified as Sustainable.

5.5 Jackass Morwong (*Nemadactylus macropterus*)

STOCK STATUS	DEPLETED
Jackass Morwong is a predominantly Commonwealth-managed species. The eastern stock, primarily caught in Tasmanian waters, has been classified as 'Overfished' and 'Subject to Overfishing' by ABARES in the Fishery Status Report 2024 (Butler et al. 2024). There is evidence that climate-driven changes may be limiting the effectiveness of current management measures in rebuilding the Jackass Morwong stock (Fulton et al. 2024). Catch and effort reported by scalefish fishers in Tasmania have remained low over the past 17 years.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



Jackass Morwong
(Nemadactylus macropterus)
Illustration©R.Swainston/anima.fish

5.5.1 Biology

- **Habitat:** Associated with exposed sand and silt habitat from central Queensland to southern Western Australia, including Tasmania (Edgar 2008).
- **Distribution:** Central Queensland to southern Western Australia, around Tasmania, New Zealand, southern Africa, South America (Edgar, 2008).
- **Diet:** Polychaetes, crustaceans, molluscs, echinoderms (Godfriaux, 1974).
- **Stock Structure:** Existence of at least three sub-populations: Tasmania, New South Wales/Victoria, Great Australian Bight; no genetic variation in southern Australia indicates larval mixing (Grewe et al., 1994; Elliott and Ward, 1994; Richardson, 1982; Thresher et al., 1992).
- **Movement:**
- **Size at Maturity (length FL; cm):** 25.
- **Age at Maturity:** 3 (Edgar, 2008).
- **Spawning Season:** February – June.
- **Spawning Location:** At least two spawning areas: northern (probably southern New South Wales and eastern Victoria), southern (probably western and southern Tasmania) (Bruce et al., 2001a; Lyle and Ford, 1993).

More detailed information on biological characteristics and current management of Jackass Morwong fisheries is available from the TasFisheriesResearch webpage.

5.5.2 Fishery

Jackass Morwong is a large, long-lived species with low abundance in Tasmanian waters. It is not targeted but taken as by-product in the gillnet sector of the Tasmanian Scalefish Fishery, which predominantly accesses the eastern stock. This stock is also fished by the Commonwealth-managed Southern and Eastern Scalefish and Shark Fishery (SESSF), which recorded 76.7 t of catch in 2019/20 (Piddocke et al. 2021).

Historically, Jackass Morwong was managed as a single stock from southern NSW to both eastern and western Tasmania. It was classified as “Overfished” from 2008–2010, and later as “Sustainable” in 2020. However, in 2021, separate assessments for the eastern and western stocks were introduced. The eastern stock, where most Tasmanian catch occurs, was found to be below the limit reference point and is now classified as “Overfished” and “Subject to Overfishing”. In contrast, the western stock remains “Sustainable.”

5.5.3 Management

The minimum size limit for Jackass Morwong is 25 cm. In response to depleted status, a catch limit of 300 kg was introduced for Tasmanian licence holders in 2023, along with a recreational boat limit of 30.

5.5.4 Commercial Catch, effort and CPUE

Current commercial catch: Total commercial catch in 2023/24 was 5.1 t.

Catch, effort and CPUE trends: Commercial landings of Jackass Morwong in Tasmanian waters have declined steadily since peak catch records of almost 35 t in 1997/98, fluctuating between approximately 1-5 t since 2007/08 (Figure 5.14 A).

Catches have fluctuated in general agreement with fishing effort (Figure 5.14 B), which has resulted in relatively stable CPUE at reduced levels since 2007/08 (Figure 5.14 C).

Fishing distribution: Most of the fishing effort occurred on the east coast, with effort in other regions low and relatively stable (Figure 5.15 B).

Gear types: Taken mainly using gillnet gear from the east and southeast coasts (Figure 5.15, Figure 5.16), with some previous fishing activity on the northeast, northwest, and west coasts (Figure 5.16).

5.5.5 Recreational Fishery

There is a significant recreational fishery for Jackass Morwong in Tasmania, primarily using gillnets. Recreational catches consistently exceed those of the commercial sector, making Jackass Morwong an important species for recreational fishers in the state (Figure 5.14 A). Recreational catches have generally represented approximately 60-70% of total catch during survey years. In addition to gillnetting, Jackass Morwong are commonly caught recreationally by handline and often associated with targeted fishing for Striped Trumpeter. 2022/23 estimated recreational catch shows a slight, non-significant decline from previous surveys and accounts for 59 percent of the total catch, or 7.0 tonnes (Tracey and Stark 2024).

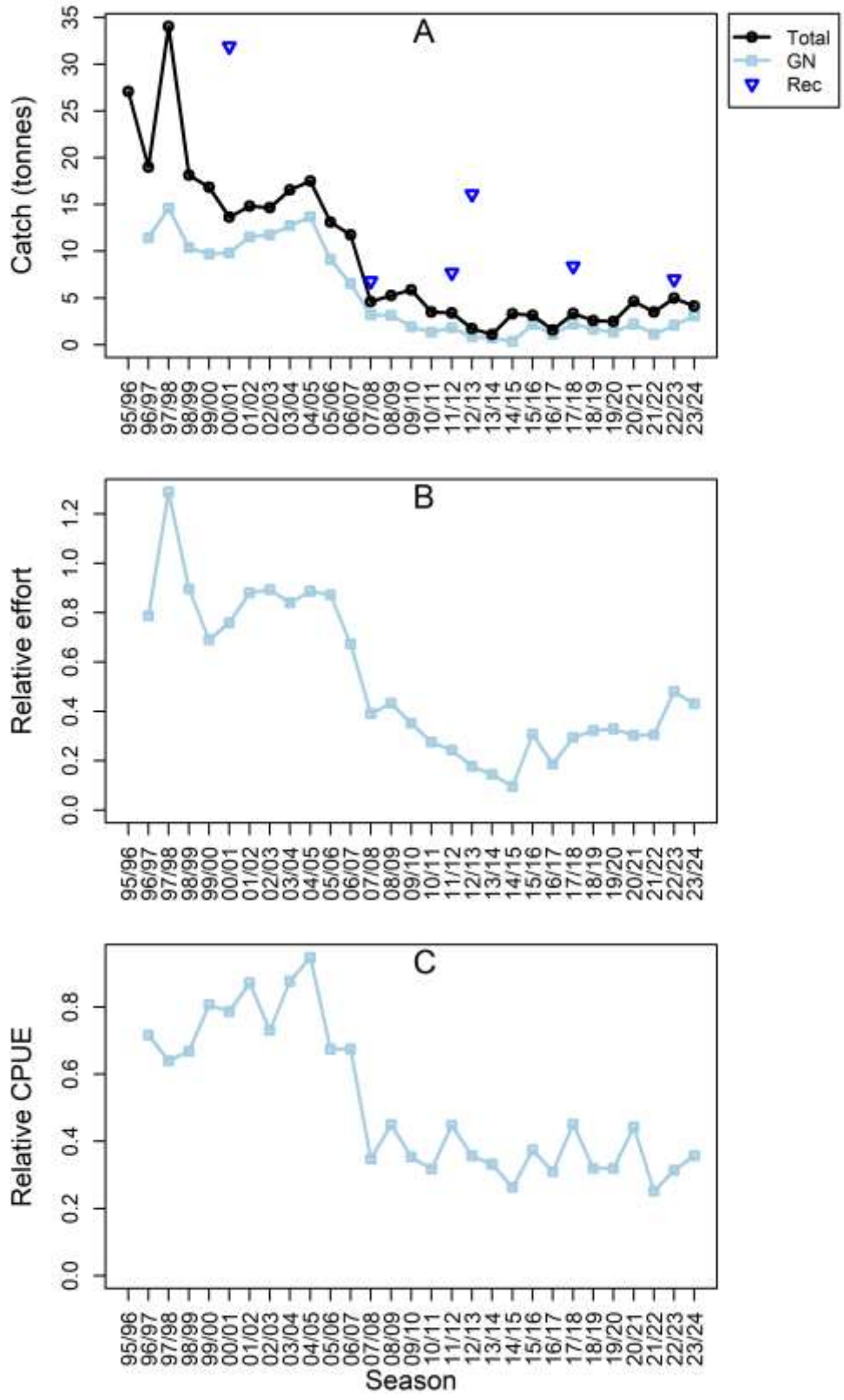


Figure 5.14 (A) Annual commercial Jackass Morwong catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. GN = gillnet, Rec = estimated recreational catch.

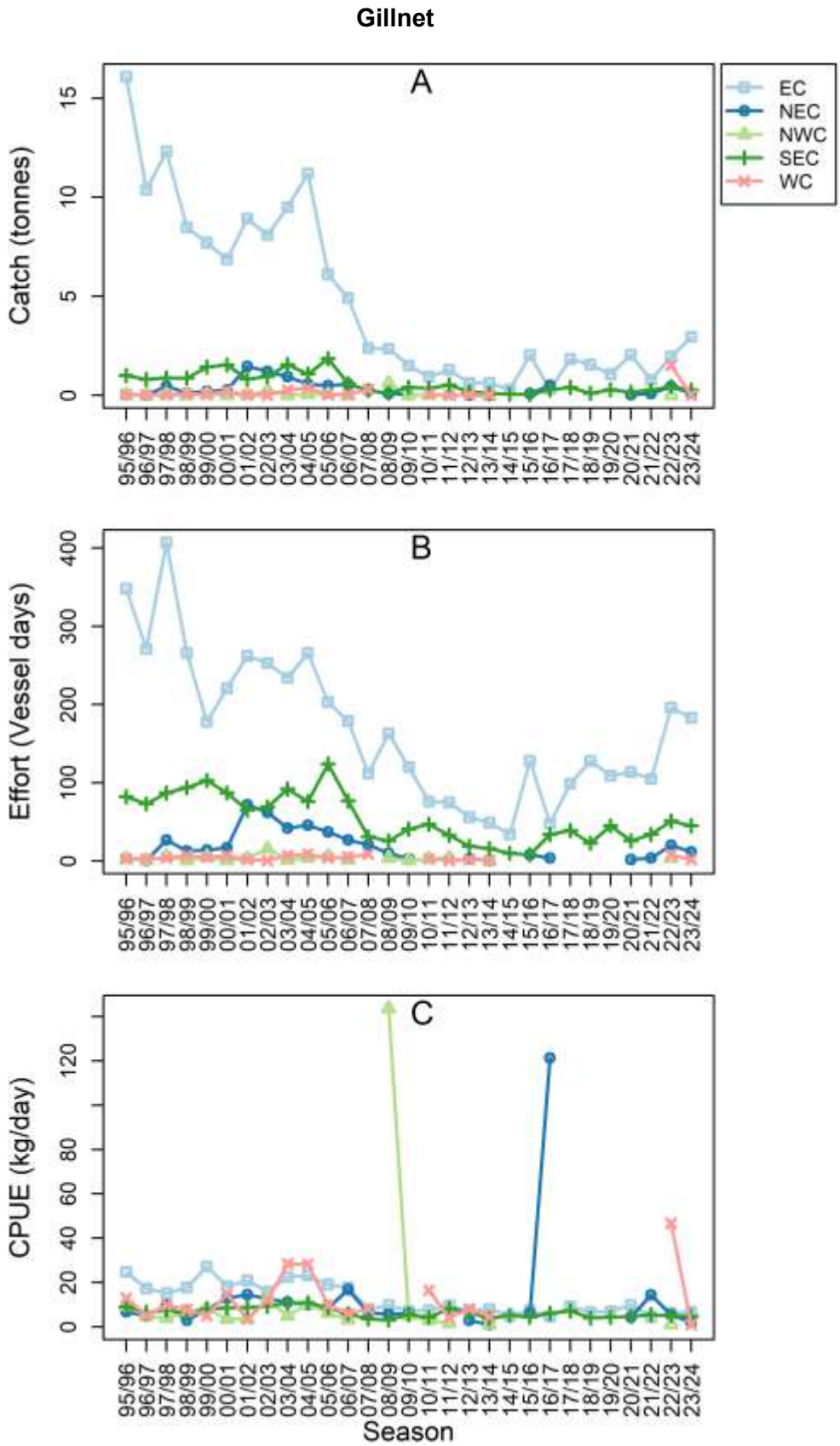


Figure 5.15 Regional commercial Jackass Morwong catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

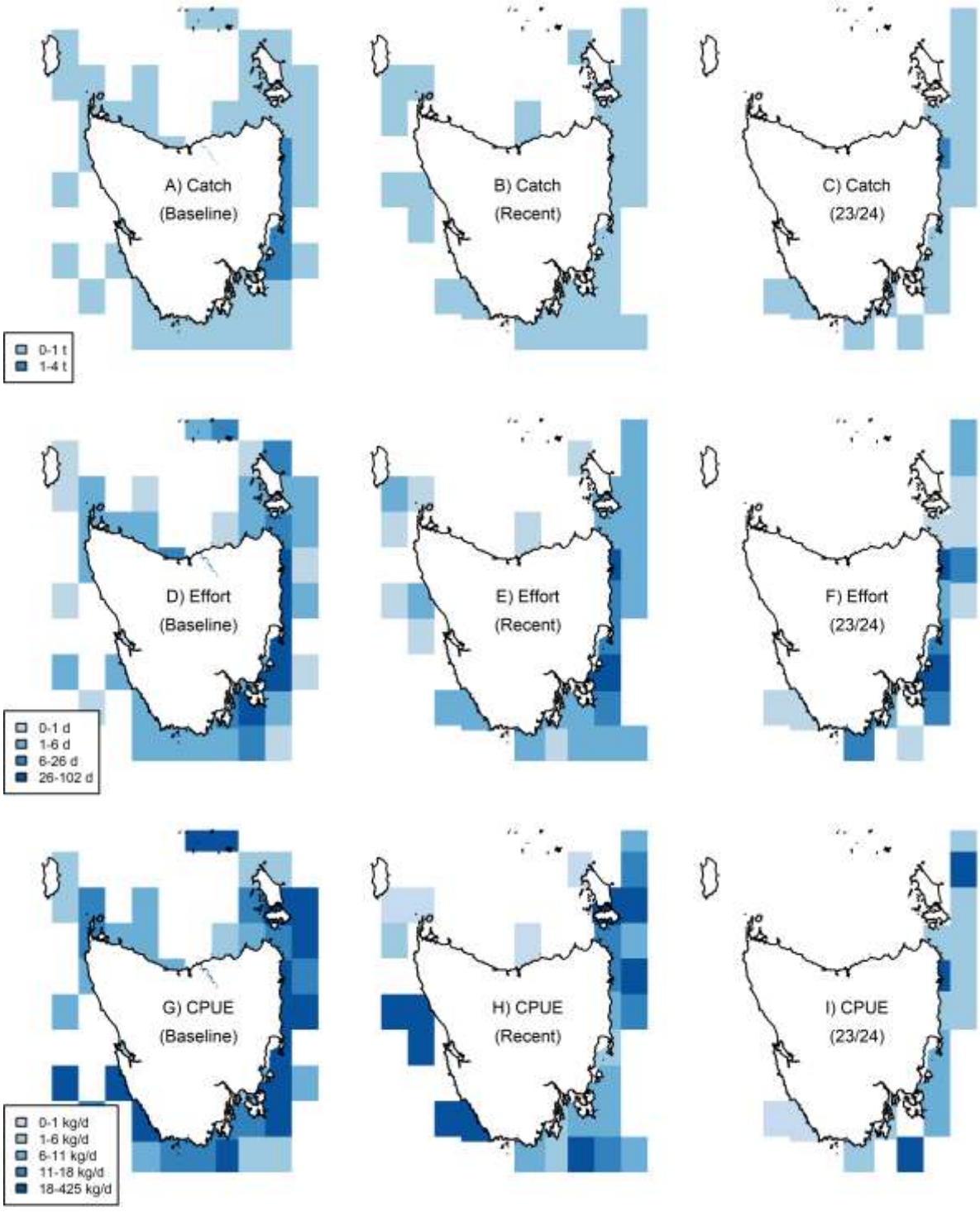


Figure 5.16 Jackass Morwong catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

Stock status	**DEPLETED**

Catch and CPUE have declined in a similar fashion between the two jurisdictions. Catch declines may have been driven, in part, by a prolonged period of reduced recruitment that could be a result of climate-induced changes to ocean current flow in eastern Tasmania (Wayte 2013). Due to an extended early life history period of Jackass Morwong in the open ocean, the species might be particularly sensitive to changes in ocean current flow, which can cause widespread larval dispersal and highly variable levels of recruitment success (Wayte 2013).

The Jackass Morwong Eastern stock was considered to be “Overfished” in the late 2000s, but since 2011 has been classified as “Not overfished nor subject to overfishing” (Woodhams et al. 2013; Flood et al. 2014; Patterson et al. 2021). The 2021 stock assessment has classified the Eastern stock as “Depleted”. The change of assessment status was associated with a reduction of catches for the species in response to management actions in the Commonwealth fishery as well as a revision of the stock assessment model. The assessment model revisions show spawning biomass to be lower than previously thought and consistently below average recruitment since 2004. This analysis indicates a steady decline in productivity since around 1990 (AFMA 2023). Uncertainty and low level of data input in revising the Western Stock assessment also gives cause for caution.

In the Tasmanian region, the majority of the Jackass Morwong catch is obtained from the east coast (as shown in Figure 5.16). Consequently, the status of Jackass Morwong in Tasmania aligns with that of the Eastern stock, and it is also classified as "Depleted."

5.6 Tiger Flathead (*Platycephalus richardsoni*)

STOCK STATUS	SUSTAINABLE
Tiger Flathead is a predominantly Commonwealth-managed species that has been classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2023 (Butler et al. 2023). It has been classified as Sustainable in the 2024 Status of Australian Fish Stocks Report. In Tasmania, Tiger Flathead are caught predominantly by the commercial sector. Catches fluctuate substantially on an annual basis, but they typically represent a small proportion of Commonwealth trawl landings.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth

Tiger Flathead
(Platycephalus richardsoni)
Illustration©R.Swainston/anima.fish

5.6.1 Biology

- **Habitat:** Associated with exposed sand and silt at depths of 10 – 400 m.
- **Distribution:** Found in southeast Australian waters of New South Wales, Victoria, and Tasmania (Edgar 2008).
- **Diet:** Fish (Coleman and Mobley, 1984).
- **Stock Structure:** Considered a single, well-mixed biological stock from southern New South Wales through Victoria to eastern Tasmania. Tagging, genetic studies, and fisheries data show high dispersal and gene flow across range.
- **Movement:** Tagging studies show movement across broad areas of the shelf.
- **Size at Maturity (length FL; cm):** 30 (females), 36 (males).
- **Age at Maturity:** 4-5 (Fairbridge, 1951).
- **Spawning Season:** December – February (Jordan, 2001b; Kailola et al., 1993).

More detailed information on biological characteristics and current management of Tiger Flathead fisheries is available from the TasFisheriesResearch webpage.

5.6.2 Fishery

Tiger Flathead and Southern Sand Flathead are the two most commonly targeted flathead species in Tasmania, with Tiger Flathead dominating commercial catches. Although Tiger Flathead has a long history of commercial exploitation in Tasmania, it has only been reported separately from Southern Sand Flathead in fishery returns since 2007/08. As a result, catch and effort data are presented from this year onward.

In Tasmania, commercial Danish seine operations typically target either Tiger Flathead or Eastern School Whiting. When one of these species is the primary target, the other often appears as the main by-product. This dynamic results in opposing trends in catch and effort between the two species. Tiger Flathead catches from Danish seine fishing are highly variable and have historically shown an inverse relationship with catches of Eastern School Whiting.

5.6.3 Management

The main fishing method for Tiger Flathead is Danish seine, with all Danish seine licences being non-transferable. The fishery is subject to significant area restrictions, including a ban on Danish seining within one nautical mile of the Tasmanian coast. A minimum size limit of 32 cm applies in Tasmanian fisheries, with recreational fishers restricted to a bag limit of 20 (combined overall with sand flathead).

5.6.4 Commercial Catch, effort and CPUE

Current commercial catch: In the current season (2023/2024), commercial catch of Tiger Flathead was 37.8 t.

Catch, effort and CPUE trends: Since 2007/08, Tiger Flathead catches have fluctuated widely, between approximately 15-75 t (Figure 5.17 A). In 2020/21, the total commercial catch of Tiger Flathead was 60.8 t, a substantial increase from the previous two years and similar to earlier peaks of >60 t in 2007/08, 2009/10, 2015/16 and 2016/17 Figure 5.17A). 2021/22 commercial catch was 34.2 t, just over half that of the previous year's peak (Figure 5.17A).

Previous stock assessment reports show back-calculated estimates of species-specific catch prior to 2007/08 (Fraser et al. 2021). These earlier estimates show fluctuations similar to fishing years post-2007/08, with annual catches between 20 and 80 t without an obvious trend.

Danish seine effort and relative CPUE has decreased in the last three years on both the east and southeast coasts (Figure 5.17 B, C, Figure 5.18 B, C). Peaks in Danish seine catch, effort, and CPUE are influenced by a small number of operators that have primarily targeted Tiger Flathead. Therefore, fluctuations in these metrics are likely a reflection of the degree of targeting by those fishers in any given year.

Fishing distribution: Tiger Flathead landings were predominantly taken from the east and southeast coasts, which have been the dominant regions for the fishery since 2007/08 (Figure 5.17 B, Figure 5.18).

Gear types: Commercially, Tiger Flathead is taken mainly by Danish seine. It should be noted that AFMA Trawl data from commonwealth fisheries are not presented here as it is assessed and presented elsewhere as part of commonwealth fisheries (Australian Fisheries Management Authority (AFMA) reports, further information available here).

5.6.5 Recreational Fishery

Estimates of recreational Flathead catch did not distinguish between Tiger Flathead and Southern Sand Flathead until 2017/18. However, Tiger Flathead constitute approximately 10% of recreational flathead harvest, placing recreational catches of this species well below commercial catches across the time series (Fraser et al. 2021). In 2017/18, the recreational catch of Tiger Flathead was estimated to be approximately 39% of the commercial catch and in 2022/23 it was estimated to be 18% of the catch (Figure 5.17 A, Lyle et al. 2019; Tracey and Stark 2024).

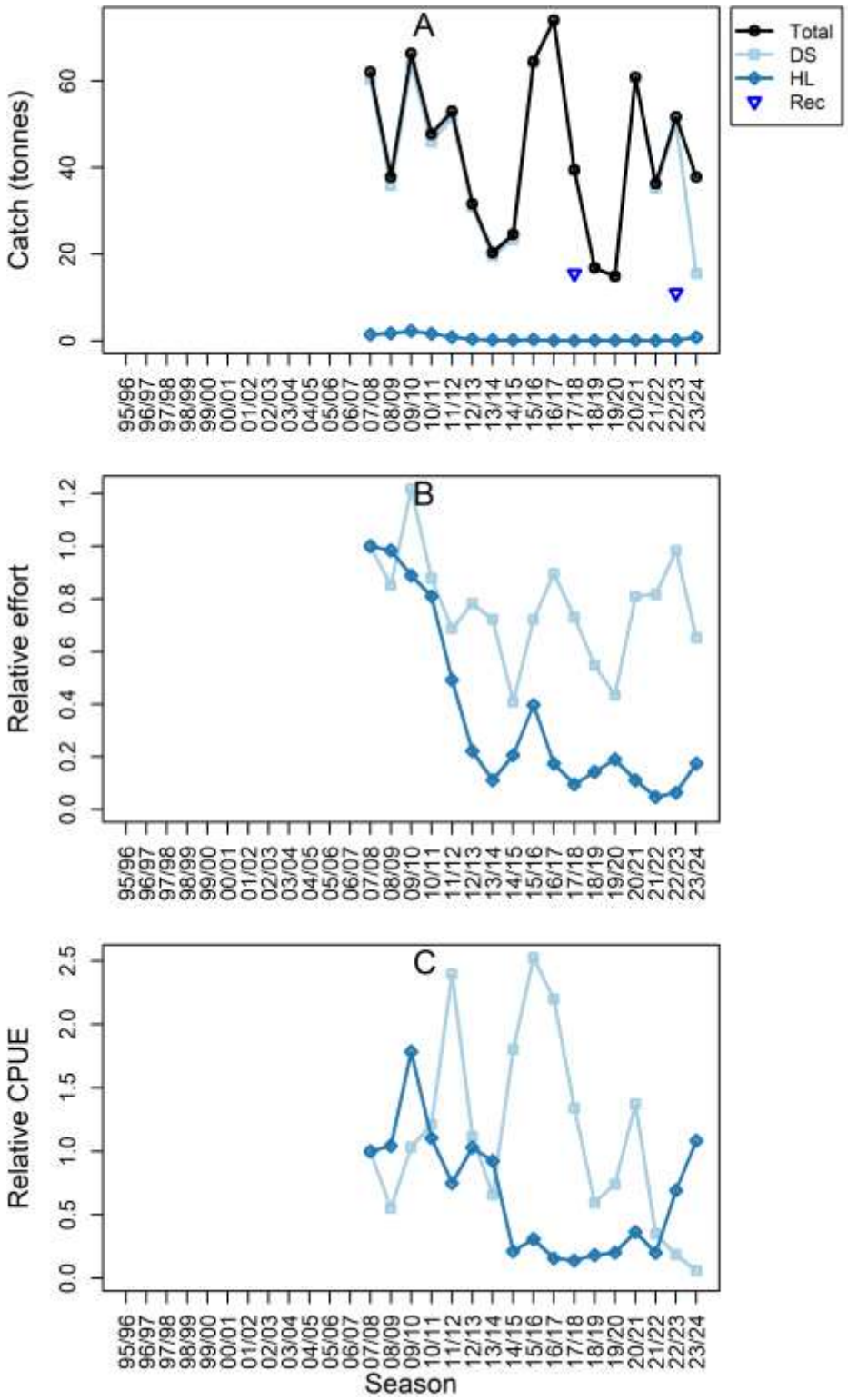


Figure 5.17 (A) Annual commercial Tiger Flathead catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. DS = Danish seine, HL = handline, Rec = estimated recreational catch.

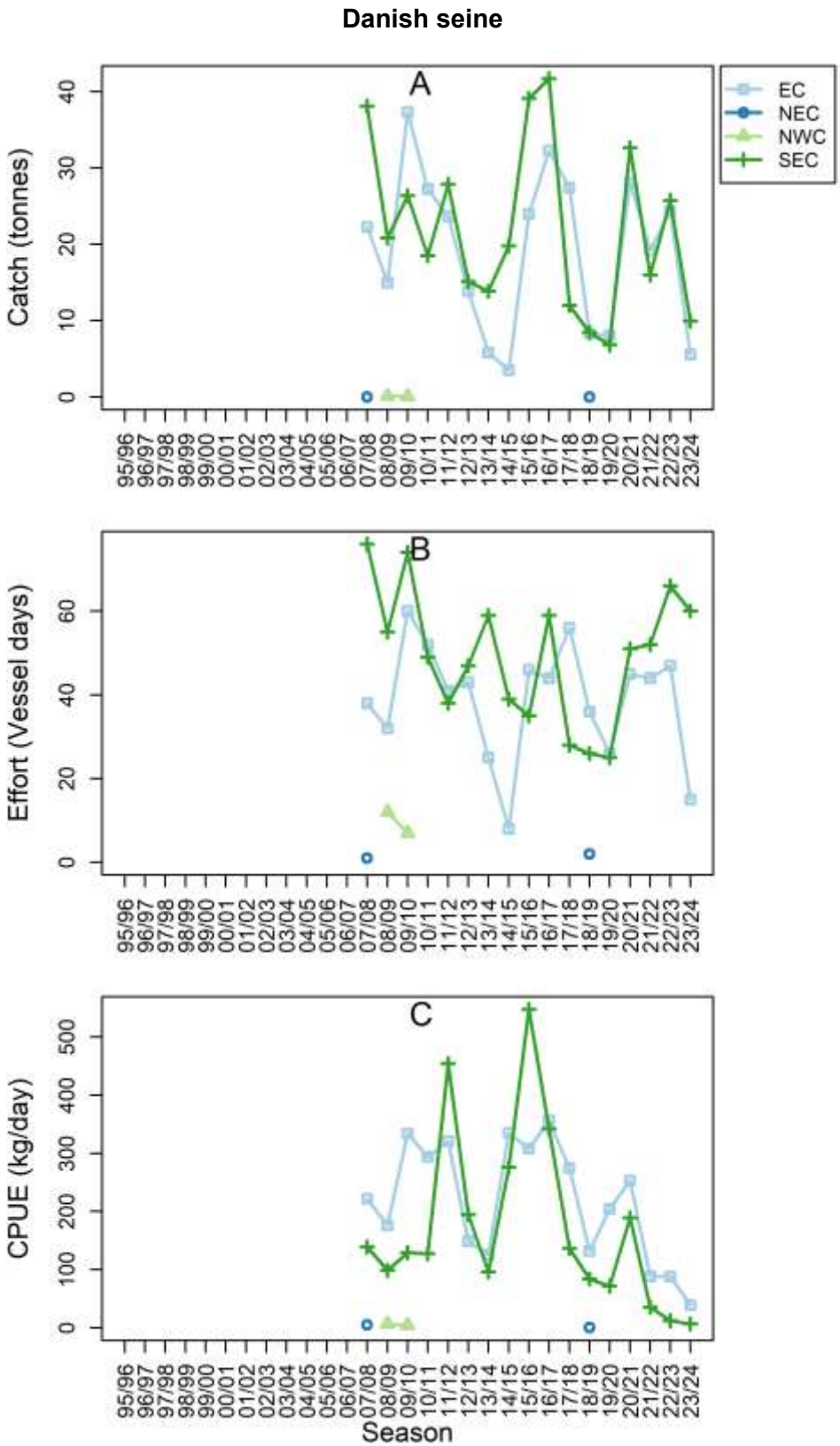


Figure 5.18 Regional commercial Tiger Flathead catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for Danish seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

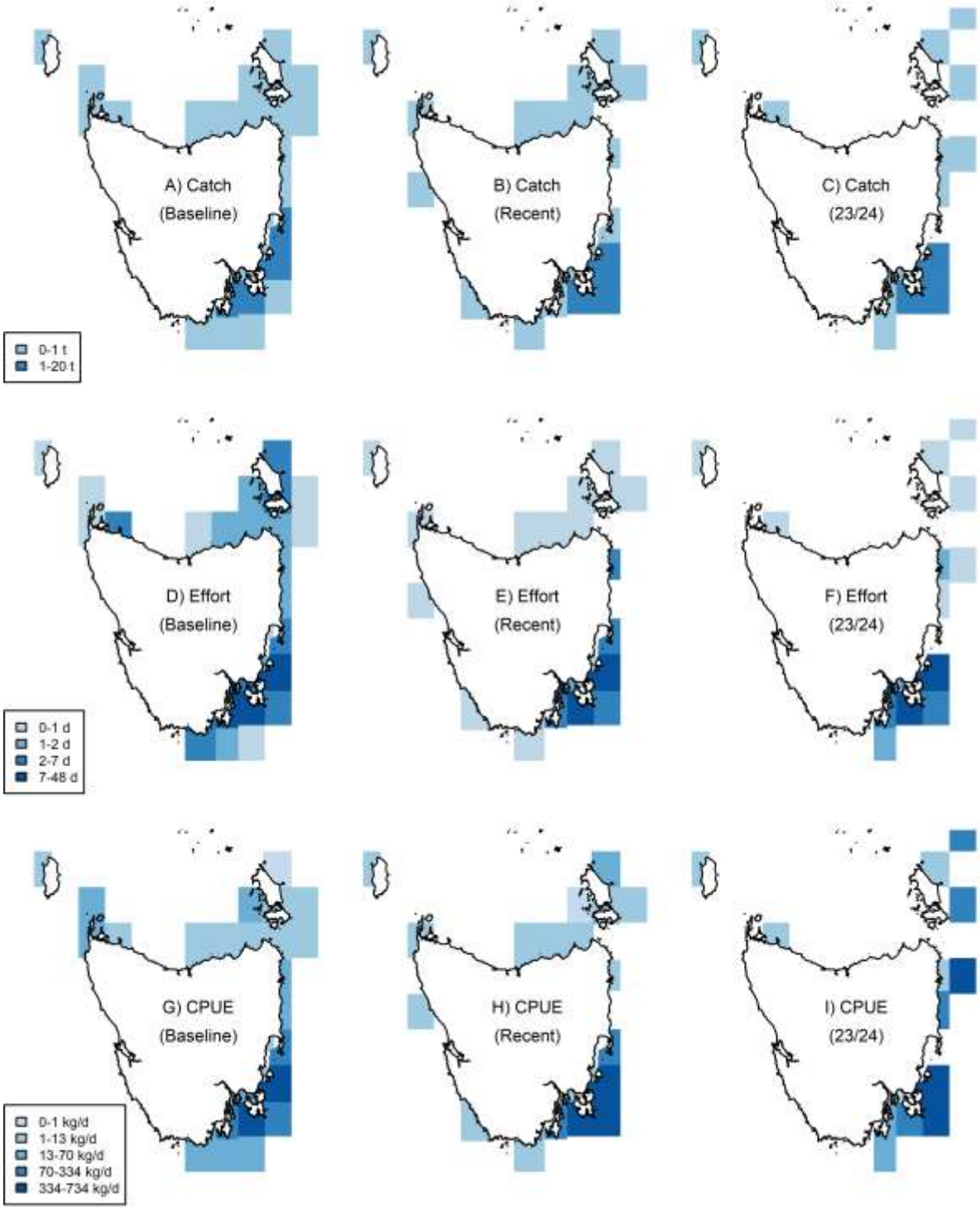


Figure 5.19 Tiger Flathead catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2018/19 to 2022/23). '23/24' represent data from the 2023/24 fishing season.

Stock status **SUSTAINABLE**

Tasmanian Danish seine catches show significant variability, historically demonstrating an inverse relationship with Eastern School Whiting catches, both targeted using the same fishing method. For instance, a decrease in Tiger Flathead catches in 2018/19 coincided with an increase in Eastern School Whiting catches (from 19 t in 2017/2018 to 42 t in 2018/19). Catch levels for both species remained similar in 2019/20, followed by notably high catches for both in 2020/21, slightly declining in 2021/22. In 2023/23, there was a slight reduction in Eastern School Whiting catch and a greater increase in Tiger Flathead catch.

Total commercial catches of Tiger Flathead have been maintained at comparable levels in the past, with the most significant landings taken from Commonwealth waters by the South East Trawl Fishery (Patterson et al. 2021; 2022; Butler et al. 2023). In 2022/23, the total Commonwealth catch of flathead (almost exclusively Tiger Flathead) was 1,820 t, a slight decrease from 2,125 in 2021/2022 (Patterson et al. 2022; Butler et al. 2023). Tasmanian catches represent only a small fraction of these more significant catches, which have been classified as sustainable (Patterson et al. 2021; 2022; Butler et al. 2023). In accordance with this assessment, Tiger Flathead in Tasmanian waters is therefore classified as Sustainable.

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Appendix 1: Data Restrictions and Quality Control

There have been a number of administrative changes that have affected the collection of catch and effort data from the fishery. The following restrictions and adjustments have been applied when analysing the data as an attempt to ensure comparability among years, especially when examining trends over time.

Tasmanian logbook data

i) Correction of old logbook landed catch weights

Prior to 1995, catch returns were reported as monthly summaries of landings. With the introduction of a revised logbook in 1995, catch and effort was recorded daily for each method used. Since catch data reported in the old general fishing return represent landed catch, it has been assumed to represent processed weights. For example, where a fish is gilled and gutted, the reported landed weight will be the gilled and gutted and not the whole weight. In contrast, in the revised logbook all catches are reported in terms of weight and product form (whole, gilled and gutted, trunk, fillet, bait or live). If the catch of a species is reported as gilled and gutted, then the equivalent whole weight can be estimated based on a conversion factor[1].

Without correcting for product form, old logbook and revised logbook catch weights are not strictly compatible. In an attempt to correct for this issue and provide a 'best estimate', a correction factor was calculated using catch data from the revised logbook and applied to catches reported in the old logbook. A species-based ratio of the sum of estimated whole weights (adjusted for product form) to the sum of reported catch weights was used as the correction factor.

ii) Effort Problems

Records of effort (based on gear units) of zero or null, or appearing to be recorded incorrectly (implausible), were flagged. While catch can then still be included in catch summaries, such records need to be excluded from calculations of gear unit effort, complicating associated calculations of CPUE for most species. However, all records of effort can be considered in calculating daily CPUE.

iii) Vessel restrictions

In all analyses of catch and effort, past catches from six vessels (four Victorian based and two Tasmanian based) have been excluded from historic records. These vessels were known to have fished consistently in Commonwealth waters and their catches of species, such as Blue Warehou and Ling tended to significantly distort catch trends. In fact, all four Victorian vessels and one of the Tasmanian vessels ceased reporting on the General Fishing Returns in 1994. With the introduction of the South East Fishery Non-Trawl logbook (GN01) in 1997, the remaining Tasmanian vessel ceased reporting fishing activity in the Tasmanian logbook.

[1] Conversion factors to whole weights are 1.00 for whole, live or bait; 2.50 for fillet; 1.50 for trunk; and 1.18 for gilled and gutted.

Appendix 2: Annual Tasmanian Scalefish Fishery Production

*Table 4 Catch (tonnes) of selected species and species groups classified as finfish, small pelagics, cephalopods, and sharks. Commonwealth fisheries data not included. * As mentioned earlier in report leatherjacket numbers are likely to be unreliable in these years.*

Species	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Selected finfish species (excl. small pelagics)																													
Australian Salmon (Eastern)	413.2	287.3	475.7	384.7	363.7	485.0	462.1	407.2	167.2	336.5	254.2	115.0	256.1	338.8	372.3	203.5	189.4	331.3	65.6	42.2	89.3	18.9	76.1	38.7	10.1	7.7	7.1	8.5	11.4
Barracouta	19.3	53.8	65.2	27.6	25.0	15.1	136.0	67.5	87.5	101.0	60.1	26.6	13.3	13.3	7.6	5.0	4.0	1.1	1.1	1.7	0.4	1.4	0.9	1.1	0.7	0.8	2.3	1.1	0.1
Boarfish (Longsnout)	7.3	10.0	6.2	3.2	2.5	3.6	5.5	3.6	4.3	3.6	5.0	5.2	4.7	2.6	2.7	1.9	3.4	2.1	1.0	0.6	0.7	0.7	1.1	0.9	0.5	1.1	1.0	1.2	1.1
Cod	18.6	12.8	9.4	9.6	8.8	3.7	3.0	2.3	2.1	1.6	2.0	2.6	2.3	3.3	2.6	2.8	2.4	2.0	2.0	2.0	1.5	1.3	0.9	0.3	0.6	1.1	0.7	0.6	0.3
Flathead, sand	13.7	12.7	13.0	10.1	12.5	8.2	13.1	10.8	10.6	13.9	12.6	12.0	11.5	13.0	9.2	6.7	7.5	5.5	6.8	8.1	2.7	6.4	3.5	2.8	2.1	3.3	3.8	1.6	0.4
Flathead, tiger	34.1	31.3	44.5	37.1	44.4	53.0	35.9	27.2	17.9	58.8	75.7	44.8	62.0	37.8	66.3	47.6	52.7	31.2	20.2	23.5	64.4	74.0	39.4	16.8	16.7	60.8	35.2	50.2	15.8
Flounder	33.4	29.4	29.7	25.2	18.6	12.3	13.0	10.9	14.9	14.7	10.9	13.0	7.8	5.1	5.2	5.2	4.0	2.0	2.1	1.5	1.0	3.3	3.9	2.2	2.7	2.8	1.7	2.0	1.2
Garfish	56.2	91.6	83.0	101.7	91.7	81.4	87.8	92.5	66.2	85.5	89.3	50.0	31.0	63.0	49.3	43.2	53.0	51.5	37.9	33.8	21.9	16.4	8.9	7.4	10.7	17.0	16.5	19.0	19.5
Gurnard	13.5	10.4	9.1	7.0	9.6	7.4	5.3	9.7	6.8	6.1	5.1	5.7	4.7	2.6	1.5	2.1	1.2	1.1	0.6	1.9	2.1	2.7	1.8	1.0	2.1	3.0	4.4	0.6	0.5
Leatherjacket	14.5	12.6	13.3	12.9	16.6	16.7	16.6	13.7	14.8	10.4	8.5	8.8	5.3	5.5	3.0	2.9	2.2	2.4	2.9	2.1	1.3	2.6	2.6	5.1	3.3	1.6	0.5*	0.3*	0.8*
Ling	15.0	13.3	8.3	4.3	1.8	1.2	0.9	0.4	0.8	0.7	0.4	0.4	0.4	0.1	0.1	0.1	0.1	0.1	1.2	0.0	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.4	0.1
Marblefish	3.5	5.6	3.0	2.6	4.2	4.0	4.4	3.1	0.6	1.1	0.5	2.2	2.3	1.1	0.5	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.0	0.1	0.1	0.1	0.1	0.7	1.0
Morwong, banded	85.8	78.0	72.6	42.4	34.2	39.0	53.7	56.0	46.4	45.6	54.4	50.3	52.6	37.1	44.6	40.9	40.3	37.9	34.1	30.1	32.9	34.0	30.3	36.0	31.3	28.2	32.7	40.5	29.7
Morwong, jackass	27.1	18.7	33.2	17.5	15.9	13.1	14.8	14.7	16.6	17.5	13.1	11.7	4.6	5.3	5.9	3.2	3.1	1.5	1.0	0.8	3.2	1.6	3.3	2.6	2.5	4.6	3.4	4.8	4.1
Morwong, other	5.4	7.4	7.4	6.3	1.4	0.6	1.4	1.9	1.2	1.8	1.3	1.3	2.5	1.4	1.2	0.9	0.7	0.7	0.6	0.7	0.3	0.6	0.3	0.4	0.2	0.2	0.3	0.09	0.3
Mullet	1.0	1.7	1.7	2.2	4.9	4.8	2.5	4.0	4.3	2.4	3.2	2.0	0.1	1.4	1.8	2.1	0.5	4.4	0.5	0.8	2.4	0.4	0.3	0.2	1.2	1.0	1.4	2.3	4.4
Snook	13.7	15.2	17.7	3.2	4.1	5.9	6.6	6.6	3.7	2.2	2.9	6.7	7.0	8.7	7.9	7.5	6.7	6.3	9.1	9.0	2.6	9.4	5.9	2.7	2.7	2.4	4.8	5.4	4.3
Trevally	8.4	6.0	5.4	6.5	2.7	1.6	4.7	5.9	3.4	3.7	6.3	3.6	8.8	4.5	3.8	1.9	2.1	5.4	4.3	5.7	2.8	3.6	3.3	3.7	11.4	4.3	5.3	9.0	9.7
Trumpeter, bastard	60.1	51.8	40.7	47.7	36.4	26.1	23.9	21.0	23.2	18.5	23.4	21.3	19.1	16.7	10.5	9.8	9.6	9.5	8.3	6.5	8.4	6.4	4.2	2.7	6.1	5.9	3.2	4.6	4.3
Trumpeter, striped	58.3	79.4	78.1	99.0	95.0	45.5	39.9	36.6	36.9	23.9	19.0	18.7	12.2	10.7	10.8	19.7	20.9	17.3	10.5	13.0	7.1	12.1	14.1	7.1	6.8	8.2	4.3	3.1	2.1
Warehou, blue	82.3	128.4	187.6	272.2	187.1	34.2	66.4	49.3	27.6	19.1	20.0	29.3	25.3	26.8	37.5	10.7	3.8	8.5	5.8	2.8	7.4	7.6	12.6	1.8	0.8	1.1	1.9	3.7	2.3
Warehou, other	14.6	15.6	4.2	1.0	0.0	0.0	0.1	0.2	0.1	0.8	0.1	0.0	0.1	0.6	0.2	0.0	0.0	0.2	0.0	0.1	0.3	0.4	1.2	0.5	0.0	0.0	0.0	0.0	0.0
Whiting, combined	1.4	0.1	0.0	23.3	9.6	36.5	39.6	35.9	50.9	31.6	2.3	38.1	31.4	32.5	26.7	34.2	15.5	13.8	36.6	1.9	20.7	26.0	16.1	41.5	45.3	57.6	47.0	46.6	47.8
Wrasse, combined	83.4	110.1	100.0	90.7	85.5	88.4	92.3	72.0	75.1	100.1	92.9	112.9	87.6	68.1	72.0	72.7	68.0	64.2	65.1	81.8	72.7	79.1	83.8	82.1	52.3	33.7	41.6	57.6	68.6
Total	**1084**	**1083**	**1310**	**1241**	**1076**	**987**	**1130**	**953**	**683**	**901**	**763**	**582**	**653**	**700**	**743**	**525**	**491**	**600**	**318**	**271**	**347**	**309**	**315**	**257**	**178**	**247**	**219**	**264**	**229**

Table 4 Continued. Whole weight in tonnes by financial year.

Species	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Small pelagics																													
Australian sardine	6.6	4.3	15.4	2.8	1.7	3.2	0.7	0.0	0.3	0.8	0.0	0.0	13.2	14.5	0.4	0.0	0.0	0.0	0.1	0.0	0.0	33.3	0.1	0.0	0.0	0.1	0.2	0.1	0.1
Mackerel, jack	26.2	19.3	19.7	59.8	14.7	9.1	19.4	19.4	41.1	12.8	6.8	2.6	202.8	919.7	910.2	35.7	56.4	0.2	0.4	5.5	1.0	0.1	2.0	0.2	0.1	0.4	2.1	1.6	0.9
Mackerel, other	2.0	1.3	1.0	0.5	2.1	0.1	0.0	0.1	0.0	0.5	0.5	0.2	10.3	0.2	0.3	0.8	0.1	1.9	4.2	1.1	0.2	2.8	0.5	0.2	0.6	0.8	0.9	1.2	2.2
Redbait	0.1	0.0	0.0	4.0	0.0	0.0	0.0	0.0	3.4	1.0	1.4	0.3	300.1	521.4	121.6	15.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**34.9**	**24.9**	**36.1**	**67.1**	**18.5**	**12.4**	**20.1**	**19.5**	**44.8**	**15.1**	**8.7**	**3.1**	**526.4**	**1456**	**1033**	**51.5**	**56.6**	**2.2**	**4.7**	**6.6**	**1.2**	**36.2**	**2.6**	**0.4**	**0.7**	**1.3**	**3.2**	**2.9**	**3.2**
Cephalopods																													
Calamari, southern	33.0	19.0	26.6	94.4	87.4	78.0	105.2	108.8	86.8	114.2	44.6	85.4	89.0	78.6	51.1	54.9	50.8	63.9	67.8	75.9	106.2	122.6	60.6	107.4	85.3	82.2	86.3	84.2	55.6
Cuttlefish	0.2	0.3	0.2	0.0	0.0	0.0	0.7	2.4	1.0	0.2	0.4	0.1	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.5	0.3	0.2	0.1	0.1	0.1	0.1	3.4	1.4
Octopus													3.0	2.2	2.1	5.9	3.8	4.5	8.3	4.7	7.5	19.2	6.7	1.1	0.3	1.4	1.5	1.4	1.0
Squid, Gould's	5.7	7.8	12.9	79.7	481.3	39.7	2.4	1.9	2.1	2.7	1.8	687.7	45.9	47.1	121.3	131.2	516.6	1071.8	0.0	31.4	416.8	175.6	528.0	155.2	15.8	670.4	244.5	257.0	0.0
Total	**38.9**	**27.1**	**39.7**	**174.1**	**568.7**	**117.7**	**108.3**	**113.1**	**89.9**	**117**	**46.8**	**773.2**	**138.2**	**126.6**	**174.6**	**192.1**	**571.3**	**1140.4**	**76.2**	**112.1**	**531**	**317.7**	**595.5**	**132.5**	**101.5**	**793.8**	**332.4**	**341.2**	**58.0**
Sharks[2]																													
Elephant shark	58.0	48.9	21.4	14.7	17.0	16.7	18.4	16.5	10.2	7.6	5.7	9.0	1.9	1.5	2.4	1.3	2.7	1.9	1.4	0.6	0.2	1.8	1.2	0.8	0.7	1.6	1.2	0.7	**1.3**
Gummy shark	750.5	543.8	348.6	113.4	109.7	53.9	23.5	14.2	24.7	41.6	12.4	13.6	13.8	9.8	9.8	9.3	7.5	7.9	6.0	7.6	8.2	11.1	9.1	7.7	6.9	10.8	5.9	12.2	14.2
Draughtboard shark	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.7	1.0	0.8	1.3	1.2	0.4	0.3	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.2	0.6	0.3
Sawshark	127.4	74.4	29.2	6.8	3.4	12.3	21.4	20.4	20.6	23.5	5.9	3.4	0.3	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
School shark	252.1	171.5	71.7	31.5	11.3	1.7	2.2	1.4	7.0	2.6	0.6	1.8	1.0	0.7	1.8	1.4	1.9	2.1	1.1	1.4	1.1	1.7	2.0	1.4	1.6	3.1	2.0	1.8	1.6
Seven-gilled shark	6.1	4.9	6.1	1.9	10.3	16.3	18.8	7.4	11.5	8.4	3.8	3.9	0.5	2.3	1.1	1.4	1.1	0.8	0.7	1.0	1.1	0.4	0.2	0.3	0.0	0.1	0.1	0.0	0.0
Other shark	26.4	16.1	11.3	6.8	6.5	4.8	5.8	3.6	3.2	1.1	0.6	2.3	0.9	0.7	0.3	0.9	0.6	0.6	0.7	0.9	0.8	0.9	1.8	2.8	3.5	3.2	2.8	2.1	0.8
Total sharks	**1221**	**859.6**	**488.3**	**175.1**	**158.2**	**105.7**	**91.8**	**64.2**	**78.2**	**85.6**	**30.3**	**35.2**	**18.8**	**15.4**	**15.7**	**14.7**	**14.2**	**13.4**	**9.9**	**11.5**	**11.4**	**15.9**	**14.3**	**13.0**	**12.7**	**20.4**	**12.2**	**17.4**	**18.3**

[2] Since 2001/02, shark catches have been reported in Commonwealth logbooks. Tasmania has jurisdiction of all shark species inside 3 nm except gummy and school shark, and fishers are on bycatch possession limits for all species. Figures in the table refer to Tasmanian Scalefish Fishery records only.

Table 5: Catch (tonnes) of all species assessed in this report and ordered by volume in the 2023/24 season (data pre 2000 available in earlier reports).

Species	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Southern Calamari	78.0	105.2	108.8	86.8	114.2	44.6	85.4	89.0	78.6	51.1	54.9	50.8	63.9	67.8	75.9	106.2	122.6	60.6	107.6	85.0	81.9	86.4	84.2	55.7
Tiger Flathead	NA	NA	NA	NA	NA	NA	NA	62.0	37.8	66.3	47.7	53.0	31.6	20.3	24.6	64.4	74.0	39.4	16.8	14.9	60.8	36.3	51.6	37.8
Bluethroat Wrasse	NA	NA	NA	NA	NA	NA	NA	39.6	41.9	46.2	53.3	48.5	50.7	52.3	64.3	57.1	60.1	62.2	63.1	41.1	26.4	30.0	35.6	36.2
Eastern School Whiting	36.5	39.6	35.9	50.9	31.6	2.3	38.1	31.4	32.5	26.7	34.2	15.5	13.8	36.6	1.9	20.7	26.0	16.1	43.9	43.7	54.0	41.9	38.8	35.3
Purple Wrasse	NA	NA	NA	NA	NA	NA	NA	20.1	26.0	25.6	19.4	19.5	13.2	12.8	17.5	15.6	19.0	21.4	18.6	11.4	7.2	12.8	22.0	32.5
Southern Garfish	81.4	87.8	92.5	66.2	85.5	89.3	50.0	31.0	63.0	49.3	43.2	53.0	51.5	37.9	33.8	21.9	16.4	8.9	7.4	10.7	17.0	16.7	19.0	19.5
King George Whiting	0.0	0.2	0.3	0.6	0.8	2.6	1.3	0.4	0.7	0.3	0.4	0.7	1.7	0.7	1.2	2.1	3.3	3.0	0.9	1.6	3.6	5.2	7.8	12.6
Eastern Australian Salmon	485.0	462.1	407.2	167.2	336.5	254.2	115.0	256.1	338.8	372.3	203.5	189.4	331.3	65.6	42.2	89.3	18.9	76.1	39.3	14.5	7.7	7.4	8.5	11.4
Yelloweye Mullet	4.8	2.5	4.0	4.3	2.4	3.2	2.0	0.1	1.4	1.8	2.1	0.5	4.4	0.5	0.8	2.4	0.4	0.3	0.2	1.2	1.0	1.4	2.3	4.4
Snook	5.9	6.6	6.6	3.7	2.2	2.9	6.7	7.0	8.7	7.9	7.5	6.7	6.3	9.1	9.0	2.6	9.4	5.9	2.7	2.7	2.3	4.8	5.4	4.3
Bastard Trumpeter	26.1	23.9	21.0	23.2	18.5	23.4	21.3	19.1	16.7	10.5	9.8	9.6	9.5	8.3	6.5	8.4	6.4	4.3	2.7	6.1	5.9	3.3	4.6	4.3
Jackass Morwong	13.7	14.8	14.7	16.6	17.5	13.1	11.7	4.6	5.3	5.9	3.5	3.4	1.7	1.1	3.3	3.1	1.6	3.3	2.6	2.5	4.6	3.5	5.0	4.1
Blue Warehou	36.0	66.4	49.3	27.6	19.1	20.0	29.3	25.3	26.8	37.5	10.9	4.1	8.5	5.8	2.8	7.4	7.6	12.6	1.8	0.8	1.1	1.9	3.7	2.3
Striped Trumpeter	45.5	39.9	36.6	36.9	23.9	19.0	18.7	12.2	10.7	10.8	19.7	20.9	17.3	10.5	13.0	7.1	12.1	14.1	5.5	6.9	6.9	4.4	3.2	2.1
Greenback Flounder	12.3	13.0	10.8	14.2	14.7	10.8	13.0	7.8	5.1	5.2	5.2	4.0	2.0	2.1	1.6	1.0	3.3	3.9	2.2	3.5	2.7	1.7	2.0	1.2
Longsnout Boarfish	3.6	5.5	3.6	4.3	3.6	5.0	5.2	4.7	2.6	2.7	1.9	3.4	2.1	1.0	0.6	0.7	0.7	1.1	0.9	0.5	1.1	1.0	1.2	1.1
Barracouta	15.1	136.0	67.5	87.5	101.0	60.1	26.6	13.3	13.3	7.6	5.0	4.0	1.1	1.1	1.7	0.4	1.4	0.9	1.1	0.7	0.8	2.3	1.0	1.0
Leatherjackets	16.7	16.6	13.7	14.8	10.4	8.5	8.8	5.3	5.5	3.0	2.9	2.2	2.4	2.9	2.1	1.3	2.6	2.6	4.3	2.3	1.0	0.5	0.3	0.8
Snapper	0.8	0.4	0.1	1.0	0.4	0.4	0.3	0.2	0.2	0.1	2.8	3.4	3.2	1.1	8.2	0.0	0.2	0.2	0.4	0.3	0.5	0.4	0.4	0.5
Southern Sand Flathead	NA	NA	NA	NA	NA	NA	NA	11.5	13.0	9.2	6.7	7.5	5.5	6.8	8.2	2.7	6.4	3.5	2.8	2.1	3.4	3.9	1.6	0.4
Yellowtail Kingfish	0.5	0.4	0.5	0.0	0.7	0.2	0.2	0.2	0.0	0.6	0.3	0.3	0.1	0.0	2.1	0.3	0.1	0.7	0.2	0.0	0.9	1.1	1.0	0.2
Goulds Squid	39.7	2.4	1.9	2.1	2.6	1.8	687.7	45.9	45.5	121.3	131.2	516.6	1071.8	0.0	31.4	416.8	175.6	528.0	155.2	15.8	678.2	244.6	257.4	0.2

Table 6 Total commercial catches (t) in selected estuaries around Tasmania by fishing season.

a) By fishing year	ES01	ES06	ES07	ES08		ES09	ES10	ES11	ES12	ES17	ES18	ES19	ES20	Total
1995/96	17.39	0.67	4.43			0.41	10.75		0.43	2.92	26.44	14.12	3.22	80.78
1996/97	16.71	0.35	2.63			0.56	15.01		0.92	6.12	12.29	6.98	1.78	63.35
1997/98	14.28	0.16	1.41	<0.05		0.63	15.62		2.48	11.47	20.79	13.47	1.35	81.66
1998/99	14.21		1.38			0.90	19.60		1.59	10.04	36.50	23.19	4.87	112.28
1999/00	4.73		0.98			0.45	14.15	0.18	2.56	18.90	28.51	10.23	2.77	83.46
2000/01	16.10		0.25			0.13	12.70	0.05	1.17	15.46	27.93	27.33	1.88	103.00
2001/02	13.88		2.23			0.19	73.82		1.19	8.86	64.06	32.33	2.00	198.56
2002/03	28.13		8.02			0.16	27.64	0.55	0.81	14.55	35.23	23.00	1.57	139.66
2003/04	40.05		6.06			1.00	25.12			5.17	59.52	21.83	0.81	159.56
2004/05	25.99		4.93			1.76	34.47		<0.05	9.46	25.87	23.14	0.66	126.28
2005/06	2.19	0.07	23.16			0.95	33.15	1.29		6.64	14.18	9.67	0.84	92.14
2006/07	30.97	0.25	9.93			2.00	23.60	0.17		8.72	20.01	19.74	1.36	116.75
2007/08	31.87	<0.05	3.16				15.26		<0.05	12.31	26.94	12.11	0.87	102.52
2008/09	32.22		1.14			0.18	20.90		<0.05	8.38	15.75	10.45	2.07	91.09
2009/10	26.91		0.72			0.46	15.22	<0.05	<0.05	3.93	15.57	4.39	2.07	69.27
2010/11	27.84	0.11	0.44			0.60	10.25			5.65	5.82	13.71	1.69	66.11
2011/12	13.88		0.28				8.39			4.95	6.88	6.70	1.89	42.97
2012/13	12.19	0.07	0.13			<0.05	12.22	0.20		6.72	13.27	3.11	0.85	48.76
2013/14	32.28		1.06			0.29	9.69			2.97	6.74	8.75	1.09	62.87
2014/15	1.76	<0.05	<0.05			0.40	8.90		0.10	3.25	8.51	0.87	0.72	24.51
2015/16	17.51					0.82	10.34		0.13	3.10	5.11	3.81	0.58	41.40
2016/17	26.24		0.05			0.17	12.63			2.77	4.13	4.61	2.36	52.96
2017/18	16.07		0.78				8.79			1.94	6.59	3.81	3.03	41.01
2018/19	31.70		12.50				7.64			5.63	1.73	13.56	2.89	75.64
2019/20	42.33		18.67				7.74			1.91	4.55	4.60	1.58	81.33
2020/21	53.67	0.85	9.47				9.14	0.45	0.13	1.53	1.59	3.01	1.39	81.23
2021/22	40.48		4.65				11.78			1.07	1.43	2.41	0.58	62.40
2022/23	35.46		6.5				12.23			0.77	2.30	5.30	1.04	63.60
2023/24	32.46		6.5				12.60			2.28		5.01	0.48	59.33

ES	Description
ES01	Derwent River
ES06	Port Davey
ES07	Macquarie Harbour
ES08	Mersey River
ES09	Port Sorell
ES10	Tamar River
ES11	Ansons Bay
ES12	Georges Bay
ES17	Blackman Bay
ES18	Norfolk Bay
ES19	Frederick Henry Bay
ES20	Pitt Water

Table 7: Species catches > 0.2 tonnes total from estuaries in the 2023/24 season, ordered by total catch.

Species	ES01	ES07	ES10	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20	Total
Eastern School Whiting	31.82									3.27		35.09
Southern Calamari			0.84		2.55		12.76	0.21	0.22	0.51		17.09
Bluethroat Wrasse			0.48	1.03	0.58	1.35	5.26			0.58		9.28
Southern Garfish			1.69					1.15				2.84
Silver Trevally			2.27					0.5				2.77
Purple Wrasse				0.53		0.92		0.24		0.49		2.18
Eastern Australian Salmon			2.07									2.07
Yelloweye Mullet			1.83									1.83
Māori Octopus									1.43			1.43
Greenback Flounder		0.5									0.44	0.94
King George Whiting			0.74									0.74
Barracouta			0.54									0.54

Appendix 3: Annual stock status classifications by species

Table 8: Annual stock status classifications of Tasmanian Scalefish Fishery species assessed in the current report. Terminology of status classifications has changed over time; however, colours represent equivalent classifications. Green: Sustainable; Yellow: Depleting; Orange: Recovering; Red: Depleted; Grey: Undefined. NA indicates catch, effort, and CPUE data for a species were included in an assessment report, but no classification was conducted. Blanks indicate a species (or species/region combination) that was no considered in an assessment report.

Species	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Australian Sardine																								
Barracouta												NA	NA	NA	NA									
Bastard Trumpeter	NA	NA	NA																					
Eastern Australian Salmon	NA	NA	NA																					
Flounder	NA	NA	NA									NA	NA	NA	NA									
King George Whiting																								
Leatherjackets																								
Longsnout Boarfish												NA	NA	NA	NA									
Snook												NA	NA	NA										
Southern Calamari																								
Southern Calamari - Southern and Eastern																								
Southern Calamari - Northern																								
Southern Garfish												NA	NA											
Southern Sand Flathead												NA	NA	NA										
Striped Trumpeter																								
Wrasse - Bluethroat												NA	NA	NA										
Wrasse - Purple												NA	NA	NA										
Yelloweye Mullet												NA	NA	NA										

Species	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24
Blue Warehou	NA	NA	NA																					
Common Jack Mackerel																								
Eastern School Whiting												NA	NA											
Gould's Squid			NA																					
Jackass Morwong	NA	NA	NA									NA	NA											
Tiger Flathead			NA										NA											

Appendix 4: Southern Calamari results reported for previous reporting regions.

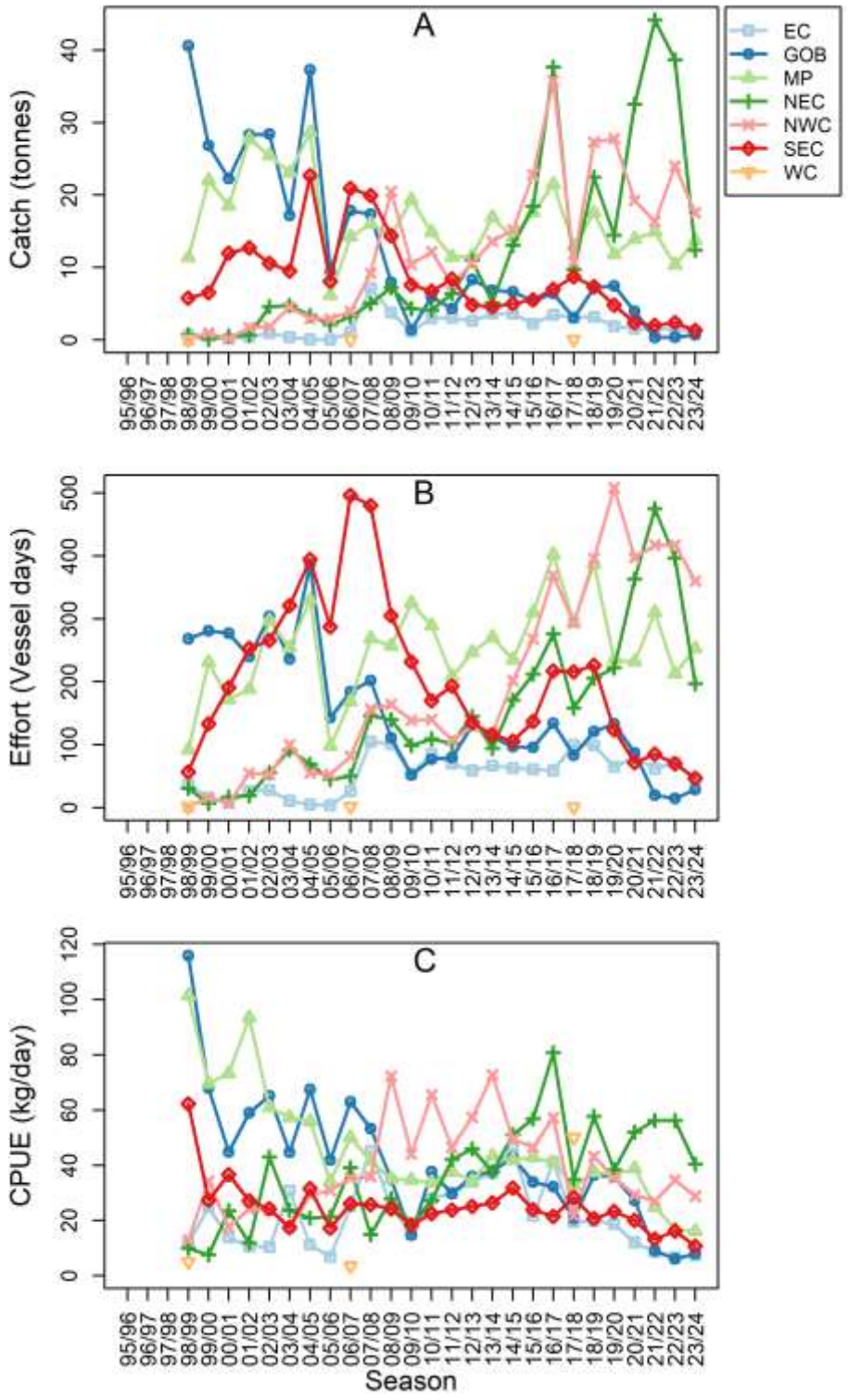

Figure 6.1: Regional commercial Southern Calamari catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for squid jig. EC = east coast, GOB = Great Oyster Bay, MP = Mercury Passage, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = West Coast (see map below).

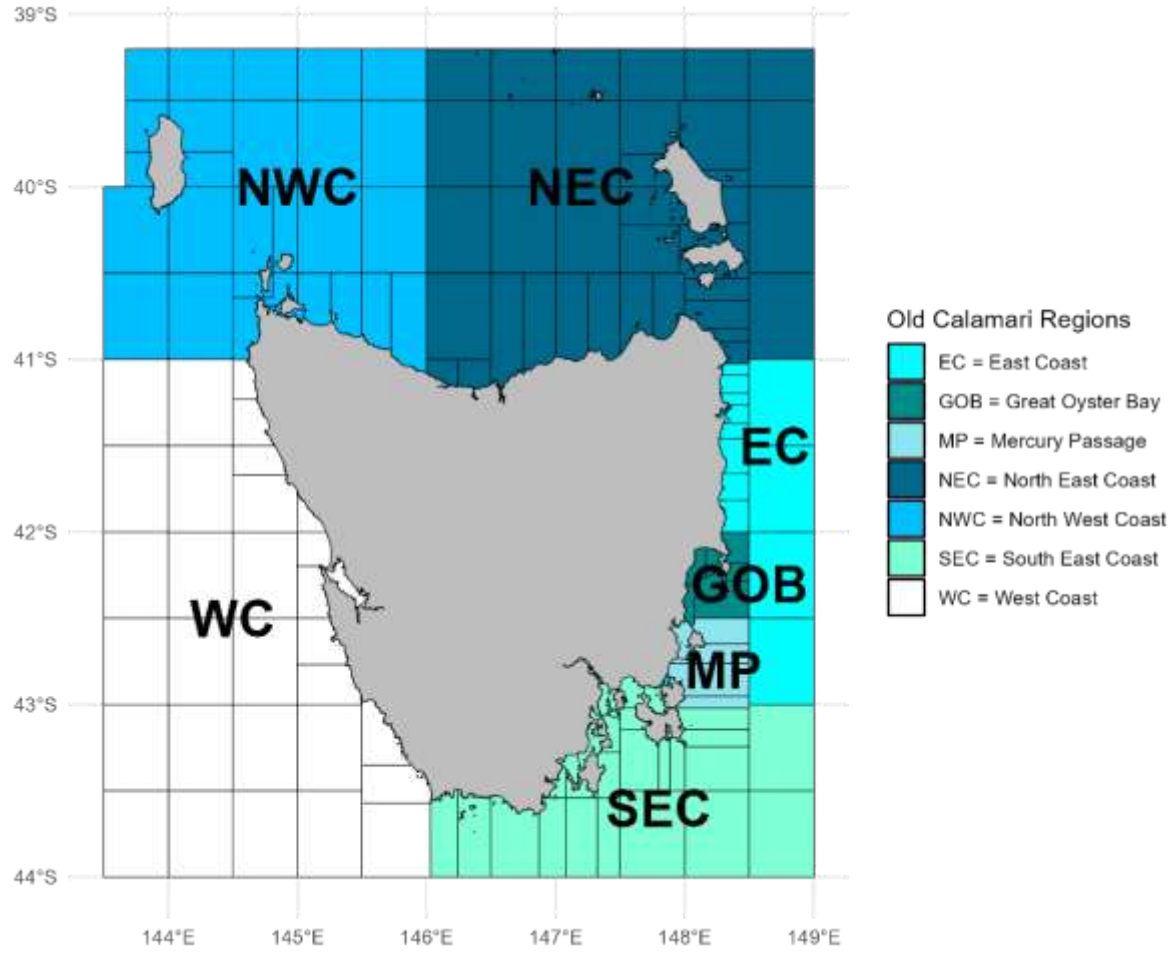

Figure 6.2: Previously reported calamari regions.