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INSTITUTE FOR MARINE & ANTARCTIC STUDIES

TASMANIAN SCALEFISH FISHERY ASSESSMENT 2022/23

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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 2022/23 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. Governed by the Scalefish Fishery Management Plan, which was amended in 2023, this plan 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 2022/23 were reported for Gould's Squid (670.2 t), Southern Calamari (84.2 t), Tiger Flathead (50.4 t) and Eastern School Whiting (40.6 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, 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). The latest survey of recreational catches, conducted in 2022/23, and its key findings are highlighted in this scalefish assessment report (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).

It's important to note that 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 2022/23

Species/Species group	Preliminary status	Explanation
State assessed species		
Australian Sardine <i>Sardinops sagax</i>	SUSTAINABLE	There has been no targeted commercial fishing for Australian Sardine in Tasmanian waters since 2018. Consequently, the fishing pressure in Tasmania is unlikely to impair the recruitment of the biological stock. 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 (Pidcocke et al. 2021).
Barracouta <i>Thyrsites atun</i>	UNDEFINED	Barracouta catches have steadily declined since the mid-2000s, likely due to decreased targeted effort stemming from a lack of market demand and potentially from environmental change. The low levels of fishing effort render catch and CPUE data unreliable indicators of biomass and stock status. As historical catches were substantial there is insufficient information to confidently classify the current stock status.
Bastard Trumpeter <i>Latridopsis forsteri</i>	DEPLETED	Trends in commercial and recreational catches of Bastard Trumpeter suggest record low population levels and that the species is overfished. In response to the 2023 scalefish review, the minimum legal-size limit has been increased to 420mm, though the size at maturity is thought to be greater than 450mm, the fishery is based largely on juvenile fish. Data-limited stock assessment methods suggest that stock recovery under current levels of catch is theoretically possible, but evidence of recovery is lacking.
Eastern Australian Salmon <i>Arripis trutta</i>	SUSTAINABLE	Eastern Australian Salmon has a long history of exploitation across south-eastern Australia. The recent low commercial landings in Tasmania are probably due to market demand rather than a decrease in abundance. The current fishing pressure in Tasmania is significantly lower than the historically sustained levels and is therefore unlikely to impair the recruitment of the biological stock.
Greenback Flounder <i>Rhombosolea tapirina</i>	UNDEFINED	Several species of flounder are caught commercially and are not reliably reported to species level. The Greenback Flounder (<i>Rhombosolea tapirina</i>) is thought to constitute most of the commercial flounder catch, while the Long-snouted Flounder (<i>Ammotretis rostratus</i>) is taken in smaller quantities. Due to limited market demand and the requirement for fishers to attend gear for most overnight gillnetting, the commercial catch remains low. Recent low effort, catch, and CPUE are

Species/Species group	Preliminary status	Explanation
		unlikely to reflect trends in biomass, but the impact of historic catches remains uncertain. Monitoring the continuing decline in recreational catch is essential in the absence of fisheries-independent data. Consequently, the status of the stock remains undefined.
King George Whiting <i>Sillaginodes punctatus</i>	SUSTAINABLE	King George Whiting is an emerging species attracting growing interest from both the commercial and recreational sectors. The current fishing pressure on King George Whiting in Tasmanian waters is unlikely to impair the recruitment of the biological stock. However, local impacts on spawning stocks could still be considerable. Therefore, pre-emptive monitoring and management are necessary if interest in this species continues to rise.
Leatherjackets <i>Monacanthidae</i> family	UNDEFINED	Several species of Leatherjacket inhabit coastal waters around Tasmania, with the Brown-striped (<i>Meuschenia australis</i>), Toothbrush (<i>Acanthaluteres vittiger</i>), and Six-spine (<i>Meuschenia freycineti</i>) Leatherjacket being the most commonly captured by coastal fisheries. These species are primarily caught as by-catch in the scalefish and rock lobster fisheries rather than being actively targeted due to limited market demand. Historical catches, estimated at around 40 tonnes in 1995/96, may have had uncertain impacts on individual species' biomass depletion. Due to the lack of comprehensive data, there is insufficient information to confidently assess the status of Leatherjacket stocks, especially considering the involvement of multiple species. Efforts are underway to improve data collection by encouraging fishers to identify catches to the species level. However, this process will take time to implement and gather enough data for species level assessments.
Longsnout Boarfish <i>Pentaceropsis recurvirostris</i>	UNDEFINED	Longsnout Boarfish are a by-product species of the gillnet fishery targeting Banded Morwong, with catches remaining low due to the large minimum legal size. The available information is insufficient to confidently classify the status of this stock.
Snook <i>Sphyraena novaehollandiae</i>	SUSTAINABLE	Recorded catches of Snook are low, likely because the species is not actively targeted due to low market demand. Biological analyses suggest that the current level of fishing mortality is unlikely to impair stock recruitment.
<u>Southern and Eastern Region:</u> Southern Calamari	DEPLETED	The calamari fishery in the Southern and Eastern Region peaked at over 80 tonnes in 2004/05. Since then, the overall trend has been a decline to less than 20 tonnes in the current assessment. Small peaks in catch between 2016/17 to 2018/19 were associated with considerably

Species/Species group	Preliminary status	Explanation
<i>Sepioteuthis australis</i>		<p>higher effort and lower CPUEs, indicative of a declining stock. This is of particular concern for calamari as they are targeted at dense spawning aggregations. Calamari are easy to catch during aggregation, which limits the ability of catch and CPUE to accurately reflect biomass trends (known as hyperstability). For declines to be detected in this data, the declines are likely to be substantial.</p> <p>Seasonal closures at key spawning grounds on the east and the introduction of a limited number of species-specific licenses in the south-east resulted in fishing effort spreading to the north of the state. Data-poor stock assessment results indicate that fishing mortality has been unsustainable and remains high today. The results also suggest that stocks on the south-east and east coast have presumably been depleted below critical levels. With no clear sign of recovery, the Southern and Eastern stock is therefore classified as depleted.</p>
<p><u>Northern</u> <u>Region:</u> Southern Calamari <i>Sepioteuthis australis</i></p>	DEPLETING	<p>Continued increases in effort and catch in the Northern region are associated with a shift in fishery activity away from the south and east. Even though CPUE is likely to be hyperstable, time series in the north indicate potential declines of the population over the last 5 years compared to the peak period from 2012/13-16/17. Despite steeper increases in catch and effort in the last 5 years, CPUE has only shown a minor increase. Given the history of depletion along the Southern and Eastern region, the expanded fishing pressure on Southern Calamari in the Northern region is likely to be too high to be sustainable.</p> <p>As in the south and east, and despite extended closures during part of the spawning season, the reliance on targeting spawning aggregations poses a high risk of recruitment impairment (see above on hyperstability). Current trends in largely unregulated total catch and effort have peaked at values similar or higher than those at peak levels in the Southern and Eastern regions, indicating that maximum sustainable levels of fishing pressure have likely been exceeded. Data-poor stock assessments support this assumption by indicating presumably unsustainable catch levels. Thus, the more recently targeted stocks of Southern Calamari on the north coast are likely to be depleting.</p>
<p>Southern Garfish <i>Hyporhamphus melanochir</i></p>	DEPLETED	<p>Steep declines in the fishery were observed between 2005 and 2008, leading to the fishery being defined as depleting and initiating management actions, including closing the fishery for a month in the east and north to protect peak periods of aggregations. Despite an initial</p>

Species/Species group	Preliminary status	Explanation
		<p>recovery, catch and catch rate continued to decline, indicating vulnerability of the stock.</p> <p>The past three years have seen a slight increase in catch and effort in the northeast coast and around Flinders Island. CPUE has fluctuated substantially but has recently trended back to higher levels. However, given the schooling nature of the species, CPUE is unlikely to be a reliable proxy for biomass. Data-limited stock assessment methods suggest that population recovery under current catch levels is theoretically possible. The slight increases in catch and decreased CPUE could indicate stock improvement but is not significant at this stage.</p>
<p>Southern Sand Flathead <i>Platycephalus bassensis</i></p>	DEPLETED	<p>Recreational catches dominate landings of Southern Sand Flathead in Tasmania (Tracey and Stark 2024). Fishery independent surveys indicate low abundances of legal-sized fish in southeast and eastern Tasmania where populations face heavy fishing pressure (Krueck et al. 2023). Although undersized fish appear abundant, length-based assessment suggest the female spawning biomass is likely depleted below critical levels in most regions. Moreover, the current levels of fishing mortality are likely highly unsustainable, particularly in areas where stock rebuilding appears to be most urgently needed.</p>
<p>Striped Trumpeter <i>Latris lineata</i></p>	DEPLETED	<p>Following records of young fish in biological samples after many years of suspected recruitment failure, evidence of population recovery of Striped Trumpeter is still lacking. Commercial catches are close to the historical lows, but total levels of fishing pressure (commercial and recreational combined) might still prevent recovery. Recent changes in regulations have changed the minimum size limit to just above the size of estimated size at 50% maturity.</p>
<p>Bluethroat Wrasse <i>Notolabrus tetricus</i></p>	SUSTAINABLE	<p>For nearly a decade, catches, effort, and CPUE of Bluethroat Wrasse have shown stability, indicating that current fishing pressure is likely sustainable. Uncertainty remains over levels of potential localized depletion, and about the size of the catch taken by rock lobster fishers for use as bait. Relatively low catches over the previous three seasons have likely been caused by a combination of COVID impacts and changes in fishery dynamics, though the most recent season has shown an increase in catch.</p>
<p>Purple Wrasse <i>Notolabrus fucicola</i></p>	SUSTAINABLE	<p>As with Bluethroat Wrasse, Purple Wrasse catches, effort and CPUE have remained relatively stable for almost a decade, providing little reason for concern that the current level of fishing pressure is too high.</p>

Species/Species group	Preliminary status	Explanation
		Uncertainty remains over levels of potential localized depletion, and about the size of the catch taken by rock lobster fishers for use as bait. Relatively low catches over the previous three seasons have likely been caused by a combination of COVID impacts and changes in fishery dynamics. An increase in the most recent season's catch lends confidence to this assessment.
Yelloweye Mullet <i>Aldrichetta forsteri</i>	SUSTAINABLE	Yelloweye Mullet are most abundant in estuarine habitats, where netting is prohibited or restricted, providing this species a high degree of protection throughout most of its range in Tasmania. Commercial logbook records indicate consistently low levels of catch. Therefore, it is unlikely that the stock is recruitment impaired or that the current fishing pressure could cause the stock to become recruitment impaired in the future.
Commonwealth assessed species		
Blue Warehou <i>Seriolella brama</i>	DEPLETED	Blue Warehou is predominantly a Commonwealth-managed species, classified as "Overfished" in the ABARES Fishery Status Reports 2023 (Butler et al. 2023). It was also reported as Depleted in the 2020 Status of Australian Fish Stocks Report. 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.
Common Jack Mackerel <i>Trachurus declivis</i>	SUSTAINABLE	Common Jack Mackerel is predominantly a Commonwealth-managed species, classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2023 (Butler et al. 2023). Over the last decade only minor catches of this species have been taken from Tasmanian waters, largely due to the exit of a purse seine operator from the fishery. While patterns of catch and effort are unlikely to reflect stock status, the currently low level of fishing pressure in Tasmania is unlikely to impair stock recruitment.
Eastern School Whiting <i>Sillago flindersi</i>	SUSTAINABLE	Eastern School Whiting is predominantly a Commonwealth-managed species, classified as "Not overfished nor subject to overfishing" by ABARES in the Fishery Status Reports 2023 (Butler et al. 2023). It has also been classified as Sustainable in the 2020 Status of Australian Fish Stocks Report (Pidcocke et al. 2021). Tasmanian catches fluctuate due to market demand but generally represent only a small proportion of the overall Commonwealth commercial catch.

Species/Species group	Preliminary status	Explanation
Gould's Squid <i>Nototodarus gouldi</i>	SUSTAINABLE	<p>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 2023 (Butler et al. 2023). 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.</p>
Jackass Morwong <i>Nemadactylus macropterus</i>	DEPLETED	<p>Jackass Morwong is a predominantly Commonwealth-managed species. The Eastern stock, which is primarily caught in Tasmania, has been classified as 'Depleted' by AFMA in the Species Summary Report 2023 (AFMA 2023). Catch and effort reported by scalefish fishers in Tasmania have been low for the past 16 years.</p>
Tiger Flathead <i>Platycephalus richardsoni</i>	SUSTAINABLE	<p>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 2020 Status of Australian Fish Stocks Report (Pidcocke et al. 2021). 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.</p>

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 ensure 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 unaccounted in the basic stock status classification scheme. For more detailed information on status classification categories, please refer to the [TasFisheriesResearch](#) webpage.

A full list of common and scientific names of all species landed in the Tasmanian Scalefish Fishery is presented in [Appendix 1](#). We note that the status of most (16) Tasmanian fishery taxa included in this report are assessed exclusively by IMAS. However, formal assessments of another 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. 2023). 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 2023. 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).

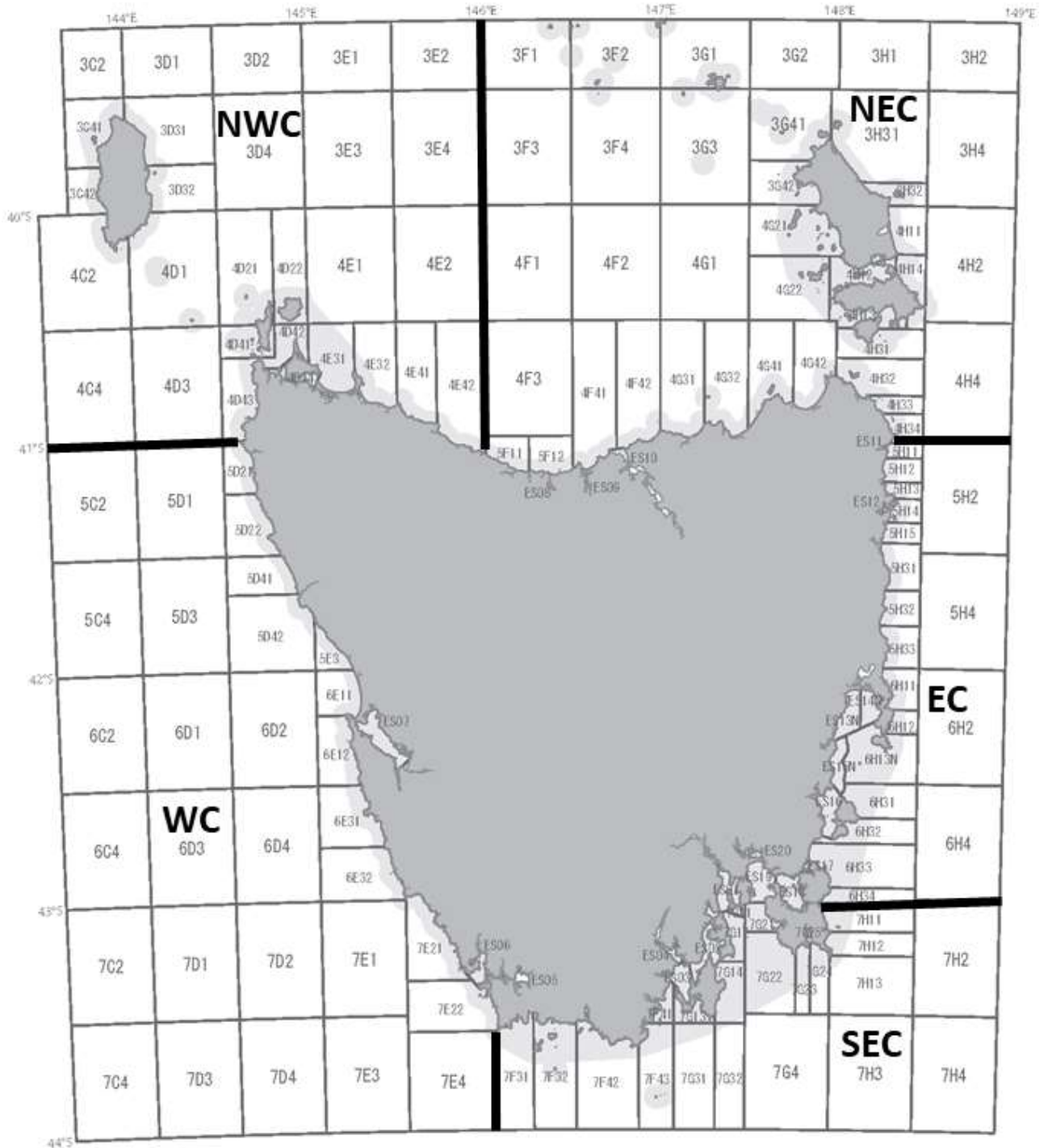


Figure 3.1: Map of Tasmania showing official NRE fishing blocks used for catch reporting, and regions used in this assessment (NWC = northwest coast, NEC = northeast coast, EC = east coast, SEC = southeast coast, WC = west coast). Light grey areas indicate Tasmanian state waters limits.

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. Although days fished represents a less sensitive measure of effort, it has become apparent that some fishers have misinterpreted reporting requirements for effort. Attempts have been made to reduce this problem by updating the logbook. However, past and ongoing confusion about reporting requirements can bias effort measures. 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 (1995-2023).

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

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

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 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 ($B_{\text{target}} = B_{\text{MSY}} = 0.5 B/B_0$, where B = biomass and B_0 = 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 ($B > 0.5 B/B_0$) (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/B_0 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 (<i>Sardinops sagax</i>)	Unlikely	No			Some developmental fishing previously occurred, but no permits are currently active and, thus, limited or no catch has been recorded.
Barracouta (<i>Thyrsites atun</i>)	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 (<i>Latridopsis forsteri</i>)	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. Current low market demand means catches may not adequately reflect abundance.
Eastern Australian Salmon (<i>Arripis trutta</i>)	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 (<i>Rhombosolea tapirina</i>)	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

Species name	Historical depletion beyond target biomass	Suitable for CMSY	Prior relative biomass (B/k) ranges		Comment
			Initial	Final	
					regional commercial catch levels further.
King George Whiting (<i>Sillaginodes punctatus</i>)	Unlikely	No			The fishery is in development, with commercial catch data not yet revealing informative trends.
Leatherjackets (<i>Monacanthidae</i> family)	Uncertain	No			Multiple undifferentiated species complicate the use of catch data to infer stock status.
Longsnout Boarfish (<i>Pentaceropsis recurvirostris</i>)	Uncertain	No			The species is not targeted, which complicates the use of catch data to estimate population depletion and maximum sustainable catch.
Snook (<i>Sphyraena novaehollandiae</i>)	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 (<i>Sepioteuthis australis</i>)	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 (<i>Hyporhamphus melanochir</i>)	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 (<i>Platycephalus bassensis</i>)	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 (<i>Latris lineata</i>)	Likely	Yes	0.2-0.6	0.01-0.4	Commercial catches close to historical low but this might reflect low abundance.
Wrasse (<i>Notolabrus spp.</i>)	Uncertain	Yes	0.4-0.8	0.2-0.6	Notable changes within the fishery are likely to affect

Species name	Historical depletion beyond target biomass	Suitable for CMSY	Prior relative biomass (B/k) ranges		Comment
			Initial	Final	
Bluethroat Wrasse <i>(Notolabrus tetricus)</i> Purple Wrasse <i>(Notolabrus fucicola)</i>					estimates of biomass depletion. These include a decline in the use of fish traps 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 reduced the demand for live fish.
Yelloweye Mullet <i>(Aldrichetta forsteri)</i>	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, as all Developmental Australian Sardine Permits have expired. Consequently, the fishing pressure in Tasmania is unlikely to impair the recruitment of the biological stock. 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 (Pidcocke et al. 2021).	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment.
MANAGEMENT	State (Tasmania)



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

Australian Sardine is a highly productive species with a broad distribution, inhabiting estuaries to the continental shelf in southern Australia, ranging from Rockhampton, Queensland, to Shark Bay, Western Australia, including northern Tasmania (Edgar 2008). While the Tasmanian commercial fishery for Australian Sardine was previously under development, there are currently no active permits in place. The primary method of capture for Australian Sardine is purse seine gear, although some beach seine gear is also utilized to target this species. Holders of a general Scalefish Fishing Licence are permitted to catch 10 kg per trip of Australian Sardine.

In Tasmania, Australian Sardine is not considered a significant recreational species (Tracey and Stark 2024). For more comprehensive information on the biological characteristics and current management of Australian Sardine fisheries, please refer to the [TasFisheriesResearch](#) webpage.

4.1.1 Catch, effort and CPUE

In the 2022/23 fishing season, the total commercial catch of Australian Sardine in Tasmanian waters was negligible, amounting to only 62.1kg (Figure 4.1 A). 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. It is worth noting that these earlier peak catches mainly resulted from incidental take of Australian Sardine by fishers targeting other small pelagic fishes, such as Redbait.

Targeted fishing activity for Australian Sardine, under a developmental fishery permit, occurred in 2016/17 and was centred around the north coast, particularly the northeast coast (Figure 4.2 , Figure 4.3). However, as of now, there are no active permits for Australian Sardine in place. The status of the Tasmanian commercial fishery for this species remains inactive.

A risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

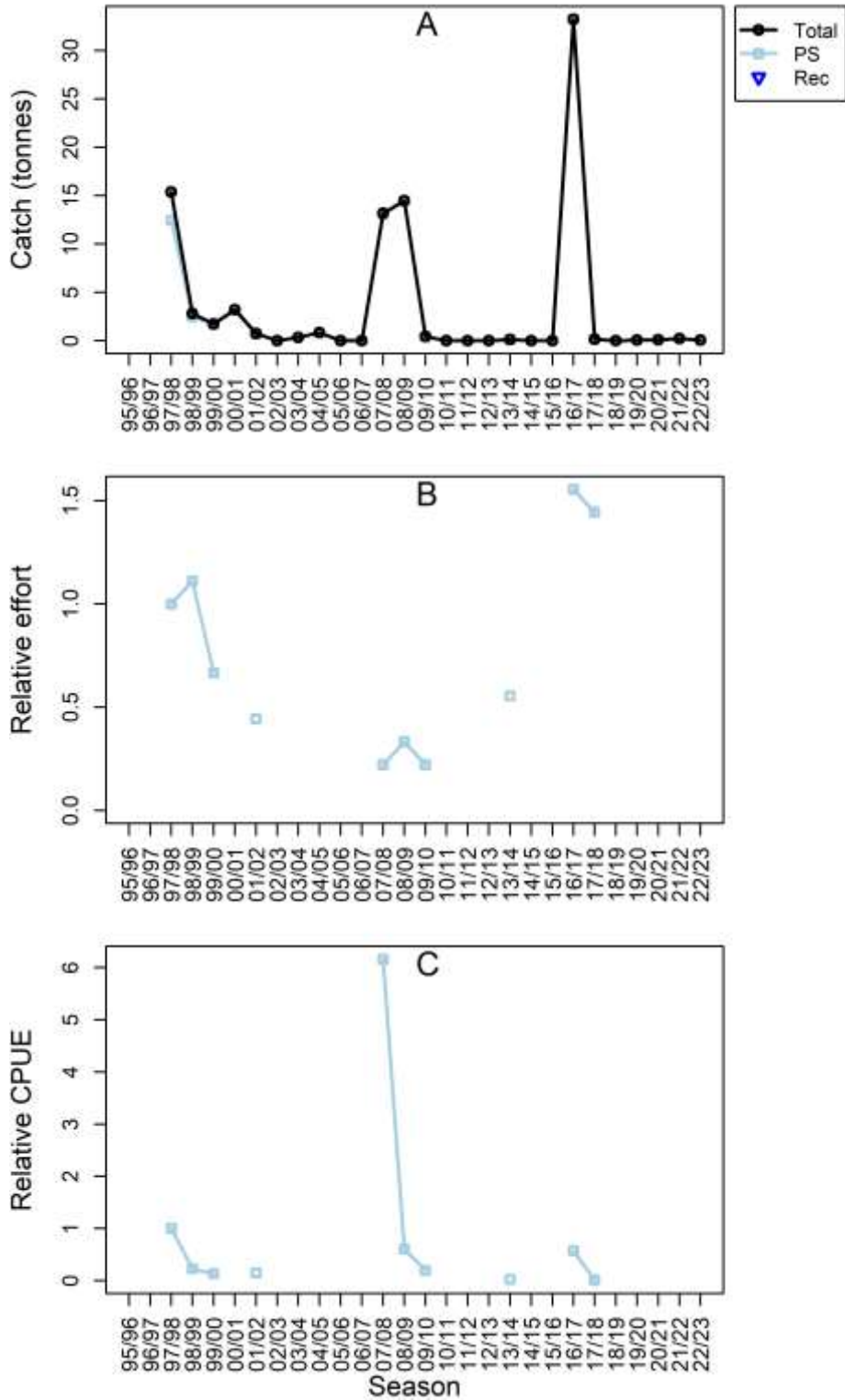


Figure 4.1 (A) Annual commercial Australian Sardine catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished, relative to 1995/96. PS = purse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

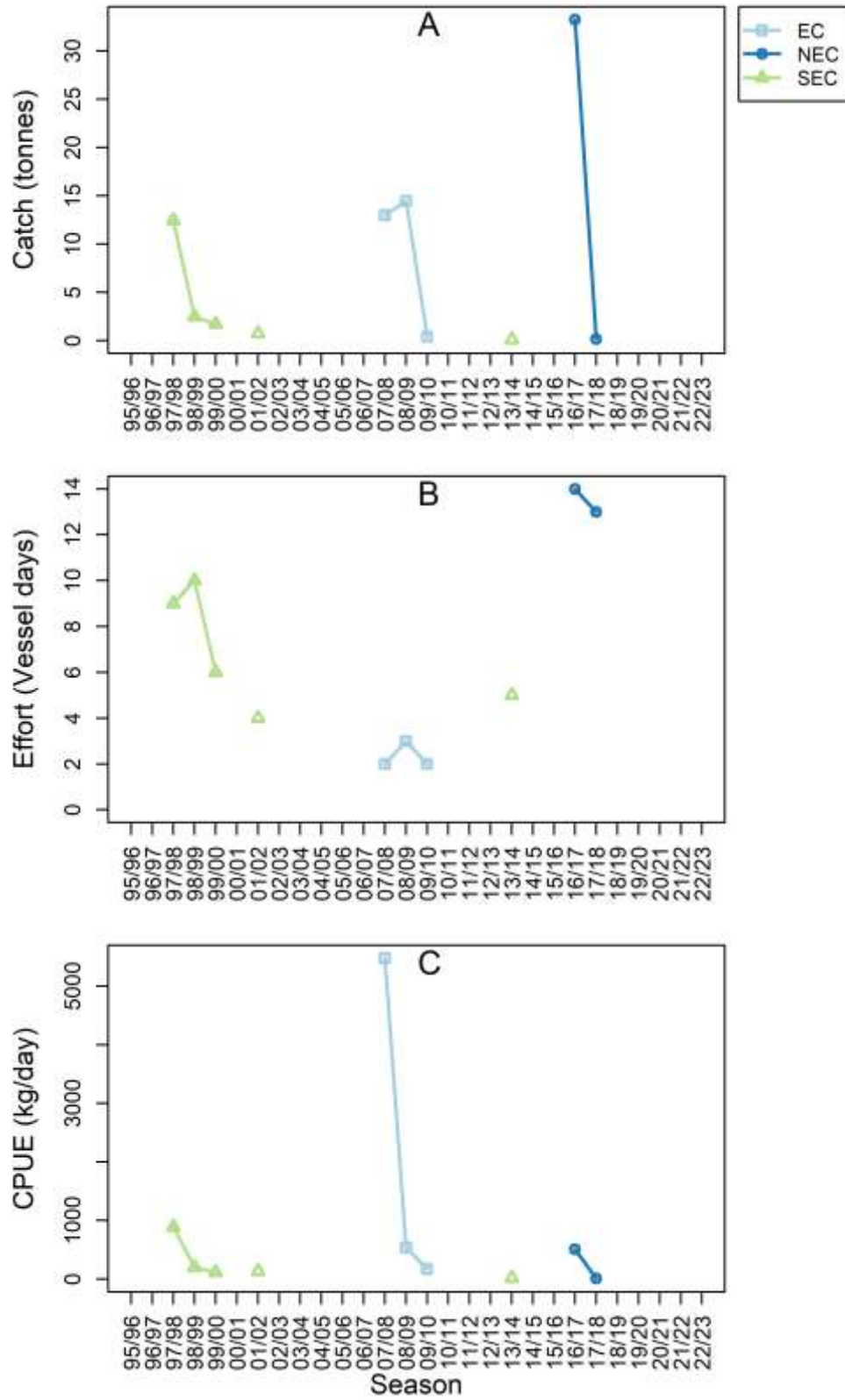


Figure 4.2 Regional commercial Australian Sardine catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for purse seine. EC = east coast, NEC = northeast coast, SEC = southeast coast.

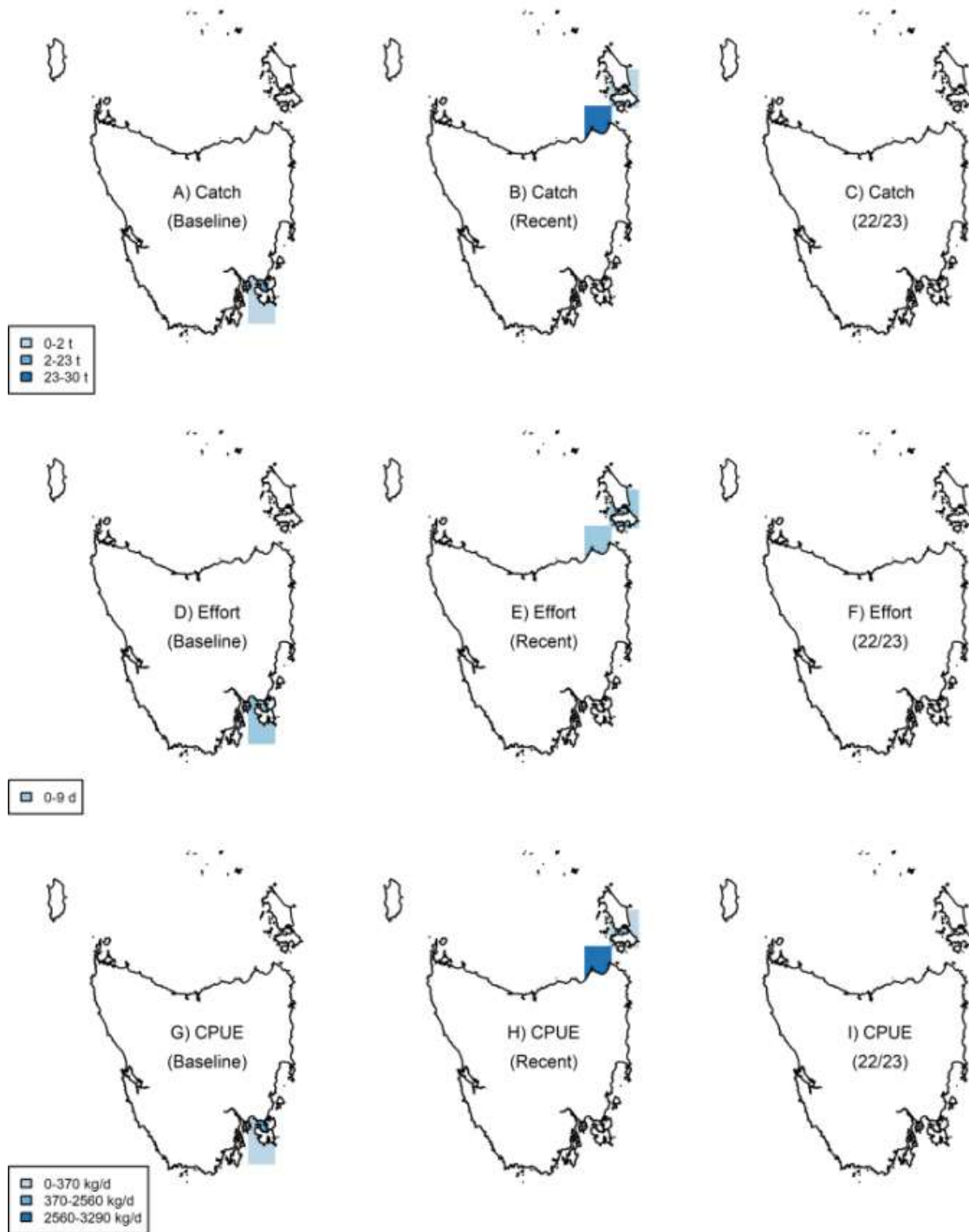


Figure 4.3 Australian Sardine catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.2 Barracouta (*Thyrsites atun*)

STOCK STATUS	UNDEFINED
Barracouta catches have steadily declined since the mid-2000s, likely due to decreased targeted effort stemming from a lack of market demand and potentially from environmental change. The low levels of fishing effort render catch and CPUE data unreliable indicators of biomass and stock status. As historical catches were substantial there is insufficient information to confidently classify the current 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

Barracouta is a predatory, schooling species that inhabits coastal bays and open ocean as deep as 550 m. This species is widely distributed in temperate latitudes of the southern hemisphere (Edgar 2008), including southern Australia. Barracouta was a historically important fishery species in Tasmania, with a large commercial troll fishery operating in the 1960s and 1970s when catches ranged between 600 and 1600 t per year (Kailola 1993). Market demand for barracouta is assumed to have declined substantially in the mid-1970s, such that current catches are considered unlikely to reflect biomass. With relatively minimal catch and effort, current management restrictions of commercial barracouta fishing are limited to the requirement of a scalefish fishing licence. More detailed information on biological characteristics and current management of Barracouta fisheries is available from the [TasFisheriesResearch](#) webpage.

4.2.1 Catch, effort and CPUE

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). The total commercial catch in 2022/23 was 1.02 t. Trolling and handline are the main fishing methods used to target Barracouta. After the peak in the early 2000s, effort declined and, since 2007/08, has stabilised at a low level (Figure 4.4 B). CPUE has been

relatively stable over the most recent fishing years (Figure 4.4 C). However, it is likely that fishers who used to target Barracouta are now targeting other species, and, in consequence, catch-based statistics are unlikely to be a reliable indicator of biomass. Catches and fishing effort were traditionally concentrated off southern Tasmania (Emery et al. 2017) (Figure 4.4). However, over the last few fishing seasons, what little fishing effort there is has been concentrated off the north coast (Figure 4.4).

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). Recreational Barracouta catches generally, and sometimes considerably exceed the commercial harvest (Figure 4.4). 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 (Tracey and Stark 2024).

The 2021/22 Scalefish Assessment Report presents a formal risk assessment of recruitment impairment for this species, using the Marine Stewardship Council methodology (Sharples et al. 2023).

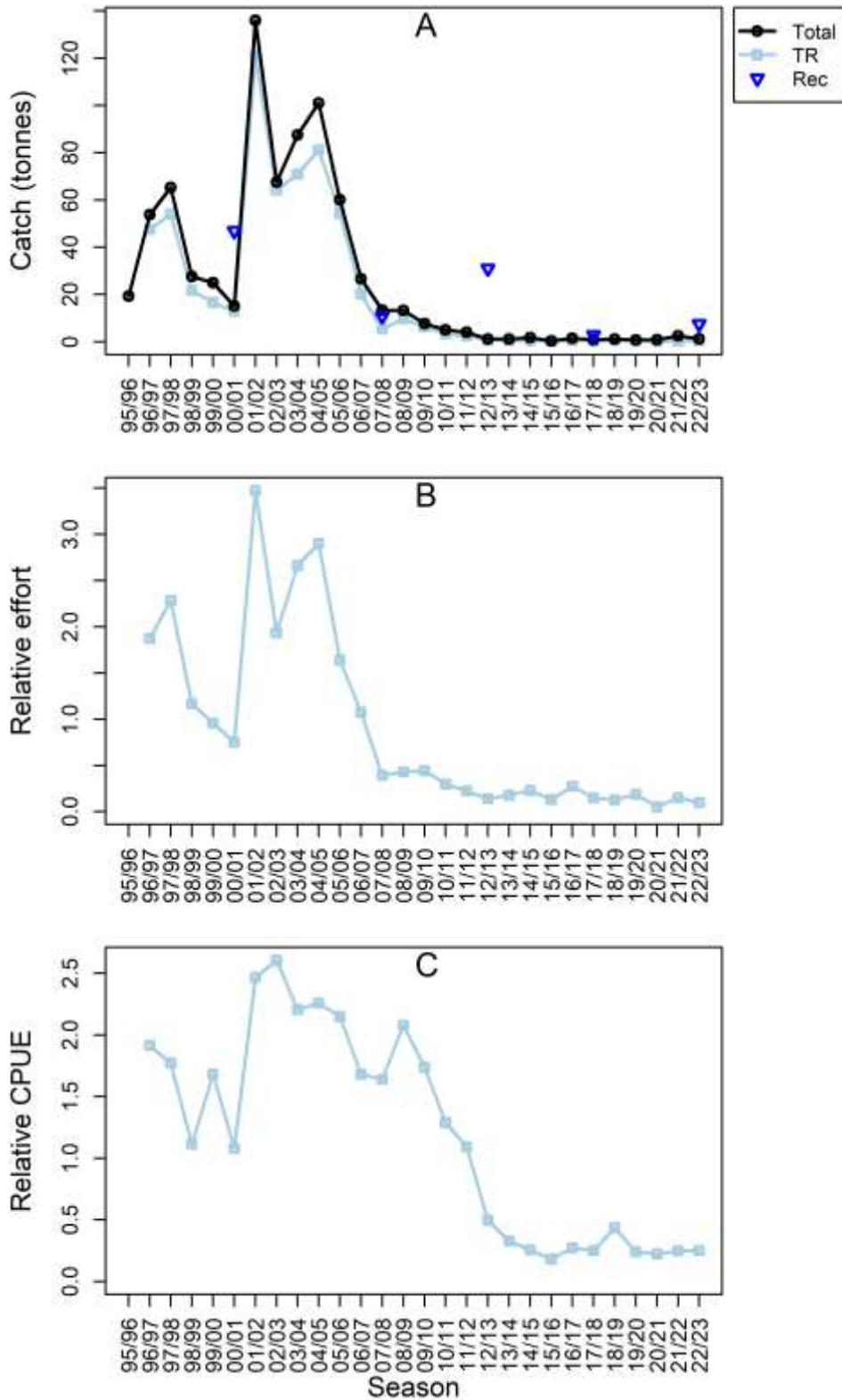


Figure 4.4 (A) Annual commercial Barracouta catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. TR= troll, Rec = estimated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

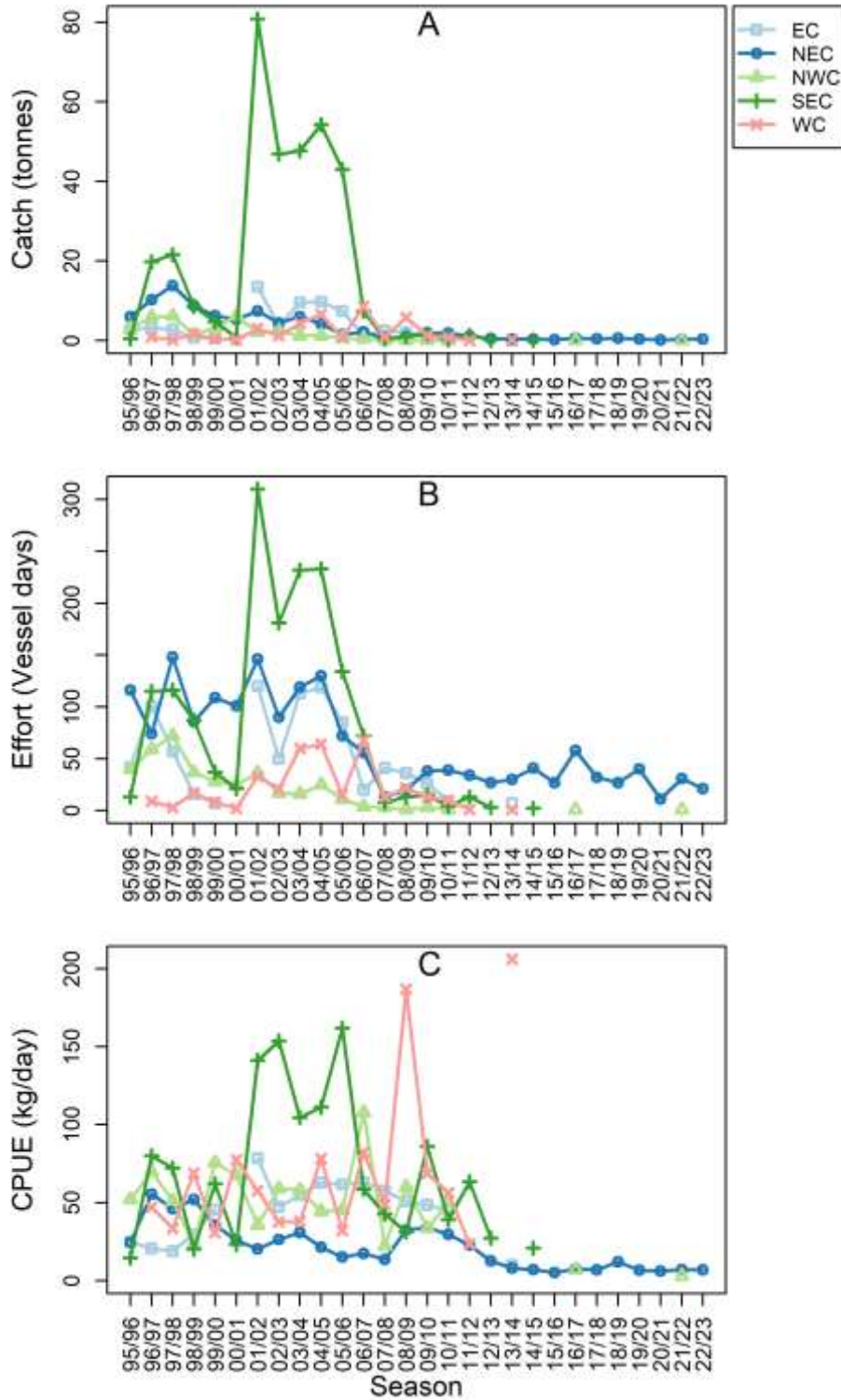


Figure 4.5 Regional commercial Barracouta catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for troll. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

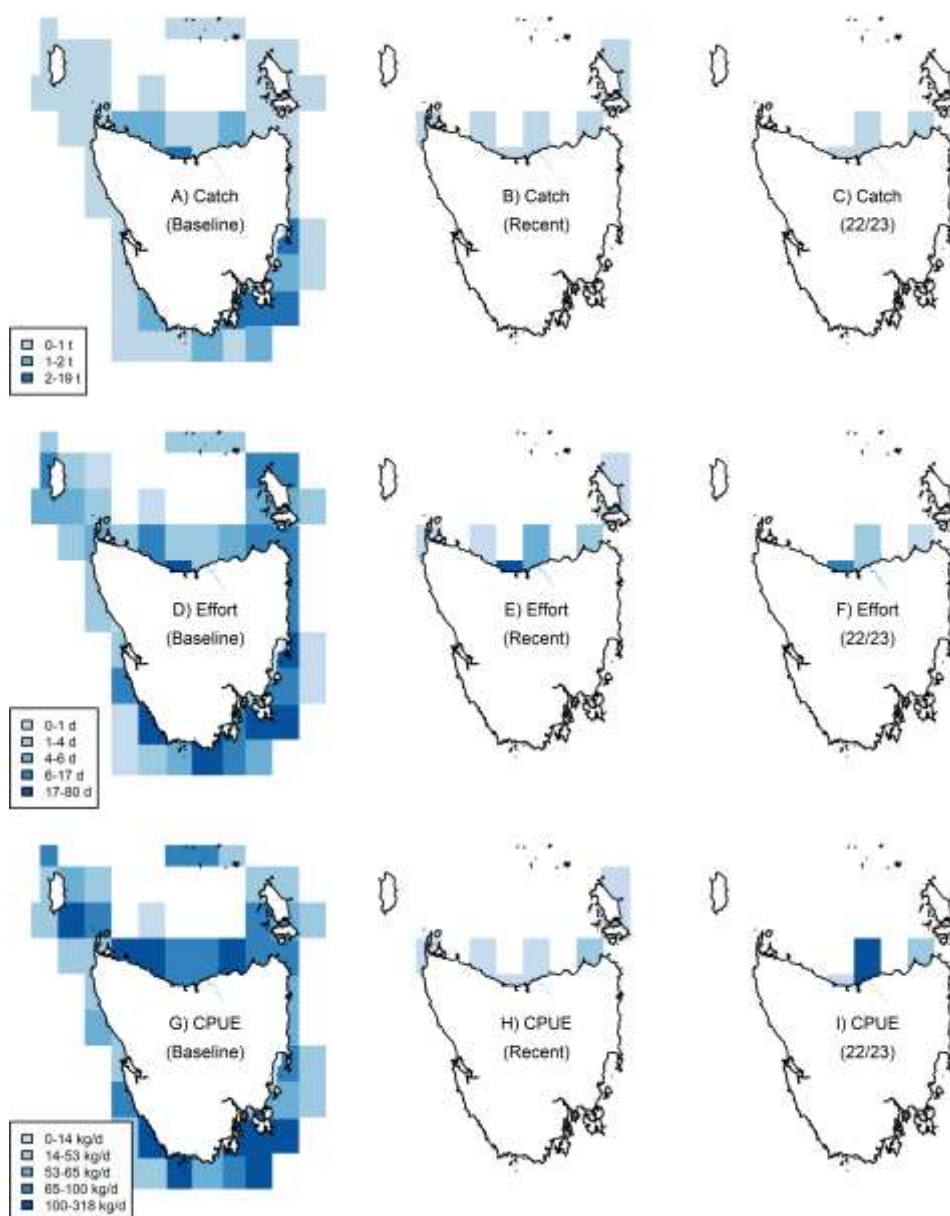


Figure 4.6 Barracouta catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.3 Bastard Trumpeter (*Latridopsis forsteri*)

STOCK STATUS	DEPLETED
Trends in commercial and recreational catches of Bastard Trumpeter suggest record low population levels and that the species is overfished. In response to the 2023 scalefish review, the minimum legal-size limit has been increased to 420mm, though the size at maturity is thought to be greater than 450mm, the fishery is based largely on juvenile fish. Data-limited stock assessment methods suggest that stock recovery under current levels of catch is theoretically possible, but evidence of recovery is lacking.	
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

Bastard Trumpeter was one of the first fish species to be commercially exploited in Tasmania, with early European settlers targeting this species on shallow reefs close to Hobart. Bastard Trumpeter is a schooling species with adults inhabiting deeper water (≤ 160 m), while juveniles are associated with shallow reefs. For this reason, the Tasmanian commercial and recreational fisheries are based almost entirely on juvenile fish. In recent years, including 2022/23, Bastard Trumpeter has been taken more as a by-product of commercial fishing activities rather than as a target species, with recreational catch historically similar to, or exceeding, commercial landings. However, in 2022/23, recreational fishing accounted for 28 percent of the total catch (Tracey and Stark 2024). Since 2010, the adult stock of this species is suspected to have steadily declined. More detailed information on biological characteristics and management of Bastard Trumpeter is available from the [TasFisheriesResearch](#) webpage.

4.3.1 Catch, effort and CPUE

Bastard Trumpeter catches have been declining since the mid-1990s. Catch has been <10 t since 2010/11, with 4.56 t landed in 2022/23 – a slight increase from the previous year (Figure

4.7 A). Bastard Trumpeter in recent years have been taken almost exclusively by gillnet from inshore waters off the east, south, and west coasts (Figure 4.8, Figure 4.9). Catches in 2022/23 were spread along the south and southeast coasts with catches south of Flinders Island and north of King Island (Figure 4.9).

Bastard Trumpeter had been predominantly taken by recreational gillnet fishers in the 1996/97, 2000/01 and 2007/08 survey years (Figure 4.7), but in recent years, estimated catches in 2012/13, 2017/18 and 2022/23 were at historic lows (9.8 t, 3.4 t and 1.7 t respectively) (Lyle, Stark, and Tracey 2014a; Lyle et al. 2019; Tracey and Stark 2024). The estimated recreational catch for 2022/23 was 1.7 tonnes, which amounts to 28 percent of the total catch (Tracey and Stark 2024).

Commercial gillnet effort has followed a downward trend similar to catches since the mid-1990s, with a slight increase from the previous year in 2022/23 (Figure 4.7 B). CPUE remained relatively stable between 2006/07 and 2014/15; however, a declining trend is evident from 2014/15 to 2018/19. This decline was followed by a sharp increase in 2019/20, with a slight decline in 2020/21. However, from 2021/22 onwards, a steeper decline was observed, albeit with a slight increase in 2022/23 (Figure 4.7 C). The west coast has witnessed a decline in CPUE over the past decade, with a minor increase noted in the most recent year (2022/23) (Figure 4.8).

Bastard Trumpeter are taken primarily as by-product rather than as a target species. Most of the gillnet effort is now targeting Banded Morwong with 140 mm mesh sizes, selecting only the largest Bastard Trumpeter. Previously, a larger proportion of fishers used smaller mesh sizes (<114 mm) to target Bastard Trumpeter and Blue Warehou.

A risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

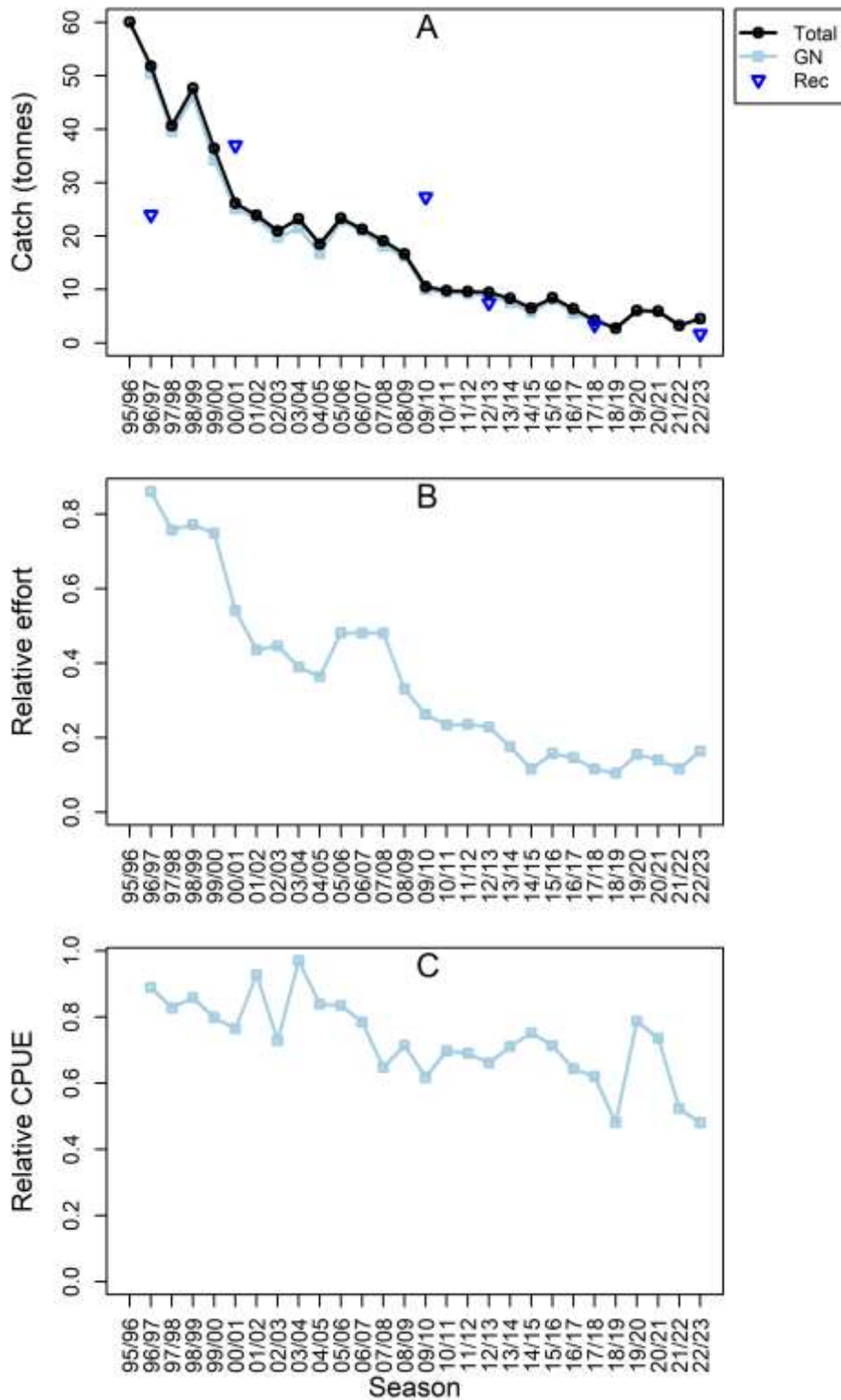


Figure 4.7 (A) Annual commercial Bastard Trumpeter catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. GN = gillnet,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

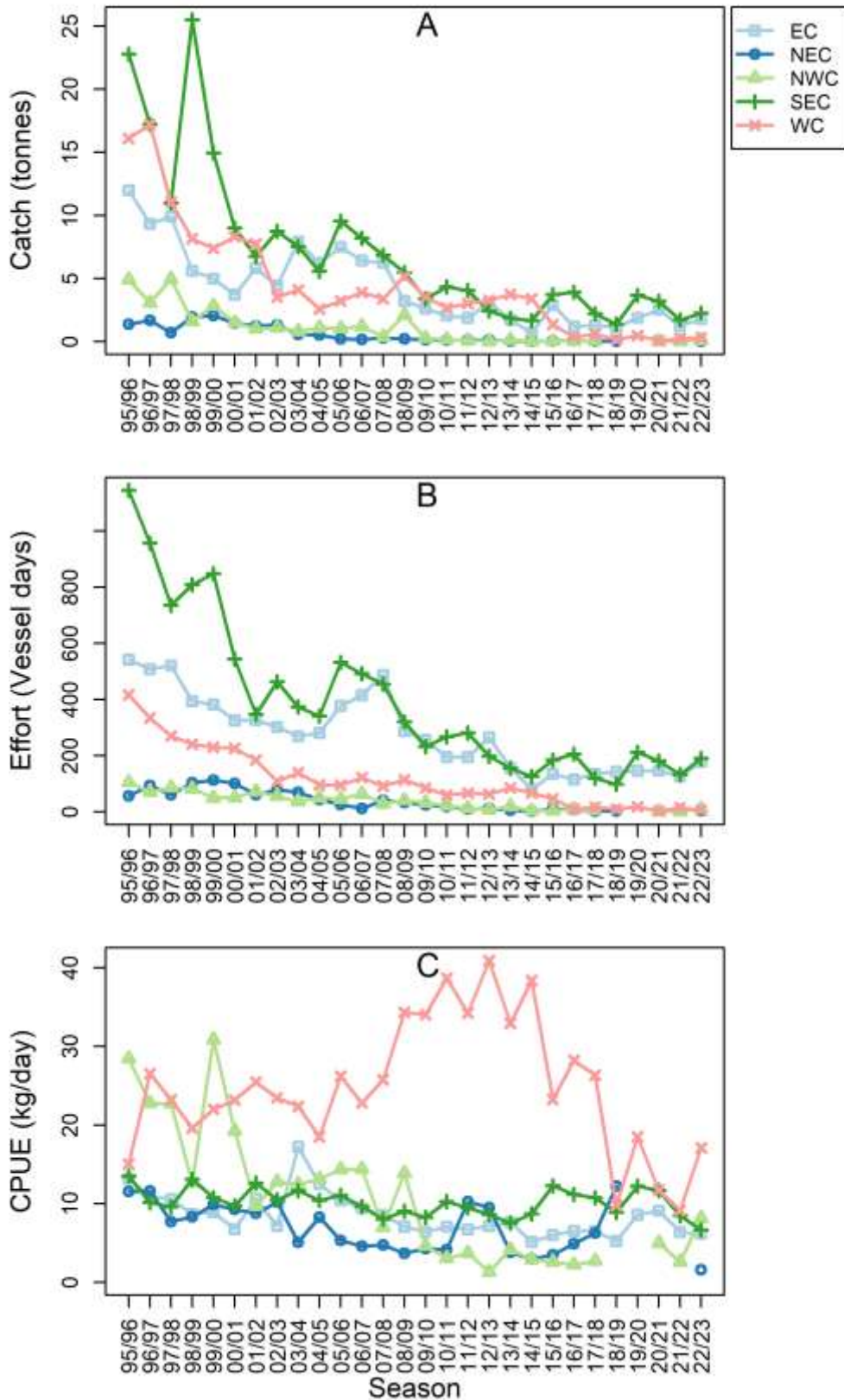


Figure 4.8 Regional commercial Bastard Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

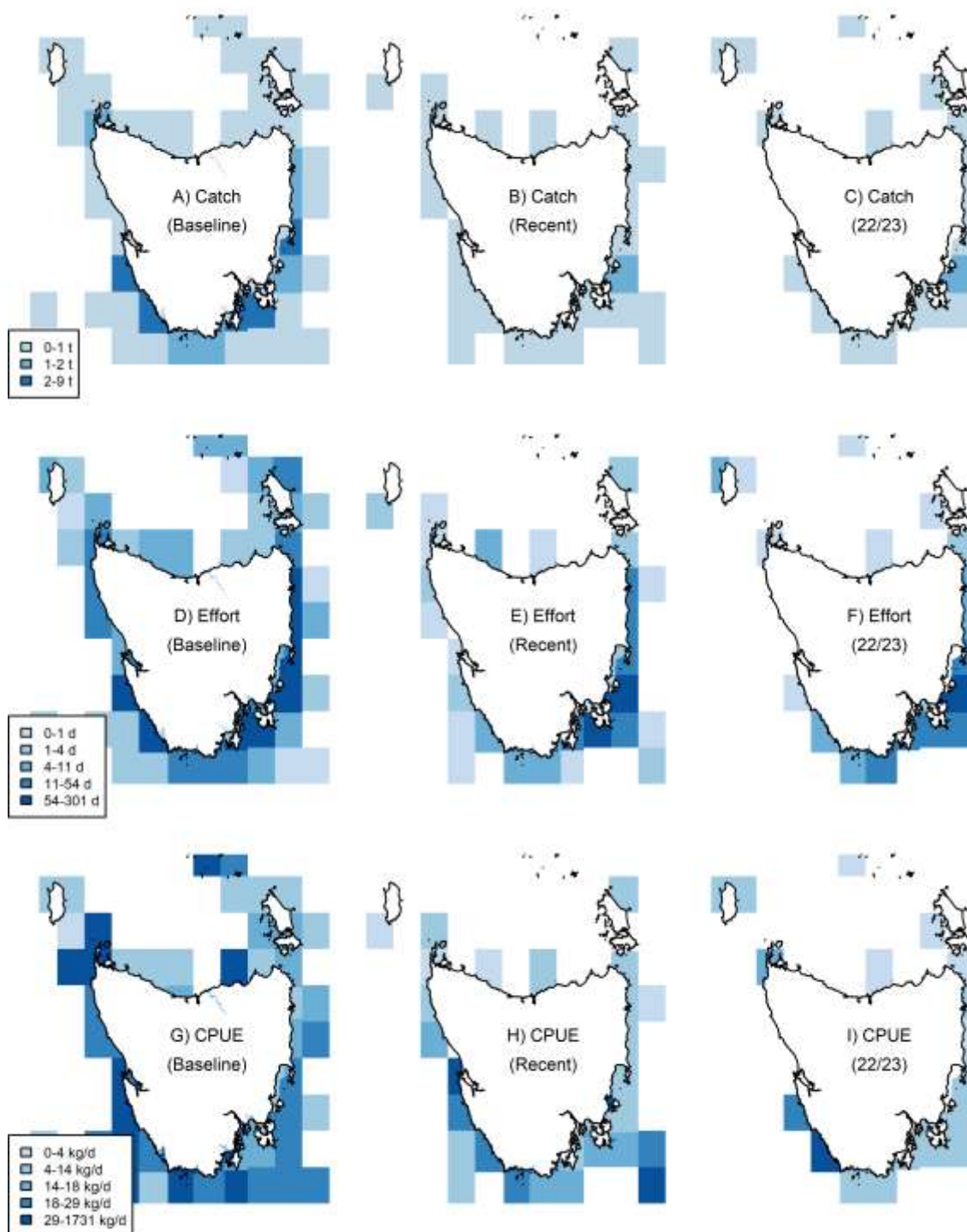


Figure 4.9 Bastard Trumpeter catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.3.2 CMSY results

The CMSY results, under the assumption of 'low' resilience, suggest that Bastard Trumpeter biomass may have depleted to 0.26 B/BMSY (lower confidence interval 0.13, refer to Figure 4.10), corresponding to approximately 13% of unfished levels (lower 95% confidence interval = 6.8%, as shown in Figure 4.10). Overall, the biomass does not appear to be further depleting and has levelled out, but is not yet showing signs of recovering.

Catches of Bastard Trumpeter remained consistently above the estimated maximum sustainable yield (MSY) of 33.6 t until 1999/2000 (see Figure 4.11). The upper 95% confidence interval of MSY, set at 50.1 t, was exceeded only in 1995/96. However, starting from the 2000s, catches experienced a steady decline and have consistently remained below the lower 95% MSY confidence limit of 20.8 t since 2009/10 (refer to Figure 4.11).

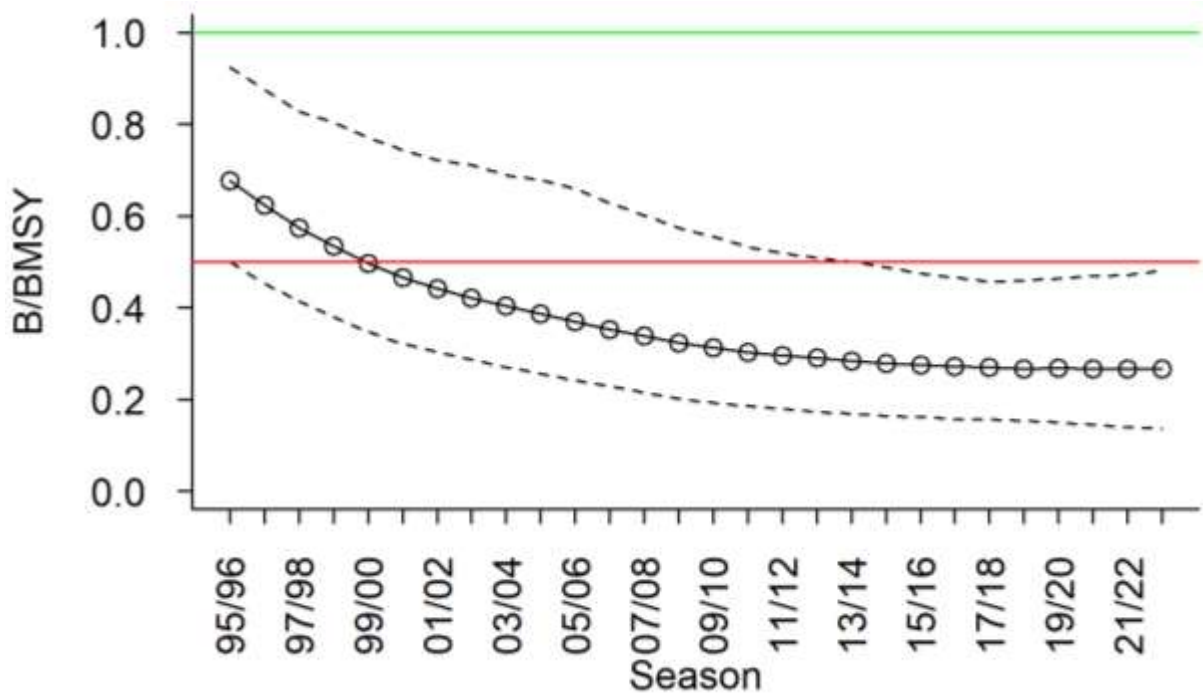


Figure 4.10 Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red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

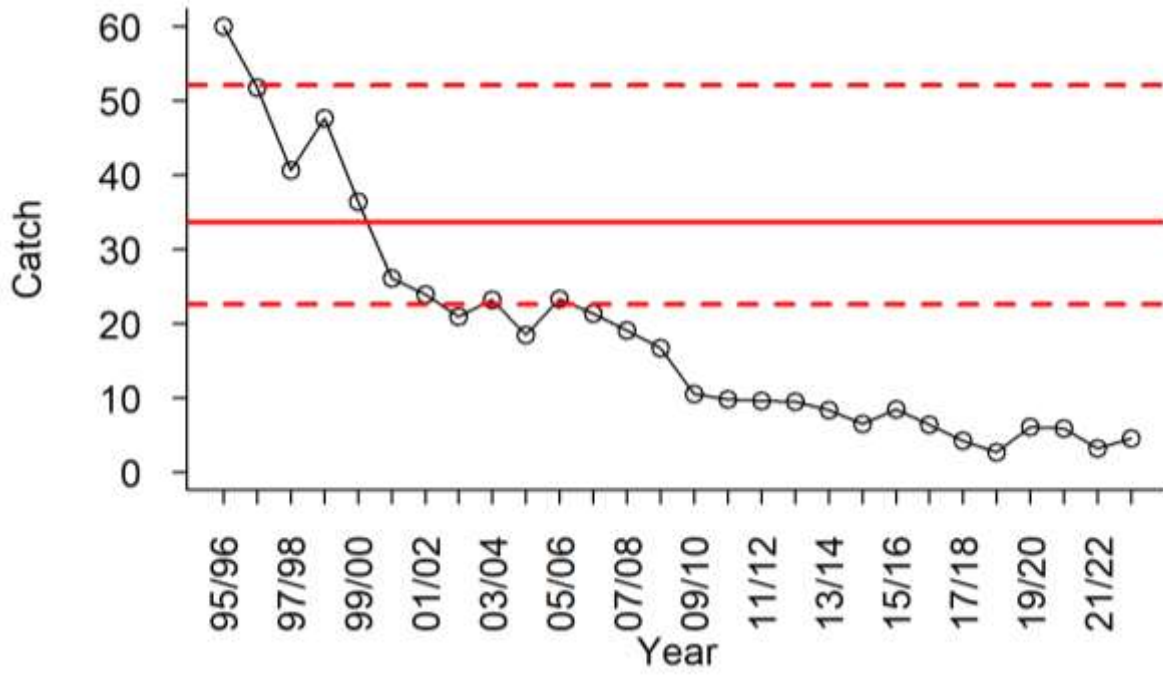


Figure 4.11 Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.4 Eastern Australian Salmon (*Arripis trutta*)

STOCK STATUS	SUSTAINABLE
Eastern Australian Salmon has a long history of exploitation across south-eastern Australia. The recent low commercial landings in Tasmania are likely due to market demand rather than a decrease in abundance. The current fishing pressure in Tasmania is significantly lower than the historically sustained levels and is therefore unlikely to impair the 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

There are two species of Australian Salmon inhabiting Tasmanian waters: *Arripis trutta* (Eastern Australian Salmon) and *Arripis truttaceus* (Western Australian Salmon). Eastern Australian Salmon constitutes approximately 94% of Tasmanian commercial catches (Krueck, Hartmann, and Lyle 2020). Eastern Australian Salmon is a schooling species, mainly caught by Tasmanian commercial fishers in inshore waters using beach seine, as well as some gillnet and purse seine gear. Eastern Australian Salmon constitute a single well-mixed stock in southeast Australian waters, traveling great distances among states (Queensland, New South Wales, Victoria, and Tasmania) (Stewart et al. 2011). Juveniles (4 – 6 cm fork length) appear in shallow Tasmanian waters between January and September (Kailola 1993). The Tasmanian Scalefish Fishery predominantly catches subadults.

Australian Salmon have a long history of exploitation in Tasmania, with large-scale commercial fishing occurring since at least 1958 (Stewart et al. 2011). There are two distinct sectors in the commercial fishery: (1) a small number of large vessels specifically equipped to capture and store large quantities of Australian Salmon, and (2) a large number of small vessels that target the species on an opportunistic basis or take them as by-product. Changes in market demand and prices for Australian Salmon have largely driven changes in catch over time, with fishers participating in other fisheries when Australian Salmon is less economically viable. 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.

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

4.4.1 Catch, effort and CPUE

Commercial landings over the last few years have been low, with only 8.5 t landed in 2022/23 (Figure 4.12 A). The low catch in recent years has been due to a substantial decline in landings by beach seine fishers, who have historically landed most of the catch (Figure 4.12 A). The majority of catch in 2022/23 was taken by beach seine landings (2.0 t) and gillnet (1.2 t).

Recent catches came from the north coast, and from the east and southeast coasts; however, in 2022/23 all catch was from the northwest coast (Figure 4.13, Figure 4.14). 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.

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).

The 2021/22 Scalefish Assessment Report presents a risk assessment of recruitment impairment for this species, using the Marine Stewardship Council methodology (Sharples et al. 2023).

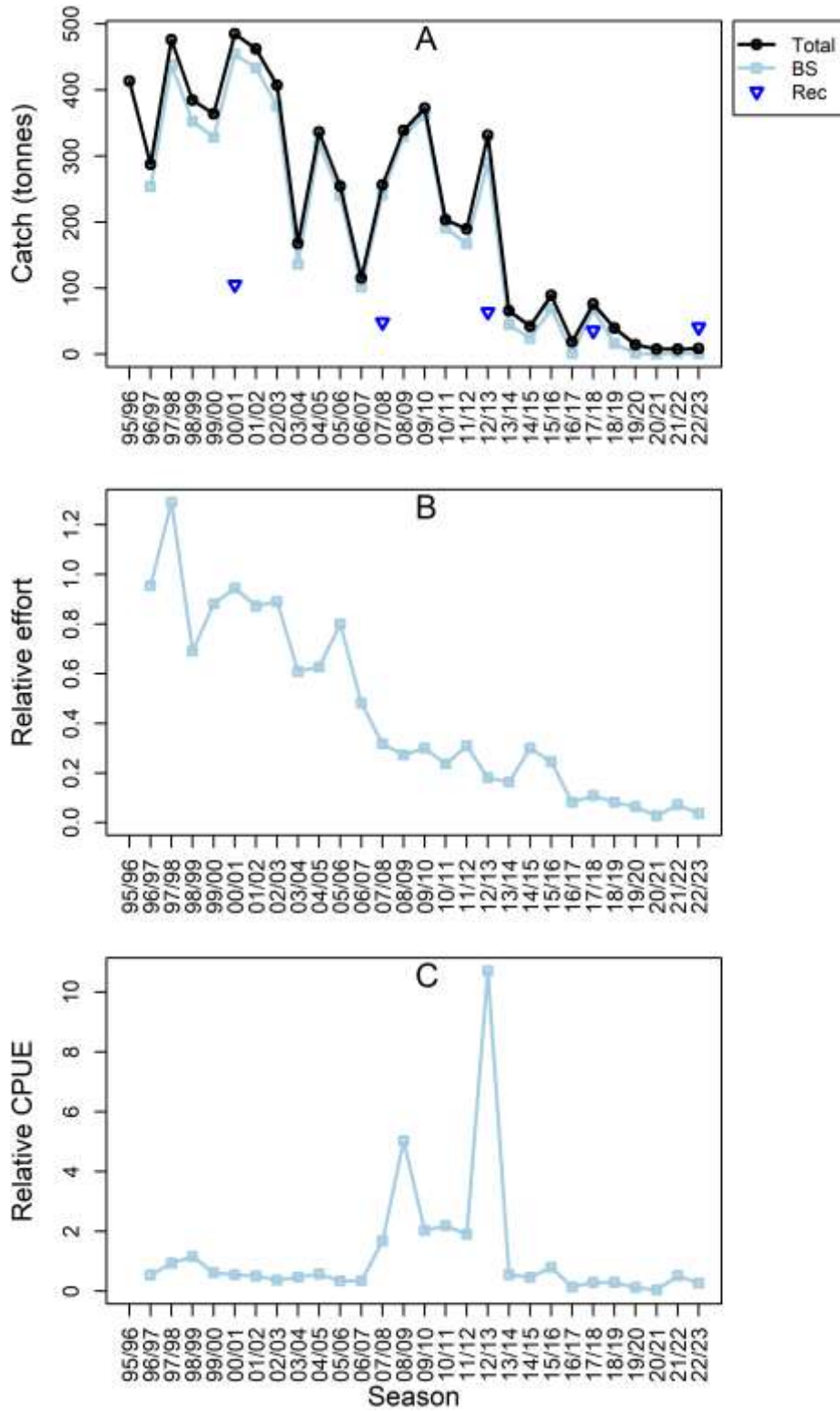


Figure 4.12 (A) Annual commercial Eastern Australian Salmon catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. BS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

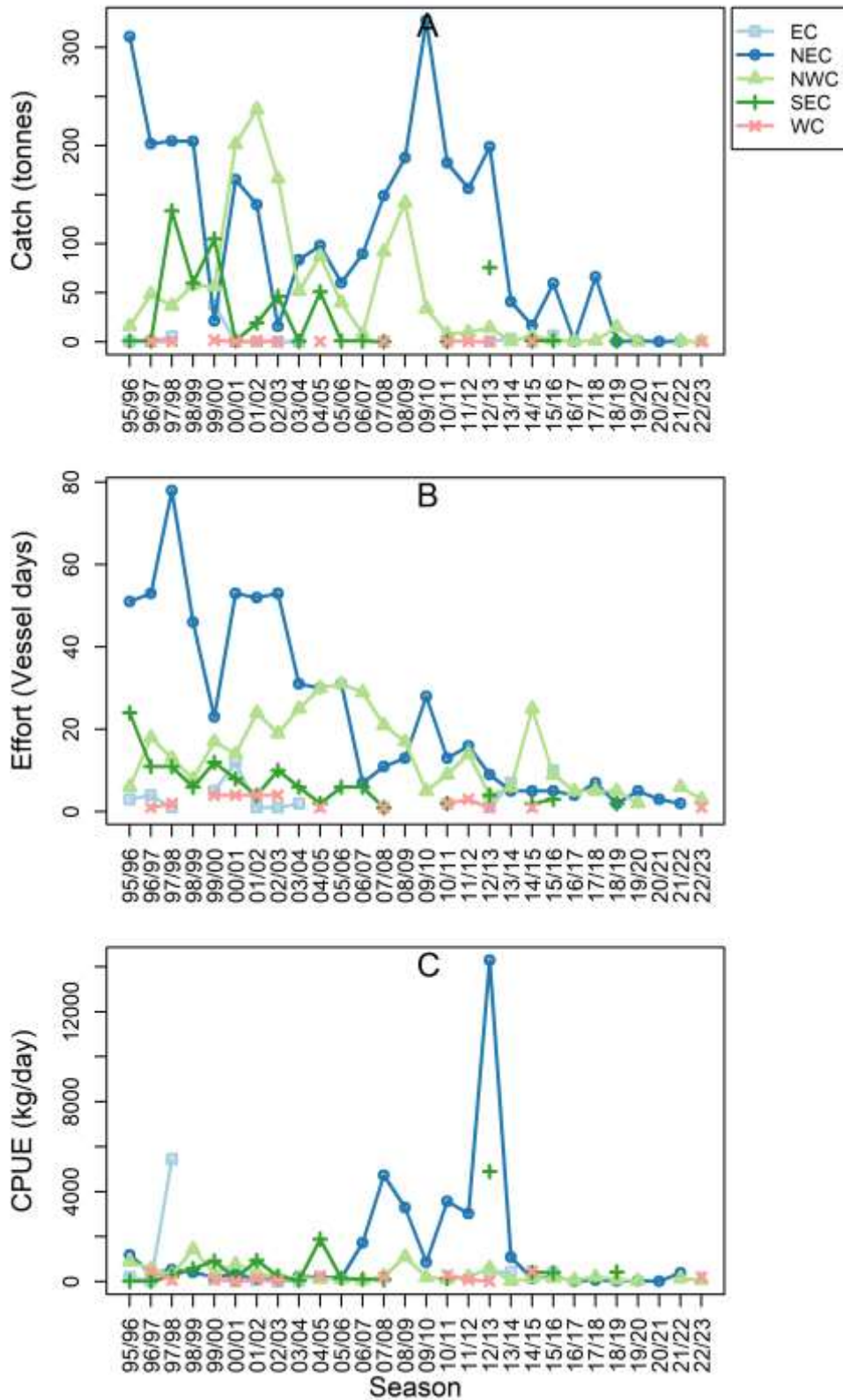


Figure 4.13 Regional commercial Eastern Australian Salmon catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

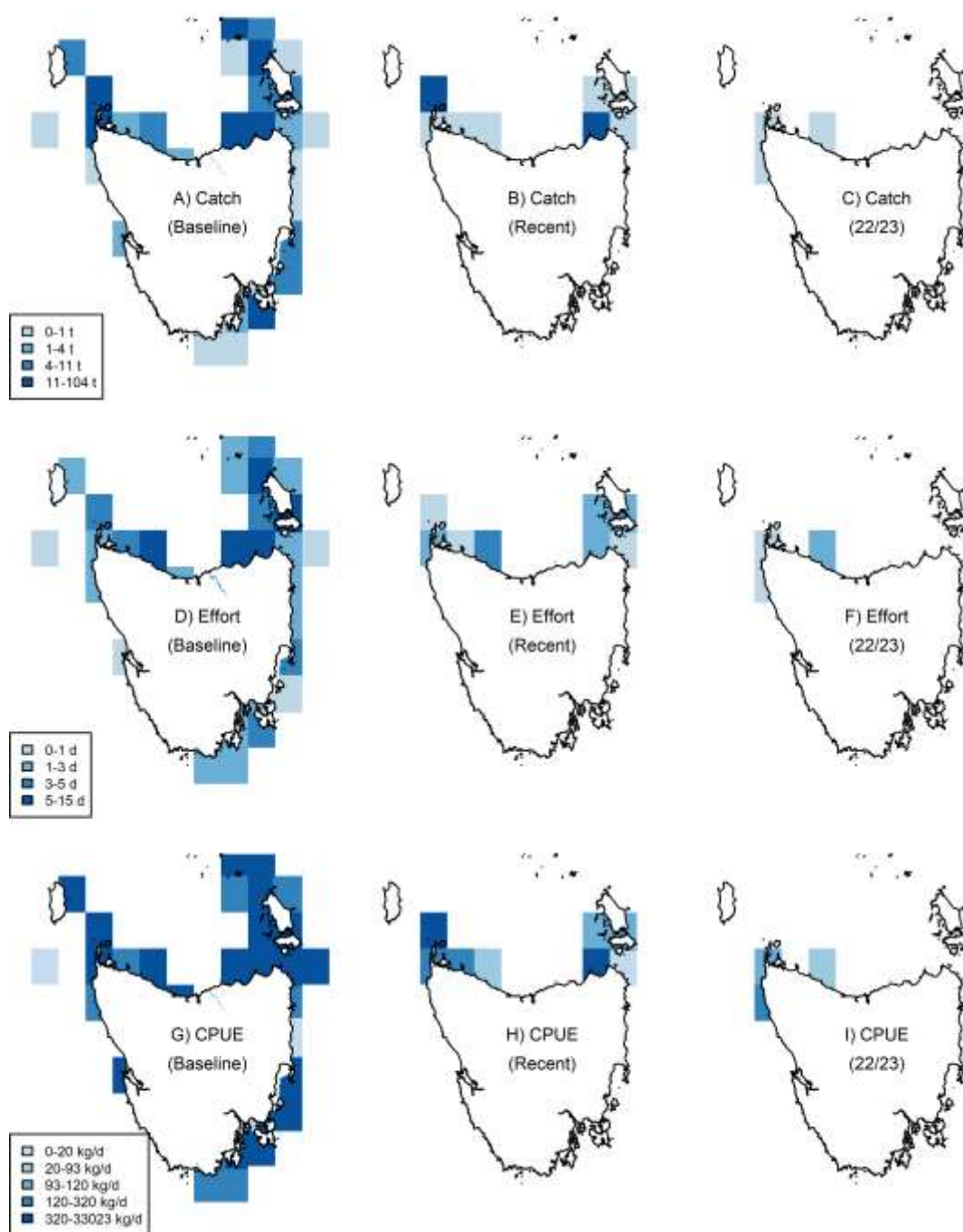
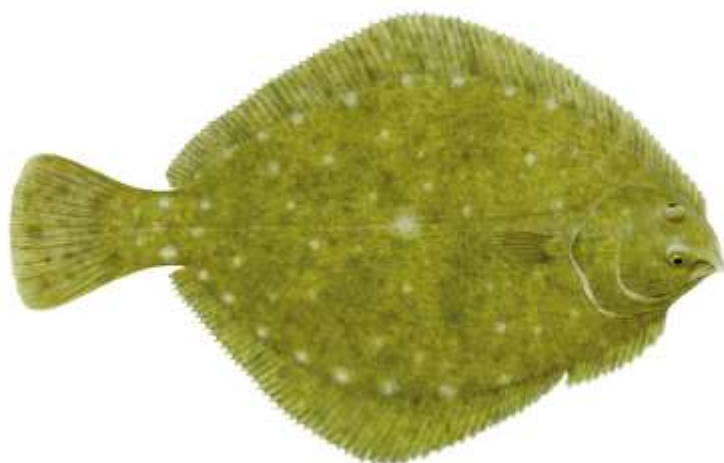


Figure 4.14 Eastern Australian Salmon catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.5 Greenback Flounder (*Rhombosolea tapirina*)

STOCK STATUS	UNDEFINED
<p>Several species of flounder are caught commercially and are not reliably reported to species level. The Greenback Flounder (<i>Rhombosolea tapirina</i>) is thought to constitute most of the commercial flounder catch, while the Long-snouted Flounder (<i>Ammotretis rostratus</i>) is taken in smaller quantities. Commercial catch remains low, likely due to limited market demand and the requirement for fishers to attend gear for most overnight gillnetting. Recent low effort, catch, and CPUE are unlikely to reflect trends in biomass, but the impact of historic catches remains uncertain. Monitoring the continuing decline in recreational catch is essential in the absence of fisheries-independent data. Consequently, the status of the stock remains undefined.</p>	
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

Flounder inhabit sheltered sand, silt, and mud habitat in estuaries and coastal waters of Tasmania. Since 2010, there has been a requirement for commercial fishers to attend their gear when gillnetting at night, unless they hold an unattended night netting endorsement for Bass Strait or are gillnetting in Macquarie Harbour. As a result, there has been a marked reduction in Flounder catch. Flounder in Tasmanian waters are primarily caught using spear. There is a substantial recreational fishery for Flounder, with most fishers also using spear. More detailed information on biological characteristics and current management of Flounder fisheries is available from the [TasFisheriesResearch](#) webpage.

4.5.1 Catch, effort and CPUE

Records of commercial catches peaked at almost 35 tonnes at the start of the time series in 1995/96. Flounder landings have declined steadily since then, reaching an historical low of 1

t in 2015/16 (Figure 4.15 A). Catch in 2022/23 was 2.1 t, a continued slight decline since 2019/20. Since the ban on night gillnetting in 2010, Flounder have been caught predominantly using spear (Figure 4.15 A). 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).

Consistent with the trend in catches, effort for both spear and gillnet has been declining steadily since the mid-1990s (Figure 4.15 B). Overall Tasmanian CPUE for spear fishing has seen a decline in 2019/20 and 2022/23 (Figure 4.15 C) but there are underlying regional dynamics (Figure 4.16, Figure 4.17 & Figure 4.18). The CPUE for gillnet fishing has increased in the current year (2022/23). However, measures to protect the Maugean skate in Macquarie Harbour have likely restricted gillnetting for flounder in this area. On a broader scale, looking at the west coast during the 2022/23 year, no signs of reduction have yet been observed (Figure 4.17).

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).

A formal risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

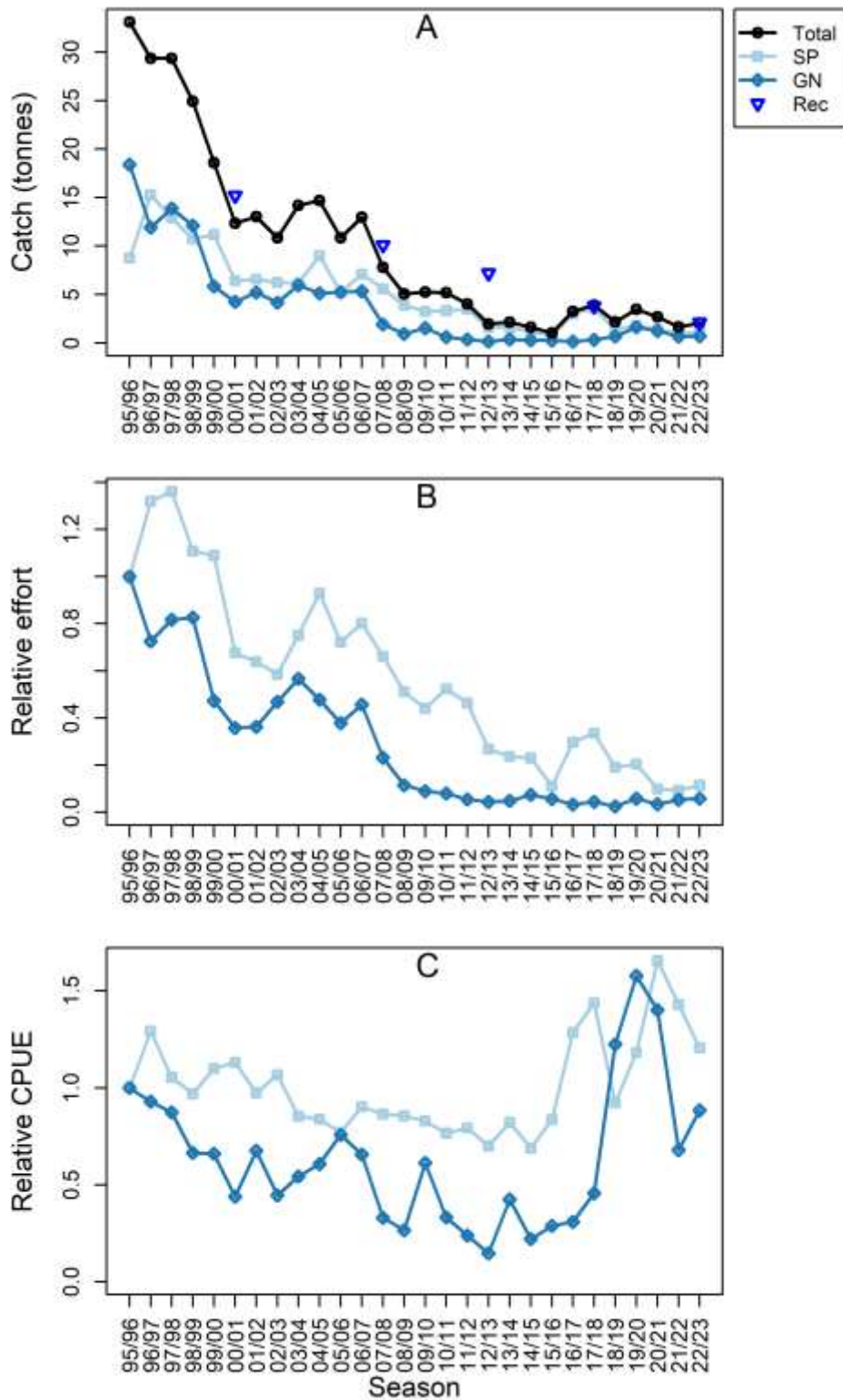


Figure 4.15 (A) Annual commercial Flounder catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. SP = spear, GN = gillnet,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

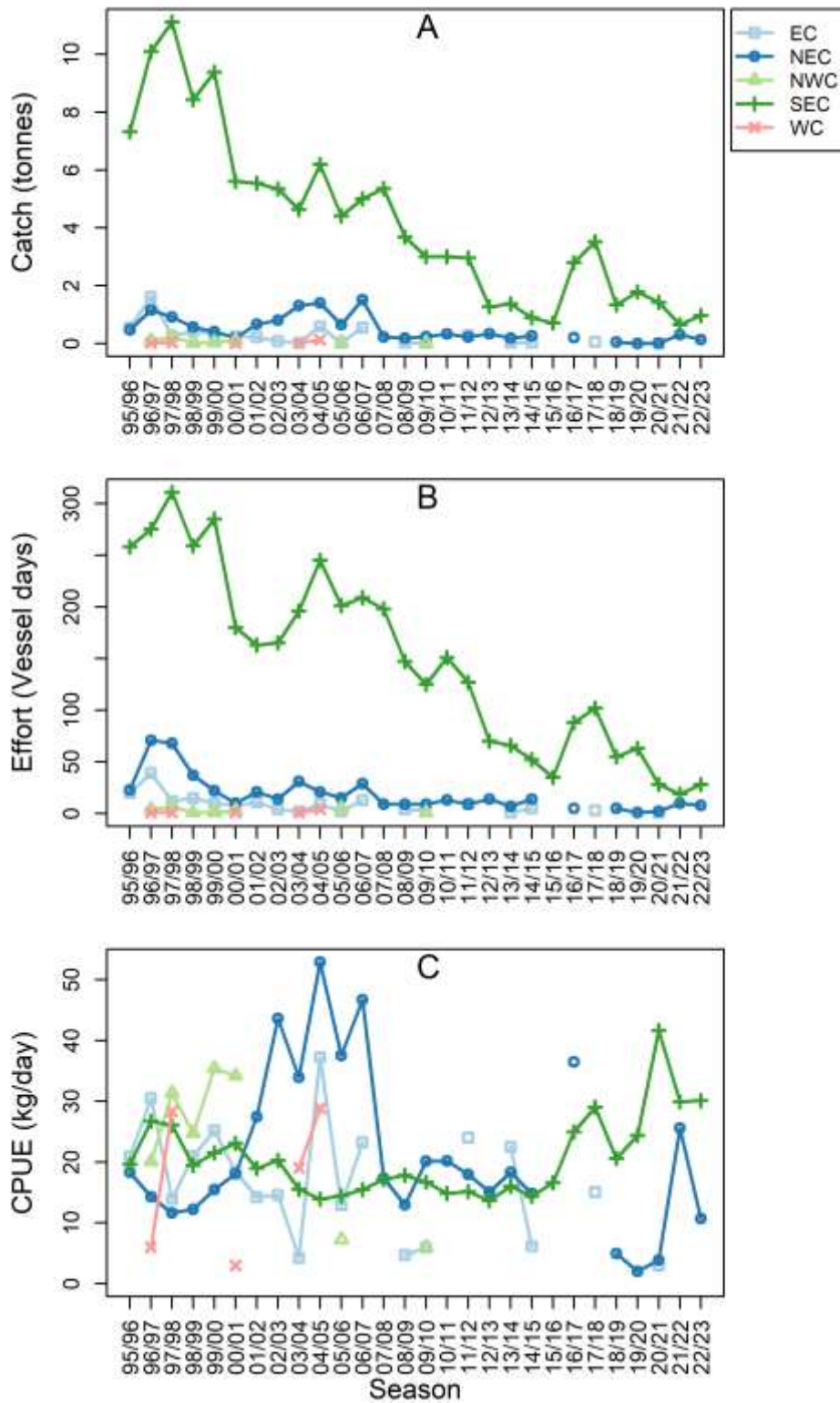


Figure 4.16 Regional commercial Flounder catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for spear. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

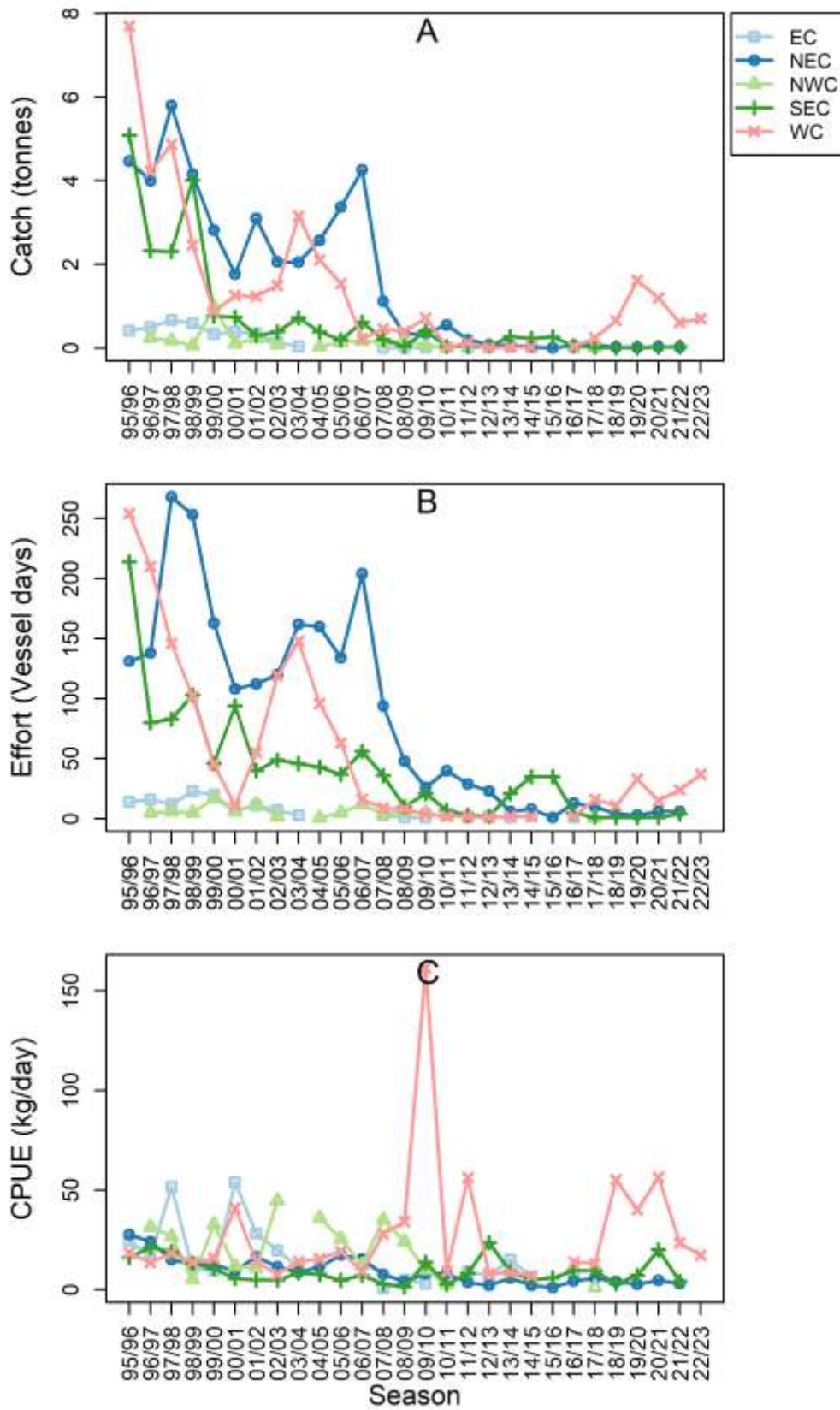


Figure 4.17 Regional commercial Flounder catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

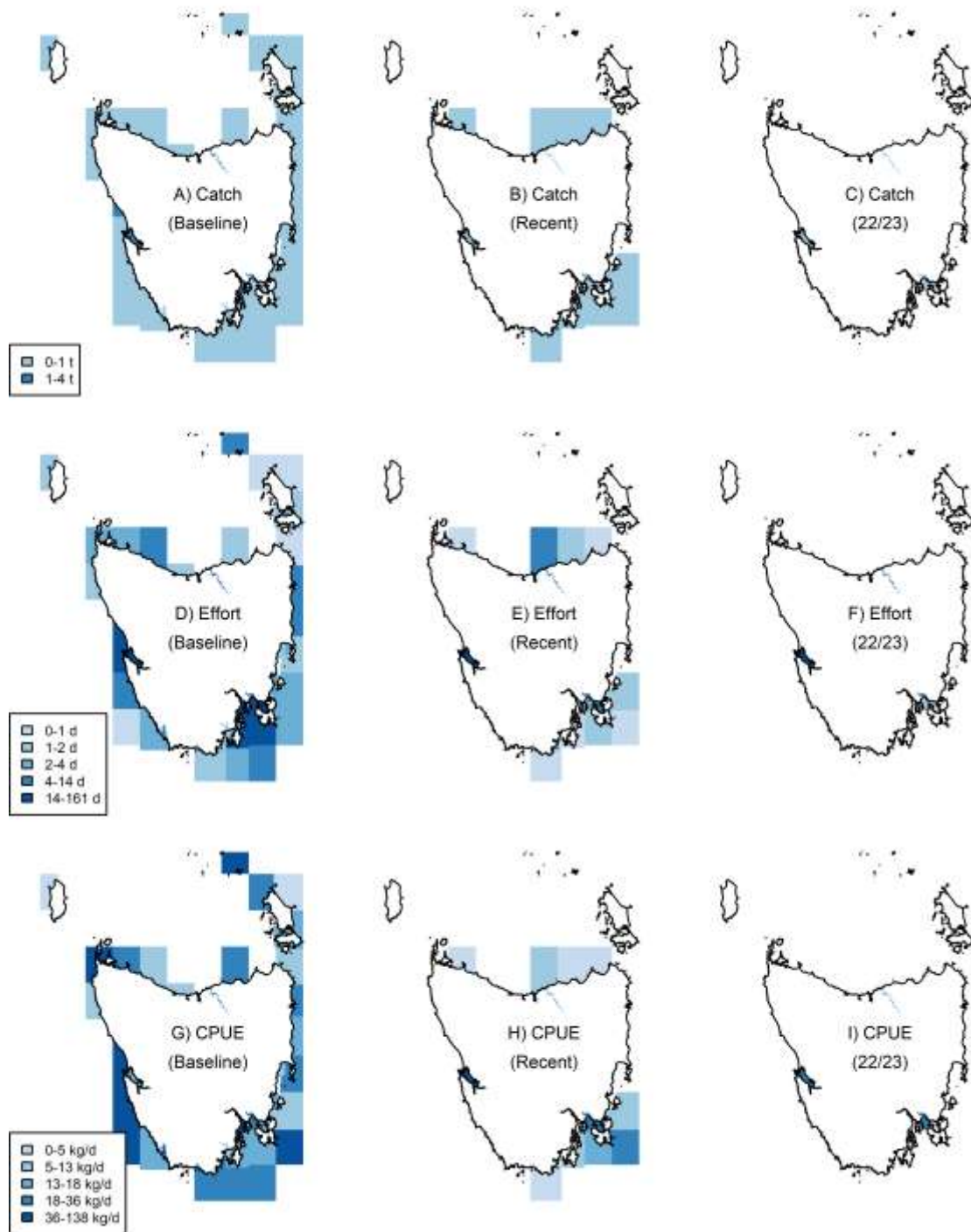


Figure 4.18 Flounder catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.6 King George Whiting (*Sillaginodes punctatus*)

STOCK STATUS	SUSTAINABLE
King George Whiting is an emerging species attracting growing interest from both the commercial and recreational sectors. The current fishing pressure on King George Whiting in Tasmanian waters is unlikely to impair the recruitment of the biological stock. However, local impacts on stocks could still be considerable. Therefore, pre-emptive monitoring and management are necessary if interest in this species continues to rise.	
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

King George Whiting (*Sillaginodes punctatus*) are commonly found in the southern coastal waters of Australia, including the northern regions of Tasmania. This species is closely associated with sandy and seagrass habitats. 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). 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. Furthermore, there is evidence of stock delineation between the north-western and north-eastern regions of Tasmania (Jenkins et al. 2016). Commercial and recreational exploitation of King George Whiting in mainland state waters is well established. State catches are supporting a small but developing commercial fishery in northern Tasmania. Commercial operators use mostly beach seine gear in exposed coastal waters near Stanley in the northwest and in the Tamar estuary in the north. King George Whiting are also caught commercially around Flinders Island using beach seine. While commercial catch and effort have been increasing in northern Tasmania since 1995, catch is still relatively low and the increase is minor compared with the expansion of the recreational fishery. It should be noted that large, up to 18-year-old fish have been caught in the north-west of Tasmania and a spawning population identified (Jenkins et al. 2016). Spatial and temporal closures may become pertinent to protect this spawning population. Recreational fishing accounts for the majority of landings (Tracey and Stark 2024).

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

4.6.1 Catch, effort and CPUE

The 2022/23 commercial catch of King George Whiting in Tasmanian waters was 7.8 tonnes, marking a continued sharp increase over the past four seasons (Figure 4.19 A). 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.

Relative effort and CPUE have fluctuated over the duration of fishery records; however, both show generally increasing trends, with 2022/23 data indicating substantial increases from the previous year (Figure 4.19 B, C). Commercial fishing activity for King George Whiting has been focused on the northeast coast, particularly around Flinders Island (Figure 4.21). In 2022/23, fishing for this species continued to be concentrated around the east and west of Flinders Island. 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).

With steep increases in both commercial and recreational fisheries for this species it would be pertinent to collect fisheries independent data to better understand the population structure present and be able to continue to monitor catch to detect changes in size and age composition of the population. A better understanding of the spawning behaviour would permit potential spatial and temporal closures to protect this growing fishery.

The 2021/22 Scalefish Assessment Report presents a risk assessment of recruitment impairment for this species, using the Marine Stewardship Council methodology (Sharples et al. 2023).

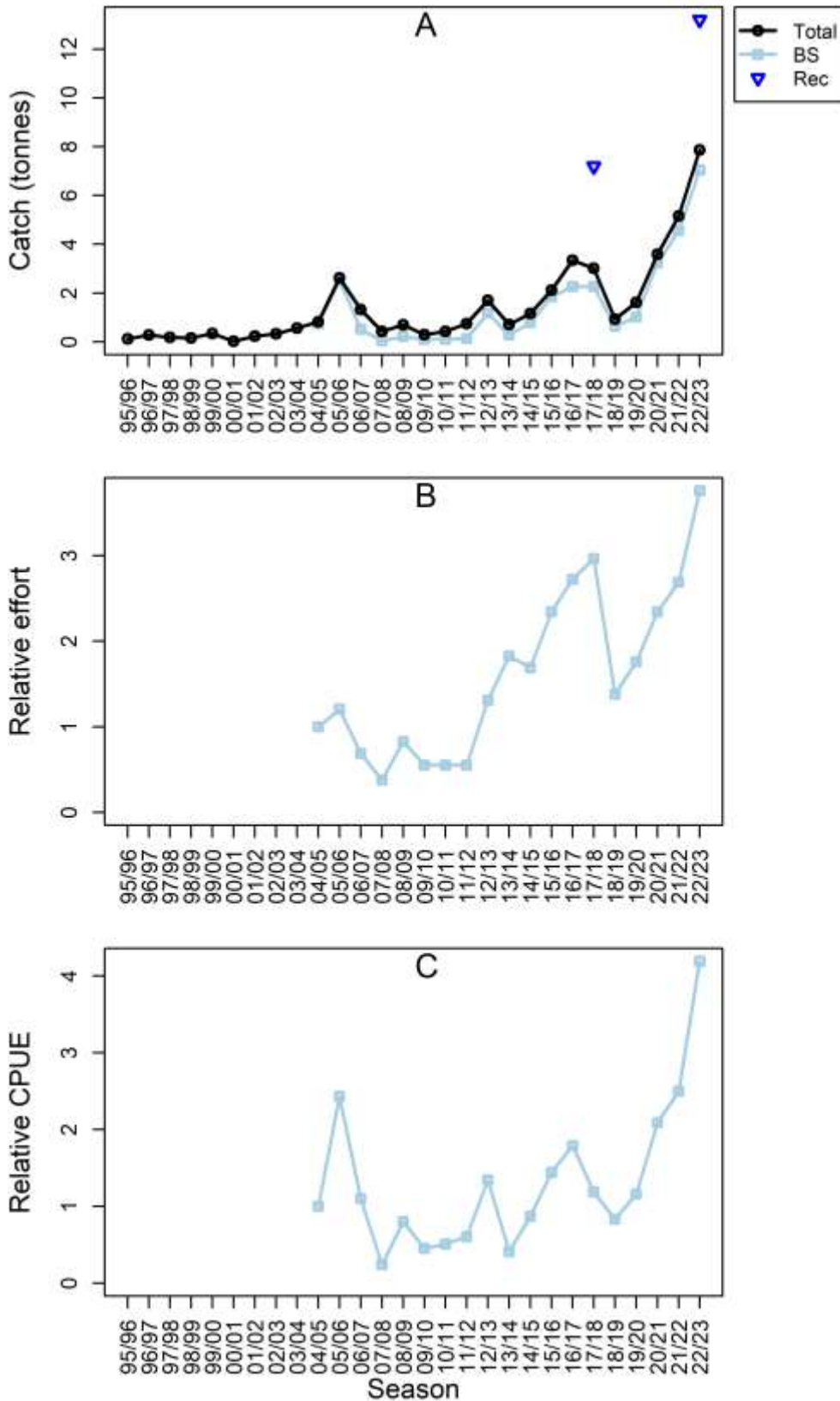


Figure 4.19 (A) Annual commercial King George Whiting catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2004/05; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2004/05. BS = beach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

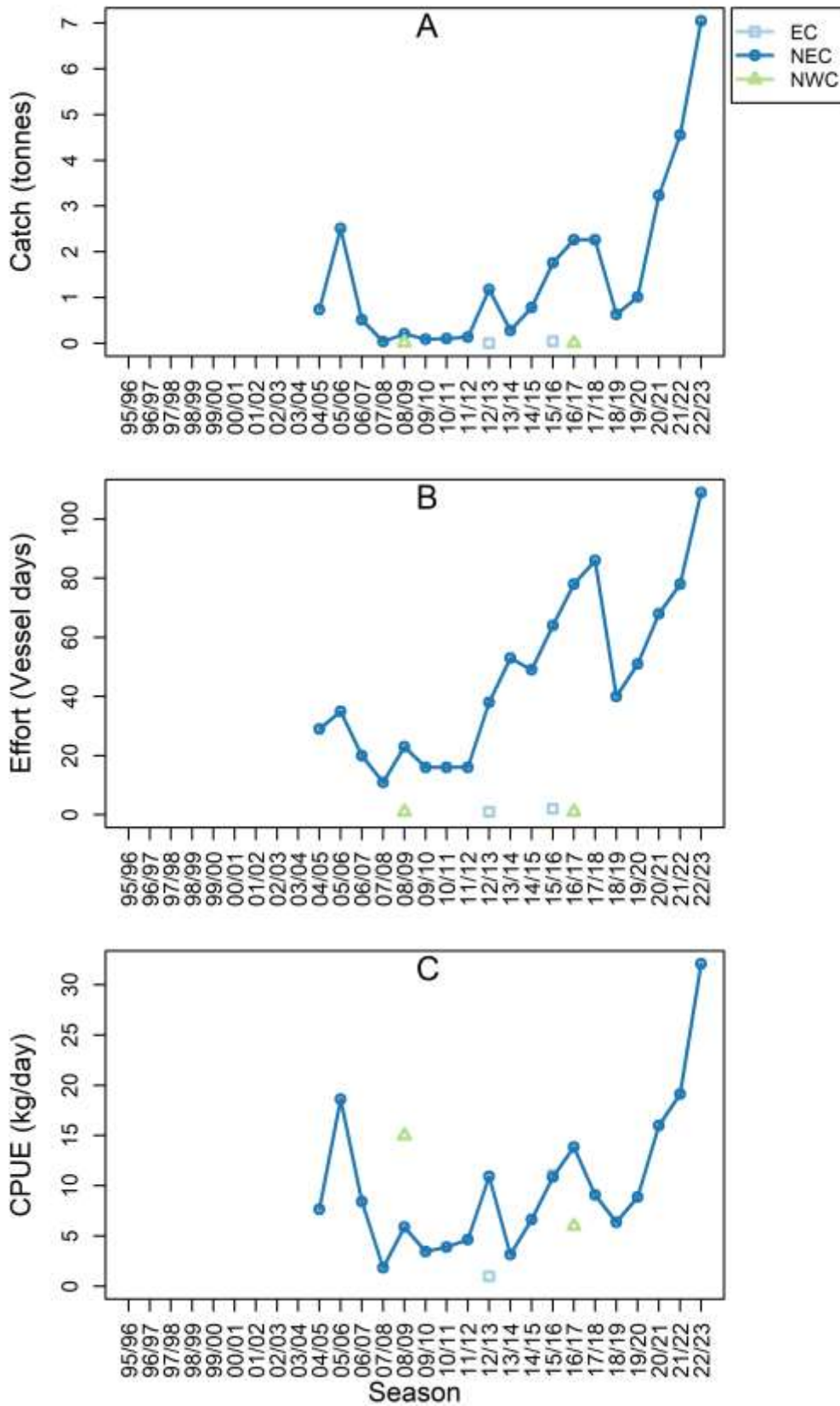


Figure 4.20 Regional commercial King George Whiting catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast.

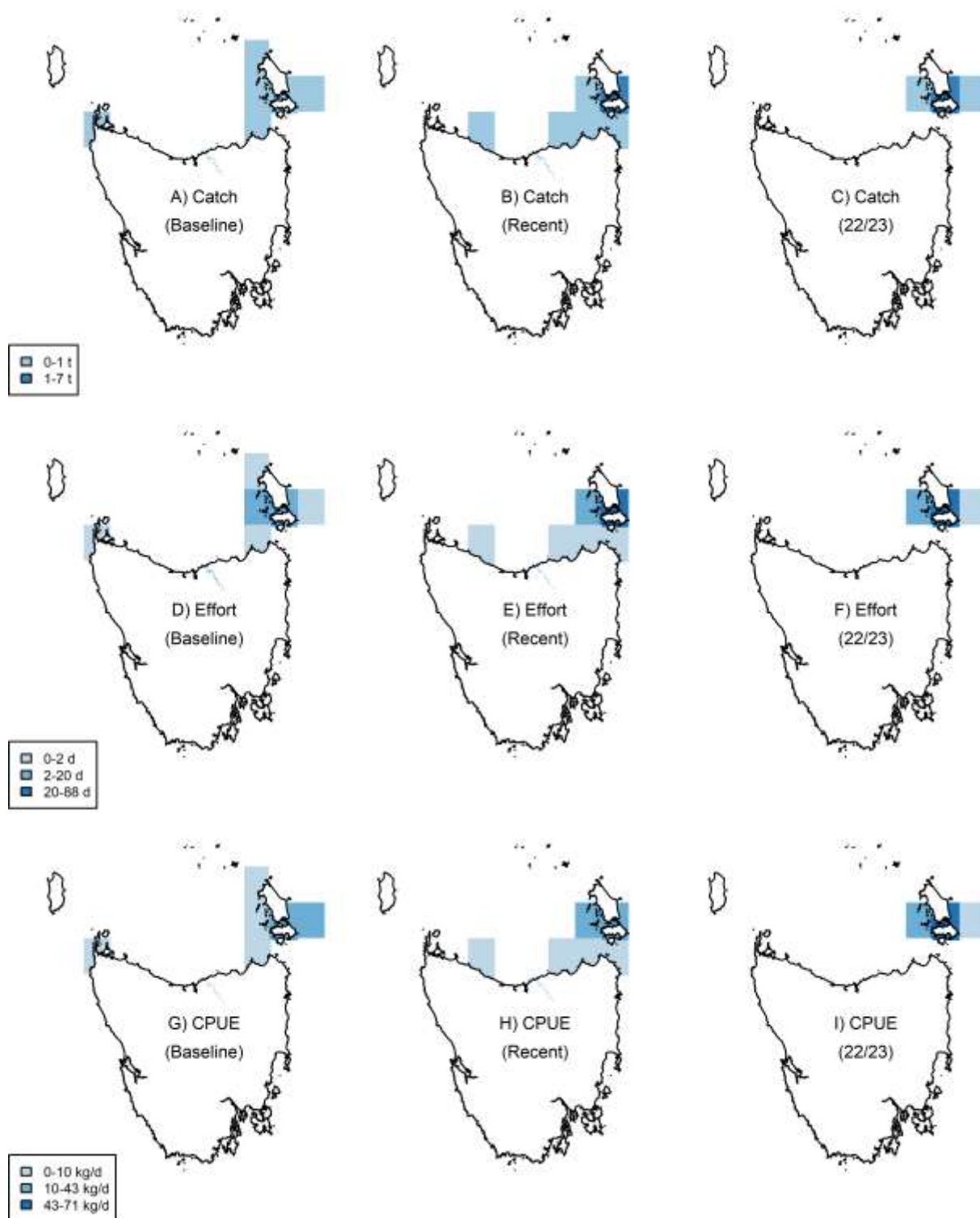
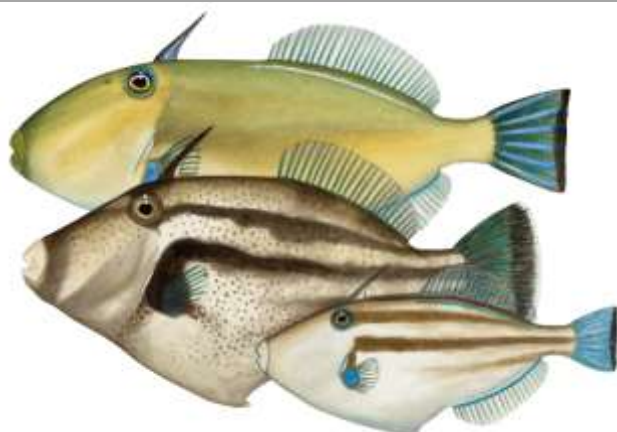


Figure 4.21 King George Whiting catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2004/05 to 2013/14 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.7 Leatherjackets (*Monacanthidae* family)

STOCK STATUS	UNDEFINED
Several species of Leatherjacket are found in coastal waters around Tasmania. Most likely to be captured by coastal fisheries are the Brown-striped (<i>Meuschenia australis</i>), Toothbrush (<i>Acanthaluteres vittiger</i>), and Six-spine (<i>Meuschenia freycineti</i>) Leatherjacket. Leatherjackets are largely a by-product and not actively targeted due likely to a lack of market demand. However, impacts of historic catches (estimated at around 40 tonnes in 1995/96) on the biomass depletion of individual species are uncertain. Thus, there is overall insufficient information to confidently classify the status of Leatherjacket stocks, especially as multiple species are involved. Efforts are underway to improve data collection by encouraging fishers to identify catches to the species level. However, this process will take time to implement and gather enough data for species level assessments.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	State (Tasmania)



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

Leatherjackets are reef-associated species of the *Monacanthidae* family (Edgar 2008). There is no substantial commercial fishery for Leatherjackets in Tasmania and a small recreational fishery for this family. In the commercial fishery, Leatherjackets are a generally discarded by-product of fish traps and netting operations. More detailed information on biological characteristics and current management of Leatherjacket fisheries is available from the [TasFisheriesResearch](#) webpage.

4.7.1 Catch, effort and CPUE

Peak catches around 15 tonnes were recorded at the start of the commercial catch time series from 1995/96 until the early 2000s. Considering additional catches in Rock lobster traps (León et al. 2020) and by the recreational sector during this time, total catches likely amounted to values closer to 40 tonnes.

Leatherjacket catches have notably declined since then, reaching a minimum of 0.3 t reported in 2022/23 (Figure 4.22 A). This is likely to be at least in part due to reporting changes that occurred in 2021/22 as discussed below.

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 4.22 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).

Both fish trap and gillnet fishing effort have decreased through time (Figure 4.22 B), both reaching record low levels in 2022/23. CPUE has been consistent over time for gillnets but fluctuating more for fish traps (Figure 4.22 C).

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. Species-level reporting is required in the scalefish fishery, to address the unknown impact on different species of leatherjackets. This may have contributed to a reduction in the amount of leatherjacket reported in 2021/22 and a further reduction in 2022/23 (Table 2).

This likely identifies an issue with fishers being able to reliably record at the species level. In the short term, this makes trends in leatherjacket catch, effort and CPUE unreliable metrics of abundance.

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

A risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

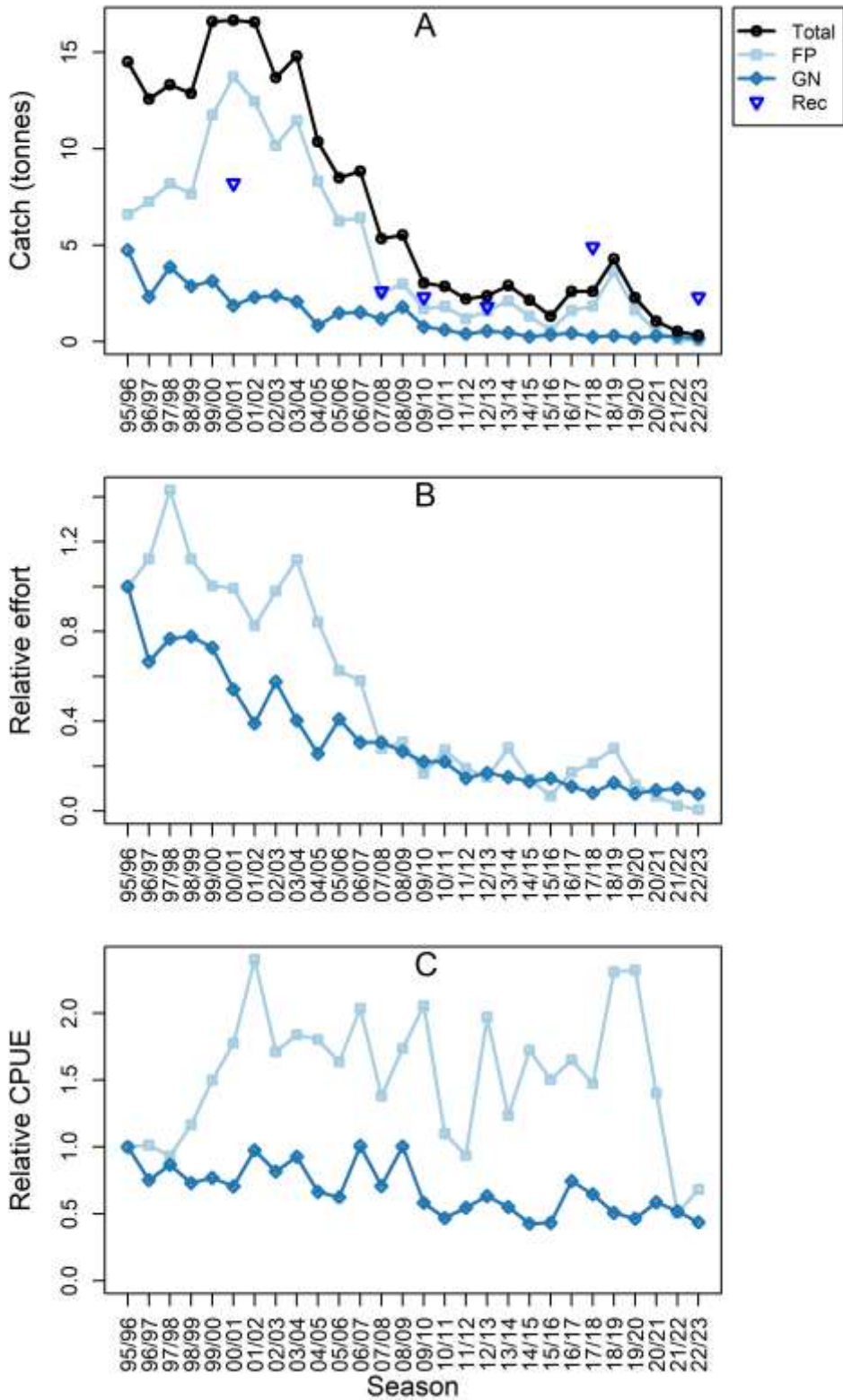


Figure 4.22 (A) Annual commercial Leatherjacket catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. FP = fish trap, GN = gillnet, Rec = estimated recreational catch.

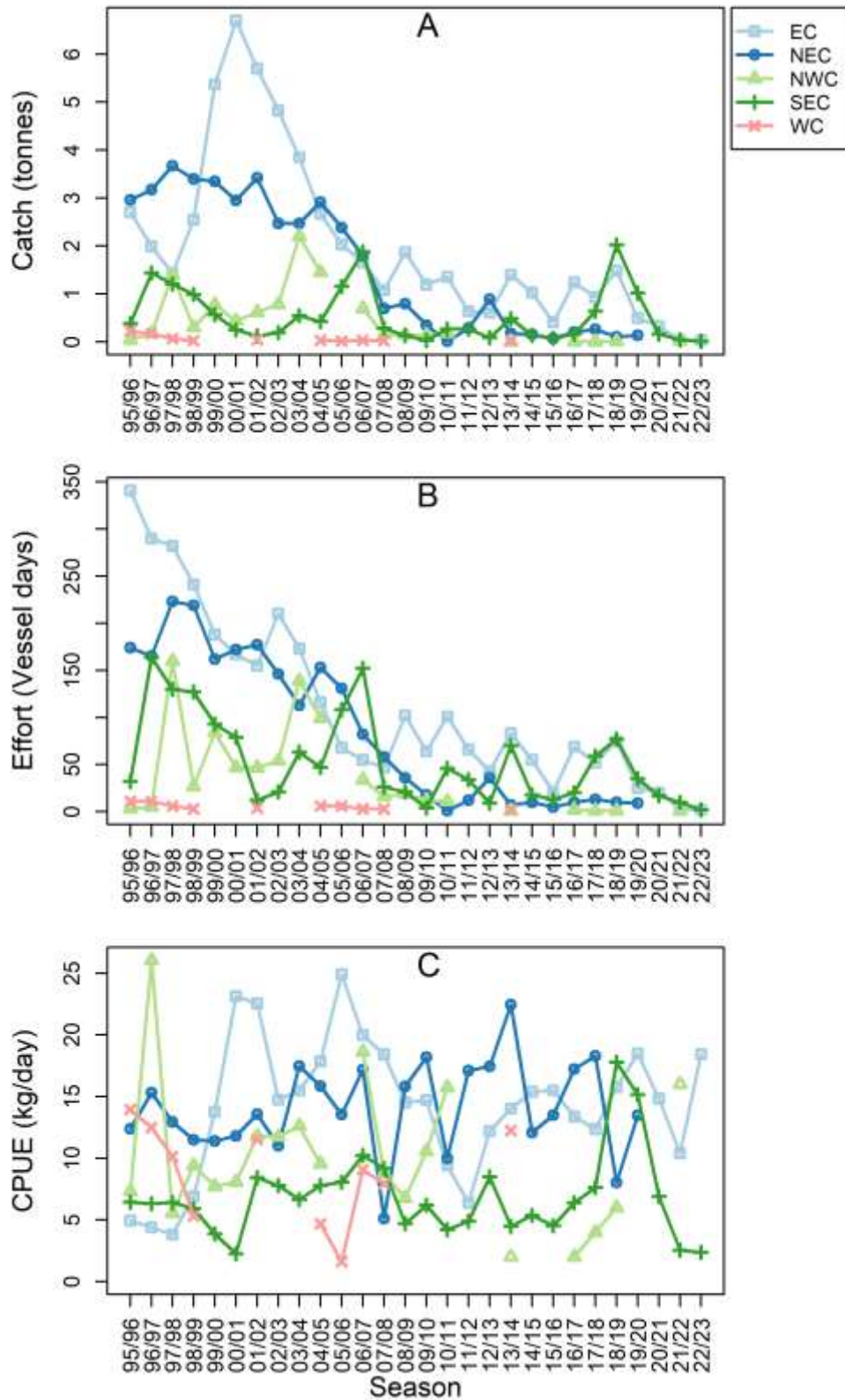


Figure 4.23 Regional commercial Leatherjacket catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for fish trap. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

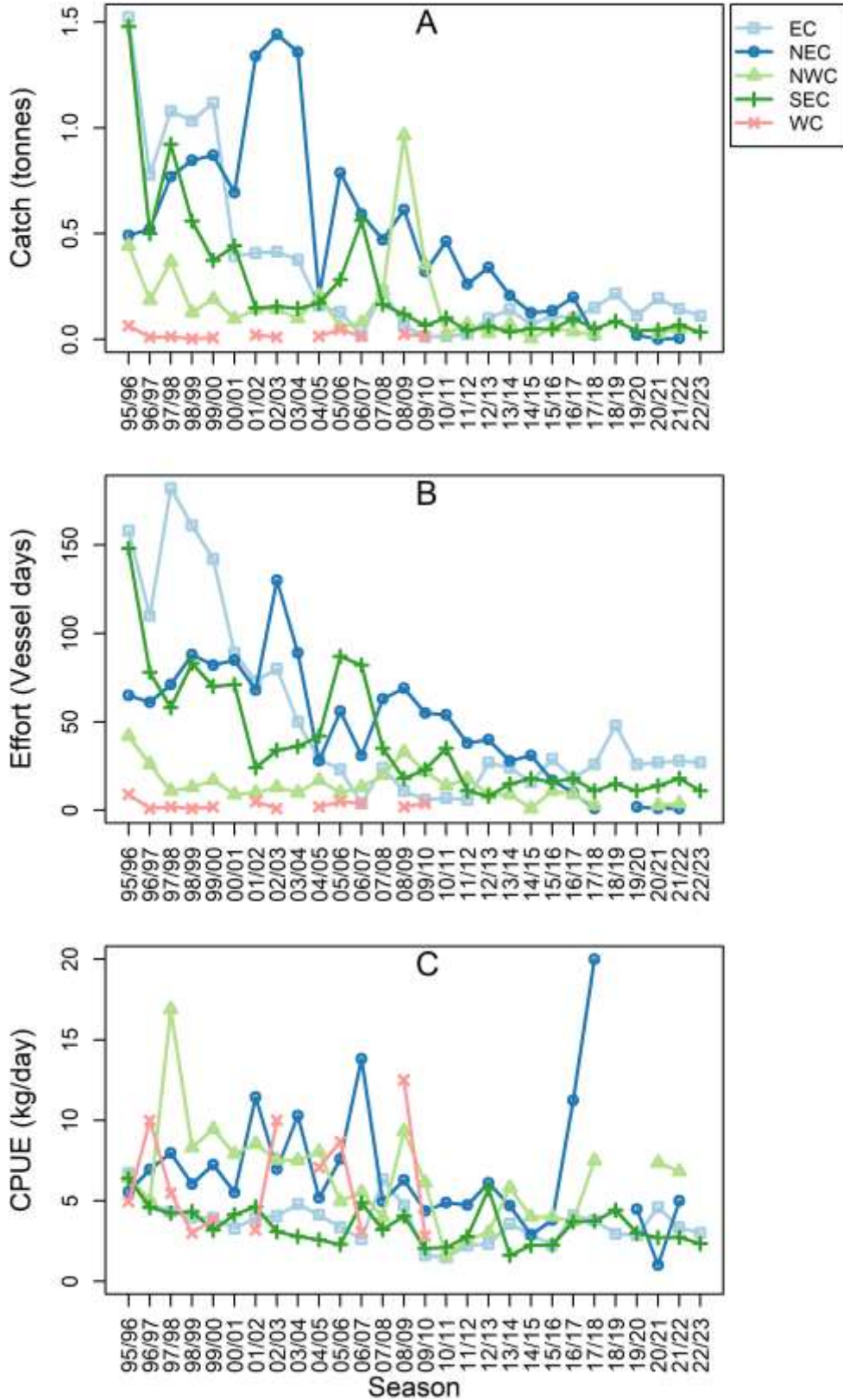


Figure 4.24 Regional commercial Leatherjacket catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

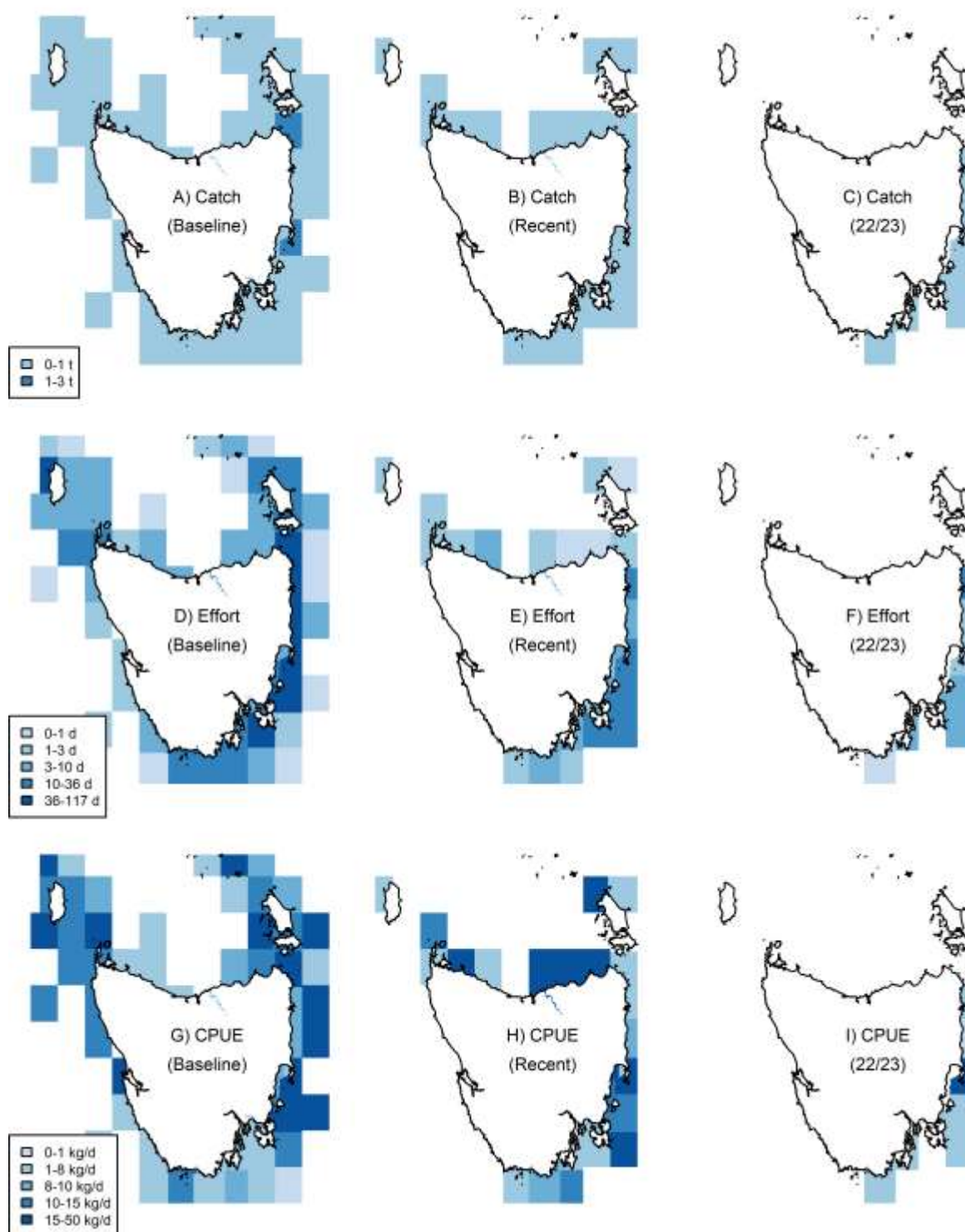
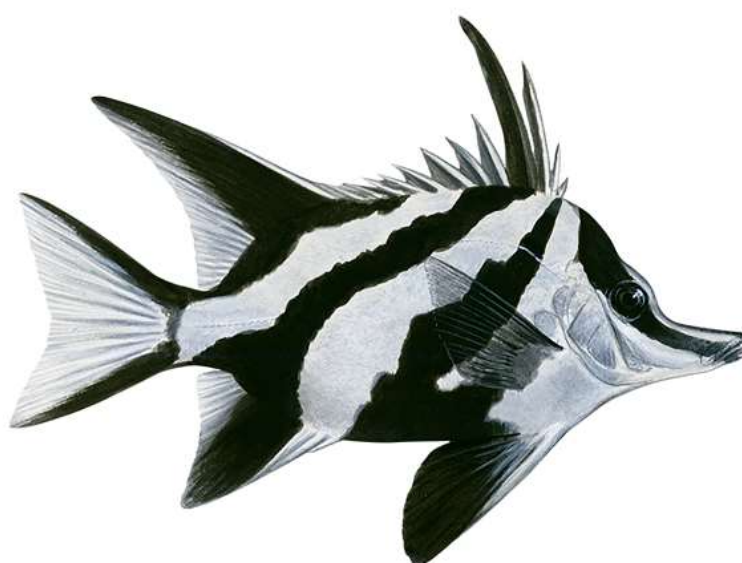


Figure 4.25 Leatherjacket catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021=22). '22/23' represent data from the 2022/23 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 due to the large minimum legal size. The available information is insufficient to confidently classify the status of this stock.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	State (Tasmania)



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

Longsnout Boarfish is predominantly encountered as a by-catch in gillnetting operations that primarily target Banded Morwong. The combination of a 50-kilogram trip limit and a stringent minimum size requirement results in the frequent discarding of Longsnout Boarfish in fishing operations. The survival rate of released Longsnout Boarfish is high (99.7%) (Lyle et al. 2014). Longsnout Boarfish are reef-associated and inhabit depths of 4–260 m (Edgar 2008). However, a ban on spearing this species means it is unlikely that it is commonly caught by recreational fishers. No data are available for recreational gillnet landings of this species. More detailed information on biological characteristics and current management of Longsnout Boarfish fisheries is available from the [TasFisheriesResearch](https://www.tasfisheriesresearch.com.au/) webpage.

4.8.1 Catch, effort and CPUE

Longsnout Boarfish catches in Tasmanian waters are primarily by gillnet; however, some by-product catch was recorded from the shark net fishery on the northeast coast in the last two years, for the first time since 2011/12 (Figure 4.26 A, Figure 4.28). Catches have been

declining from peaks of approximately 10 tonnes (recorded in 1996/97) but appear to have stabilised at low levels since 2013/14, with a total catch of 1.2 t recorded in 2022/23 (Figure 4.26 A). Longsnout Boarfish from gillnet fishing were taken predominantly from the east and southeast coasts in 2022/23 (Figure 4.27). This represents a contraction from previous seasons during which this species was taken from waters around the state, albeit with minimal catch and effort on the west coast, and a long-standing focus on the east and southeast coasts (Figure 4.27, Figure 4.28).

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.

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 4.26 B). CPUE also shows a general declining trend, with notable annual fluctuation (Figure 4.26 C).

The 2021/22 Scalefish Assessment Report presents a formal risk assessment of recruitment impairment for this species, using the Marine Stewardship Council methodology (Sharples et al. 2023).

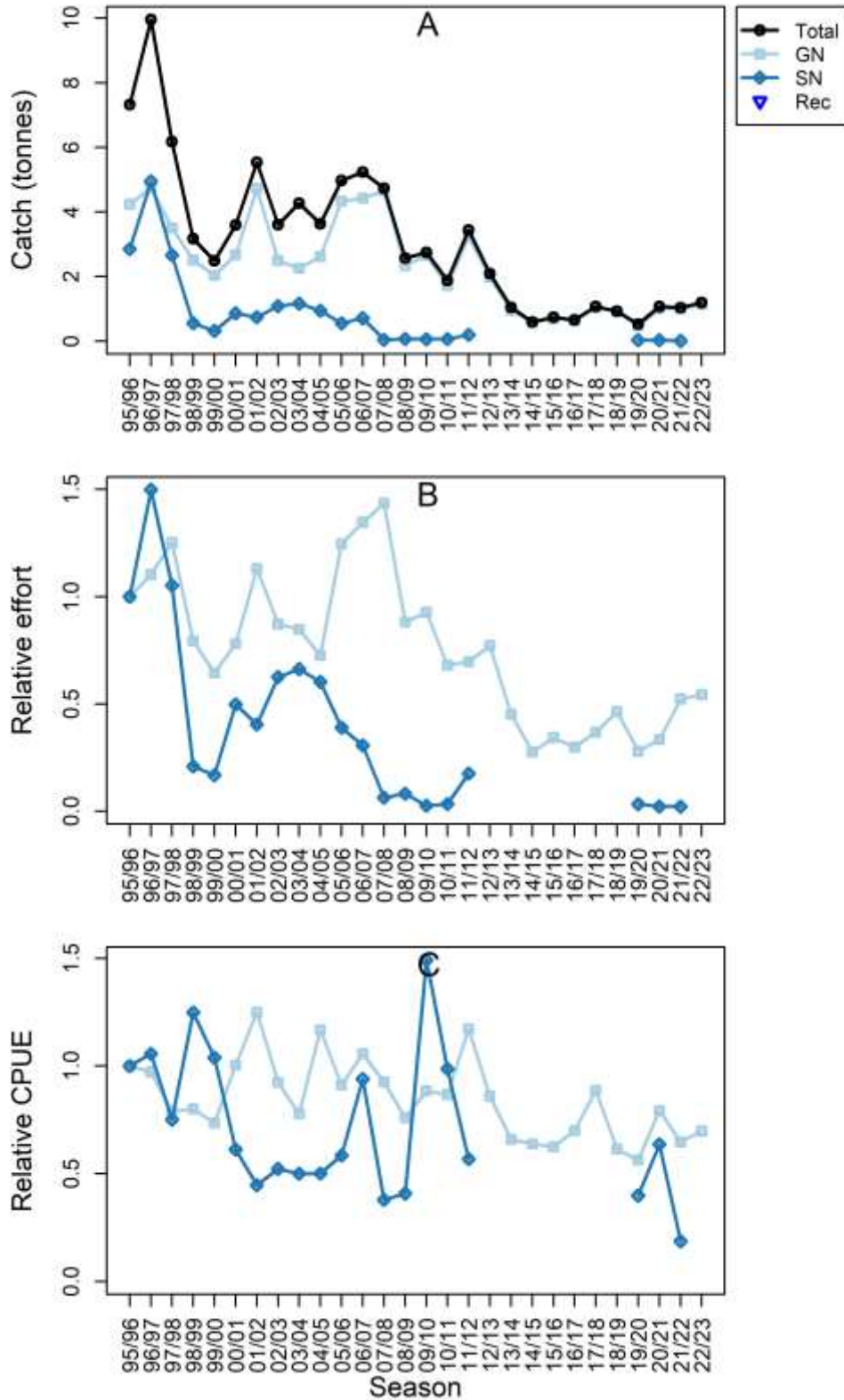


Figure 4.26 (A) Annual commercial Longsnout Boarfish catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2000/01; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of kg per days fished relative to 2000/01. GN = gillnet; SN = shark net. No recreational catch estimates (Rec) were available for this species.

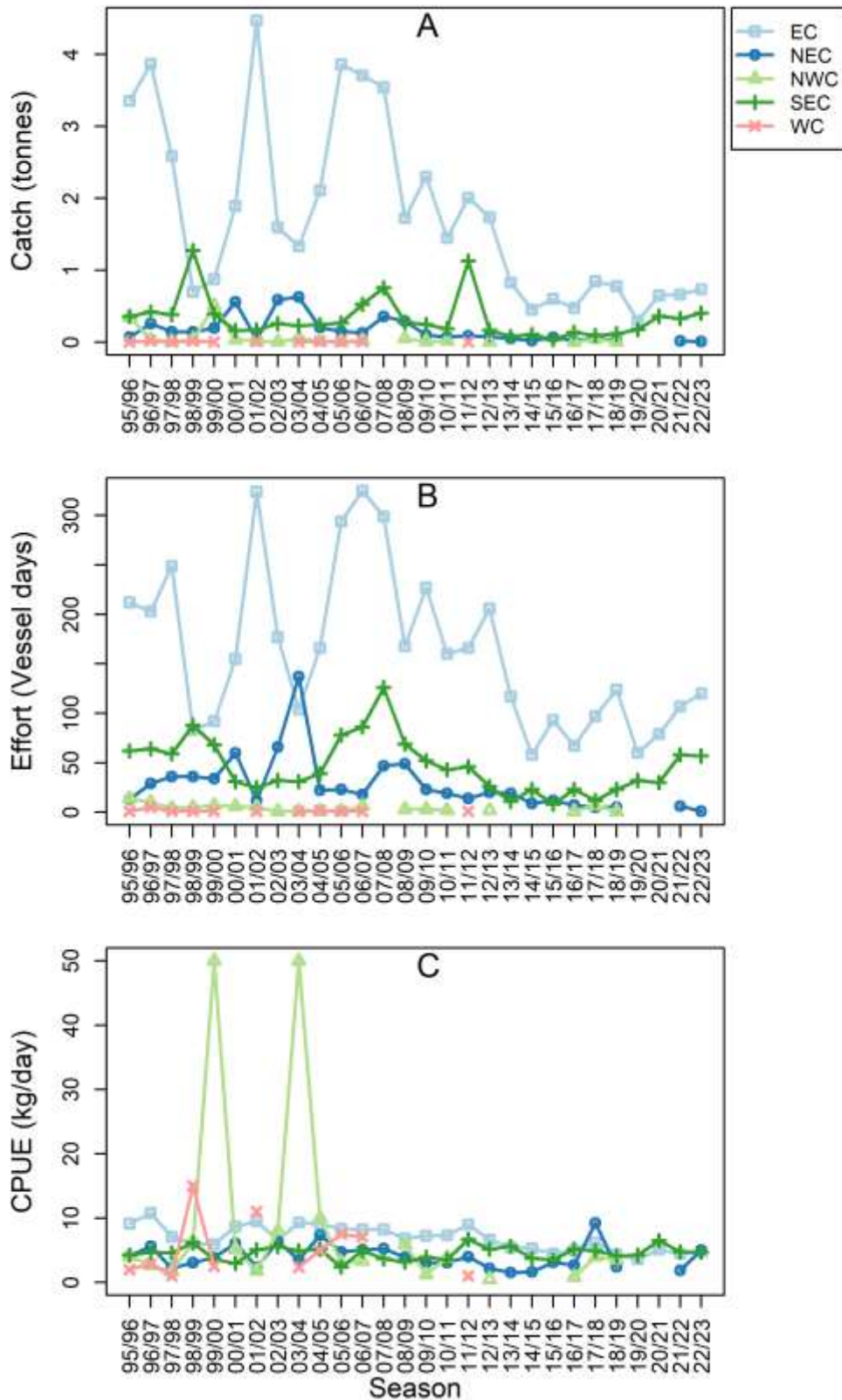


Figure 4.27 Regional commercial Longsnout Boarfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

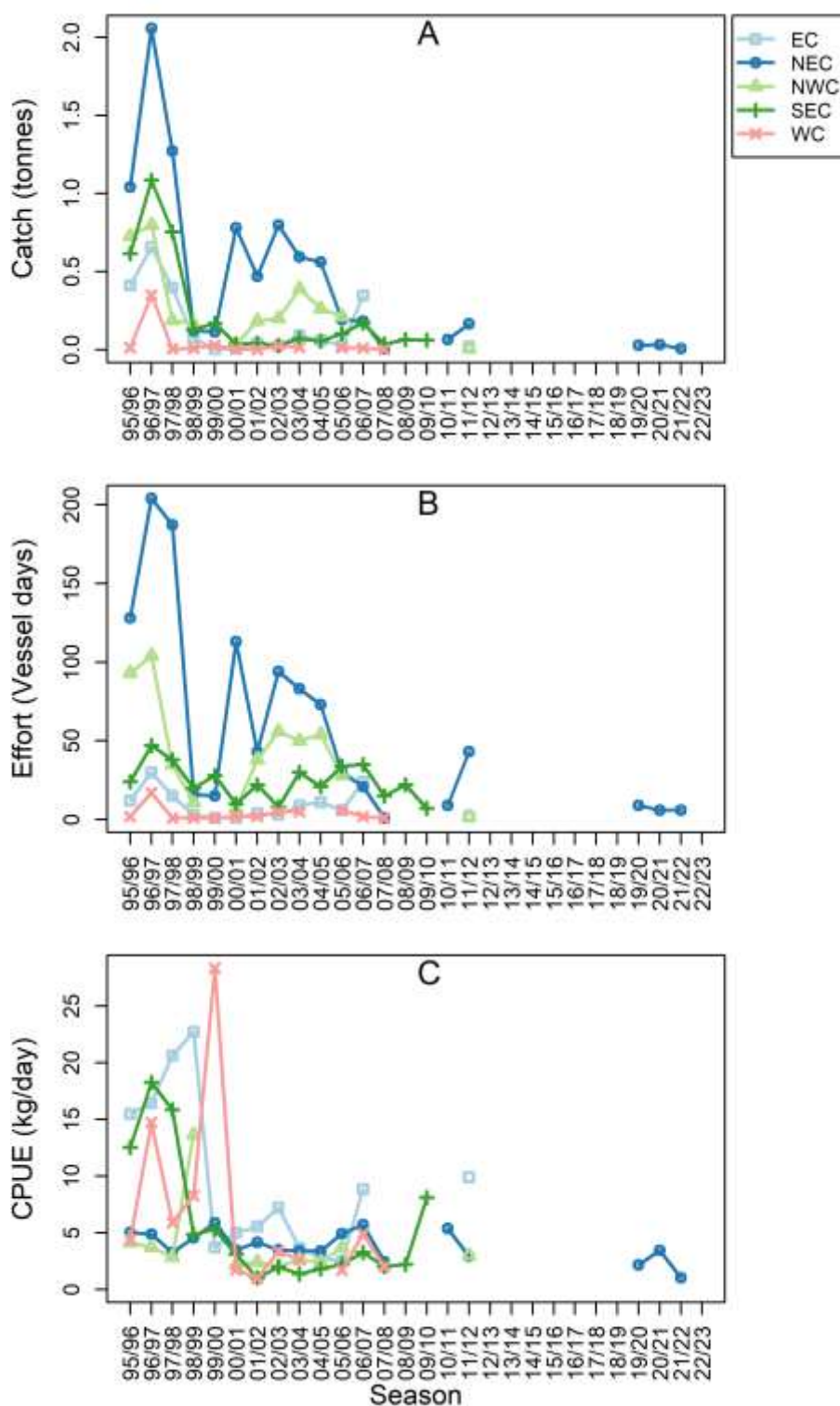


Figure 4.28 Regional commercial Longsnout Boarfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for shark net. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

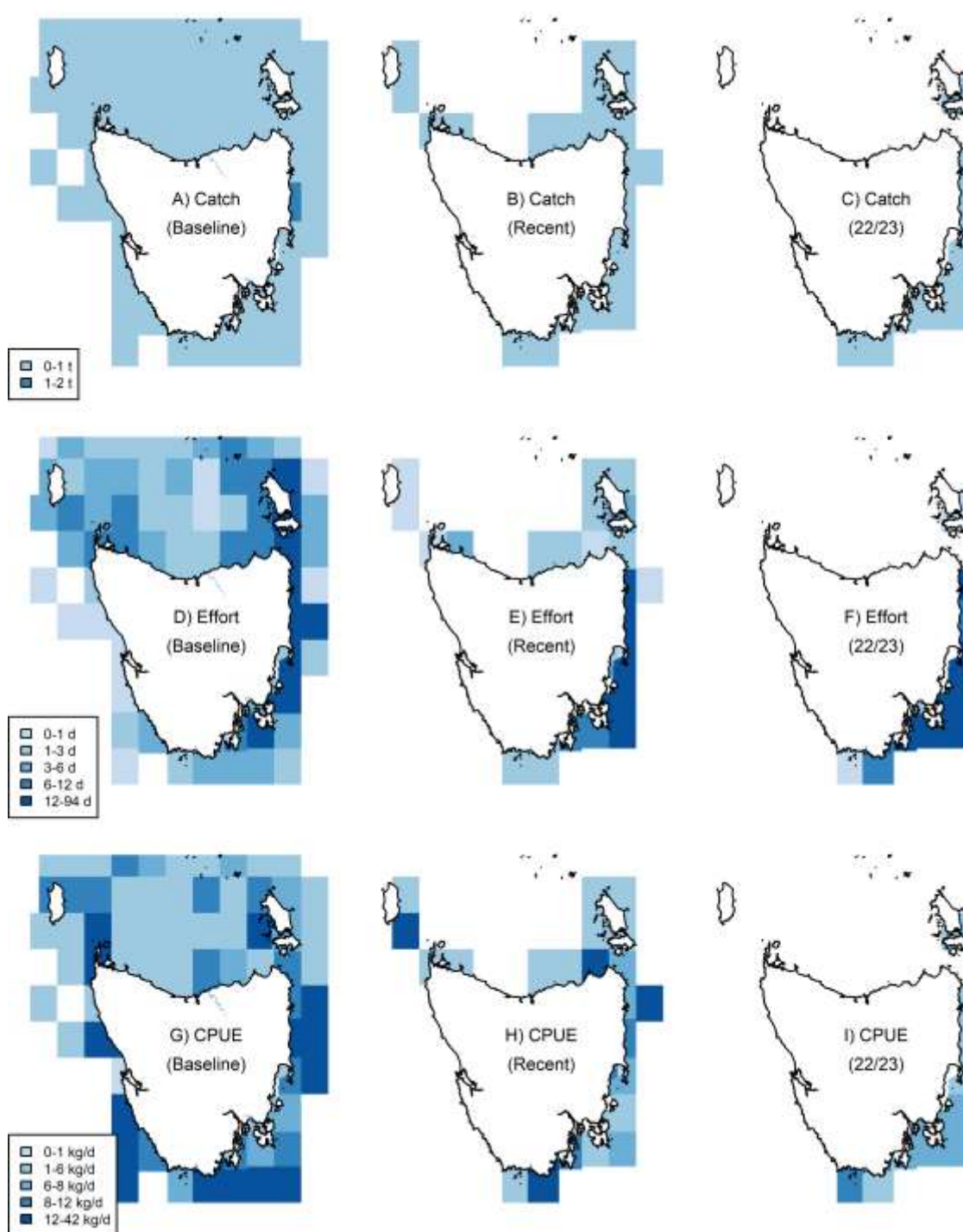


Figure 4.29 Longsnout Boarfish catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2000/01 to 2009/10 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.9 Snook (*Sphyraena novaehollandiae*)

STOCK STATUS	SUSTAINABLE
Recorded catches of Snook are low, likely because the species is not actively targeted due to low market demand. Biological analyses suggest that the current level of fishing mortality is unlikely to impair 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

Snook inhabits shallow coastal and surface (≤ 20 m) offshore waters, often occurring in large schools. This species is mainly targeted using troll and small mesh net gear but is also a by-product of beach seining and gillnetting. Snook is not an important recreational target species in Tasmania; however, landings do occur. Another species of 'Pike', *Dinolestes lewini* (Longfin Pike) is also caught in Tasmanian waters, but the vast majority of 'Pike' catches are likely to be Snook. More detailed information on biological characteristics and current management of Snook fisheries is available from the [TasFisheriesResearch](#) webpage.

4.9.1 Catch, effort and CPUE

Records of Snook catches peaked at 17 t in 1997/98 and have remained relatively stable around 3 – 9 t since 1998/99 (Figure 4.30 A). Catch in the 2022/23 season was 5.4 t a slight increase from the last three seasons that have been close to the historical low (Figure 4.30 A). Effort and catch for Snook have been concentrated on the north coast in recent years, including the current season (Figure 4.31, Figure 4.33). The northeast coast has been the focus for troll gear (Figure 4.31), while small mesh net fishing has occurred in both the northeast coast and northwest coast regions across the time series (Figure 4.32).

Past surveys of recreational fishing 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 1 kg per fish is assumed approximate estimates can be made. Figure 4.30 is based on these assumptions.

Recreational contribution to the catch appears to have varied considerably. 2017/18 saw a 13 tonne catch and the most recent recreational survey estimated under 1 tonne recreational catch.

Beach seine has dominated the catch and effort in the most recent year (2022/23), with commercial troll and small mesh net effort (previously the main capture methods for Snook) seeing a reduction in 2022/23 (Figure 4.30 B).

CPUE has been variable through time (Figure 4.30 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 4.30 C).

A formal risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

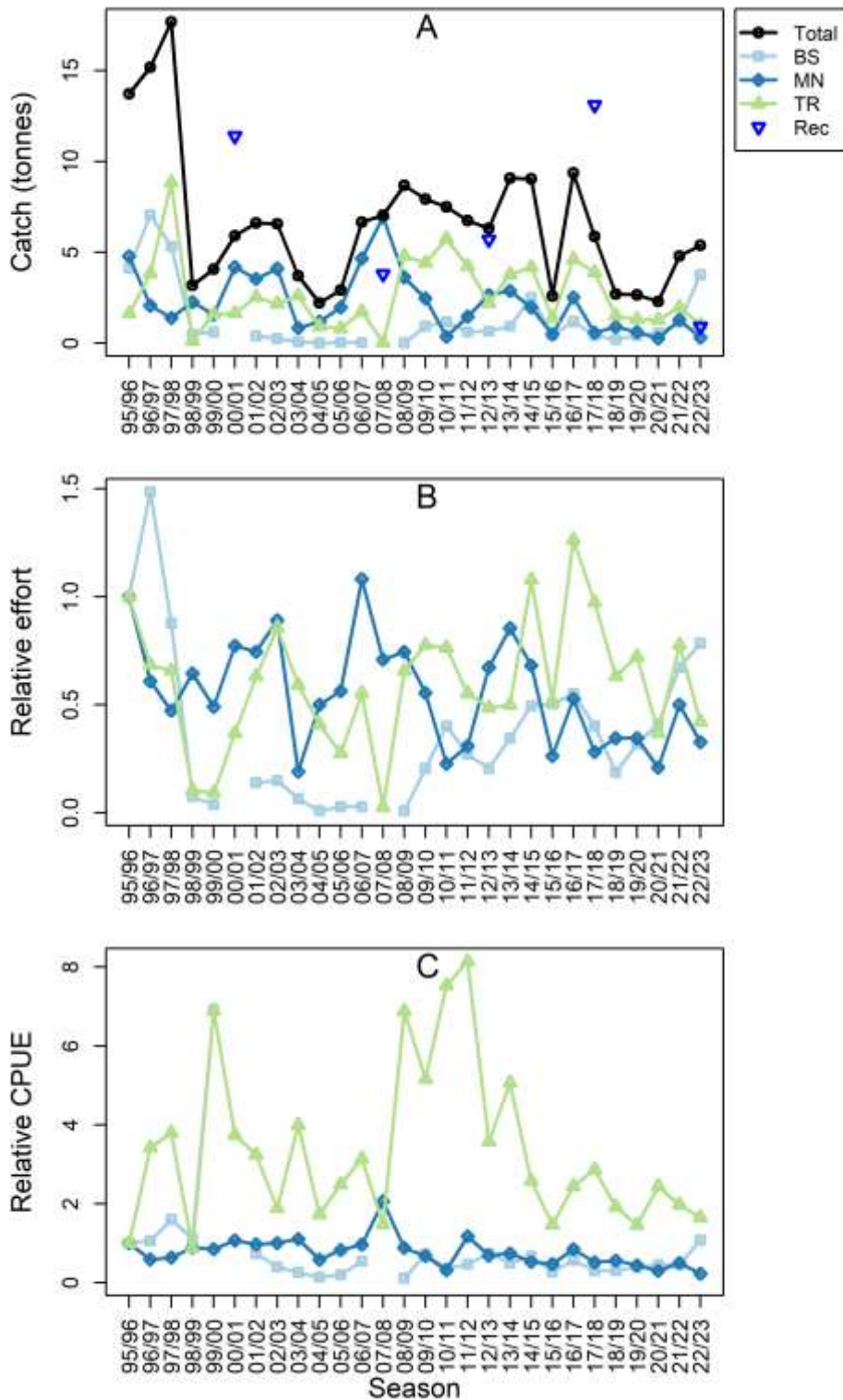


Figure 4.30 (A) Annual commercial Snook catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on weight per days fished relative to 1995/96. BS = beach seine, MN = small mesh net, TR = Troll, Rec = estimated recreational catch.

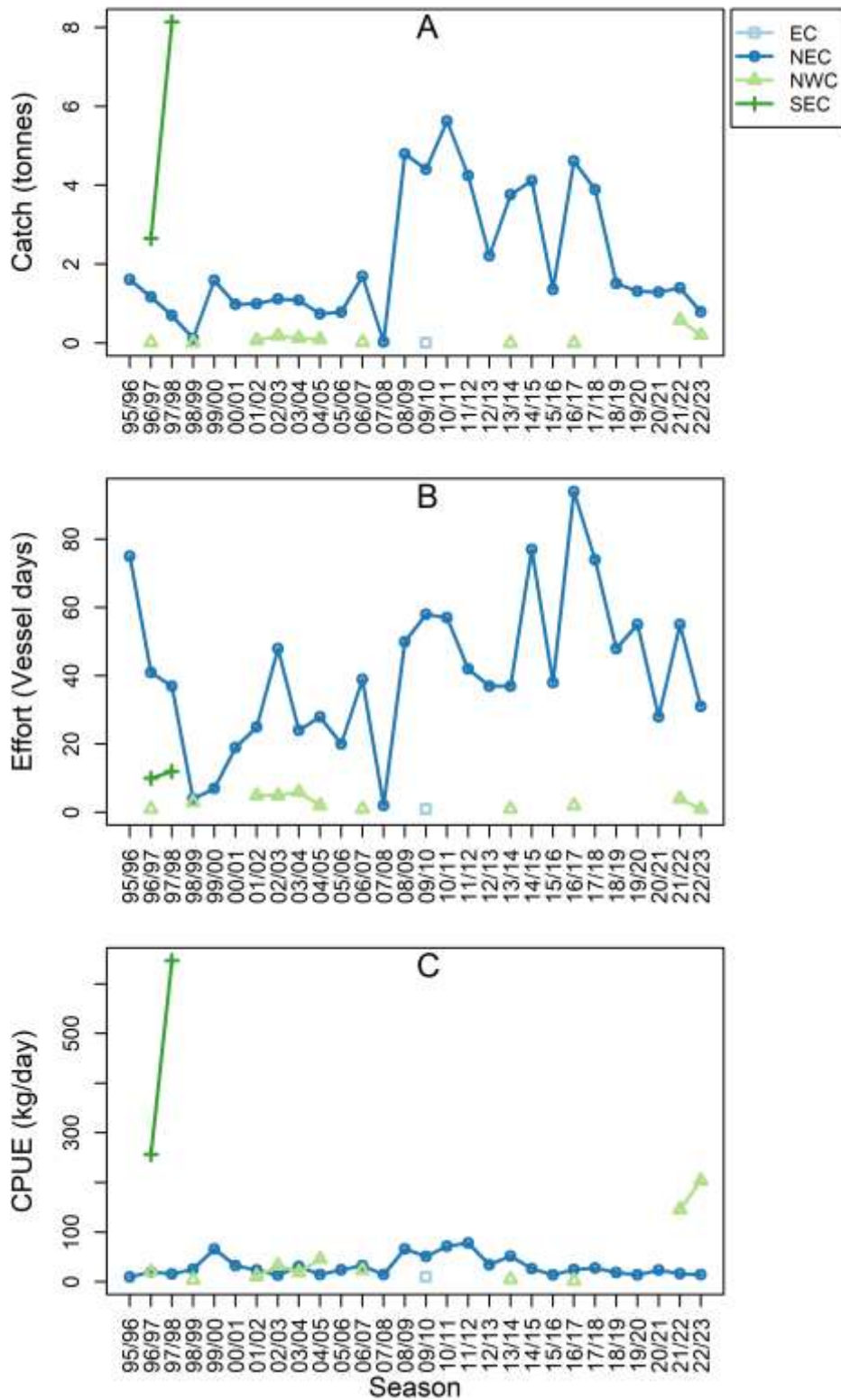


Figure 4.31 Regional commercial Snook catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for troll. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

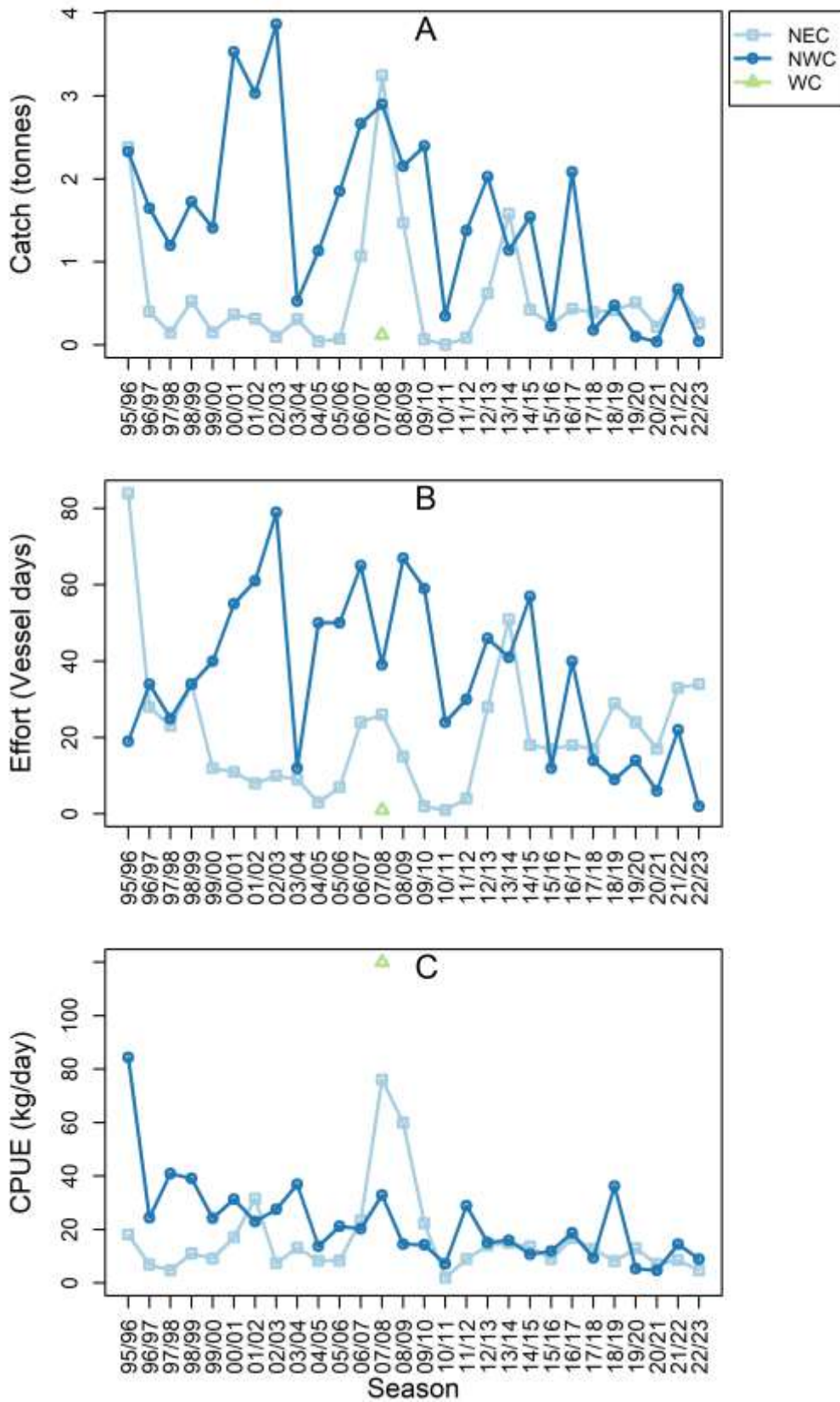


Figure 4.32 Regional commercial Snook catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for small mesh net. NEC = northeast coast, NWC = northwest coast, WC = west coast.

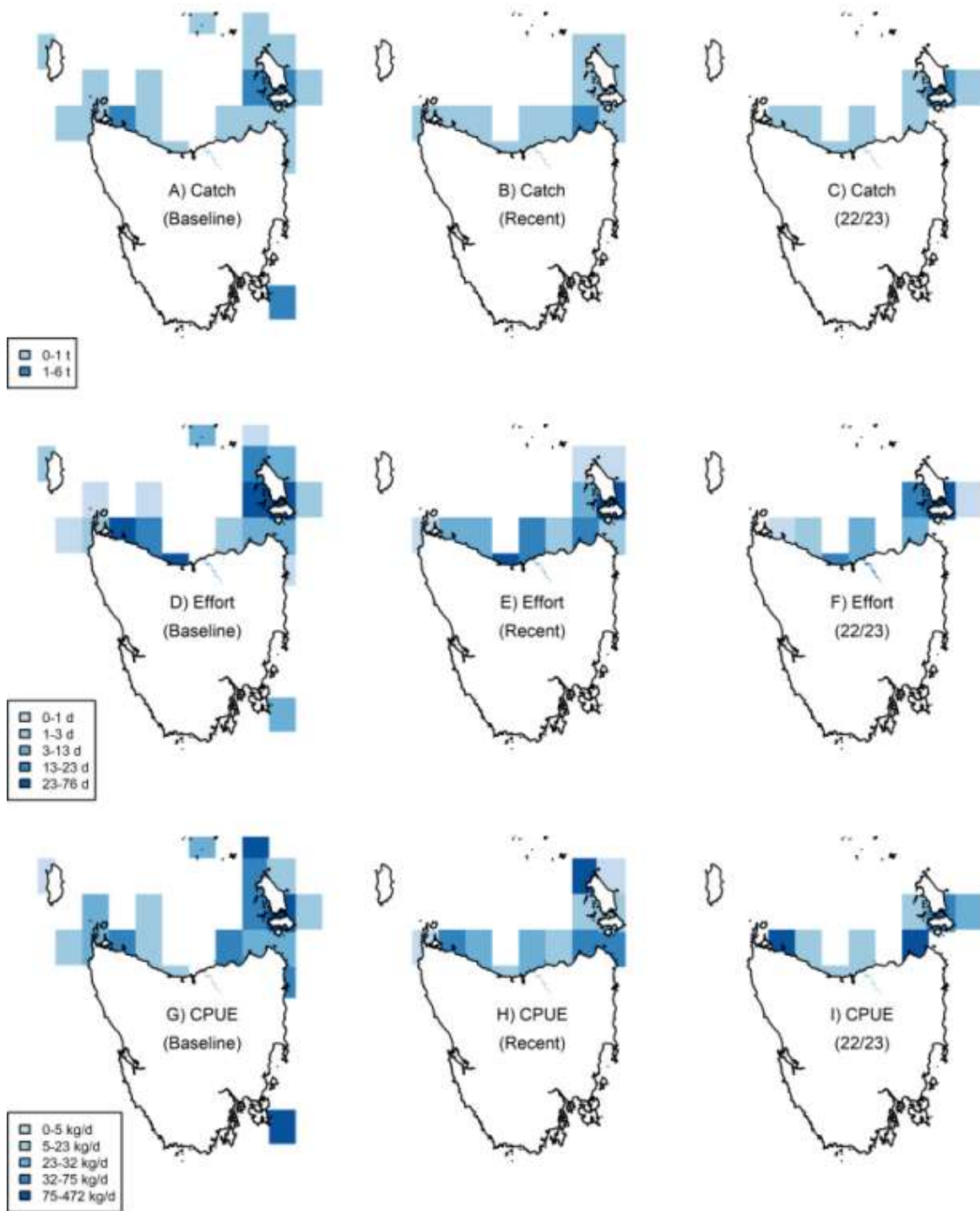


Figure 4.33 Snook catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.9.2 CMSY results

Under the assumption of 'low' resilience, CMSY results indicate that Snook biomass might be depleted to 0.84 B/BMSY (lower 95% confidence interval = 0.53) (see Figure 4.34). This depletion corresponds to approximately 42.0% of unfished levels (lower 95% confidence interval = 27%), which closely aligns with the common target reference for BMSY set at 50% of unfished levels.

Following initial peak catches in 1997/98, which exceeded the upper 95% confidence interval of the estimated maximum sustainable yield (MSY) of 13.4 t, catches have steadily declined. Since then, catches have consistently remained below the estimated MSY of 9.1 t and have also stayed below the lower 95% confidence interval of 6.3 tonnes for the last 6 years (refer to Figure 4.35).

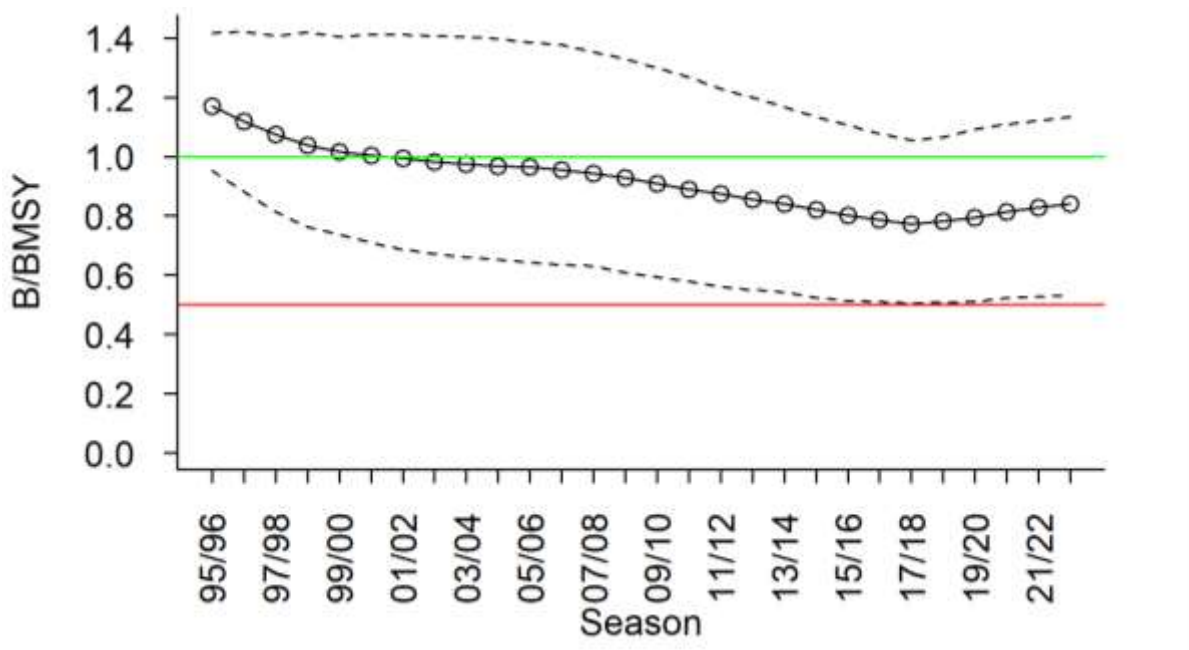


Figure 4.34 Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

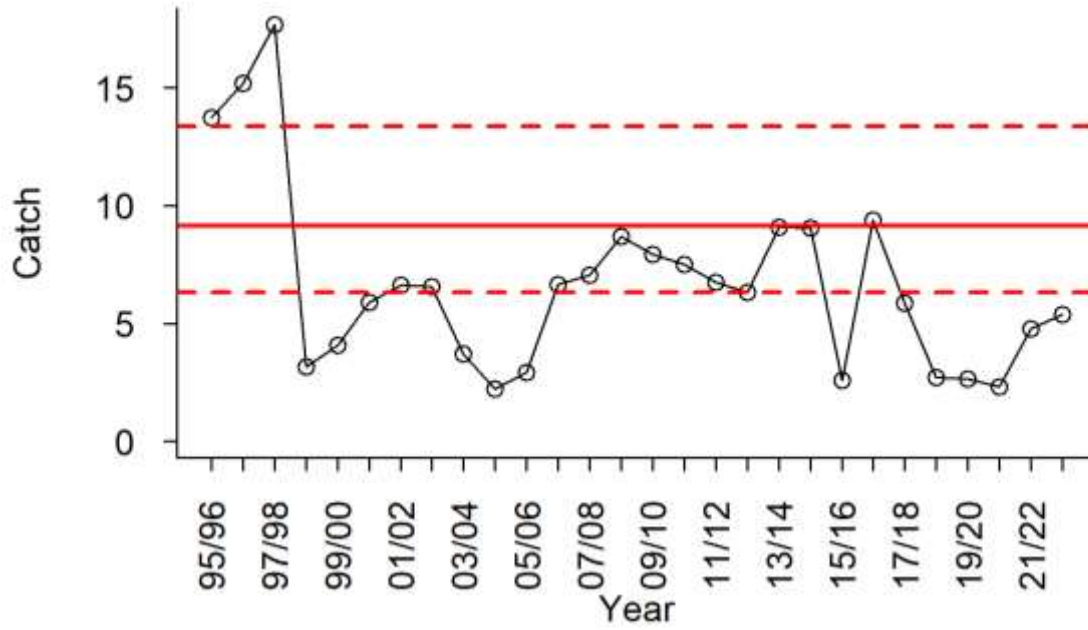


Figure 4.35 Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.10 Southern Calamari (*Sepioteuthis australis*)

Changes to spatial regions in the current assessment

Figure 4.38 Regional analysis in recent years indicates continued declines in catches and CPUE in the south and east of the state (termed the 'Southern and Eastern Region' here). This decline, combined with shifts in commercial effort to the northwest and northeast coast (now termed the 'Northern Region') and subsequent increases in catch and effort there, require a regional status assessment of the calamari fishery, which is firstly introduced in this report.

Previous assessment reports showed time series of catch statistics for several regions separately: southeast coast, Mercury Passage, Great Oyster Bay, east coast, west coast, northwest coast, and northeast coast (Figure 4.37: Previous calamari regions reported. Figure 4.37). In the current assessment, the spatial grouping of data was changed to combine these series into two broader regions of: the Southern and Eastern Region (comprising the southeast coast, east coast, Great Oyster Bay and Mercury Passage) and the Northern Region (comprising the northwest coast and northeast coast) (Figure 4.36). The exposed West Coast has little appropriate habitat for calamari spawning and small, irregular catches so is not considered further here.

With the clear decline of the fishery in Great Oyster Bay and the broader Southeast coast region, catches from the east coast have predominantly been taken from Mercury Passage over the last approximately 15 years (Sharples et al. 2023). Mercury Passage is not expected to be able to sustain this level of catch, with past reports showing catches falling below even the lowest confidence intervals of CMSY for the last three assessments (Sharples et al. 2023). Based on the precautionary principle and lessons learned from the loss of spawning aggregations in Great Oyster Bay, all Southern and Eastern Regions are considered depleted.

The Northern Region, previously reported as the northwest coast and the northeast coast were deemed appropriate to group together as both areas have experienced steep rises in fishing pressure since approximately 2013/14 (Sharples et al. 2023). Concerns had been previously raised about the depleting status in both regions (Sharples et al. 2023). The northwest coast has exhibited signs of catch and effort reductions over the past three assessment periods, even though these are likely to be difficult to detect due to the fishing of spawning aggregations and the associated hyperstability of both catches and CPUE (Sharples et al. 2023). In the northeast, calamari stocks are beginning to show signs of decline this year. Despite hyperstability masking immediate changes in biomass in the data, initial declines in catch and CPUE indicate an already declining stock.

Southern and Eastern Region

STOCK STATUS	DEPLETED
The calamari fishery in the Southern and Eastern Region peaked at over 80 tonnes in 2004/05. Since then, the overall trend has been a decline to less than 20 tonnes in the current assessment. Small peaks in catch between 2016/17 to 2018/19 were associated with considerably higher effort and	

lower CPUEs, indicative of a declining stock. This is of particular concern for calamari as they are targeted at dense spawning aggregations. Calamari are easy to catch during aggregation, which can limit the ability of catch and CPUE to accurately reflect biomass trends (known as hyperstability). For declines to be detected in this data, the declines are likely to be substantial.

Seasonal closures at key spawning grounds on the east, along with the introduction of a limited number of species-specific licenses in the south-east, combined with lower catches and catch rates have resulted in fishing effort spreading to the north of the state.

Data-poor stock assessment results indicate that fishing mortality has been unsustainable and remains high today. The results also suggest that stocks on the south-east and east coast have presumably been depleted below critical levels. With no clear sign of recovery, the Southern and Eastern Region 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
<p>Continued increases in effort and catch in the Northern region are associated with a shift in fishery activity away from the south and east. Even though CPUE is likely to be hyperstable, time series in the north indicate potential declines of the population over the last 5 years compared to the peak period from 2012/13-16/17. Despite steeper increases in catch and effort in the last 5 years, CPUE has only shown a minor increase. Given the history of depletion along the Southern and Eastern region, the expanded fishing pressure on Southern Calamari in the Northern region is likely to be too high to be sustainable.</p> <p>As in the south and east, and despite extended closures during part of the spawning season, the reliance on targeting spawning aggregations poses a high risk of recruitment impairment (see above on hyperstability). Current trends in largely unregulated total catch and effort have peaked at values similar or higher than those at peak levels in the Southern and Eastern regions, indicating that maximum sustainable levels of fishing pressure have likely been exceeded. Data-poor stock assessments support this assumption by indicating presumably unsustainable catch levels. Thus, the more recently targeted stocks of Southern Calamari on the north coast are likely to be depleting.</p>	
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

Southern Calamari is endemic to Australia and northern New Zealand and inhabits shallow, inshore waters. Females deposit eggs in collective egg masses over several months (September to February), attaching capsules to the substrate (often seagrass) (Pecl 2004). Temporal fishery closures are in place to protect regional stocks during part of the spawning season, but fishers generally target spawning aggregations of Southern Calamari outside of these regional closure periods. While recent closure periods have been 1 month, the north coast closure was extended to five weeks for the 2022/23 season. Southern Calamari landings (predominantly by squid-jig) represented the second highest catch of all Scalefish Fishery species in 2022/23 and the stock status of this species was classified as 'Depleting' in the most recent six assessments. In this assessment the necessity to provide a status for the Southern and Eastern region and the Northern region separately is explored with stocks on the south and east of Tasmania being considered 'Depleted', while the fishery in the north of Tasmania remains at a 'Depleting' status. More detailed information on biological characteristics and current management of Southern Calamari fisheries is available from the [TasFisheriesResearch](#) webpage.

Figure 4.36: 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.

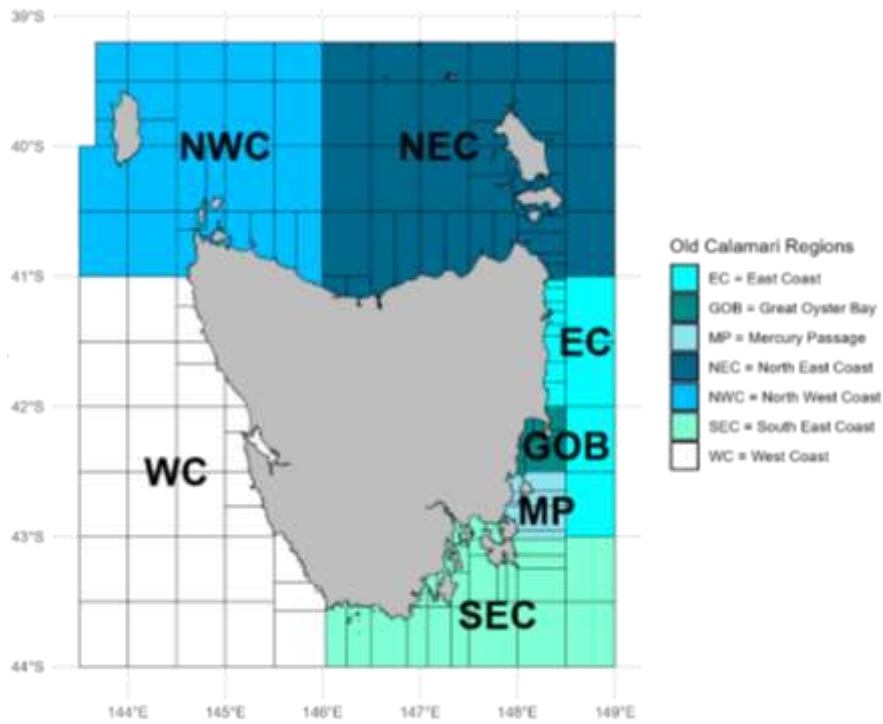


Figure 4.37: Previous calamari regions reported.

4.10.1 Catch, effort and CPUE

The total commercial catch of Southern Calamari in 2022/23 was 84.2 t, a slight decrease from the previous year, with catches remaining consistent over the last 4 years (Figure 4.38 A). Total effort also showed a slight decrease from the previous year (Figure 4.38 B). Statewide CPUE for the whole fishery has remained relatively stable since 1998/99 (Figure 4.38 C), with a slight declining trend since 2017/18 (Figure 4.38 C). Although unclear, a downward trend in CPUE despite increasing catch and effort would indicate the population is declining or becoming more dispersed. A downward trend in CPUE is of particular concern given the potential for catch rates to appear hyperstable.

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 2022/23 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.

Appendix 5 (p180) presents data for the finer scale regions reported in previous years.

Estimates of recreational catches have generally been lower than commercial catches in corresponding seasons (Figure 4.38 A). The only exception was in 2012/13 when recreational catch matched the commercial catch (Lyle, Stark, and Tracey 2014a). The 2022/23 survey showed an increased difference between the commercial and recreational sectors, with recreational catch estimated at 29 tonnes, 25 percent of total catch (see Figure 4.38 and Tracey and Stark 2024). 77 percent of the recreational catch came from inshore coastal waters within the Southern and Eastern region (Tracey and Stark 2024).

The 2021/22 Scalefish Assessment Report presents a risk assessment of recruitment impairment for this species, using the Marine Stewardship Council methodology (Sharples et al. 2023).

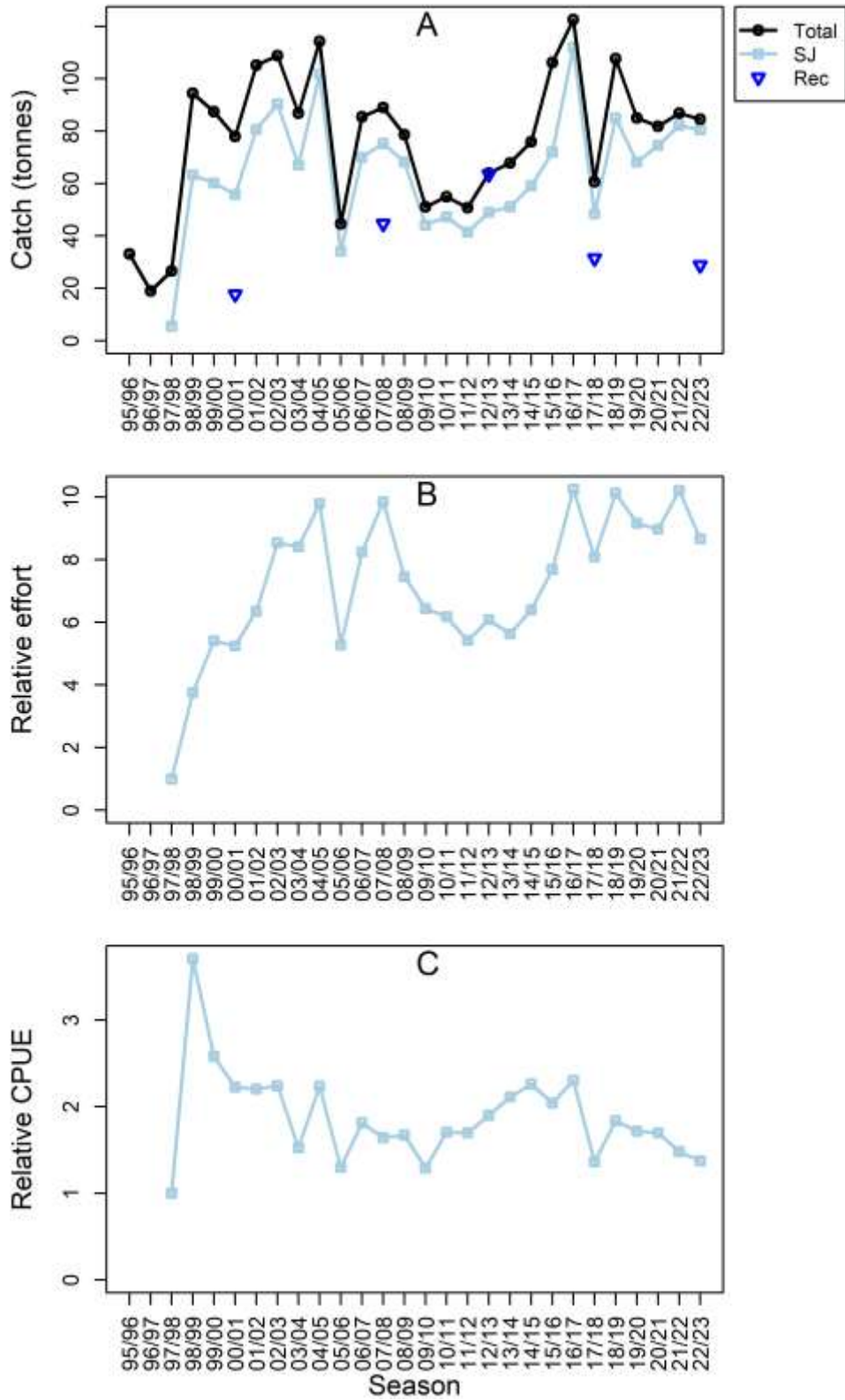


Figure 4.38 (A) Annual commercial Southern Calamari catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1997/98; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1997/98. SJ = Squid jig, Rec = estimated recreational catch.

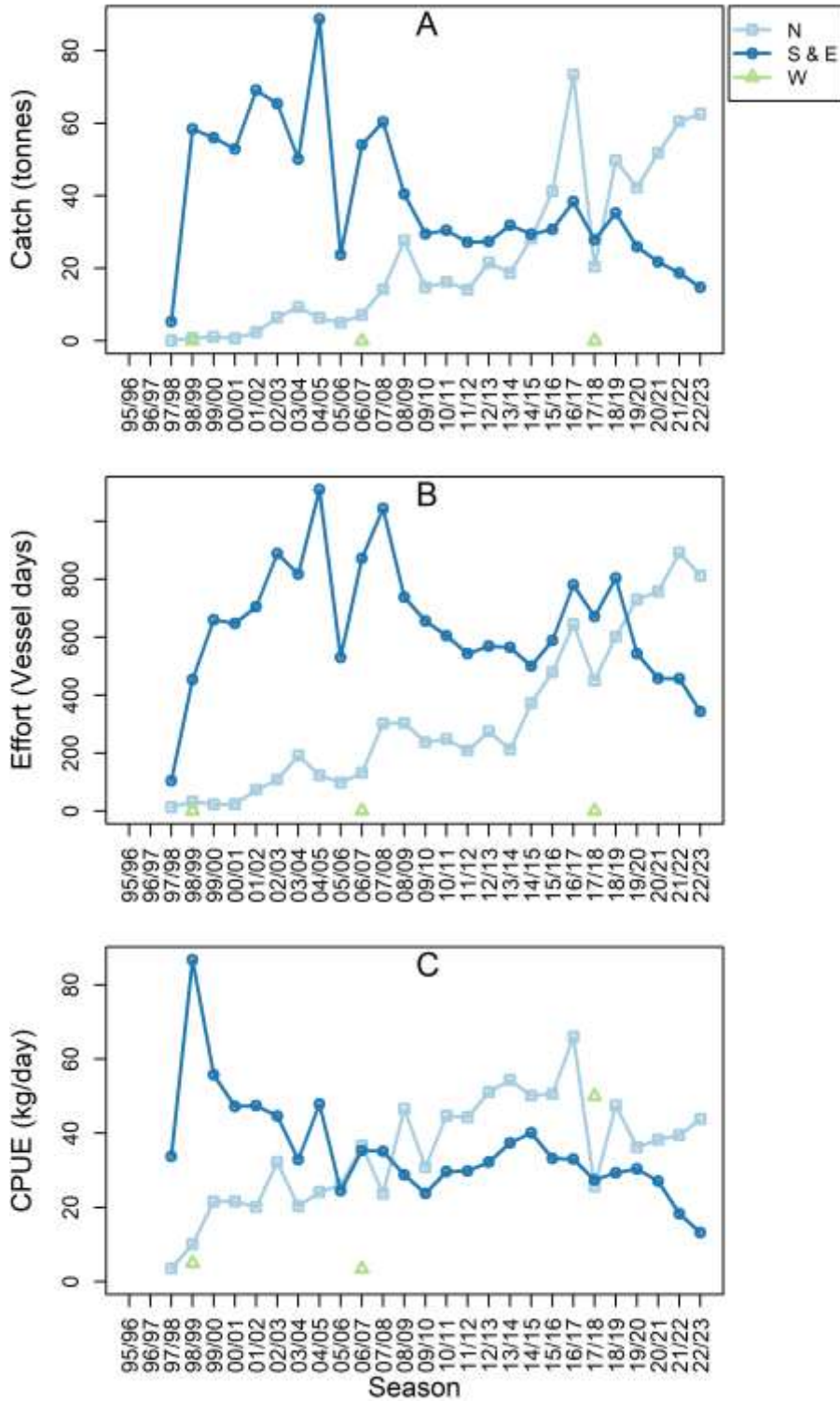


Figure 4.39 Regional commercial Southern Calamari catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for squid jig. S&E = all Southern and Eastern regions, N = all Northern regions and W = Western region.

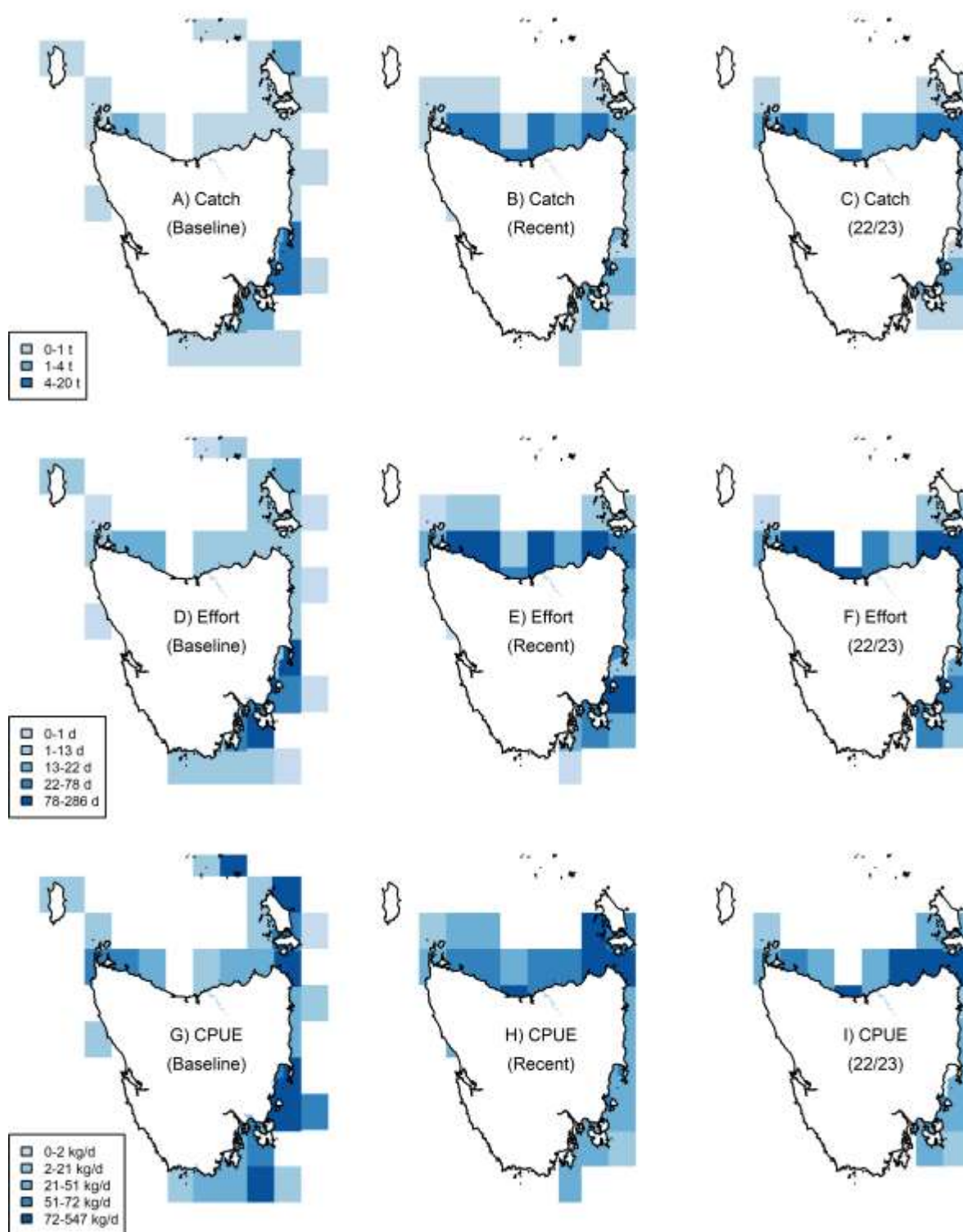


Figure 4.40 Southern Calamari catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1997/98 to 2006/07 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.10.2 CMSY results

CMSY results based on the assumption of “medium” resilience are presented below by region.

4.10.2.1 Southern and Eastern Region

Based on CMSY results, the biomass of Southern Calamari in the Southern and Eastern region is estimated to be depleted to 0.48 B/BMSY, equivalent to 23.8% of unfished levels (with a lower 95% confidence interval of 0.11 B/BMSY or 5.3% of unfished levels) (Figure 4.41).

Catches peaked at levels well above the estimated maximum sustainable yield (MSY) of 60.1 tonnes between 1998/99 and 2004/05, surpassing the upper 95% MSY confidence limit of 78.7 tonnes in most of these years (refer to Figure 4.42). However, catches have since declined and remained below the lower 95% MSY confidence limit of 46.9 t since 2009/10 (Figure 4.42).

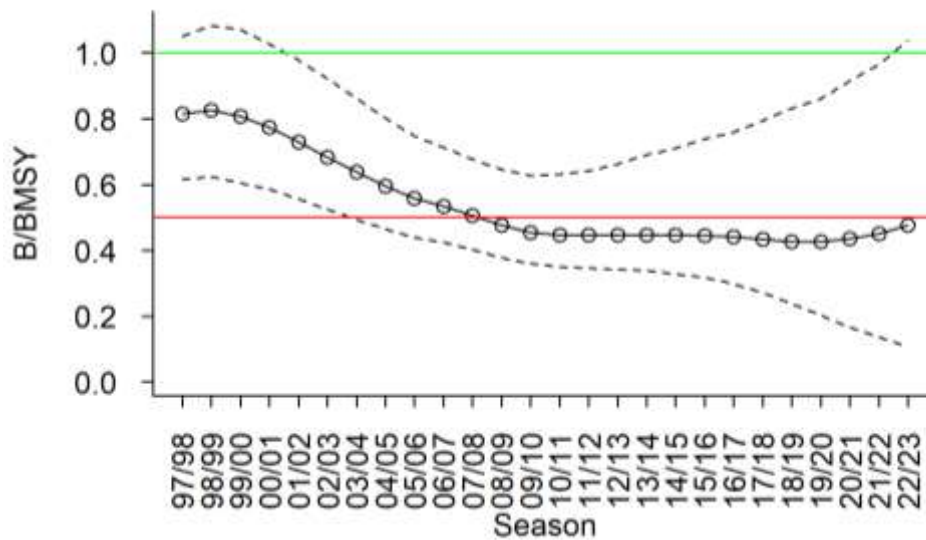


Figure 4.41: Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals $BMSY$, which is a common target reference point. The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

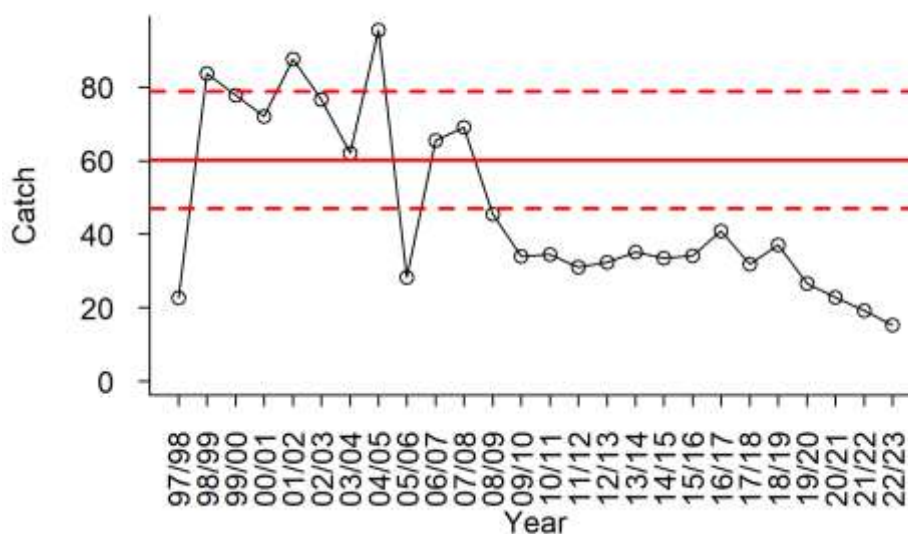


Figure 4.42: Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.10.2.2 Northern Region

The CMSY results suggest that the biomass of Calamari in the northern region may have been depleted to 0.60 B/BMSY, equivalent to approximately 29.8% of unfished levels, with a lower 95% confidence interval of 0.15 B/BMSY or 7.6% unfished levels (Figure 4.43). Valuable lessons can be learned from CMSY analysis on the depleted stocks of calamari in the Southern and Eastern regions. Because calamari are targeted at spawning aggregations, catch and effort can continue an increasing trend despite a declining biomass of stock biomass (referred to as hyperstability). Estimates of calamari biomass in the northern region remain just above the common limit reference point, however, the concern is a continuing downward trend in estimated biomass since a peak in 2013/14 (Figure 4.43). The annual catch is estimated to be relatively close to (albeit below) the predicted maximum sustainable yield (Figure 4.44). However, in the Southern and Eastern region, calamari biomass was estimated to have fallen below the common limit reference point in 2008/09 (Figure 4.41), at which point the stock appeared to be substantially depleted and catch relative to maximum sustainable yield has remained below the lowest confidence limit ever since (Figure 4.42). Therefore, it is advised that the precautionary principal be applied in the northern region to prevent further depletion of stocks in a way that repeats stock depletion in the Southern and Eastern region. To be able to accurately predict biomass for these aggregating species, fisheries independent data is crucial and catch only methods inadequate.

Catches of calamari in the northern region exceeded the estimated maximum sustainable yield (MSY) of 73.1 t in 2016/17, with subsequent catches falling between MSY and the lower 95% MSY confidence limit of 46.8 t. An exception is the 2017/18 season, which follows a high catch year and was possibly impacted by environmental conditions (Ewing et al. 2002). The most recent two seasons' data are showing an increasing trend in catch towards MSY (see Figure 4.44).

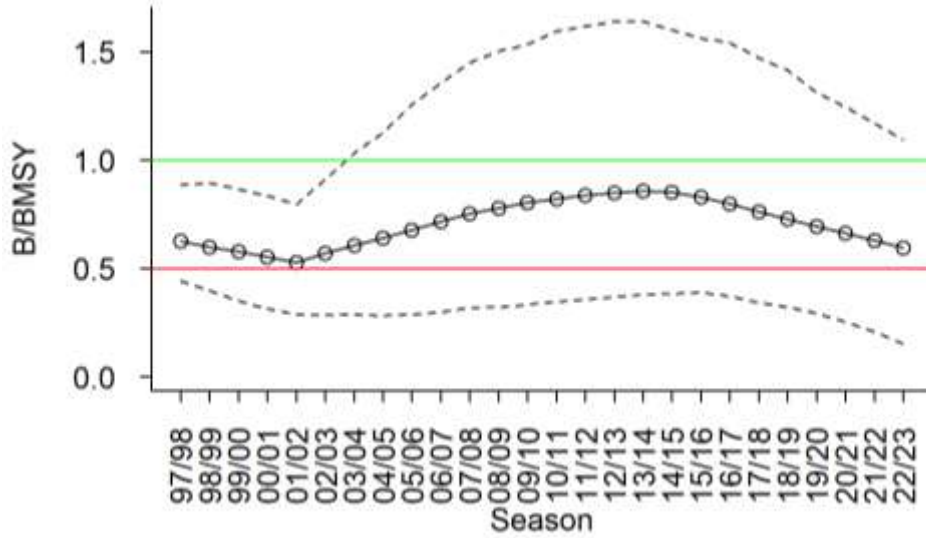


Figure 4.43: Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals $BMSY$, which is a common target reference point. The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

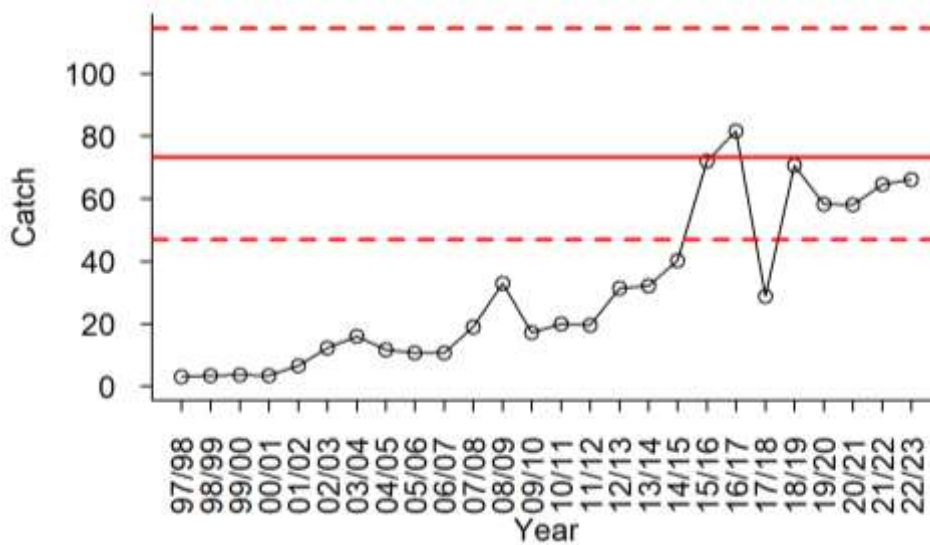


Figure 4.44: Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.11 Southern Garfish (*Hyporhamphus melanochir*)

STOCK STATUS	DEPLETED
<p>Steep declines in the fishery were observed between 2005 and 2008, leading to the fishery being defined as depleting and initiating management actions, including closing the fishery for a month in the east and north to protect peak periods of aggregations. Despite an initial recovery, catch and catch rate continued to decline, indicating vulnerability of the stock.</p> <p>The past three years have seen a slight increase in catch and effort in the northeast coast and around Flinders Island. CPUE has fluctuated substantially but has recently trended back to higher levels. However, given the schooling nature of the species, CPUE is unlikely to be a reliable proxy for biomass. Data-limited stock assessment methods suggest that population recovery under current catch levels is theoretically possible. The slight increases in catch and decreased CPUE could indicate stock improvement but is not significant at this stage.</p>	
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

Southern Garfish is endemic to southern Australia and inhabits shallow (≤ 20 m) inshore waters in association with seagrass beds (Gomon, Bray, and Kuitert 2008). Southern Garfish is a schooling species, feeding near the surface at night. 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. 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. More detailed information on biological characteristics and current management of Southern Garfish is available from the [TasFisheriesResearch](#) webpage.

4.11.1 Catch, effort and CPUE

The catch of Southern Garfish in the 2022/23 season was 19 tonnes, which is more than the catch in the previous season. Additionally, this catch remained higher than the low catches observed in the three seasons prior to the 2021/22 season. Most of the catch 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). The recent increase in beach seine catch follows a general declining trend since 2010/11 (Figure 4.45 A). After many years of relative stability in Southern Garfish catches of 80-90 t per fishing year, catches fell sharply in 2006/07 and 2007/08. Catches appeared to recover to around 60 t in 2008/09 before the declining trend commenced. The northeast coast has historically been the region with the highest catch of Southern Garfish, as well as the highest beach seine effort (Figure 4.46). Dip net effort and catch were highest in the east and southeast coast regions in the earlier years of the fishery, shifting to the northeast coast in the mid-2000s (Figure 4.47). In 2022/23, the region with the highest catch, effort, and CPUE across gear types was the northeast coast (Figure 4.48).

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.

Effort for both major gear types, beach seine and dip net, has been declining steadily and substantially over time until 2018/19, beach seine and to a lesser extent dip net have shown a gradual increase in effort to 2022/23 (Figure 4.45 B). CPUE has fluctuated substantially over time and is unlikely to provide for a robust reflection of abundance or biomass given that Southern Garfish is a schooling species. However, notable trends are evident by a peak for both gear types in 2012/13 followed by a steep decline until 2017/18, which substantiated concerns about Southern Garfish stocks. In 2022/23, the CPUE for both beach seine and dip net were higher than in the reference year (Figure 4.45 C).

A formal risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

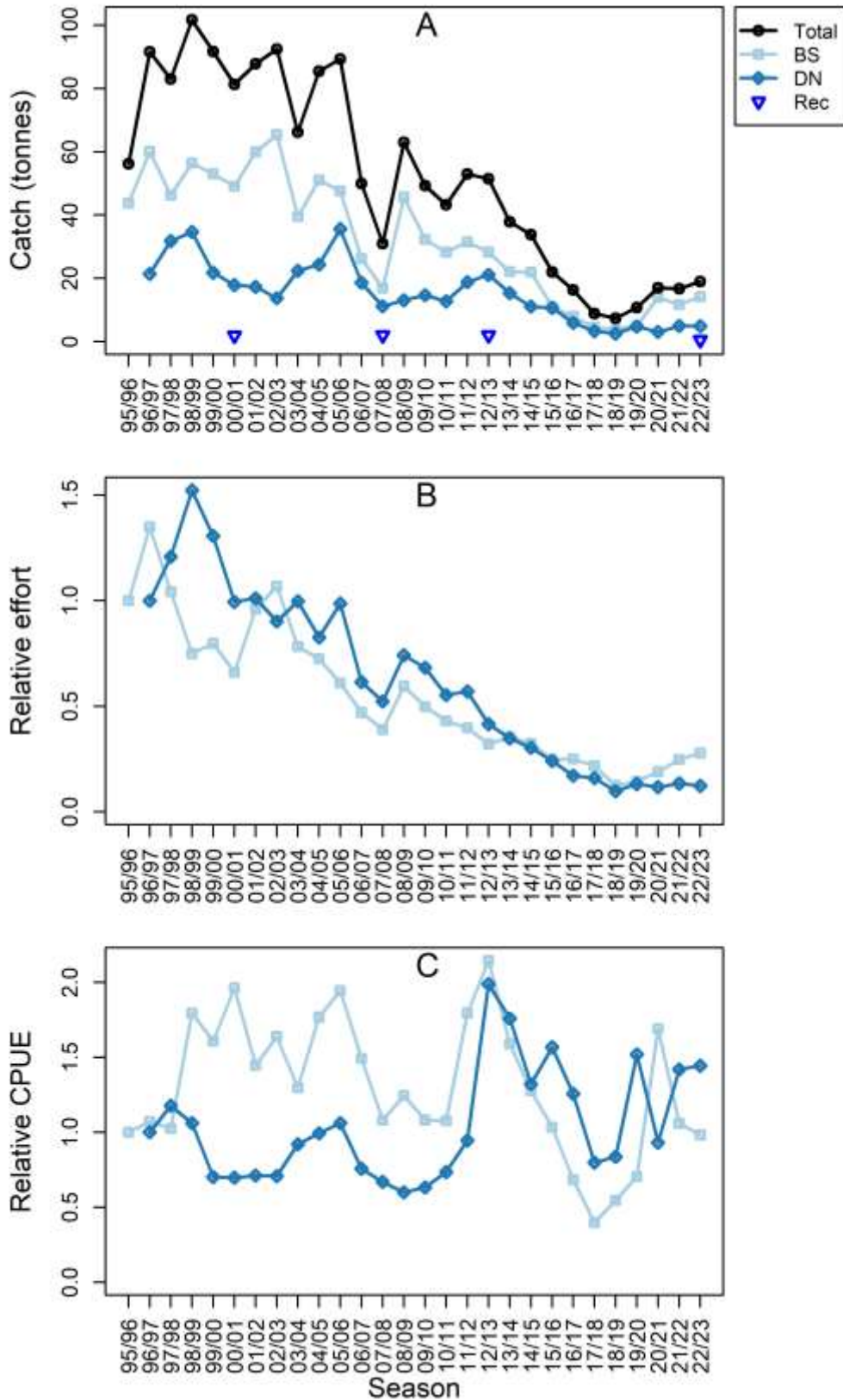


Figure 4.45 (A) Annual commercial Southern Garfish catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. BS = beach seine,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

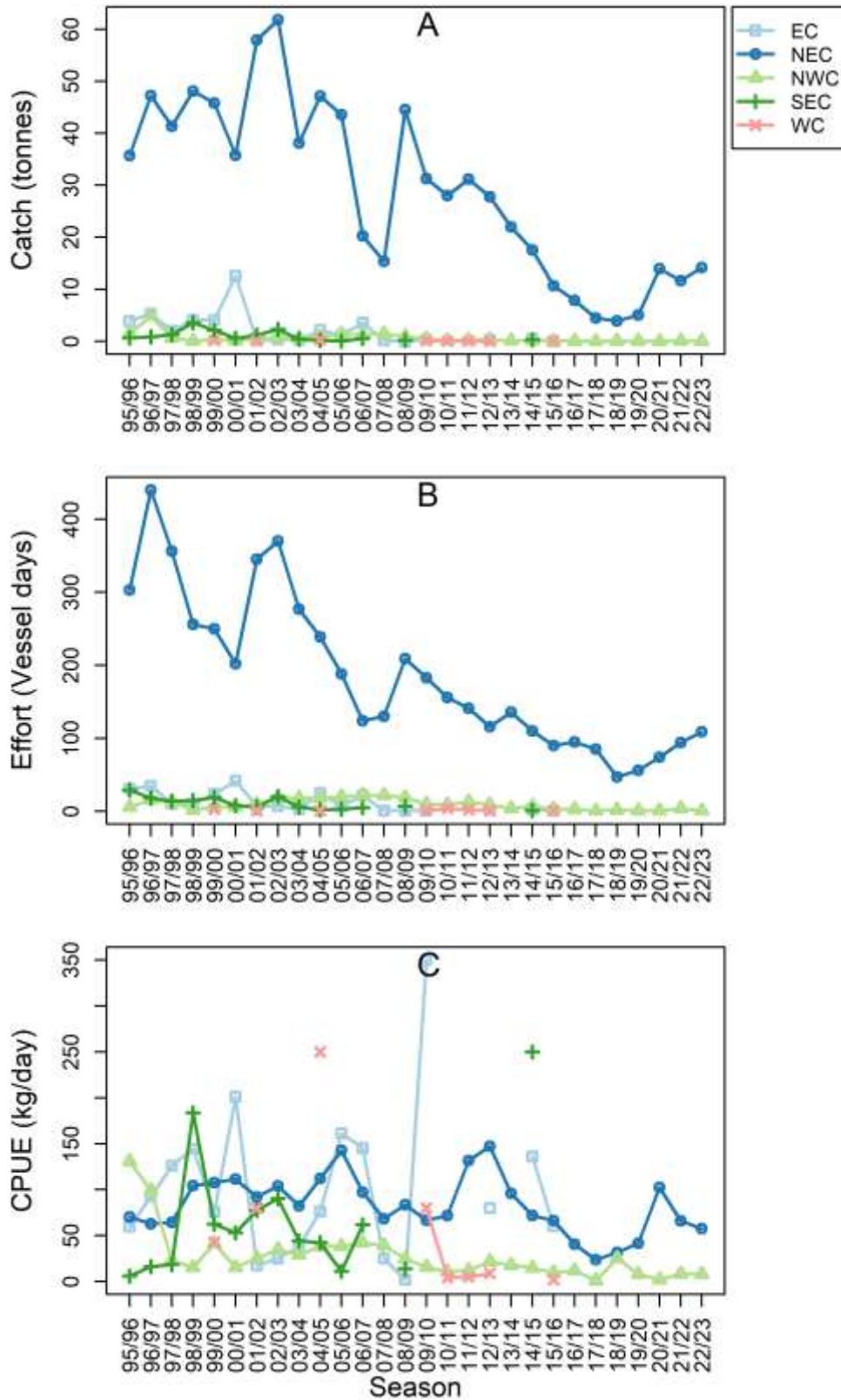


Figure 4.46 Regional commercial Southern Garfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

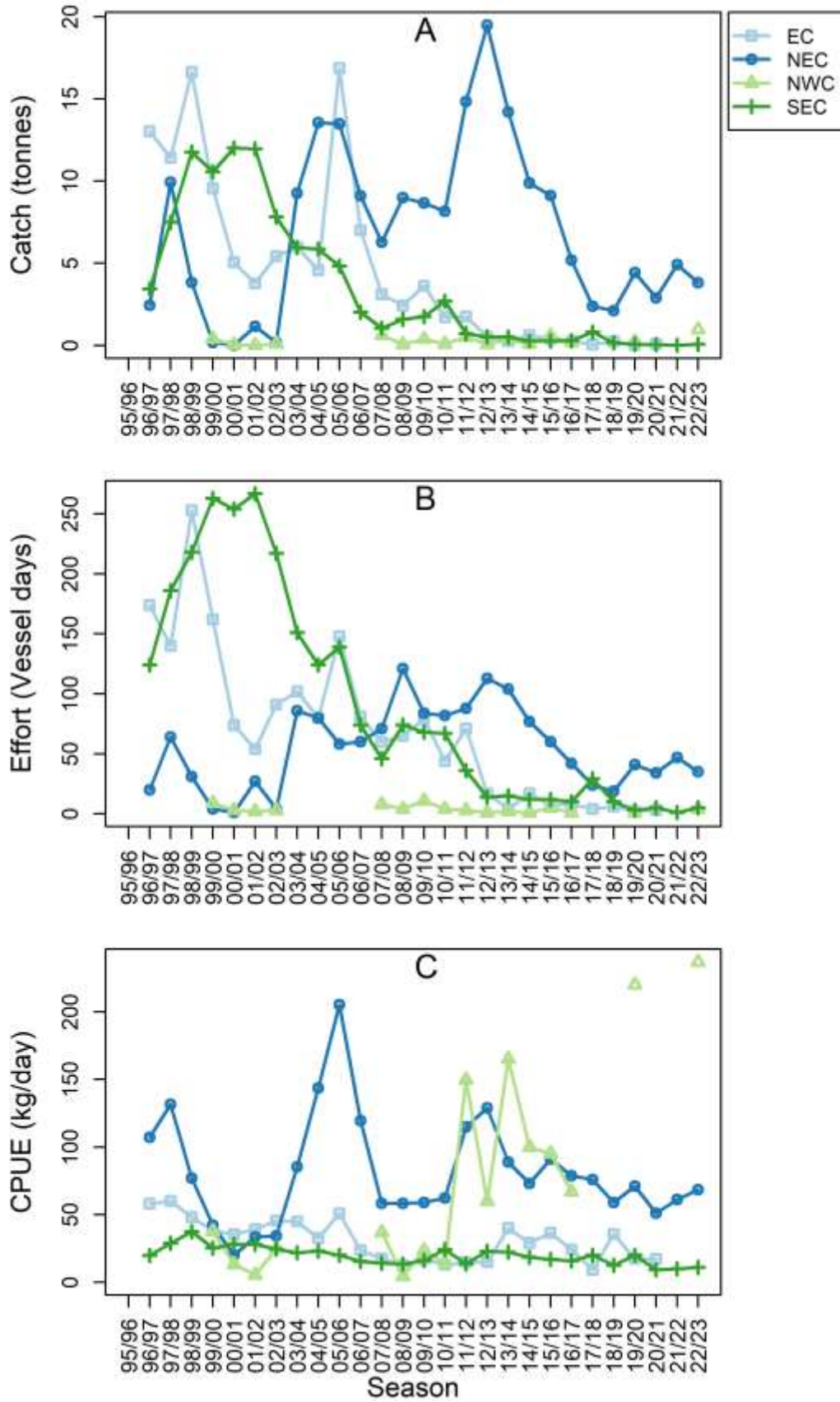


Figure 4.47 Regional commercial Southern Garfish catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for dip net. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

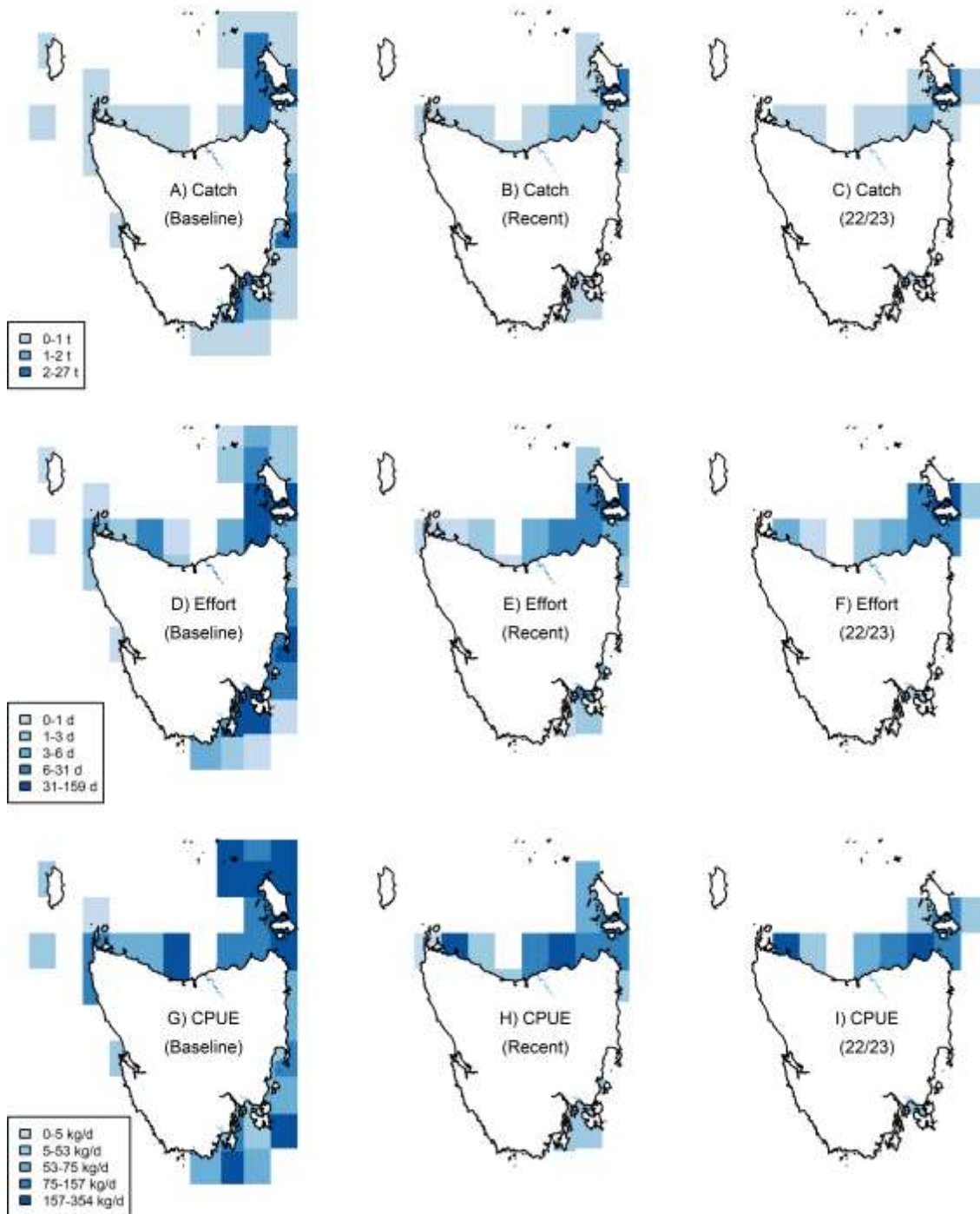


Figure 4.48 Southern Garfish catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.11.2 CMSY results

The CMSY results, assuming 'medium' resilience, suggest that the biomass of Southern Garfish may have been depleted to 0.31 B/BMSY (with a lower 95% confidence interval of 0.09) (refer to Figure 4.49). This depletion equates to approximately 15.6% of unfished levels (lower 95% confidence interval = 4.6%).

Catch levels peaked above the estimated maximum sustainable yield (MSY) of 75.0 t between 1996/97 and 2005/06, with catches surpassing the upper 95% confidence limit of MSY, reaching 100.3 t in 1998/99 (see Figure 4.50). However, catches then declined and have consistently remained below the lower 95% confidence limit of MSY, set at 57.6 t, since 2009/10 (refer to Figure 4.50).

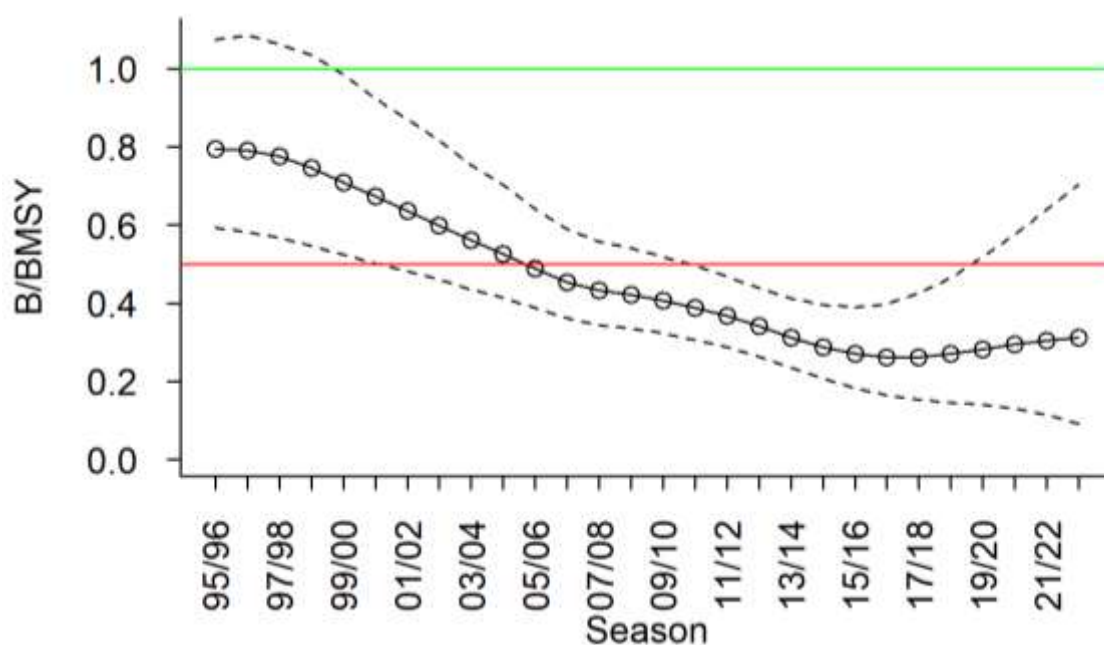


Figure 4.49 Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals $BMSY$, which is a common target reference point. The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

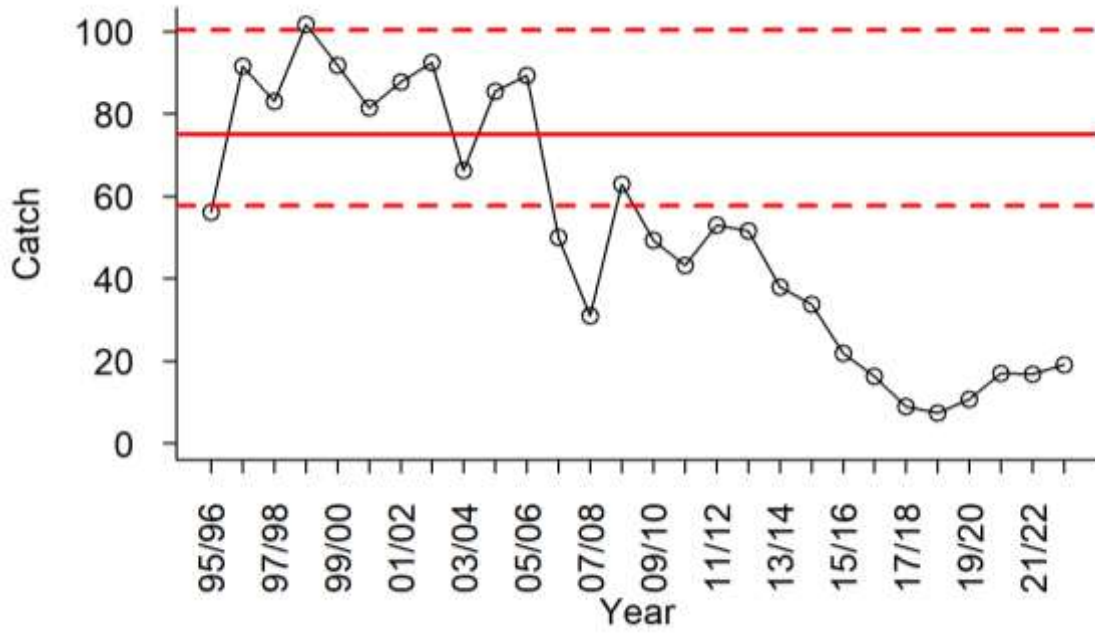


Figure 4.50 Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.12 Southern Sand Flathead (*Platycephalus bassensis*)

STOCK STATUS	DEPLETED
Recreational catches dominate landings of Southern Sand Flathead in Tasmania. Fishery independent surveys suggest low abundances of legal sized fish in southeast and eastern Tasmania where populations are subject to heavy fishing pressure. While undersized fish appear to be abundant, newly introduced length-based assessment approaches indicate that female stock biomass is likely to be depleted in most regions. Moreover, current levels of fishing pressure are unlikely to be sustainable, specifically where stock rebuilding is likely to be most urgently needed.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends; risk assessment of recruitment impairment; fishery-independent monitoring; length-and age-based estimates of mortality, length-based estimates of biomass depletion.
MANAGEMENT	State (Tasmania)



Southern Sand Flathead
(*Platycephalus bassensis*)
Illustration©R.Swainston/anima.fish

Southern Sand Flathead inhabit sheltered, shallow, coastal waters, typically over sand or silt (Edgar 2008). This is the most important species in the Tasmanian recreational fishery, with the most recent estimate of recreational harvest representing 99% of the total catch for that season (2022/23) (Tracey and Stark 2024). Commercially, Southern Sand Flathead are caught primarily by handline, with some by-catch in the gillnet and Danish seine fisheries. The stock status for this species was classified as Depleted in the 2020/21 Scalefish Fishery stock assessment (Fraser, Hartmann, and Krueck 2021). More detailed information on biological characteristics and current management of Southern Sand Flathead fisheries is available from the [TasFisheriesResearch](#) webpage.

4.12.1 Catch, effort and CPUE

Whilst Southern Sand Flathead has a long history of commercial fishing in Tasmania, this species has only been distinguished from Tiger Flathead in fishery returns data since 2007/08.

Previous stock assessment reports show back-calculated estimates of species-specific catch prior to 2007/08 (Krueck, Hartmann, and Lyle 2020; Fraser, Hartmann, and Krueck 2021). Total commercial catch for Southern Sand Flathead in 2022/23 was only 1.6 t, which is a decrease from last season (3.8 t) and lower than peak commercial catches of 13 t reported in 2008/09. However, commercial catches are dwarfed by estimates of recreational catches available from recreational fishing surveys conducted since 2000/01 (Lyle 2005; Lyle et al. 2009; Lyle, Stark, and Tracey 2014; Lyle et al. 2019; Tracey and Stark 2024). In 2022/23, the recreational catch of Southern Sand Flathead was estimated at 125.8 t (Tracey and Stark 2024), which was approximately 99% of the estimated total catch (recreational and commercial combined) in that season (see Figure 4.51 A).

The distribution of catch and effort is concentrated in the most populated regions across Tasmania. Almost all commercially harvested Southern Sand Flathead has recently been taken by handline on the east, southeast, and northwest coasts (Figure 4.52 A, Figure 4.53). In the recreational fishery in 2017/18, just over half of estimated total Flathead catch was derived from the southeast coast, with the central east (including Great Oyster Bay) and northwest coasts also representing important regions (Lyle et al. 2019). In 2022/23, again just over half, (57 percent) of the total recreational catch were derived from south eastern Tasmania (Krueck et al. 2023).

Although commercial catches are insignificant for this species, it is worth noting that commercial handline CPUE shows an overall declining trend (Figure 4.51 C). This was associated with a clear overall decline in commercial handline effort (Figure 4.51 B). However, regional differences highlight that these trends could mask spatial heterogeneity in fishing activity or population dynamics (Figure 4.51).

Fisheries-independent data on size composition continues to be collected. Previous data can be accessed in the 2020/2021 report (Fraser et al. 2022), while historical to current size and age estimations, organised by region, are available on the [wild fisheries website](#).

A thorough length-based assessment of stock status and trends was undertaken and outlined in the 2020/21 report published in December 2022 (Fraser et al. 2022). A risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023). Going forward, the fishery-independent data and stock assessment analysis for sand flathead will be reported separately from the scalefish assessment (Krueck et al. 2023). This decision was influenced by the heightened focus and the considerable influx of new data and analyses for this species.

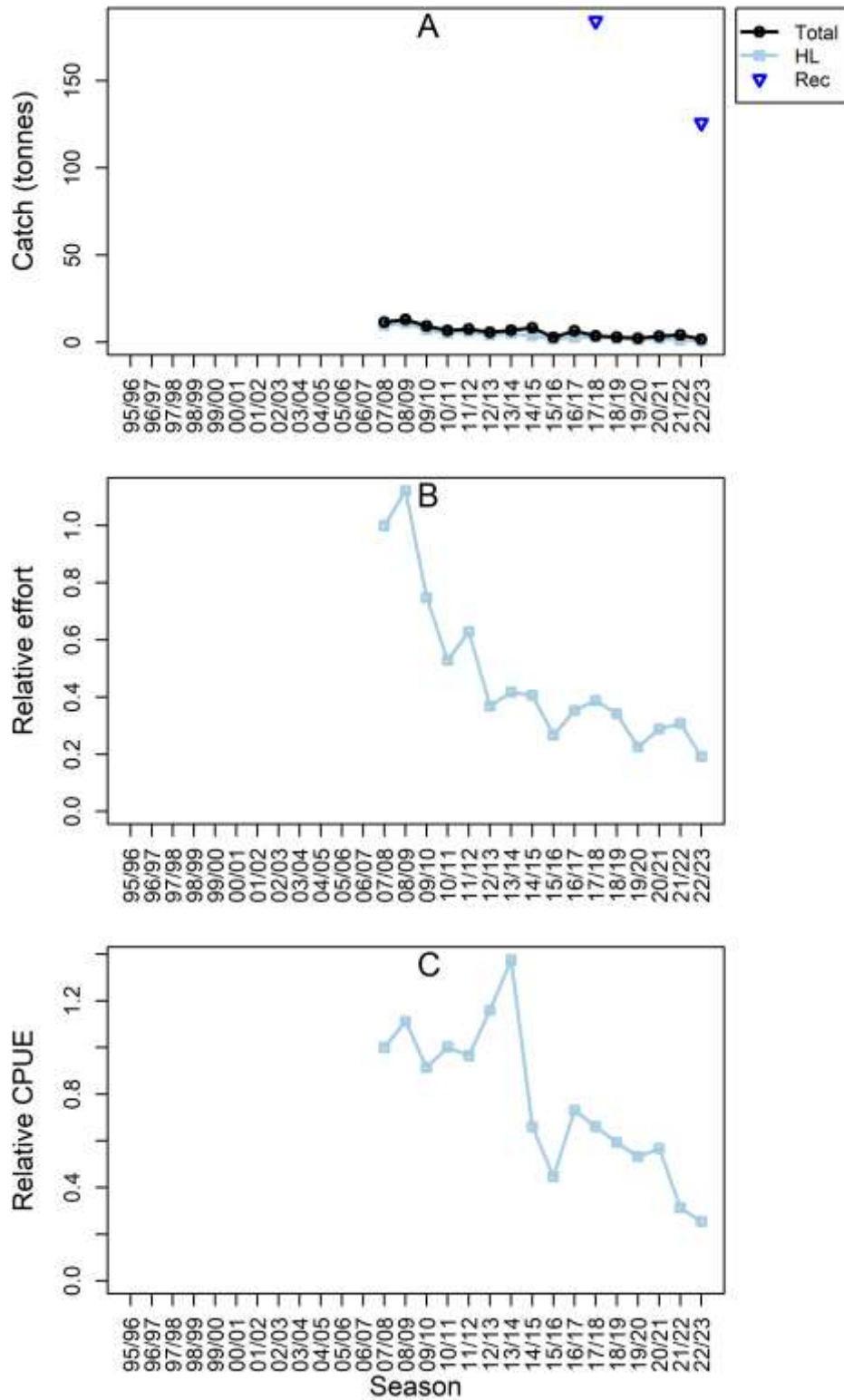


Figure 4.51 (A) Annual commercial Southern Sand Flathead catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. HL = handline, Rec = estimated recreational catch.

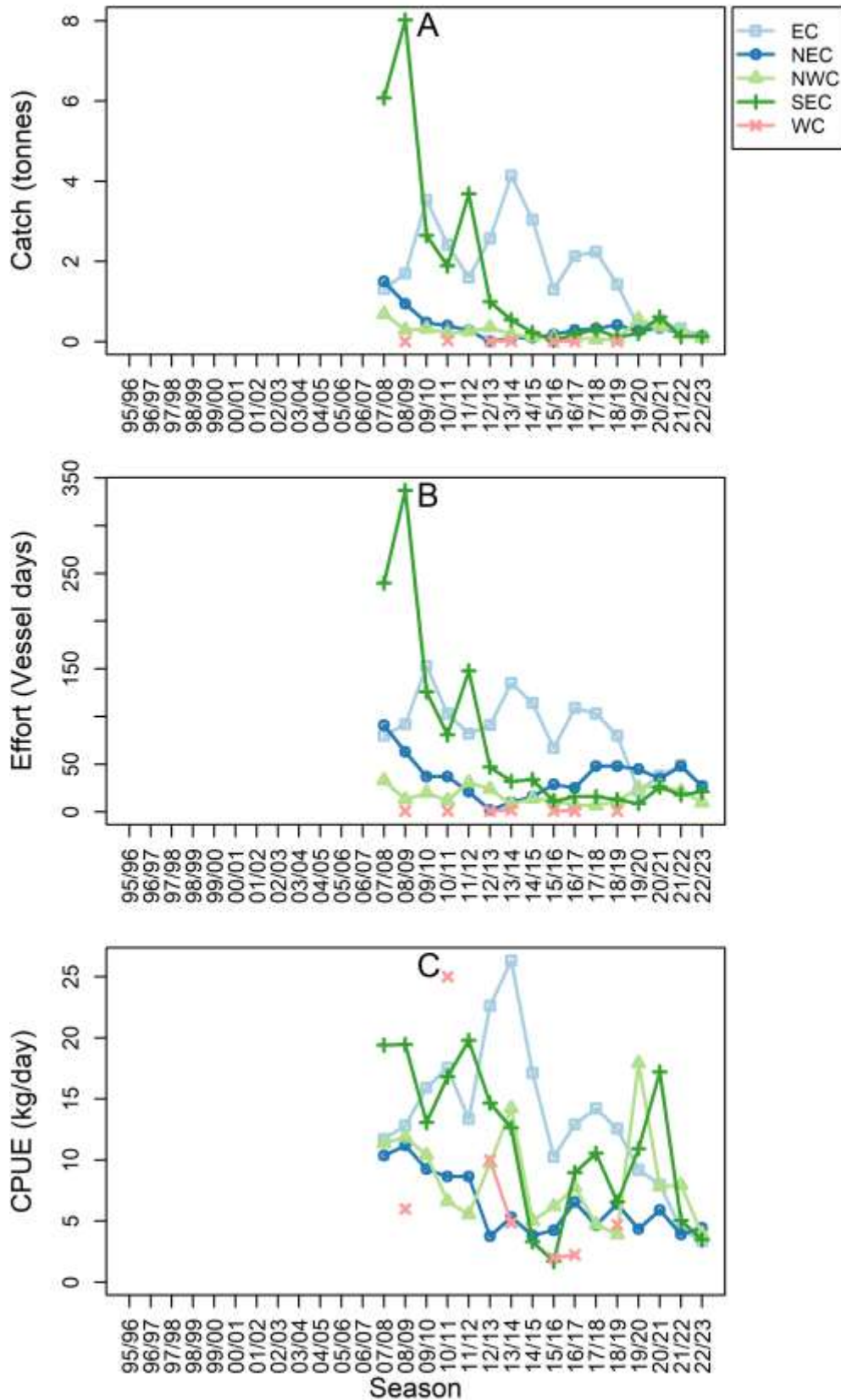


Figure 4.52 Regional commercial Southern Sand Flathead catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for hand line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

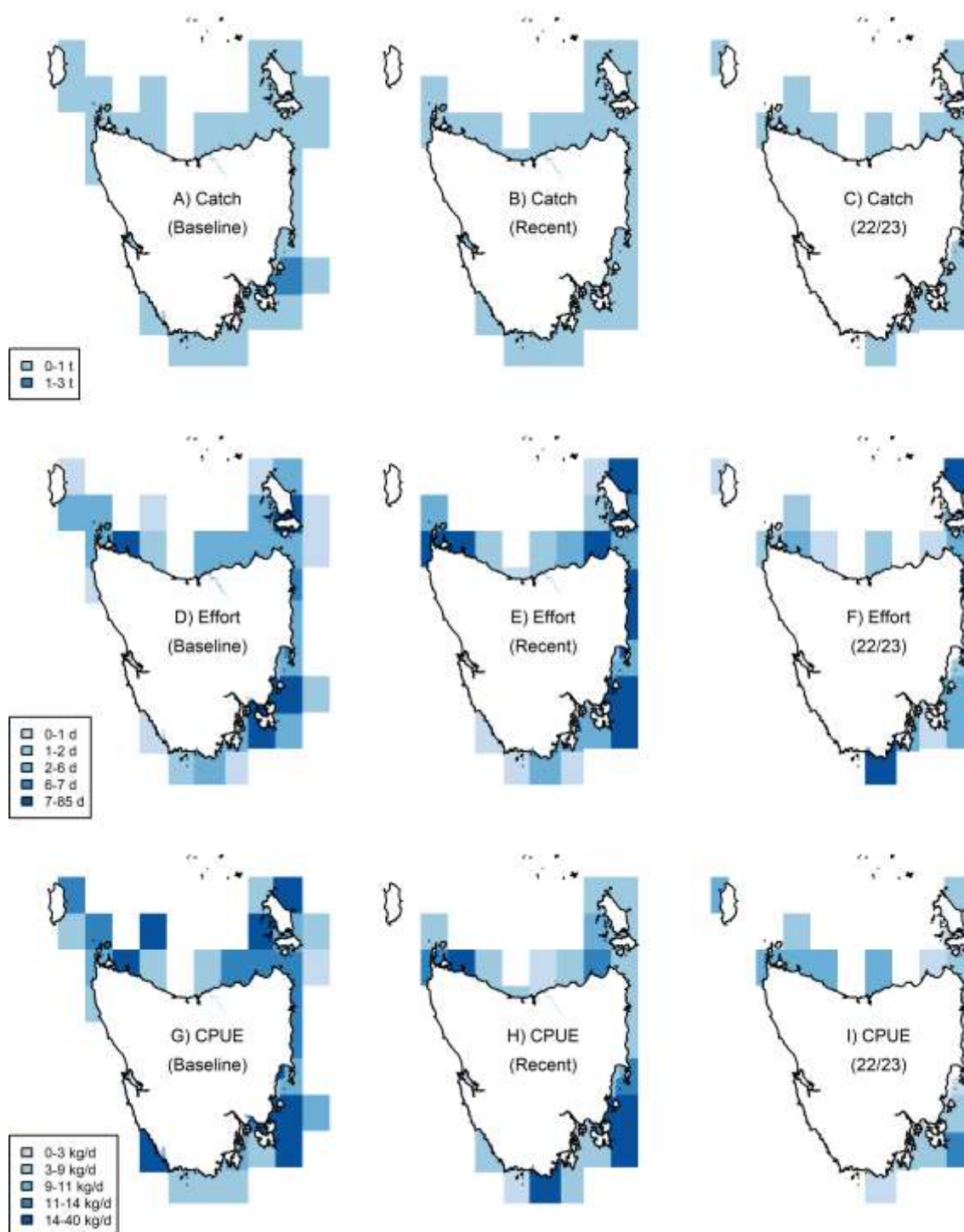


Figure 4.53 Southern Sand Flathead catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.13 Striped Trumpeter (*Latris lineata*)

STOCK STATUS	DEPLETED
Following records of young fish in biological samples after many years of suspected recruitment failure, evidence of population recovery of Striped Trumpeter is still lacking. Commercial catches are close to the historical lows, but total levels of fishing pressure (commercial and recreational combined) might still prevent recovery. Recent changes in regulations have changed the minimum size limit to just above the size of estimated size at 50% maturity.	
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

Striped Trumpeter is a relatively large and long-lived species. Juveniles inhabit shallow inshore reefs moving offshore with maturity to deeper exposed reefs ≤ 300 m (Edgar 2008). Striped Trumpeter are mainly caught offshore using handline, with some offshore dropline and inshore gillnet use. Management of Striped Trumpeter stocks has changed significantly over time, incorporating Tasmanian commercial operators and Commonwealth operators. Trip limits and a temporal closure during spawning are currently in place. However, the minimum legal size is below the size at maturity and the population of Striped Trumpeter has previously been found to be aging, suggesting that recruitment is limited, potentially because the spawning biomass of the population has been depleted. More detailed information on biological characteristics and current management of Striped Trumpeter fisheries is available from the [Tas Fisheries Research](#) webpage.

4.13.1 Catch, effort and CPUE

Total Striped Trumpeter reported catch in Tasmanian waters (south of latitude 39° 12'S) in 2022/23 was 11.5 tonnes, including 3.1 tonnes by Tasmanian vessels (Figure 4.54). Waters south of latitude 39° 12'S represent waters incorporated within the [Offshore Constitutional Settlement \(OCS\) agreement for striped trumpeter](#). The Commonwealth catch reported in 2022/23 was 8.4 t, the highest it has been since 2000/01 (Figure 4.54). Commonwealth catches are believed to have been underreported in the past. Coupled with limited information on recreational catches, this situation represents a major source of uncertainty in estimating the total level of exploitation of Striped Trumpeter in Tasmanian waters.

Historically, Striped Trumpeter catch in Tasmanian waters included significant catches by Victorian vessels, peaking at around 37 t in the early 1990s. Since the mid-1990s, data from this sector have been unavailable, though it is assumed that subsequent catches have been reported in Commonwealth logbooks (Figure 4.54). Commonwealth catches have been consistently low compared to catches by Tasmanian vessels, with generally less than 5 t caught. However, the 2022/23 season saw the commonwealth with a greater catch than Tasmanian vessels (8.4 t and 3.1 t respectively, Figure 4.54).

Total annual catch in Tasmanian waters was highest at over 110 t in the early 1990s, with Victorian vessels accounting for 17-39% of total catch. Total catch then fluctuated between 70-80 t through the mid-1990s before increasing again to over 100 t for two years in the late 1990s (Figure 4.54). Catches almost halved in 2000/01 to less than 50 t and have remained low since that time. A similar trend was observed across fishing gears used by Tasmanian vessels (Figure 4.54). In 2015/16, total catches of Striped Trumpeter fell to an historic low of 7.1 t (6.0 t from Tasmanian vessels) (Figure 4.54). After slight increases in 2016/17 and 2017/18, total catch remained around 7-8 tonnes for several seasons. However, in the most recent three fishing seasons, Tasmanian catches have been lower, with 4.3 tonnes in 2021/22 and 3.1 tonnes in 2022/23, marking the lowest catch in the Tasmanian dataset.

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 4.55 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 4.55 A, (J. Lyle, Stark, and Tracey 2014a; J. M. 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.

Striped Trumpeter catches have historically been reported from all areas around the state, except for the central north coast (Figure 4.59). In 2022/23, fishing activity was focused mainly on the southeast and west coasts (Figure 4.56) for dropline and handline gear types (Figure 4.56, Figure 4.57, Figure 4.58).

Catch trends appear to reflect the influence of strong year classes assumed to have entered the fishery before 1998/99. This was followed by a lack of recruitment and associated declines in catches in the early 2000s. Industry representatives suggest that the trip limit of 250 kg from 2000 provided a disincentive for operators to target the species, which might have contributed to the continued reduction in dropline and handline effort since 2000/01 (Figure 4.55 B).

Handline and dropline have been the dominant gear types on which Striped Trumpeter are caught. CPUE has been variable, with a general downward trend (Figure 4.55 C). Gillnet

seems to have gained importance and was the dominant gear type in 22/23 focusing on the west and south east coast (Figure 4.58).

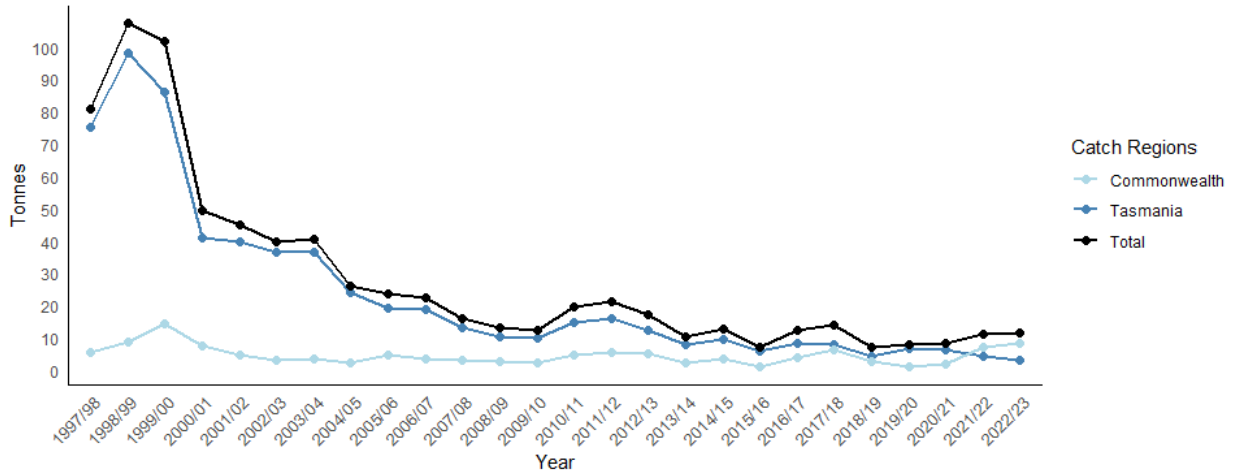


Figure 4.54 Annual commercial catches (t) of Striped Trumpeter south of latitude 39° 12'S. Data based on Tasmanian (General Fishing return) and Commonwealth catch returns.

The 2021/22 Scalefish Assessment Report presents a risk assessment of recruitment impairment for this species, using the Marine Stewardship Council methodology (Sharples et al. 2023).

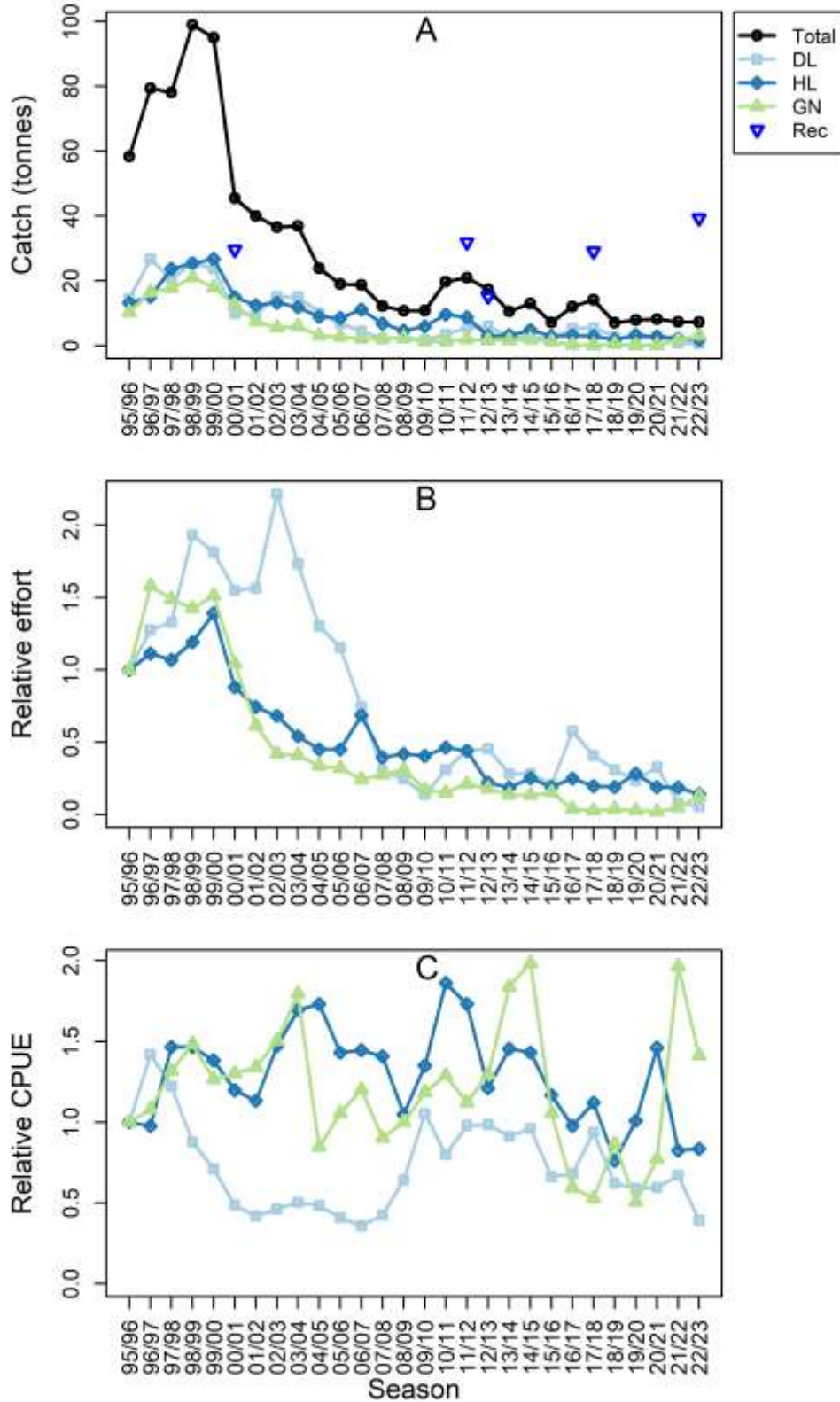


Figure 4.55 (A) Annual commercial Striped Trumpeter catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. DL = dropline, HL = handline, GN = gillnet, Rec = estimated recreational catch. Data include Commonwealth catch in state waters.

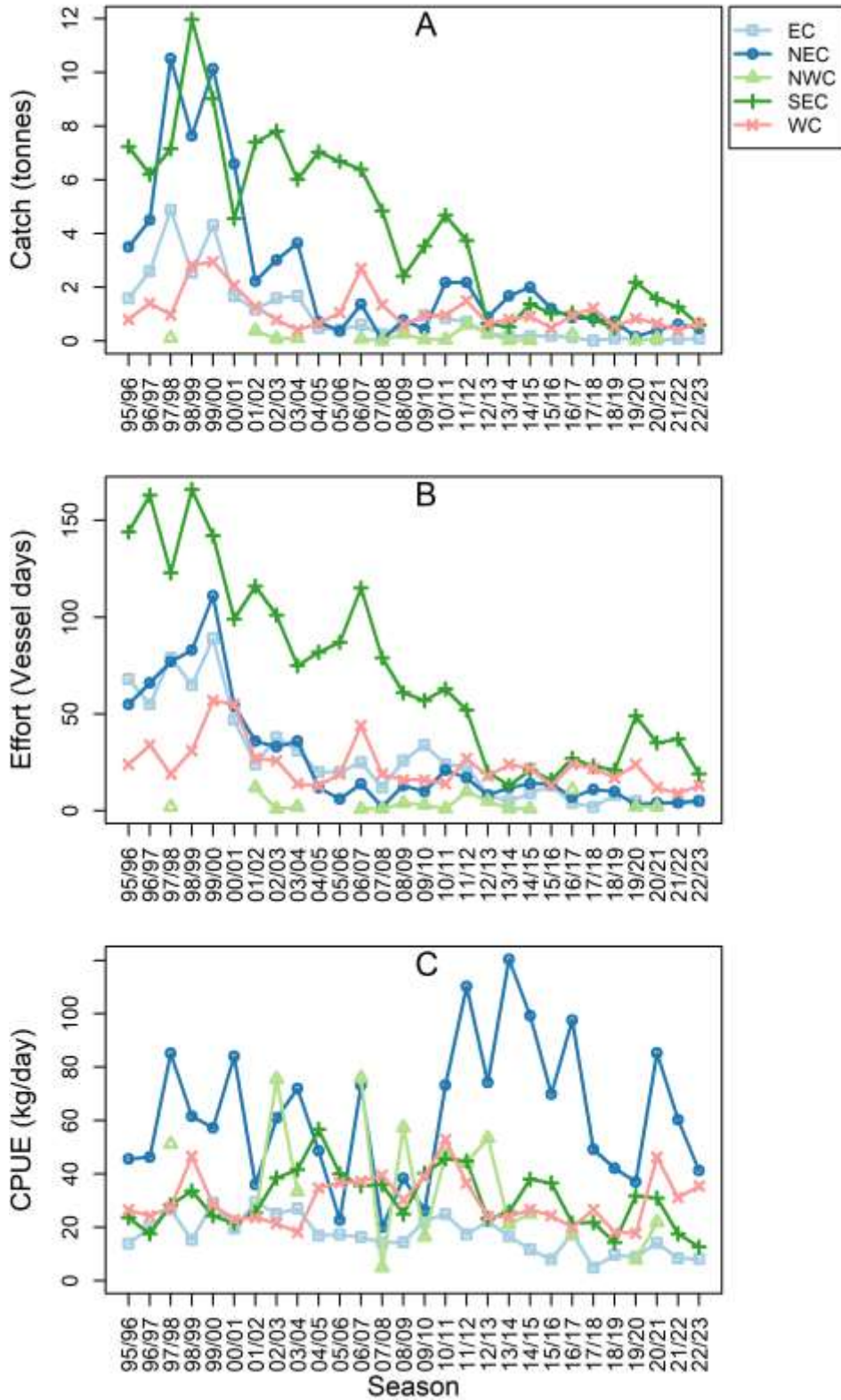


Figure 4.56 Regional commercial Striped Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for handline. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

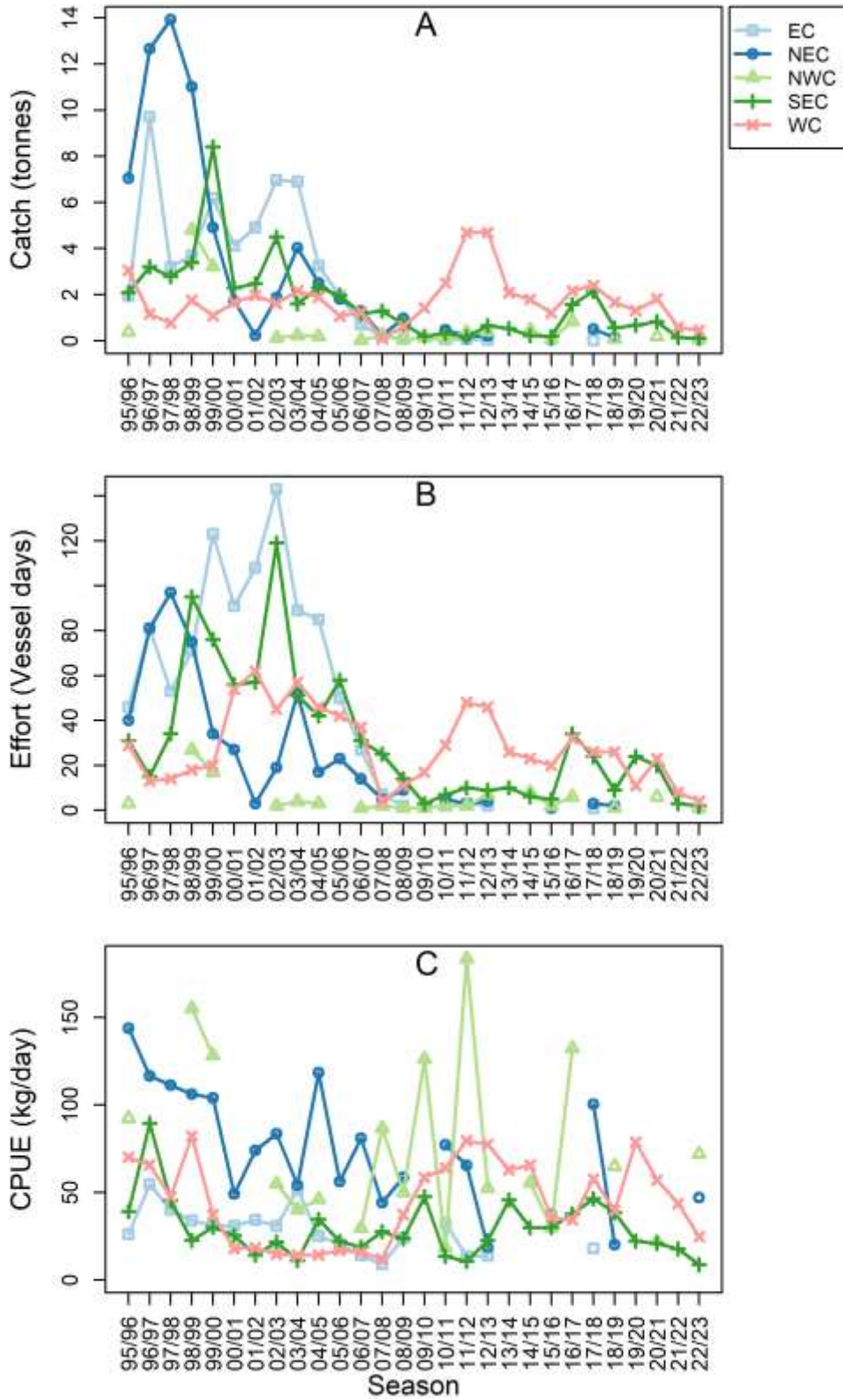


Figure 4.57 Regional commercial Striped Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for drop line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

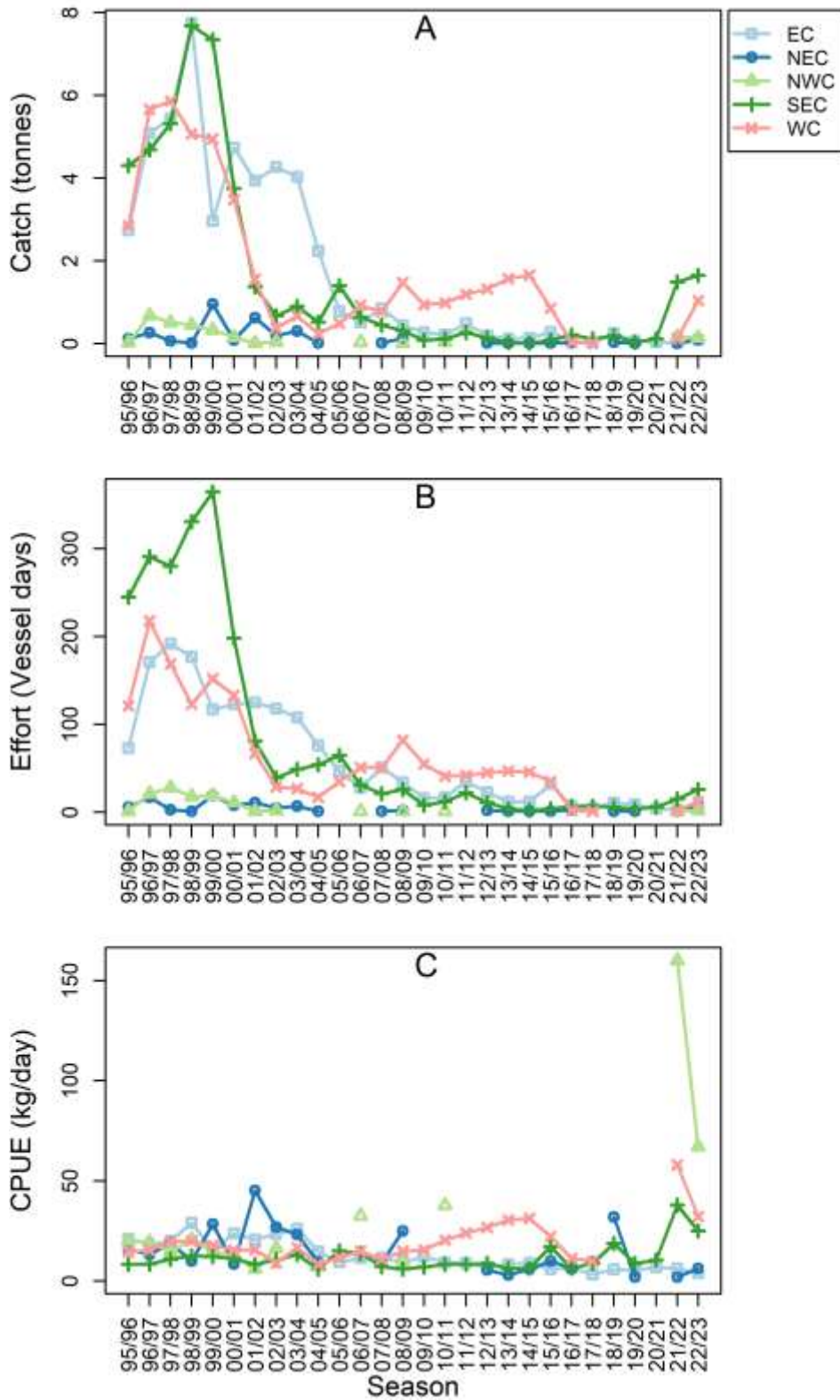


Figure 4.58 Regional commercial Striped Trumpeter catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

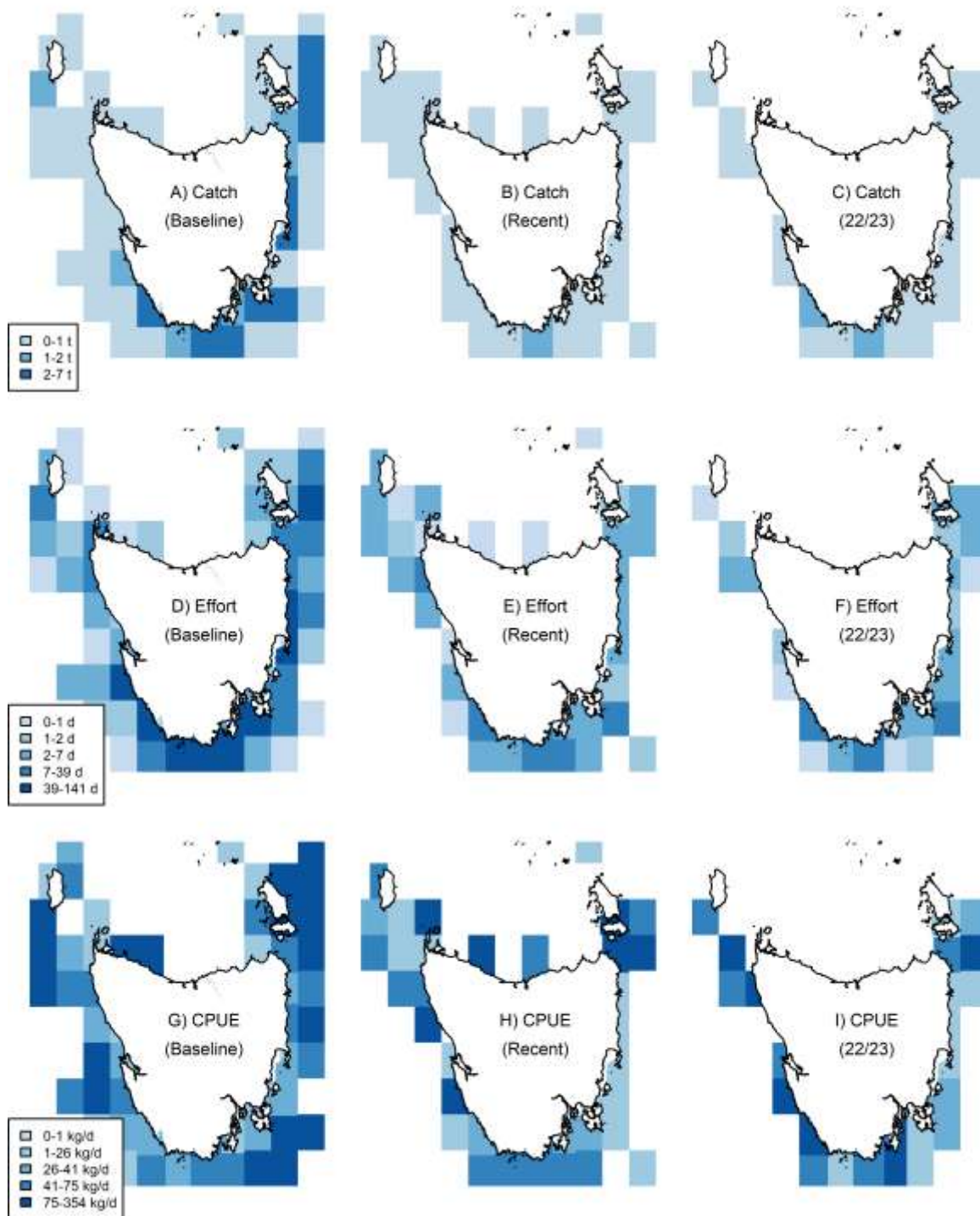


Figure 4.59 Striped Trumpeter catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.13.2 CMSY results

According to CMSY results under the assumption of 'very low' resilience, the biomass of Striped Trumpeter might be depleted to 22.9% of unfished levels, with a lower 95% confidence interval of 12.0% (see Figure 4.60). This depletion corresponds to a biomass of 0.46 B/BMSY, with a lower 95% confidence interval of 0.24 (refer to Figure 4.60).

Peak commercial catches recorded between 1996/97 and 1999/2000 exceeded the estimated maximum sustainable yield of 71.1 t, but did not surpass the upper 95% confidence limit of 107.0 t. However, since 2002/03, catches have experienced a decline and consistently remained well below the lower 95% MSY confidence interval of 45.6 t (see Figure 4.61).

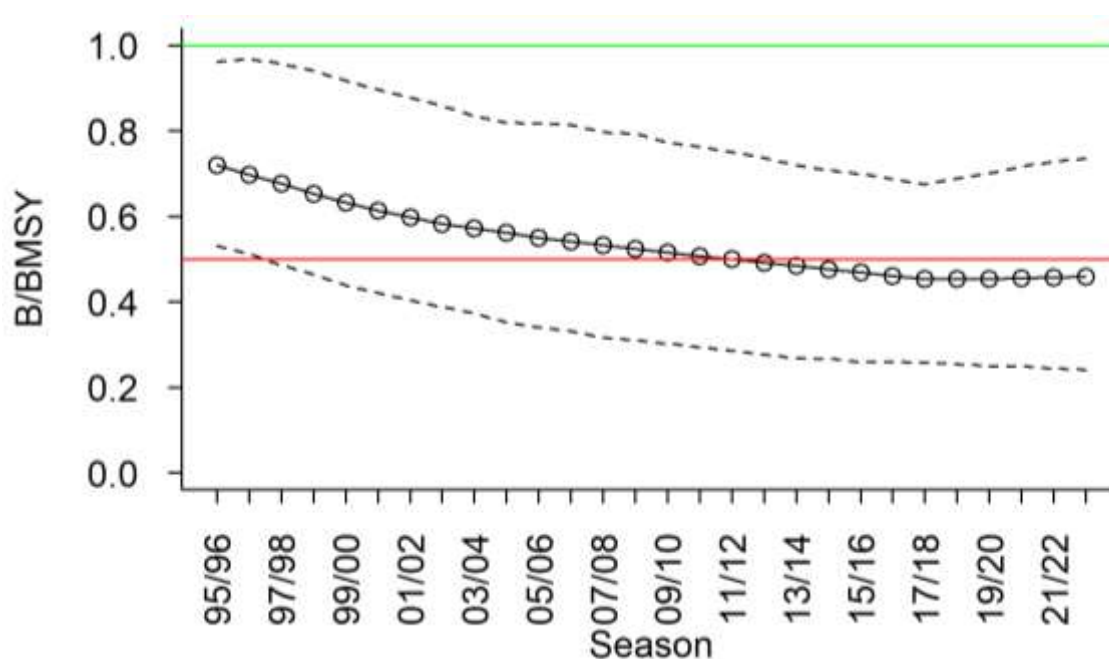


Figure 4.60 Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red line indicates a common limit reference point, which is half the biomass assumed to deliver the maximum sustainable yield.

Figure 4.61 Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.13.3 Length and age frequency surveys

4.13.3.1 Length frequency composition

The length frequency distribution of Striped Trumpeter has been monitored since 1998/99. Sampling has been limited and opportunistic in some years, and consequently, some samples are unlikely to adequately represent population dynamics. Overall, there appears to have been

a shortage of small fish (recruitment) up until 2009/10 (Figure 4.62). In 2009/10, new recruits appear to have entered the fishery, which has clearly contracted the range and median of lengths. From 2012/13 onwards, length frequency distributions have started to flatten again. The stabilising trend indicates an ageing population similar to the years before 2009/10, albeit with evidence of recruitment of smaller individuals in recent years (Figure 4.62A).

4.13.3.2 *Age frequency composition*

Age data, which has been collected along with length data from 1998/1999 onwards, showed trends very similar to those apparent from length data, revealing an increasing lack of young individuals (3–5-year-olds) up until 2009/10 (Figure 4.62). During this period, the population might have been sustained largely by strong year classes recruited during the 1990s. In 2009/10, new recruits appear to have contracted the age frequency distribution similarly to what was observed in the 1990s. Samples up until 2015/16 were then dominated by 4–6-year-olds, which is the age at which the species tends to recruit to the offshore line fishery. However, the relative strength of cohorts in samples is unknown and the number of individuals sampled between 2012/13 and 2015/16 was low. Previous assessments suggested that the adult segment of the population is likely to remain in a depleted state due to continued fishing under a lack of recruitment over many years. Some young fish have entered the population in recent years, but there is an overall trend of an ageing population similar to that observed in the years before 2009/10 (Figure 4.62B). In the 2020/21 scalefish assessment report (Fraser et al. 2022), a length-based evaluation was presented. Further length age data are being processed for 2023 samples.

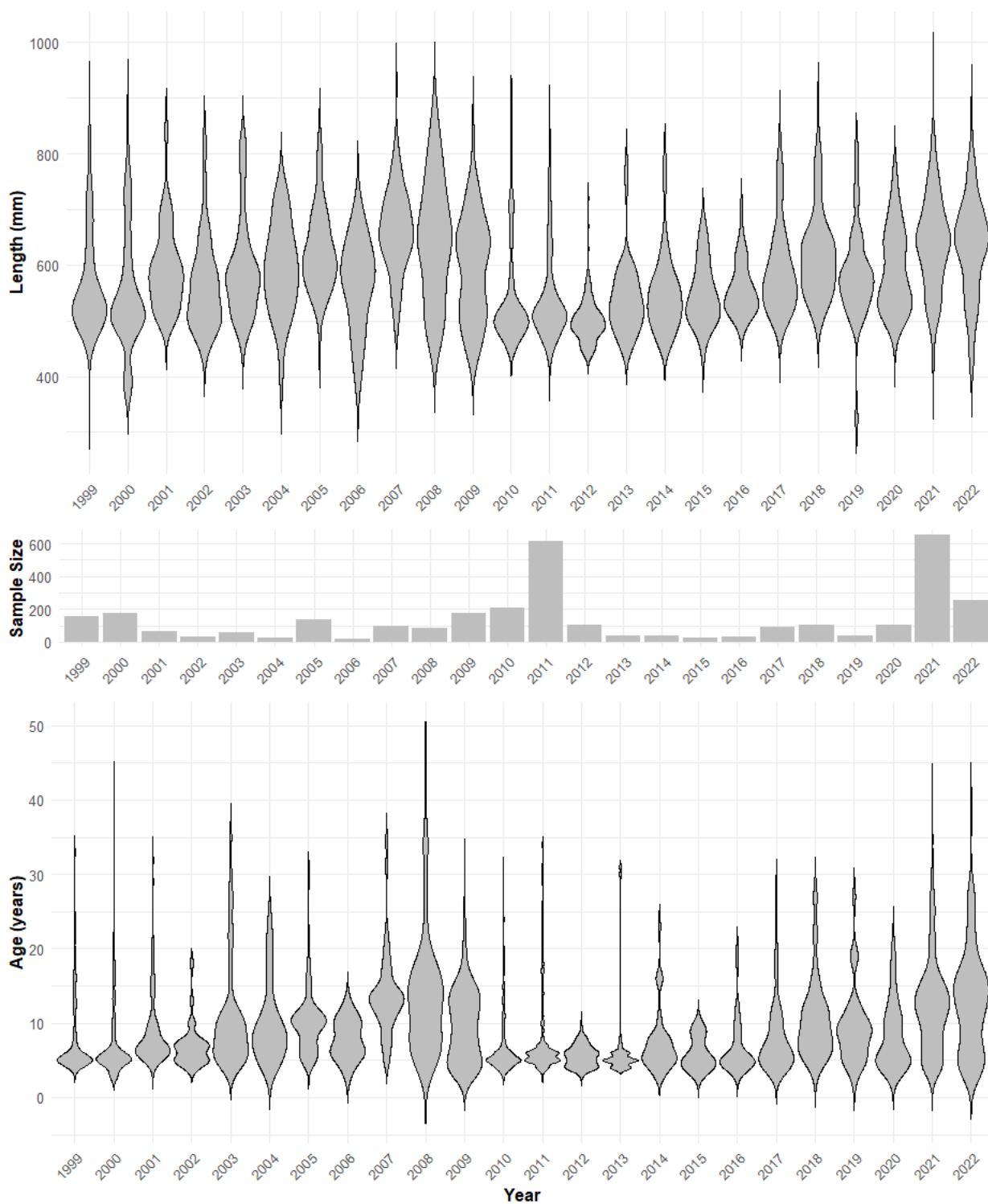
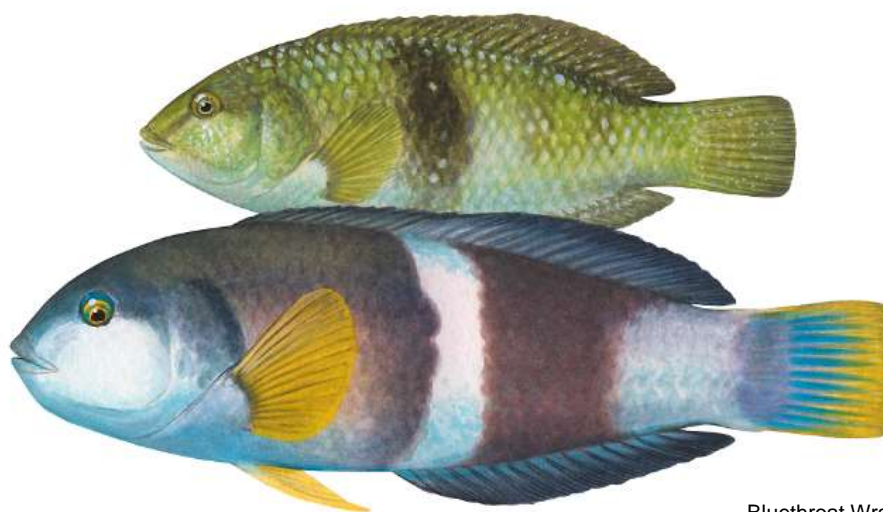


Figure 4.62 Striped Trumpeter age and length (fork Length) composition from 1998/99 (1999) to 2020/21 (2021) sampled from both commercial and recreational catches. Length is fork length in mm.

4.14 Wrasse - Bluethroat (*Notolabrus tetricus*)

STOCK STATUS	SUSTAINABLE
Catches, effort and CPUE of Bluethroat Wrasse have remained relatively stable for almost a decade, providing little reason for concern that the current level of fishing pressure is too high. Uncertainty remains over levels of potential localised depletion, and about the size of the catch taken by rock lobster fishers for use as bait. Relatively low catches in 2019/20 and 2020/21 have likely been caused by a combination of COVID impacts and changes in fishery dynamics and there has been a slight upward turn in the most recent assessment year (22/23).	
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

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. They are reef-associated and are targeted primarily using handline. 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 > 90% of total reported catches since 2001/02 and there is no significant recreational fishery for these species. More detailed information on biological characteristics and current management of Wrasse fisheries is available from the [TasFisheriesResearch](#) webpage.

4.14.1 Catch, effort and CPUE

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). Bluethroat Wrasse catch in 2022/23 was 35.7 t which shows a slight upward trend (Figure 4.63).

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.

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).

In 2022/23, 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 4-5 years of assessments (Figure 4.64 & Figure 4.66).

Wrasse traded dead and used as bait in rock lobster pots have been historically under-reported. These data are not included in the catch data described above.

In recreational survey data, the two Wrasse species have not been distinguished. However, given Bluethroat Wrasse represent ~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).

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.

A risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

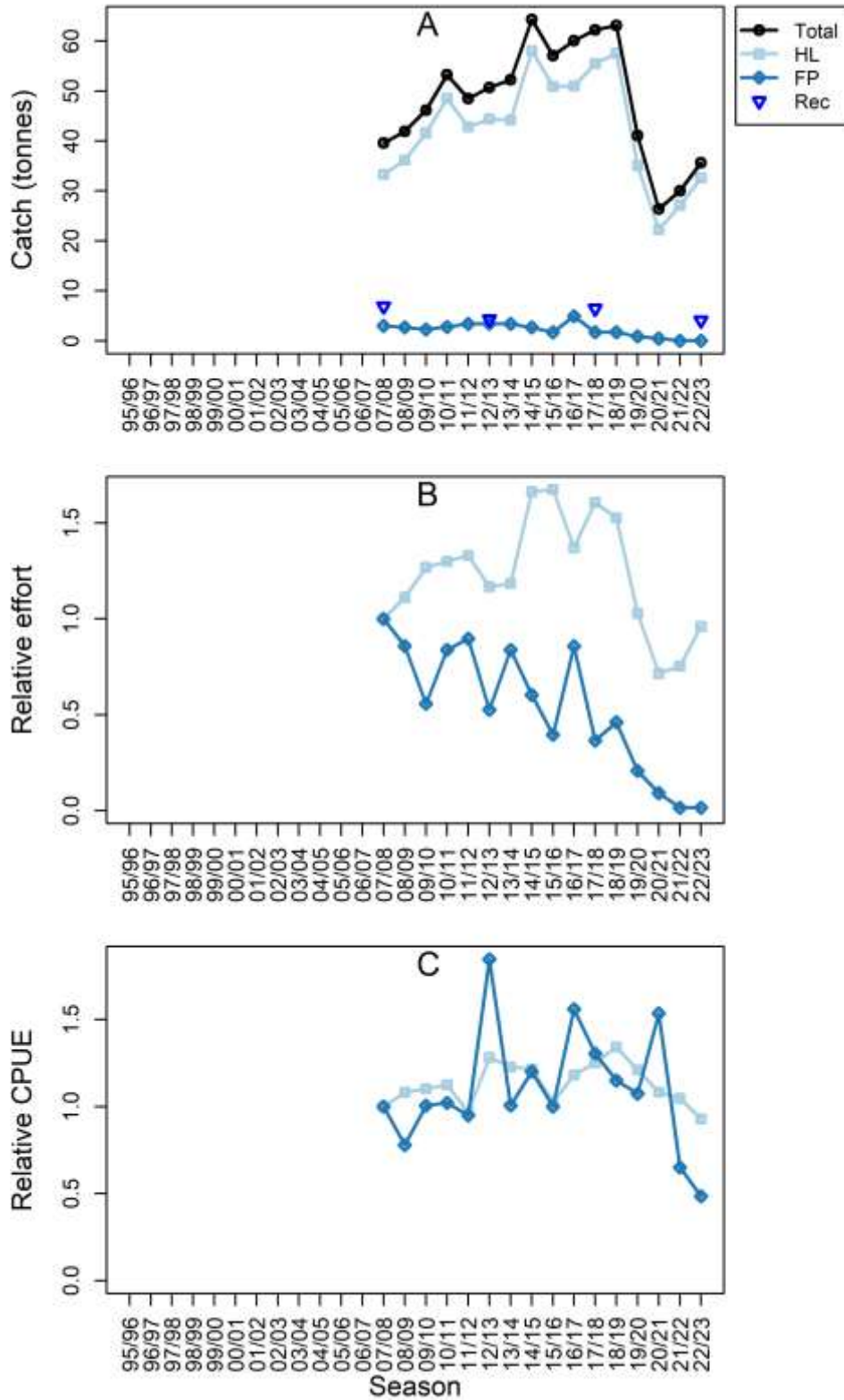


Figure 4.63 (A) Annual commercial Bluethroat Wrasse catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. HL = handline,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

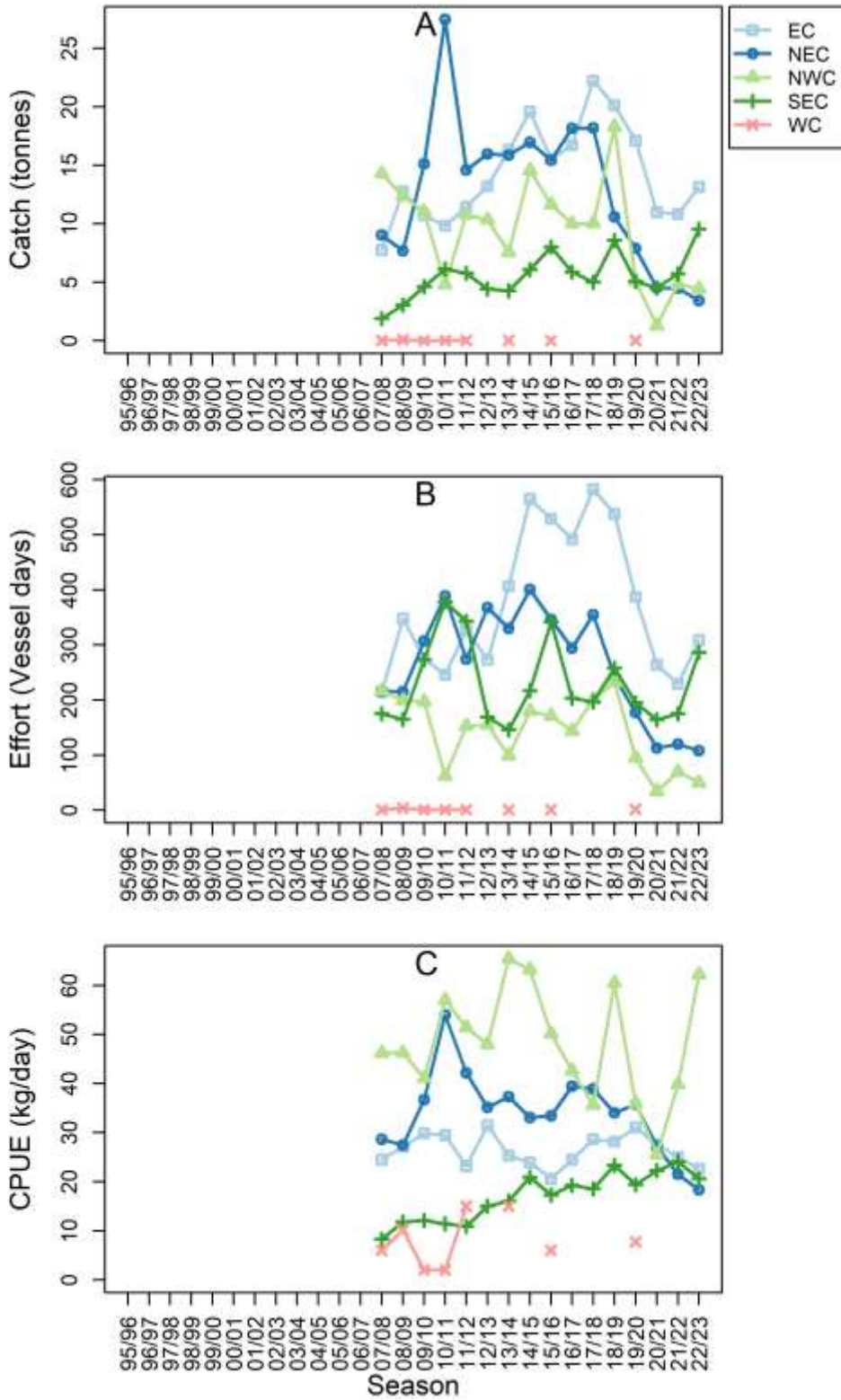


Figure 4.64 Regional commercial Bluethroat Wrasse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for hand line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

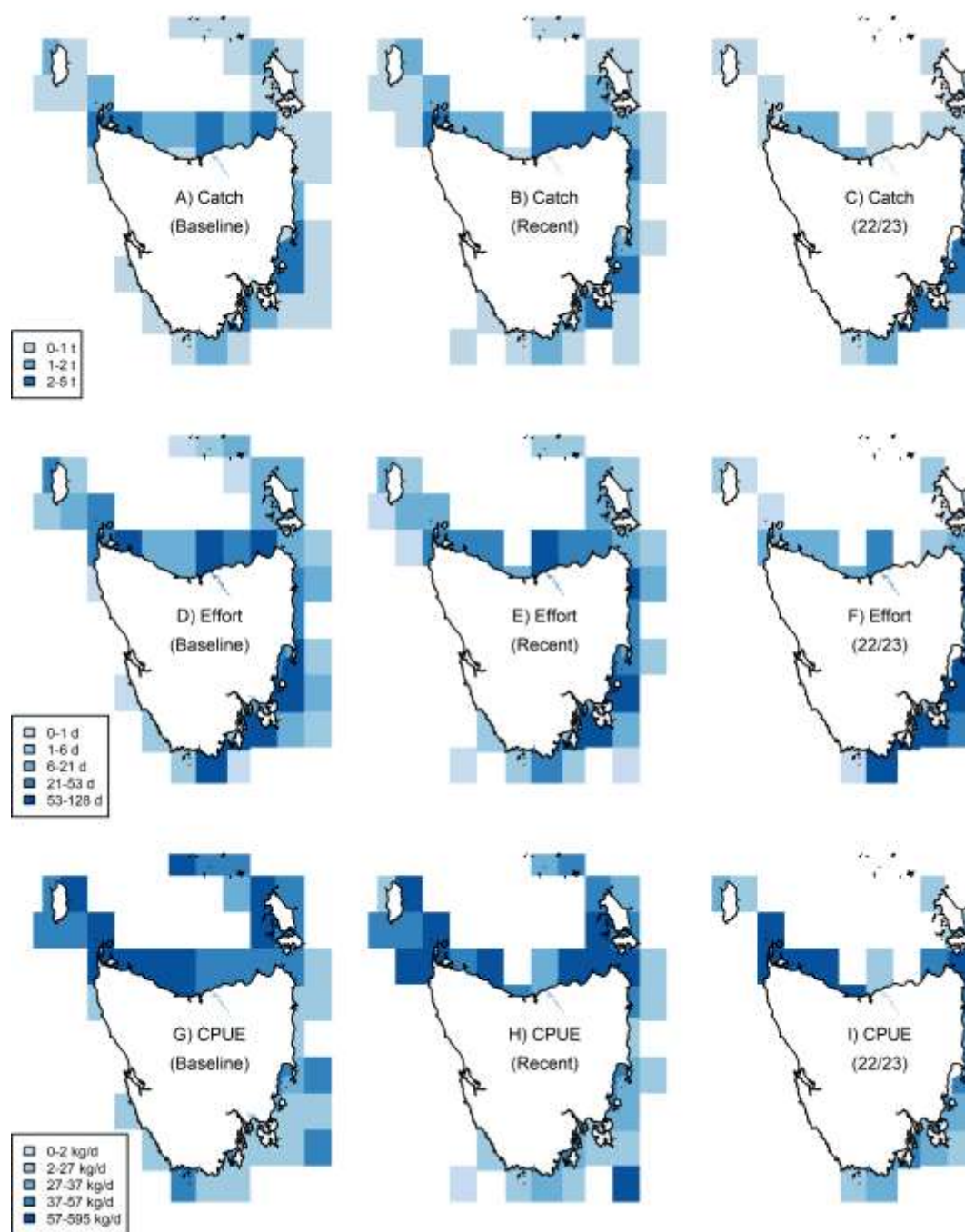


Figure 4.65 Bluethroat Wrasse catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

4.14.2 CMSY results

Based on CMSY results under the assumption of 'low' resilience, the biomass of Bluethroat Wrasse might be depleted to 0.94 B/BMSY, with a lower 95% confidence interval of 0.61 (see Figure 4.66). This equates to approximately 47.2% of unfished levels, with a lower 95% confidence interval of 30.6% (refer to Figure 4.66), which is in proximity to the common target reference point for BMSY set at 50% of unfished levels.

Recorded catches closely approached the estimated maximum sustainable yield (MSY) of 50.0 t, never exceeding the upper 95% confidence interval of 75.0 t. However, they dropped below the lower 95% confidence interval of 31.4 t in 2020/21 and 2021/22, likely influenced by recent COVID-related impacts on market demand. Nonetheless, catches returned within the lower confidence interval in the most recent year (2022/23) (refer to Figure 4.67).

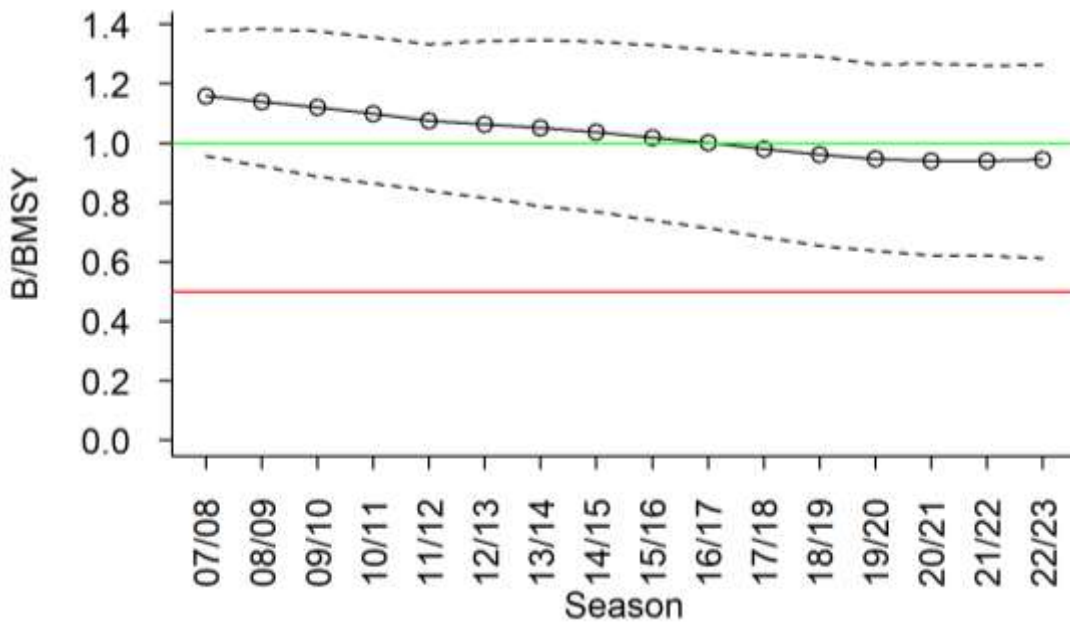


Figure 4.66 Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red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

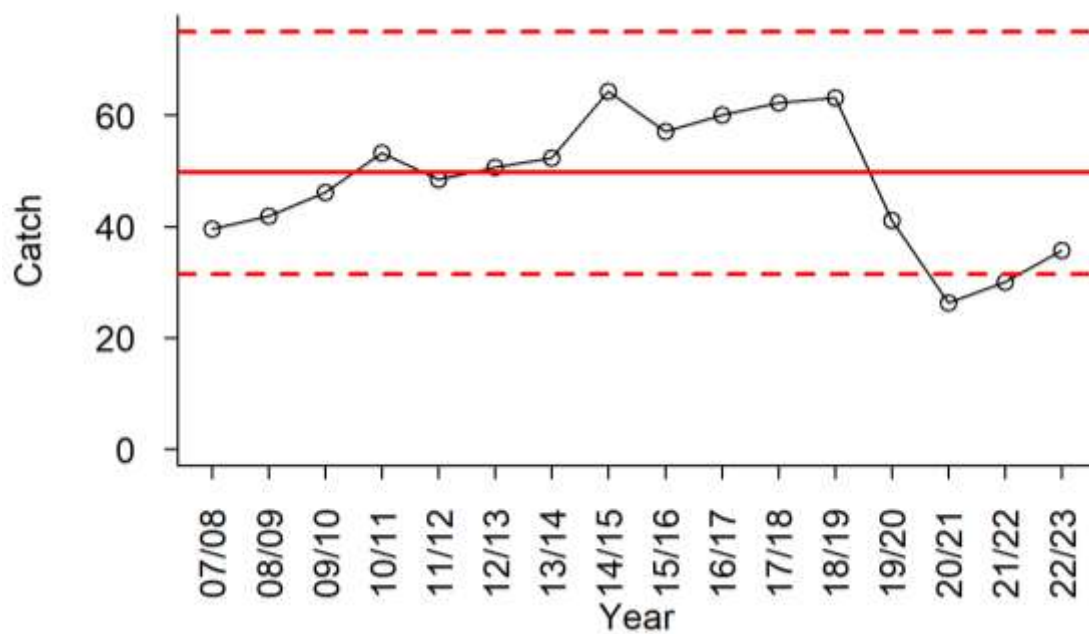


Figure 4.67 Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.15 Wrasse - Purple (*Notolabrus fucicola*)

STOCK STATUS	SUSTAINABLE
Catches, effort and CPUE of Purple Wrasse have remained relatively stable for almost a decade, providing little reason for concern that the current level of fishing pressure is too high. Uncertainty remains over levels of potential localised depletion, and about the size of the catch taken by rock lobster fishers for use as bait. Relatively low catches over the last two seasons have likely been caused by a combination of COVID impacts and changes in fishery dynamics.	
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

Two species of Wrasse are taken commercially in Tasmanian waters: *Notolabrus tetricus* (Bluethroat Wrasse) and *Notolabrus fucicola* (Purple Wrasse). The two species have only been distinguished in catch data since 2007, despite their different size, depth, and tendency to be captured by different gear. Both species are protogynous hermaphrodites, with all individuals beginning life as females and some undergoing a sex inversion after maturity. Both Purple Wrasse are targeted primarily using fish traps. 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 > 90% of total reported catches since 2001/02 and there is no significant recreational fishery for these species. More detailed information on biological characteristics and current management of Wrasse fisheries is available from the [TasFisheriesResearch](https://www.tasfisheriesresearch.com.au/) webpage.

4.15.1 Catch, effort and CPUE

Purple Wrasse has a long history of commercial fishing in Tasmania, but it has only been separated from Blue-Throat Wrasse in fishery returns data since 2007/08. Here only data from the 2007/08 season onwards are presented, previous stock assessment reports show estimates of Wrasse catches prior to 2007/08 (Fraser, Hartmann, and Krueck 2021).

From 2007/08 to 2018/19, Purple Wrasse catches showed a relatively stable trend, with an increase to 21.4 t in 2017/18, followed by a steep decline in 2019/20 and 2020/21 (Figure 4.68 A). Purple Wrasse catch in 2022/23 increased to 22 t. Steep declines in catches of both species in 2019/20 and 2020/21 are likely due to the impact of the COVID-19 pandemic on live fish markets, with widespread restaurant closures and restricted air freight. The upward trend for these species in 2022/23 could potentially reflect a return of this market demand.

Catch and effort for fish traps have been at low and declining levels for over a decade (Figure 4.68 A & B). Fish trap CPUE has fluctuated during this period, showing a general increasing trend for both species (Figure 4.68 C). Handline catch, effort, and CPUE for both species have been relatively stable or slightly increasing over the last decade (Figure 4.68).

Wrasse traded dead and used as bait in rock lobster pots have been historically under-reported. These data are not included in the catch data described above.

Purple Wrasse is more vulnerable to trap capture, and it is now 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 Purple Wrasse are rarely marketed live.

In recreational survey data, the two Wrasse species have not been distinguished. However, given Purple Wrasse represents ~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, Hartmann, and Krueck 2021). Thus, Purple Wrasse is not considered to be an important recreational target species.

As mentioned above regarding Blue-throat Wrasse, Wrasse are reef-associated species, and it is important to note that state-wide analyses are insensitive to changes in abundance at the level of individual reefs at which the fishery might impact stocks. Regional shifts in effort over the years (Figure 4.71), may have masked localized depletions, with fishers moving to new lightly fished areas to maintain catches and CPUE.

Wrasse traded dead and used as bait in rock lobster pots have been historically under-reported. These data are not included in the catch data described above.

A risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

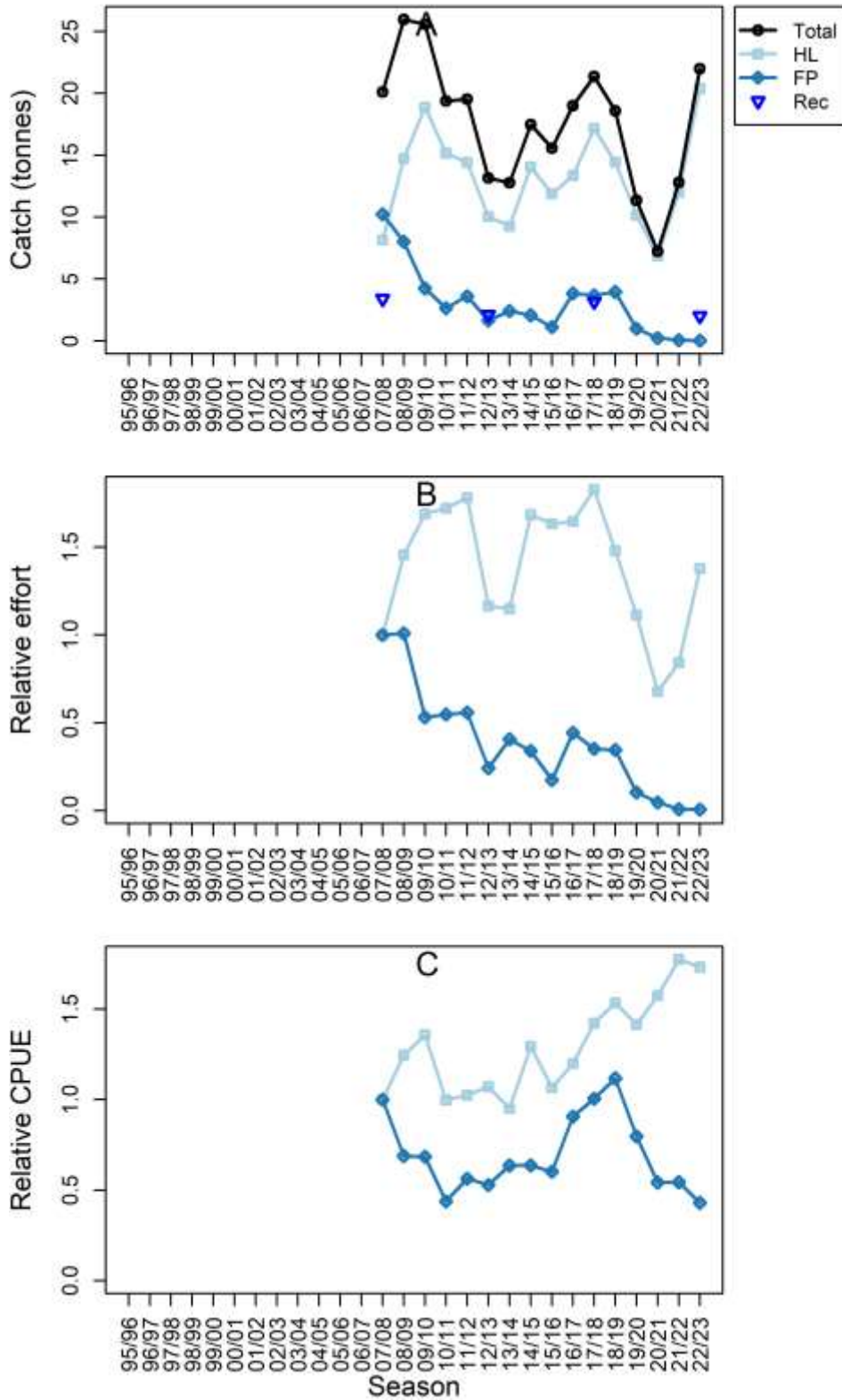


Figure 4.68 (A) Annual commercial Purple Wrasse catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. HL = handline,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

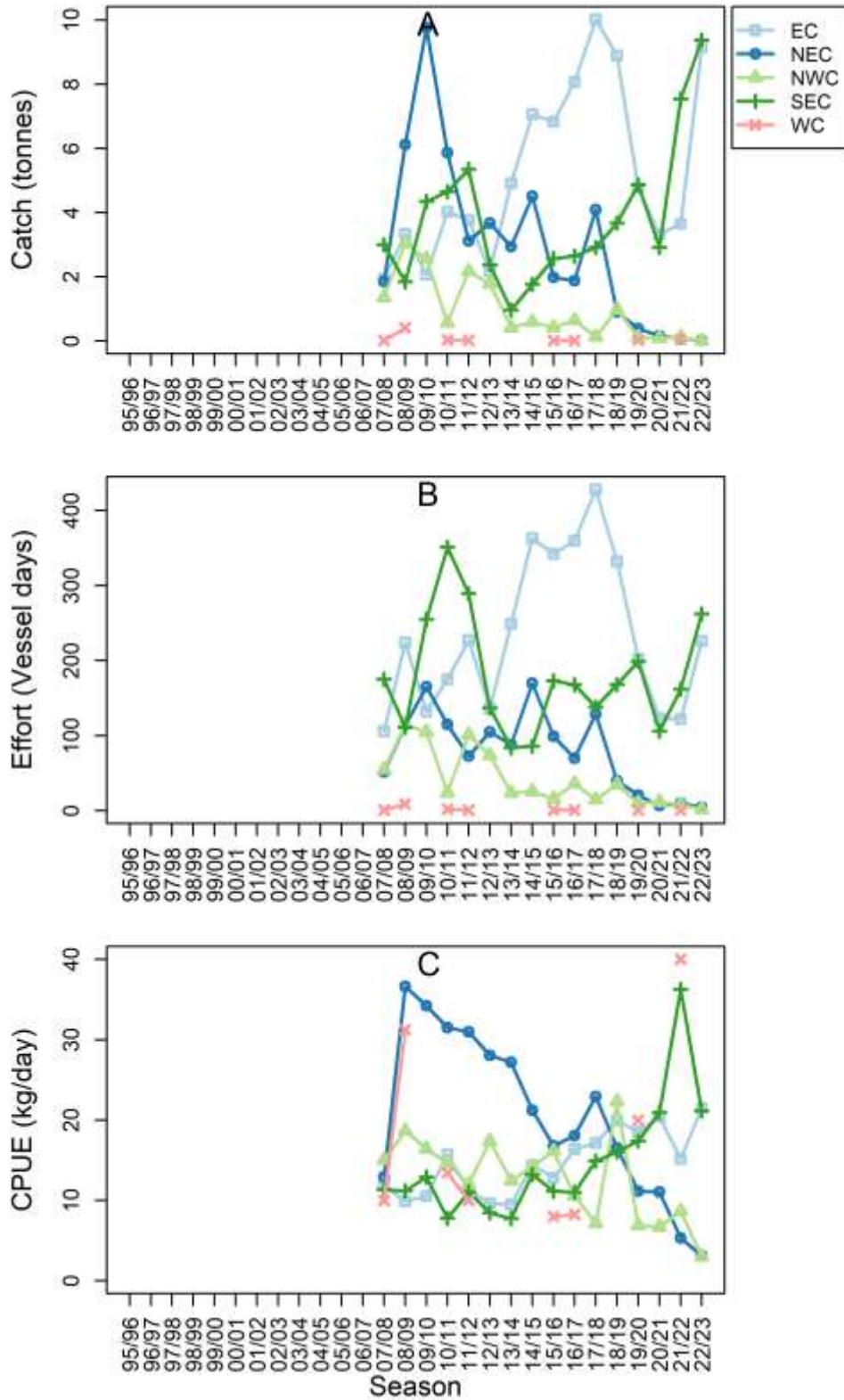


Figure 4.69 Regional commercial Purple Wrasse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for hand line. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

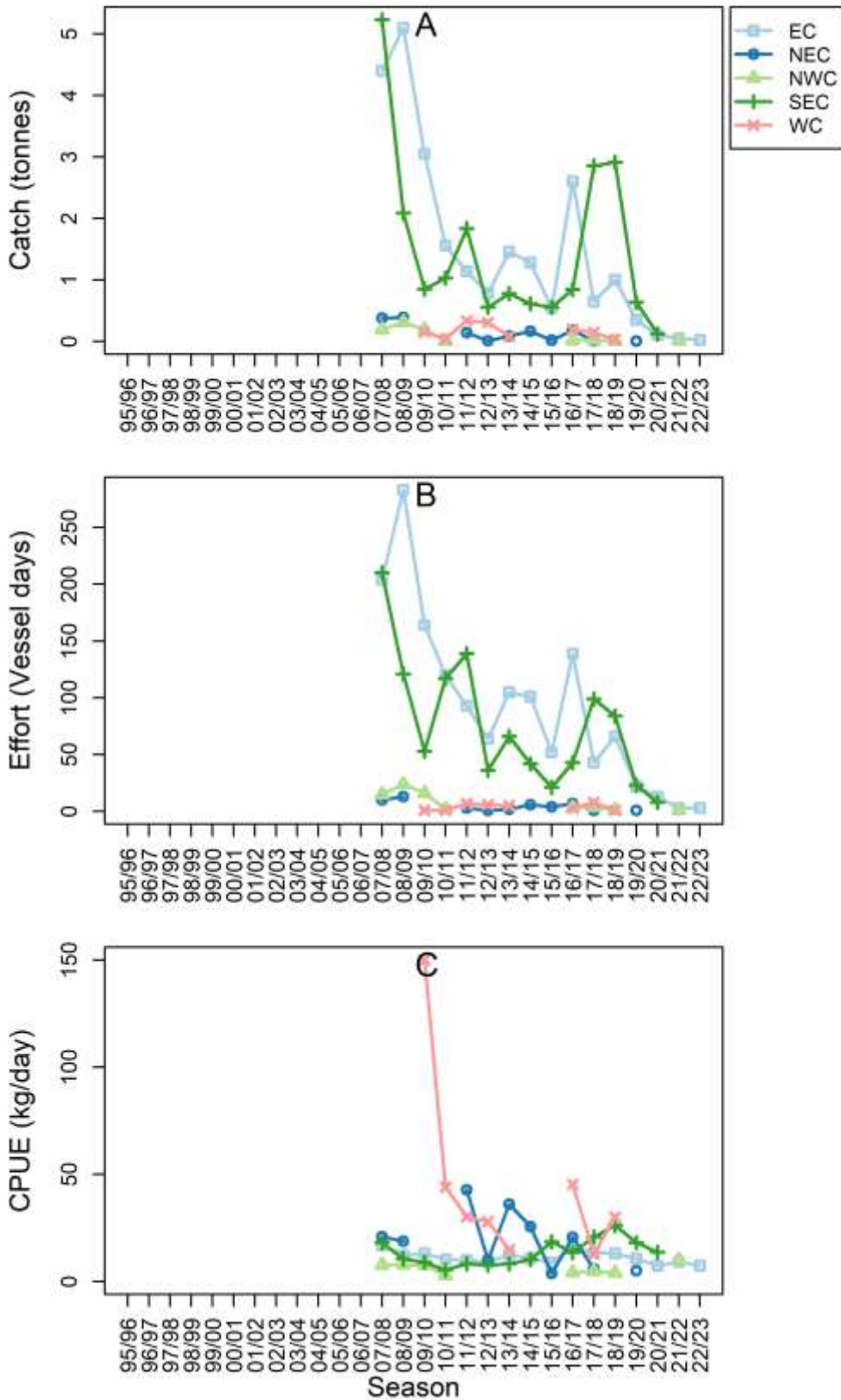


Figure 4.70 Regional commercial Purple Wrasse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for fish trap. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

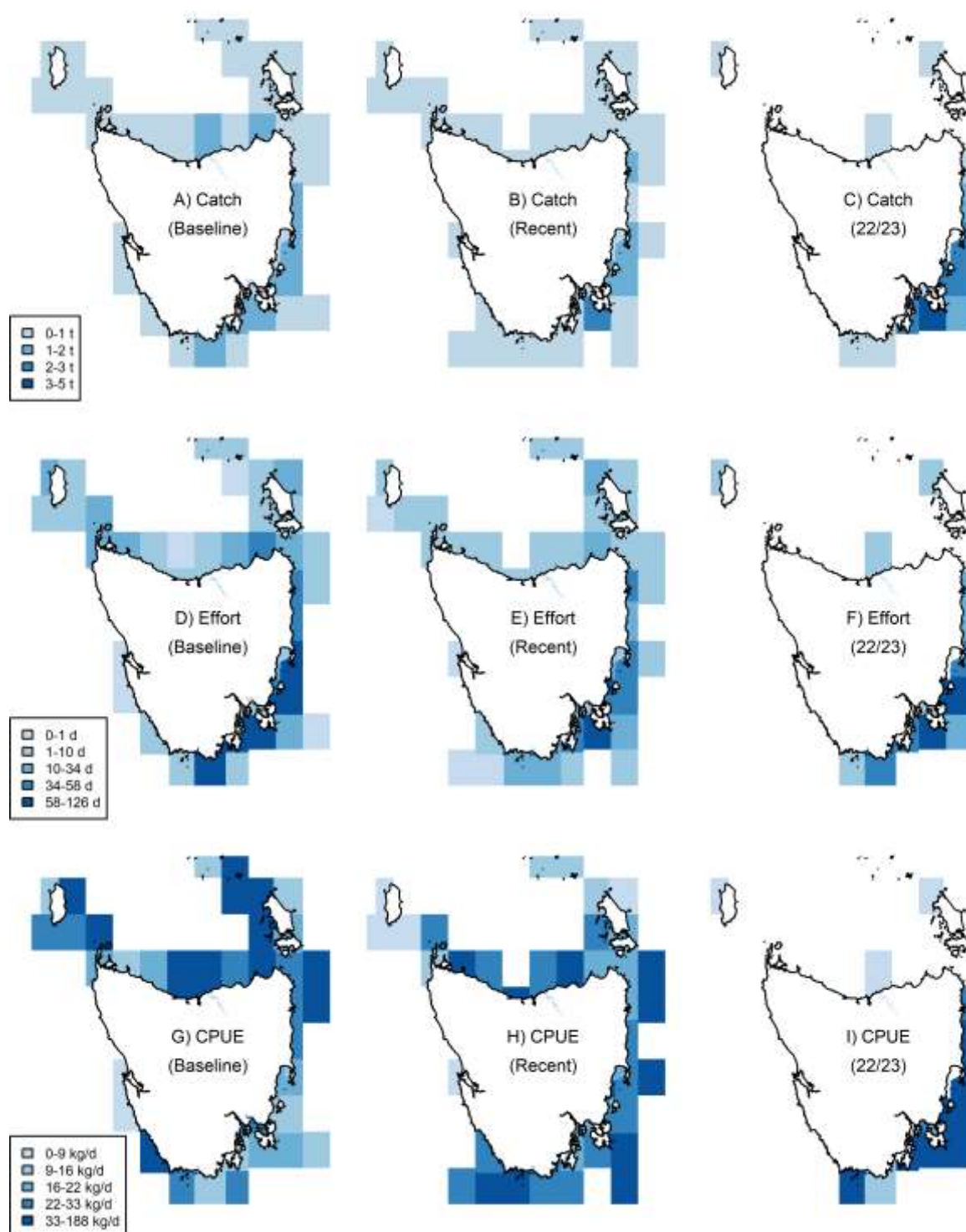


Figure 4.71 Purple Wrasse catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2021/22 fishing season.

4.15.2 CMSY results

The CMSY results, assuming 'low' resilience, indicate that Purple Wrasse biomass might be depleted to 0.92 B/BMSY (lower 95% confidence interval = 0.62), representing approximately 46.3% of unfished levels (lower 95% confidence interval = 30.9%) (refer to Figure 4.72), a value close to the common target reference point for BMSY set at 50% of unfished levels.

Catch levels have been fluctuating around the estimated maximum sustainable yield (MSY) of 18.1 t, never exceeding the upper 95% confidence interval of 26.7 t. Similar to Bluethroat Wrasse, catch fell below the lower 95% confidence interval of 12.6 t in the 2019/20 and 2020/21 seasons, likely due to COVID-related impacts on markets (see Figure 4.73). However, in 2022/23, catches returned to levels above the MSY, marking the highest catches since 2009/10.

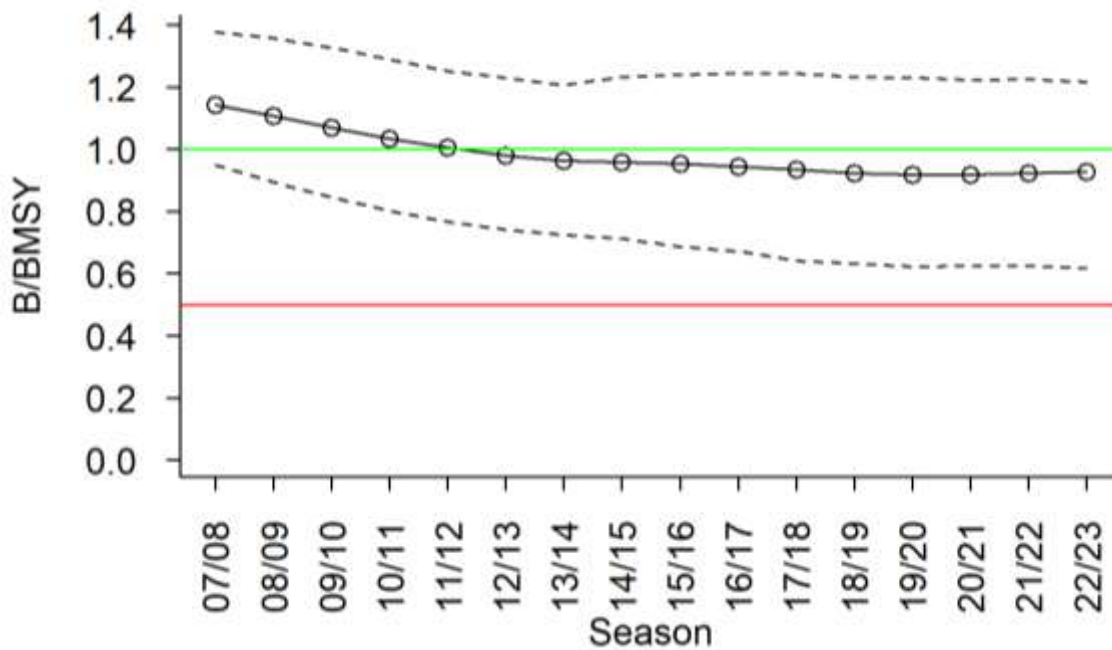


Figure 4.72 Trends in estimated biomass depletion (circles; biomass divided by the biomass supporting the maximum sustainable yield, i.e., 50% of unfished levels) and associated confidence intervals (dashed line). The green line indicates B equals BMSY, which is a common target reference point. The red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

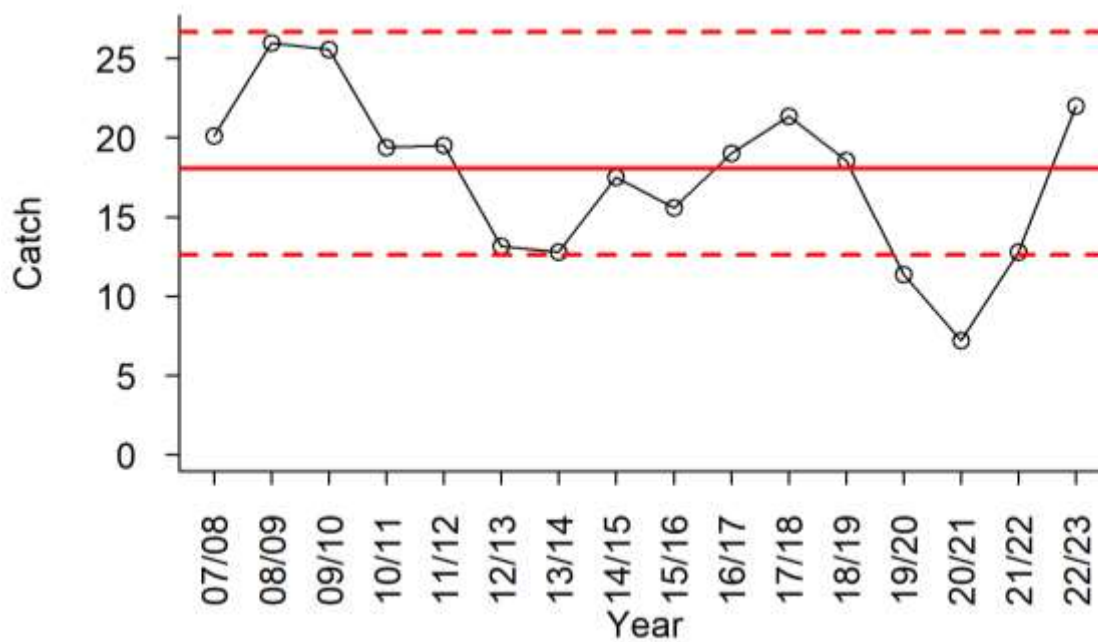
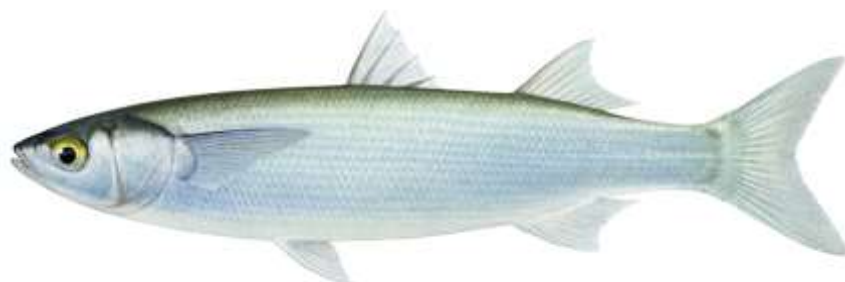


Figure 4.73 Trends in catch (tonnes; circles) relative to estimated maximum sustainable yield. Continuous red line indicates maximum sustainable yield; dashed lines represent 95% confidence intervals.

4.16 Yelloweye Mullet (*Aldrichetta forsteri*)

STOCK STATUS	SUSTAINABLE
Yelloweye Mullet are most abundant in estuarine habitats, where netting is prohibited or restricted, which provides this species a high degree of protection throughout most of its range in Tasmania. Commercial logbook records indicate consistently low levels of catch. Thus, it is overall unlikely that the stock is recruitment impaired or that the current fishing pressure could cause the stock to become recruitment impaired in the future.	
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

Yelloweye Mullet is a schooling species that inhabits shallow (≤ 20 m), sheltered waters over sand and seagrass, with highest abundances recorded in estuaries (Edgar 2008). Yelloweye Mullet are occasionally targeted commercially using beach and purse seine nets as well as small mesh nets. The vast majority of commercial Mullet catch in Tasmanian waters is Yelloweye Mullet; however, some catch may include Sea Mullet (*Mugil cephalus*). Recreationally, Yelloweye Mullet are targeted using rod and line or small mesh gillnets ('mullet nets'). More detailed information on biological characteristics and current management of Yelloweye Mullet fisheries is available from the [TasFisheriesResearch](https://www.tasfisheriesresearch.com.au/) webpage.

4.16.1 Catch, effort and CPUE

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. The commercial Mullet catch in 2022/23 was 2.3 t (Figure 4.74 A).

Beach 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 and were responsible for higher albeit very small catches than beach seine in 2022/23 (Figure 4.74 B). 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).

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.

A formal risk assessment of recruitment impairment for this species, utilising the Marine Stewardship Council approach, is detailed in the 2021/22 Scalefish Assessment Report (Sharples et al. 2023).

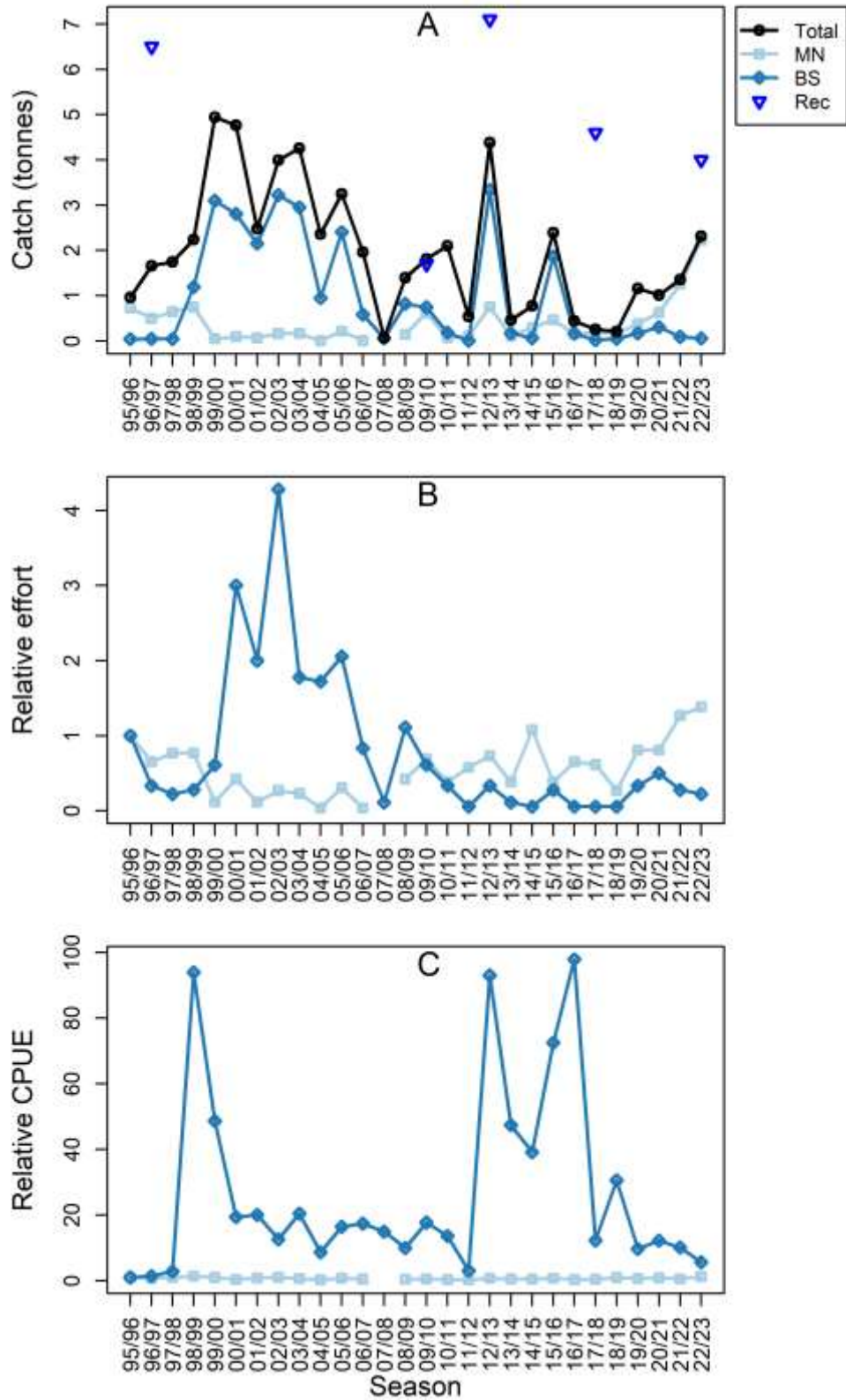


Figure 4.74 (A) Annual commercial Yelloweye Mullet catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. MN = small mesh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

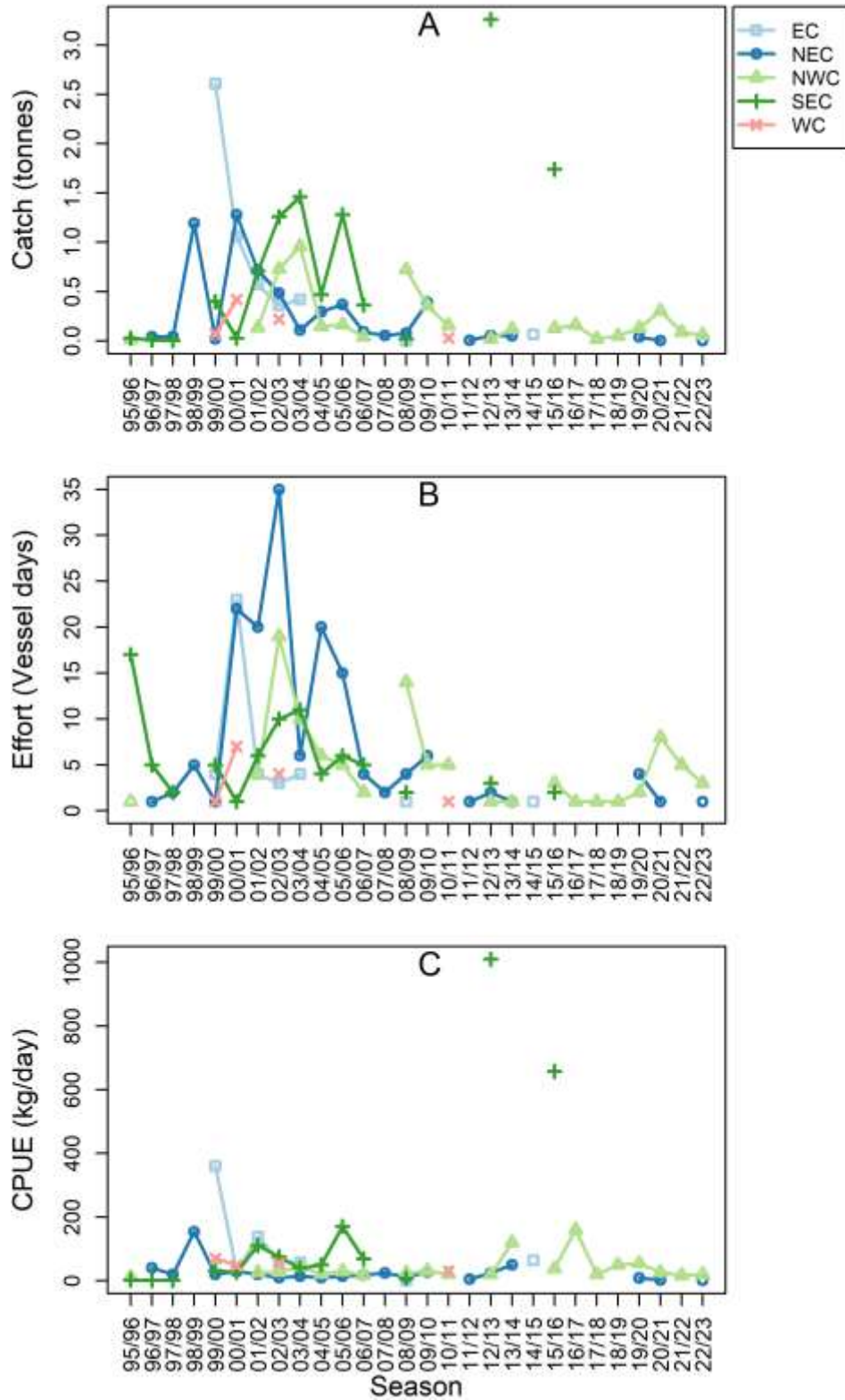


Figure 4.75 Regional commercial Yelloweye Mullet catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

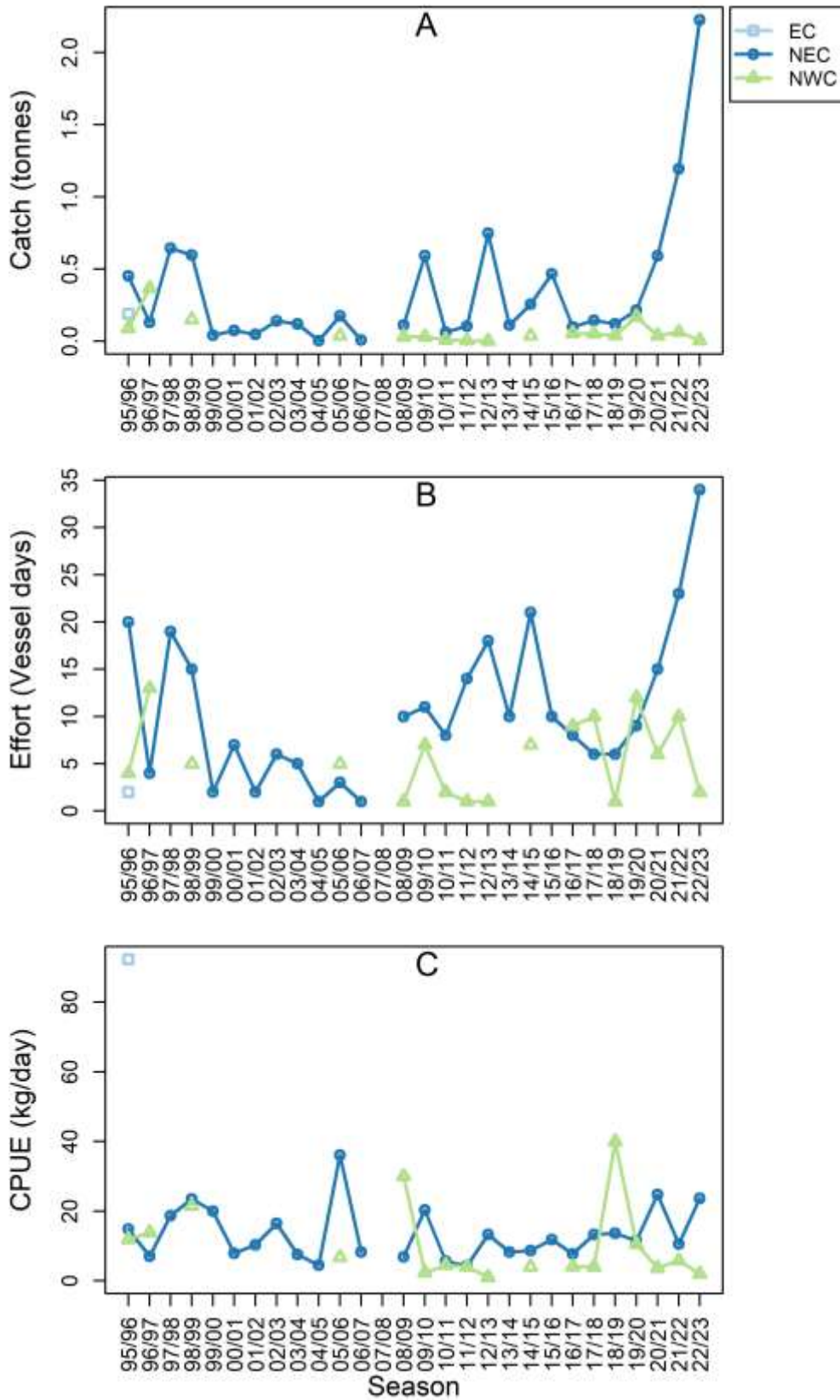


Figure 4.76 Regional commercial Yelloweye Mullet catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for small mesh net. EC = east coast, NEC = northeast coast, NWC = northwest coast.

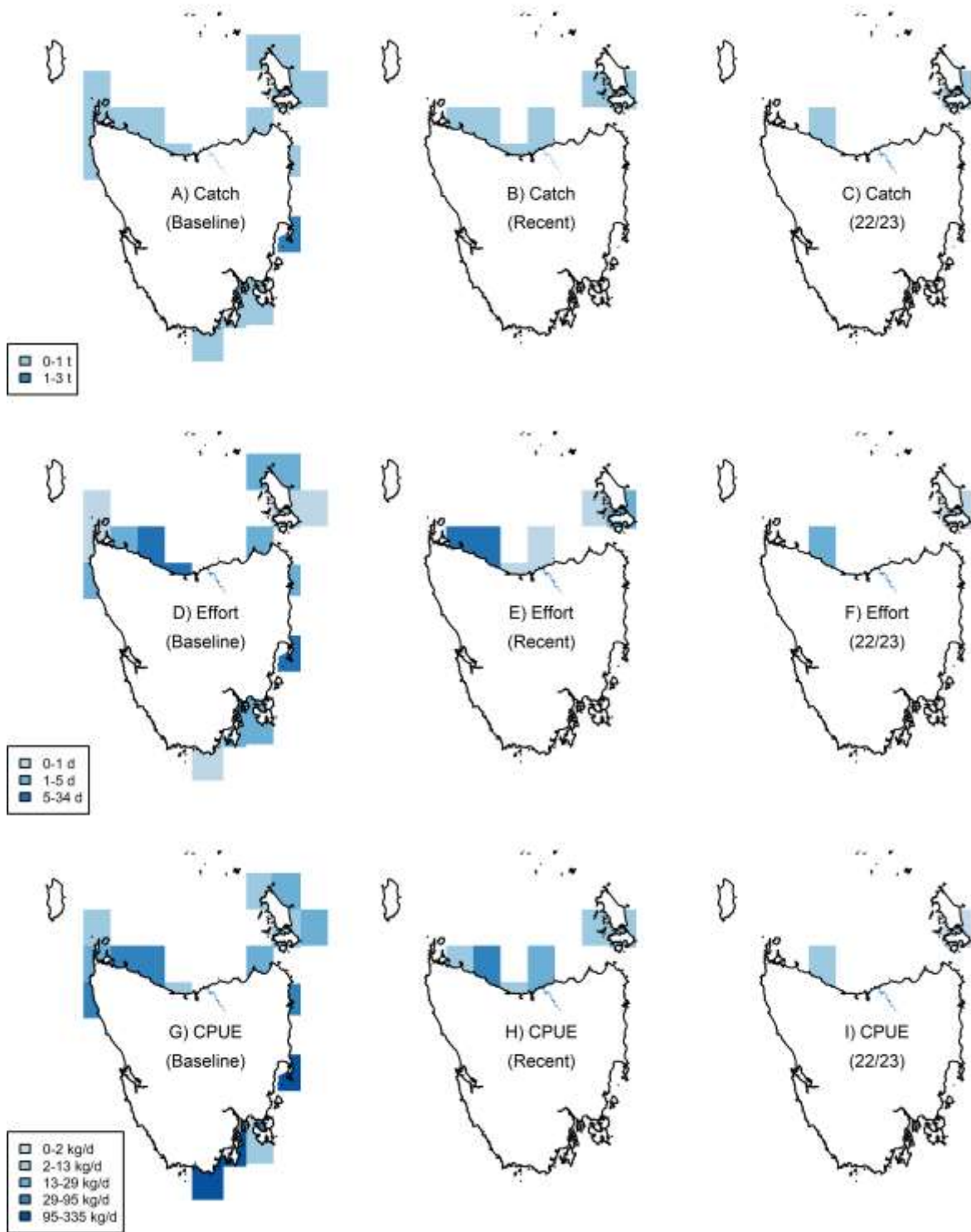


Figure 4.77 Yelloweye Mullet catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent 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 2023 (Butler et al. 2023). It was reported as Depleted in the 2020 Status of Australian Fish Stocks Report (Pidcocke et al. 2021). 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.	
IMPORTANCE	Key
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



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

Blue Warehou is a highly mobile schooling species, occurring seasonally with inter-annual variability in Tasmanian inshore waters, mostly likely in association with suitable oceanographic conditions and the availability of prey species (mostly salps). A small recreational gillnet fishery for Blue Warehou represents < 10% of the total annual harvest of this species in Tasmanian waters. The Blue Warehou stock has been classified as Depleted (Overfished) since 2008, despite a stock rebuilding initiative (the Blue Warehou Stock Rebuilding Strategy) that has been in place since then (AFMA 2014). The stock rebuilding strategy established Blue Warehou as an incidentally caught species, and the Commonwealth Total Allowable Catch has decreased a number of times. More detailed information on biological characteristics and current management of Blue Warehou fisheries is available from the [TasFisheriesResearch](https://www.tasfisheriesresearch.com.au/) webpage.

5.1.1 Catch, effort and CPUE

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.

Due to the low availability of Blue Warehou since the early 2000s, the species has been rarely targeted. Catch dropped to 10.9 t in 2010/11, and remained below 1 t until 2017/18, when it reached 12.6 t (Figure 5.1 A). In the four seasons prior to 2022/23, catch has been less than 2 t. However, in 2022/23 3.8 t of Blue Warehou were landed in Tasmania. Peak Tasmanian landings were 317.6 t in 1991/92, which corresponded with the peak of Australia-wide landings of almost 3,000 t (AFMA 2014).

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), which has led to the species being managed by AFMA as two stocks. 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.

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).

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. After an initial increase and subsequent substantial drop, CPUE has stabilised since 2000/01, with notable fluctuations around the reference value. An historical low CPUE value was recorded in 2021/22, but the most recent season shows a notable increase and highest CPUE in 10 years (Figure 5.1 C).

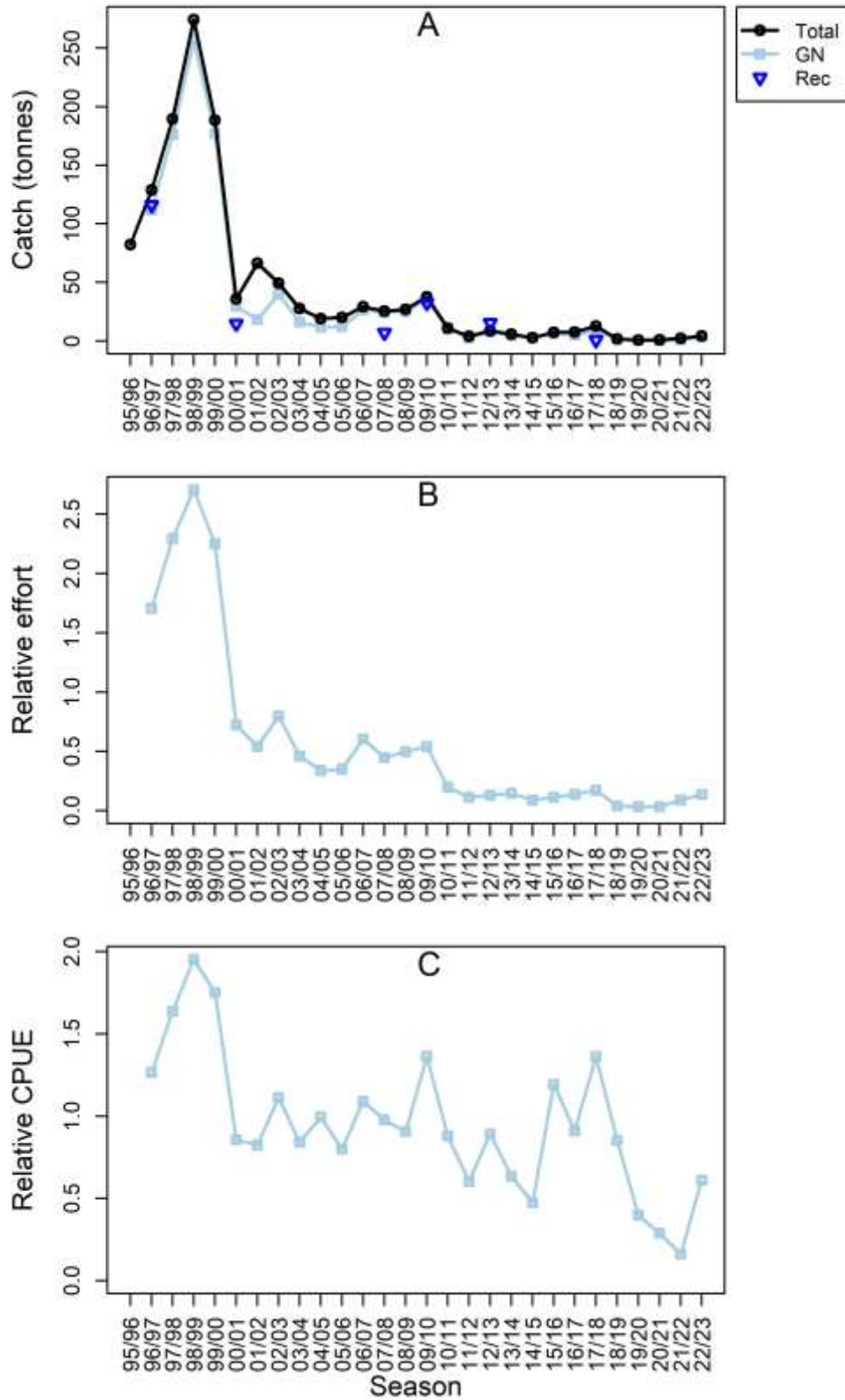


Figure 5.1 (A) Annual commercial Blue Warehouse catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. GN = gillnet, Rec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

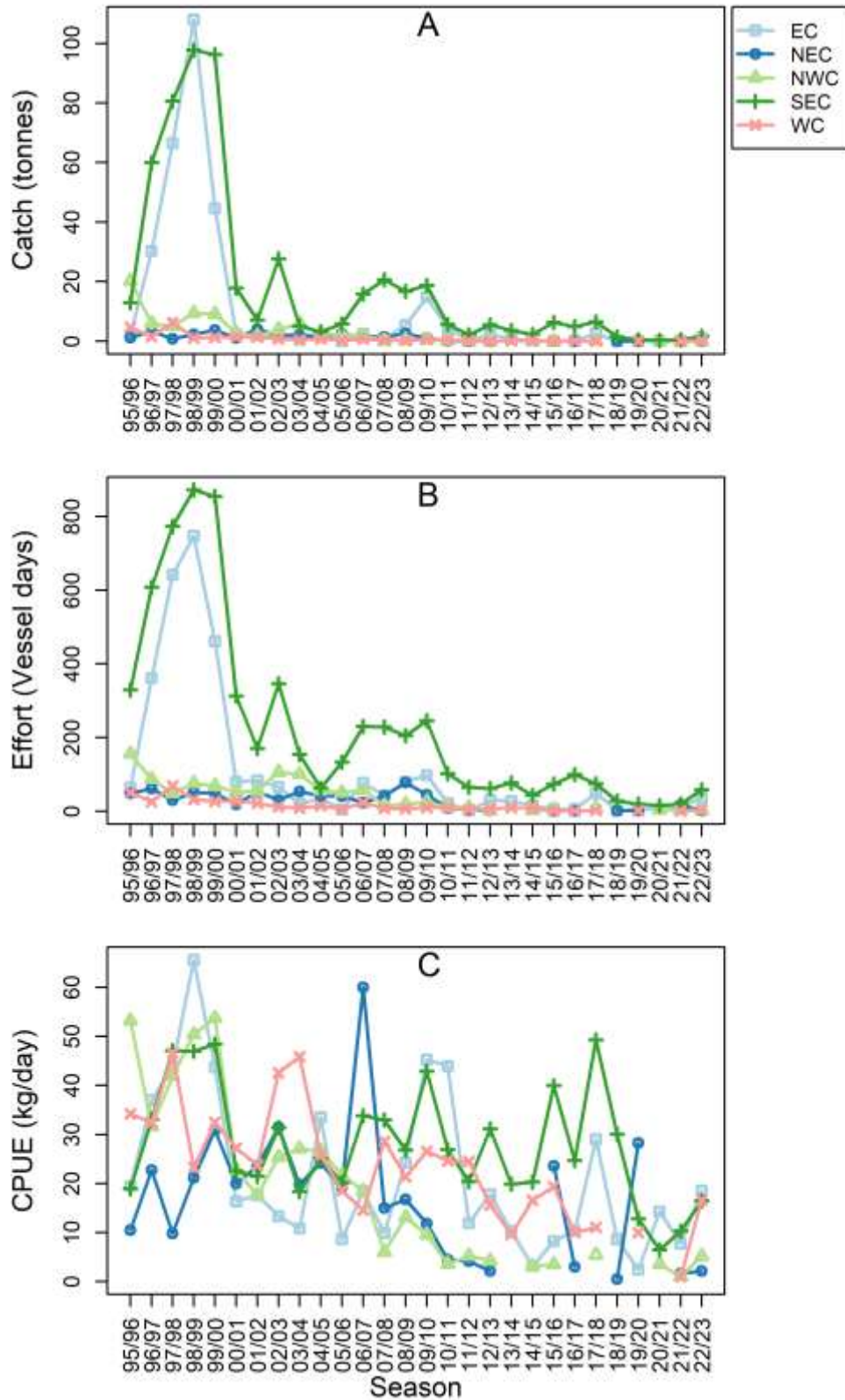


Figure 5.2 Regional commercial Blue Warehouse catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

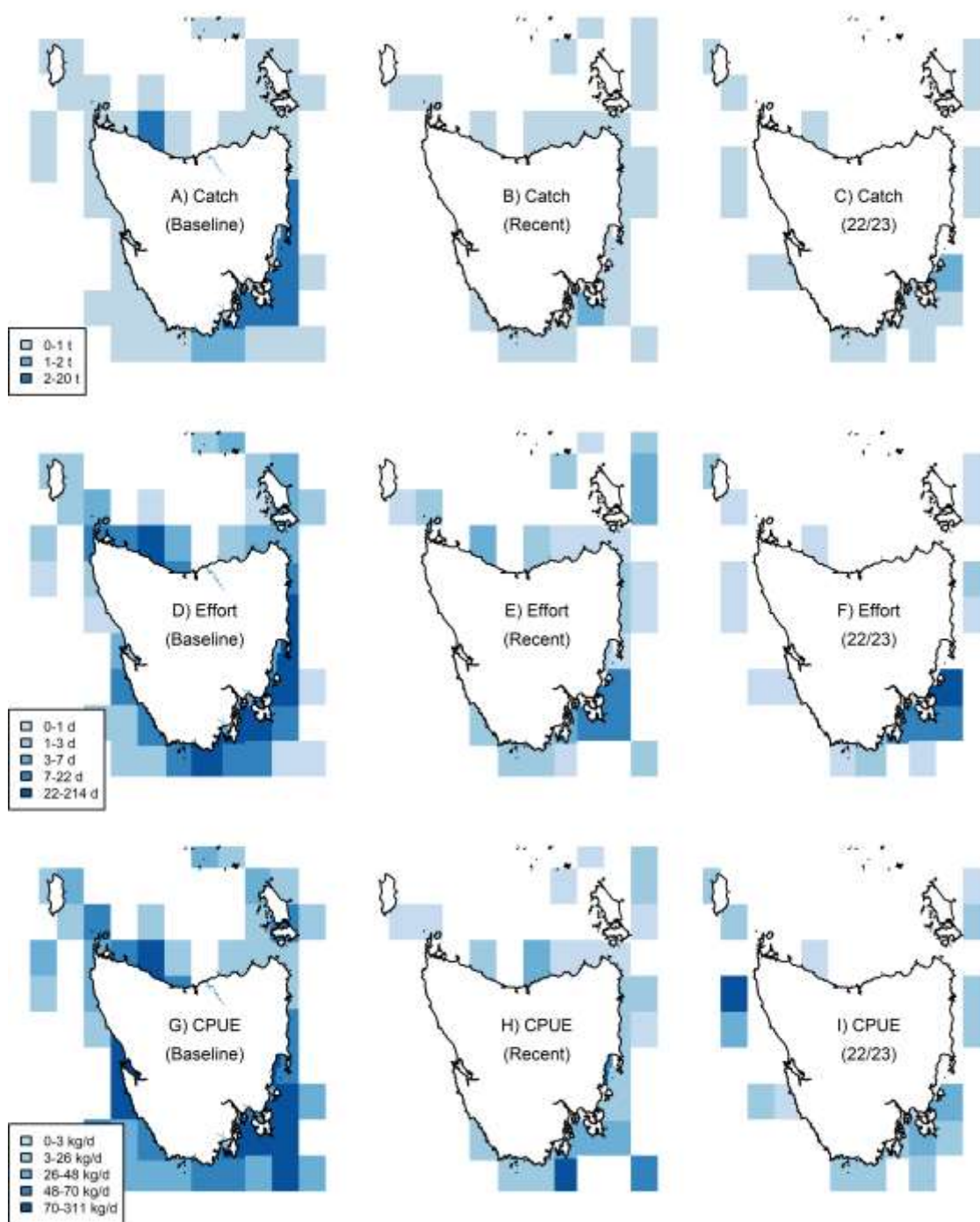


Figure 5.3 Blue Warehouse catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent 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.

Stock status**DEPLETED**

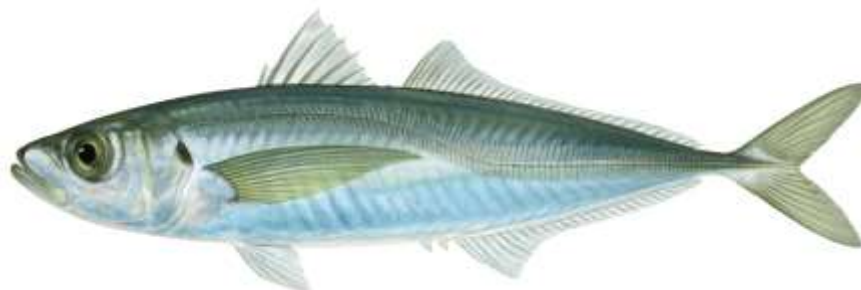
The decreasing catch of Blue Warehou over the last 20 years is almost certainly linked to reduced biomass, which is predominantly a result of overfishing by Commonwealth and state fisheries during the 1990s when catches exceeded 2,500 t in several years and consistently reached > 1,000 t annually between 1987 and 1998 (AFMA 2014). These figures include state landings, with Tasmanian catches accounting for about 10% of the total (AFMA 2014). In recent years, catches of Blue Warehou have declined substantially and it is now possible, as it was in the 2017/18 season, that the Tasmanian recreational catch exceeds the commercial catch. This data will soon be updated when the results from the 2022/23 survey become available. 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 a predominantly Commonwealth-managed species that has been classified as “Not overfished nor subject to overfishing” by ABARES in the Fishery Status Reports 2021 (Butler et al. 2023). Only minor catches of this species have been taken from Tasmanian waters over the last decade due to limited purse seine operation. Patterns of catch and effort are unlikely to reflect stock status but the currently low level of fishing pressure in Tasmania is unlikely to cause the stock to become recruitment impaired.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



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

Common Jack Mackerel is a schooling species that inhabits open water over the continental shelf from southern Queensland to Shark Bay, Western Australia, including Tasmania. Jack Mackerel are mainly targeted using purse seine and beach seine gear. 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. There is a small recreational fishery for Jack Mackerel using line gear in Tasmania. More detailed information on biological characteristics and current management of Jack Mackerel fisheries is available from the [TasFisheriesResearch](#) webpage.

5.2.1 Catch, effort and CPUE

Catches of Jack Mackerel in Tasmanian waters that are reported in the General Fishing Returns have been variable, mostly fluctuating between 2.6 and 59.8 t until 2007/08, when there was a sharp increase in purse seine effort targeting Jack Mackerel on the east coast that lasted three years (Figure 5.4, Figure 5.5, Figure 5.7). Over the assessed time series,

Jack Mackerel catches peaked at 919.6 t in 2008/09, then declined sharply in 2010/11 and 2011/12 to around 60 t because the major purse seine operator ceased activities. In 2022/23, only 1.6 t of Jack Mackerel was landed in Tasmania, following similarly low catches in the preceding ten years (Figure 5.4 A). 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).

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).

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).

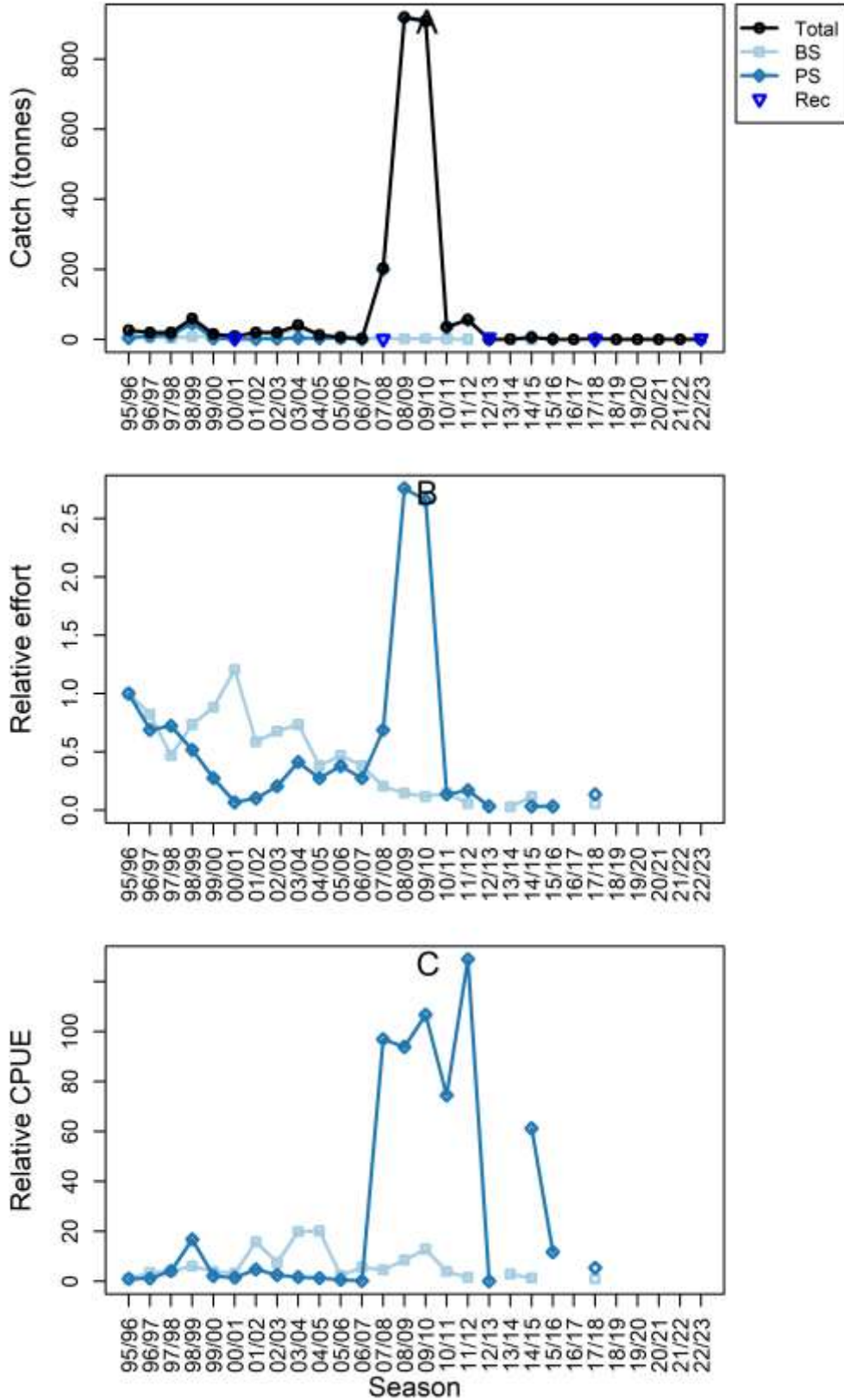


Figure 5.4 (A) Annual commercial Common Jack Mackerel catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. BS = beach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

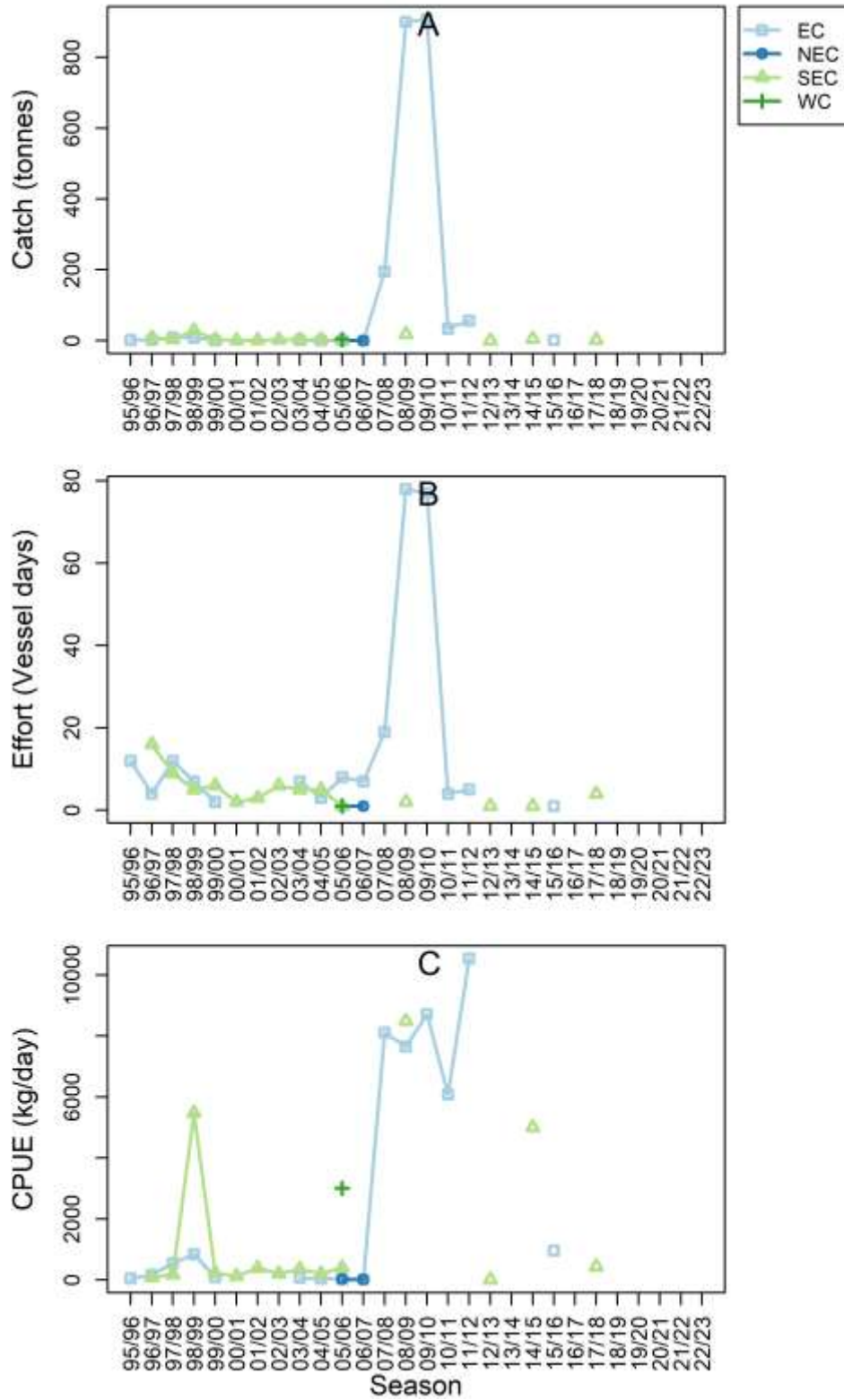


Figure 5.5 Regional commercial Common Jack Mackerel catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for purse seine. EC = east coast, NEC = northeast coast, SEC = southeast coast, WC = west coast.

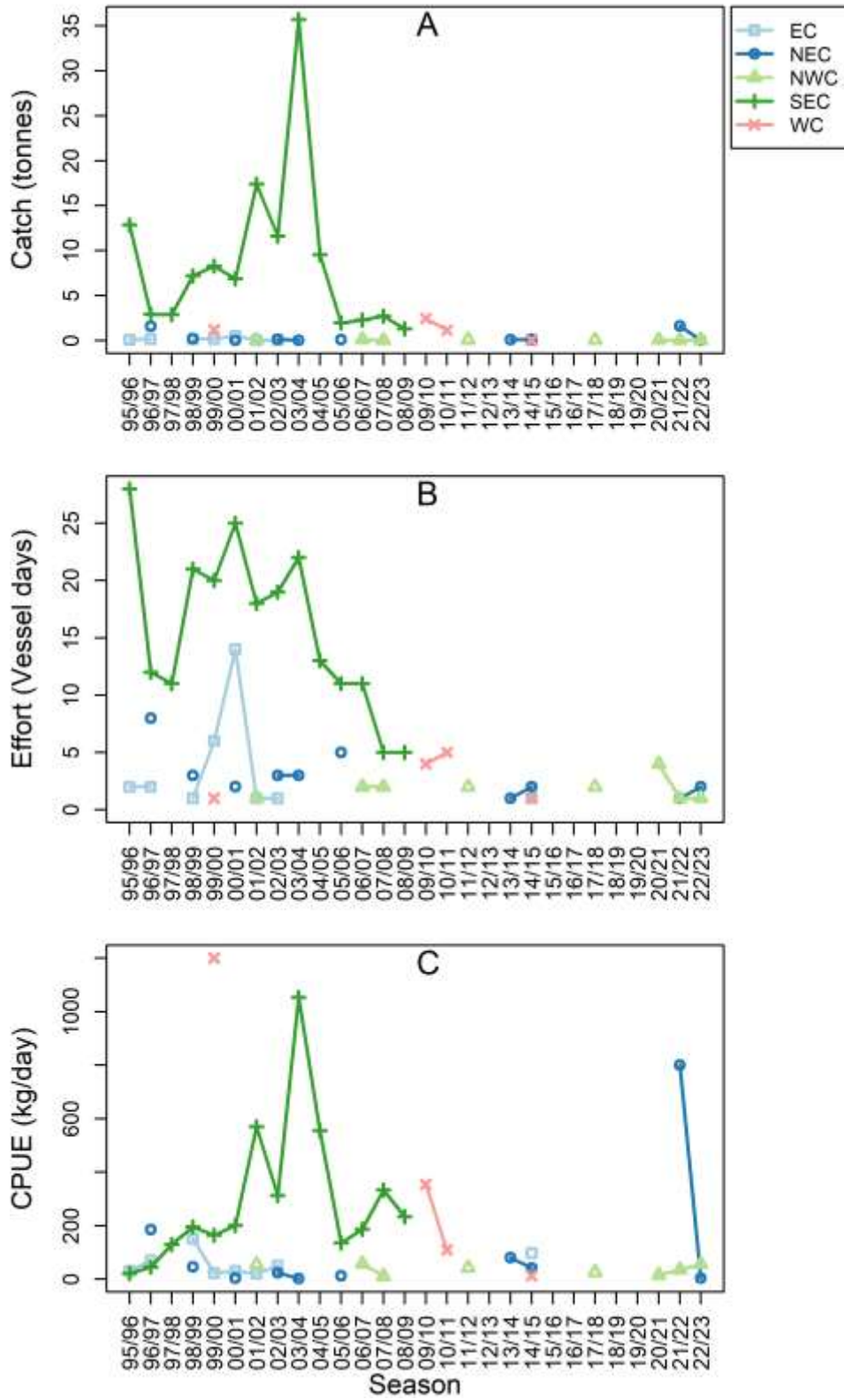


Figure 5.6 Regional commercial Common Jack Mackerel catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for beach seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

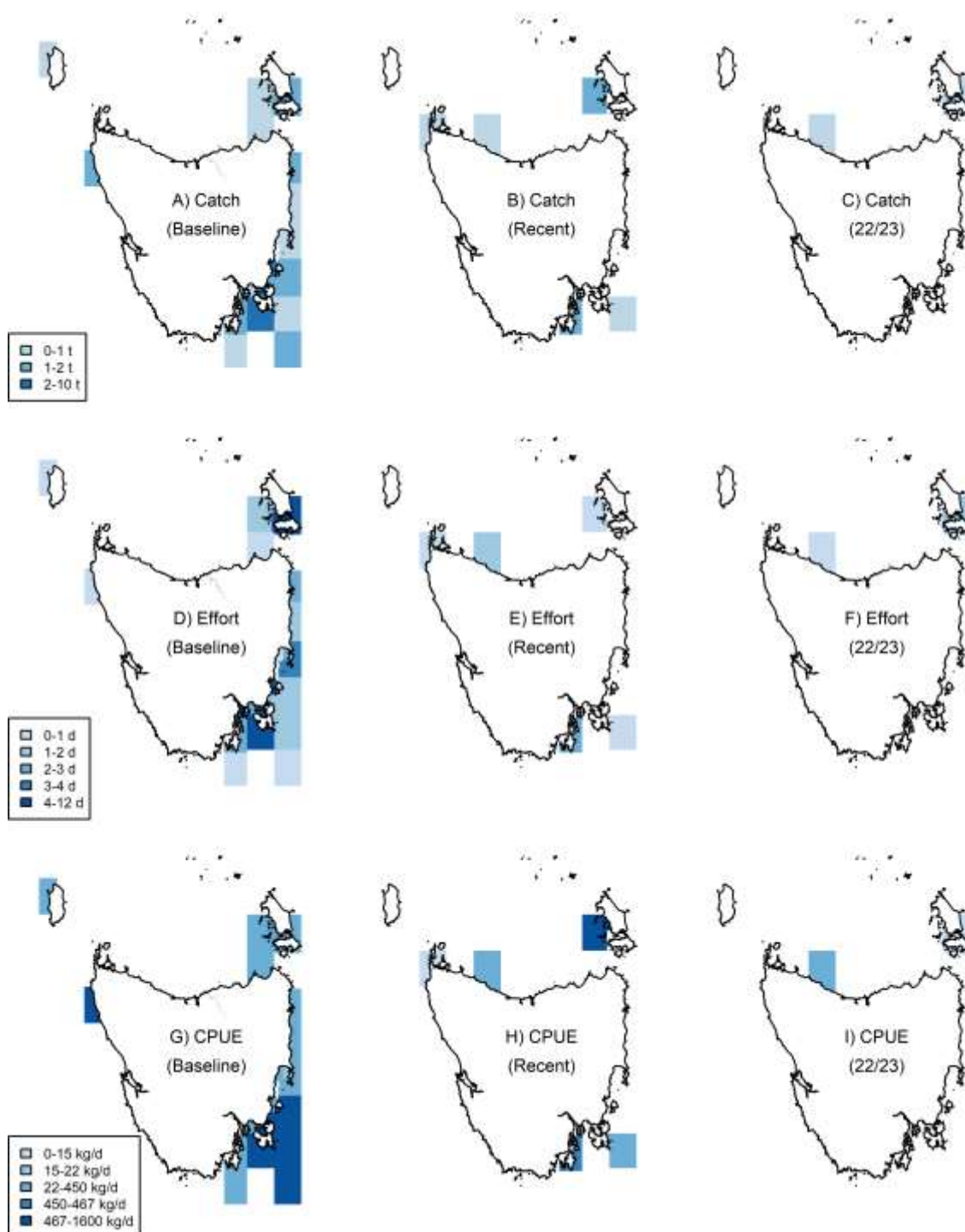


Figure 5.7 Common Jack Mackerel catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2016/18 to 2021/22). '22/23' represent data from the 2022/23 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. A 2014 study assessed the spawning stock biomass for eastern Australia to be in the order of 150,000 tonnes (Ward et al. 2015). 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 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). It has been classified as Sustainable in the 2020 Status of Australian Fish Stocks Report (Pidcocke et al. 2021). Tasmanian catches fluctuate due to market demand, but generally represent only a small proportion of the Commonwealth commercial catch.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



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

Eastern School Whiting is endemic to south-eastern Australia, from southern Queensland to western Victoria and around Tasmania. This schooling species is associated with sandy habitats and is found in deeper coastal waters as well as coastal lakes and estuaries (Gomon et al. 2008). In Tasmania, Eastern School Whiting is caught primarily using Danish Seine gear in the south of the state. 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. There is a small recreational line fishery for Eastern School Whiting in southern Tasmania. More detailed information on biological characteristics and current management of Eastern School Whiting fisheries is available from the [TasFisheriesResearch](#) webpage.

5.3.1 Catch, effort and CPUE

Eastern School Whiting landings in Tasmania have fluctuated widely since 1998/99, with a catch of 38.8 t recorded in 2022/23 (Figure 5.8 A). 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).

Recreational catches of Eastern School Whiting are 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).

The Tasmanian Danish seine fishing effort has been variable over time, showing notable drops in 2005/06 and 2014/15 (Figure 5.8 B). Effort in 2022/23 was similar to the effort from the reference year, and CPUE showed a slight increase 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](#)).

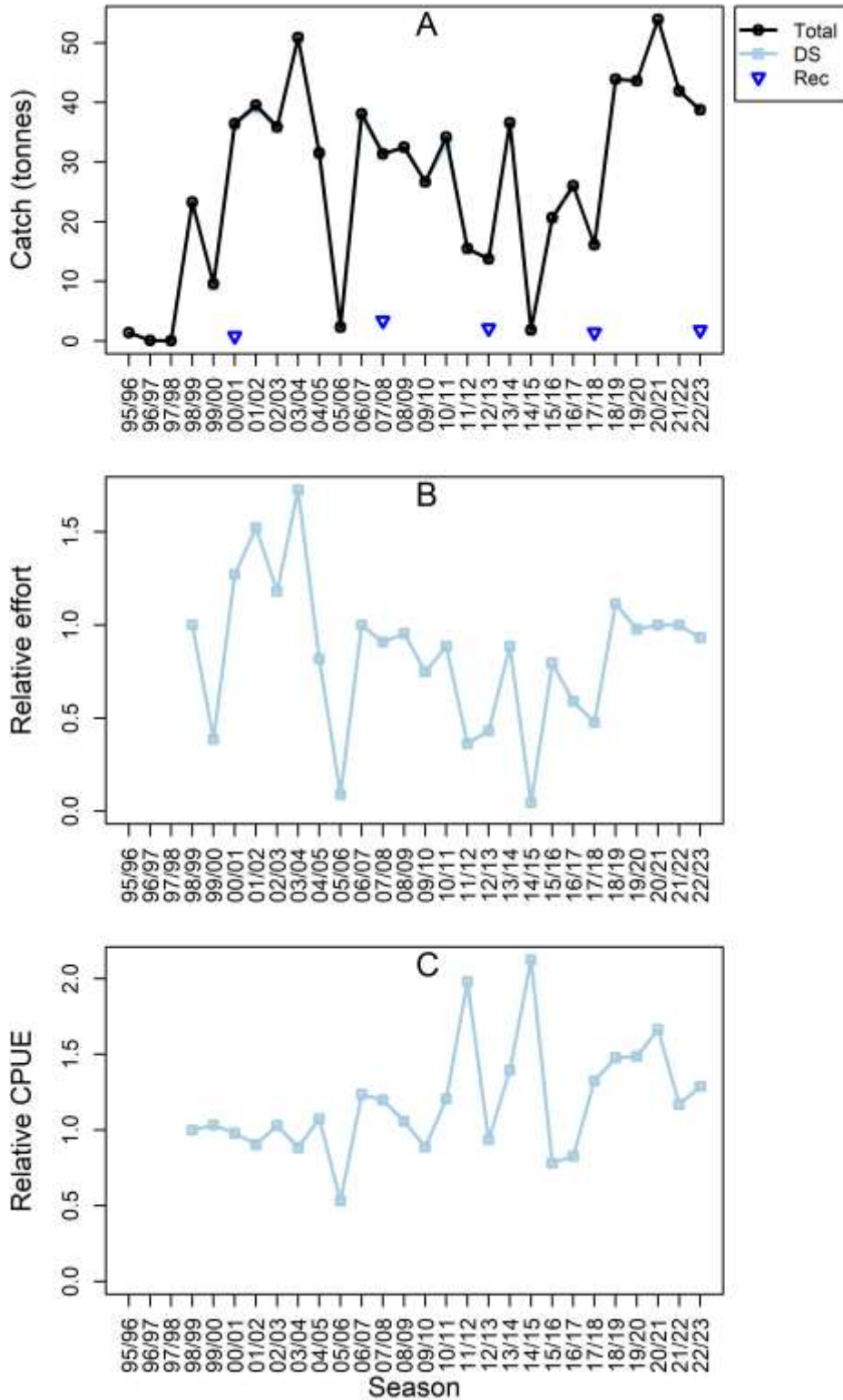


Figure 5.8 (A) Annual commercial Eastern School Whiting catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1998/99; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1998/99. DS = Danish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

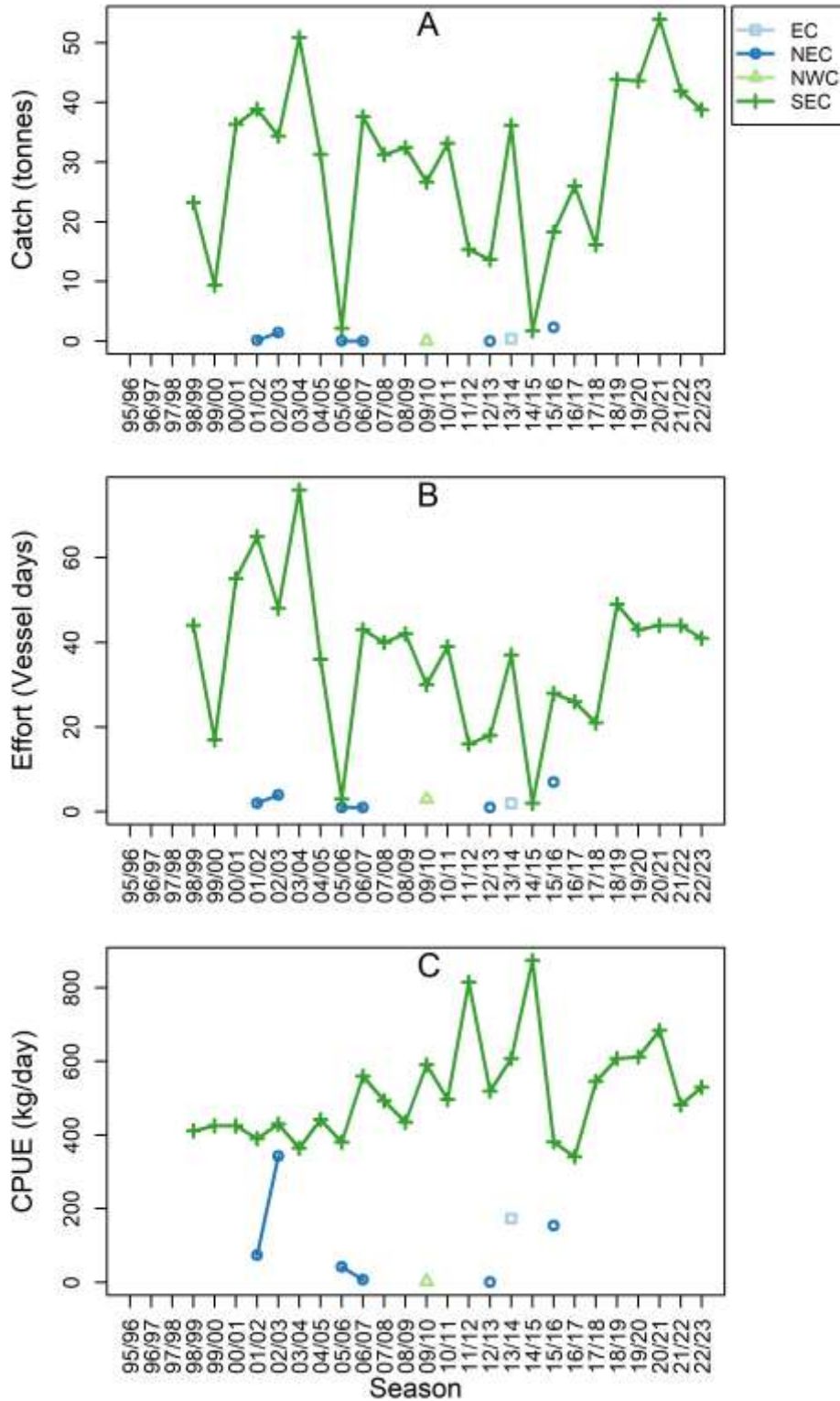


Figure 5.9 Regional commercial Eastern School Whiting catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for Danish seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

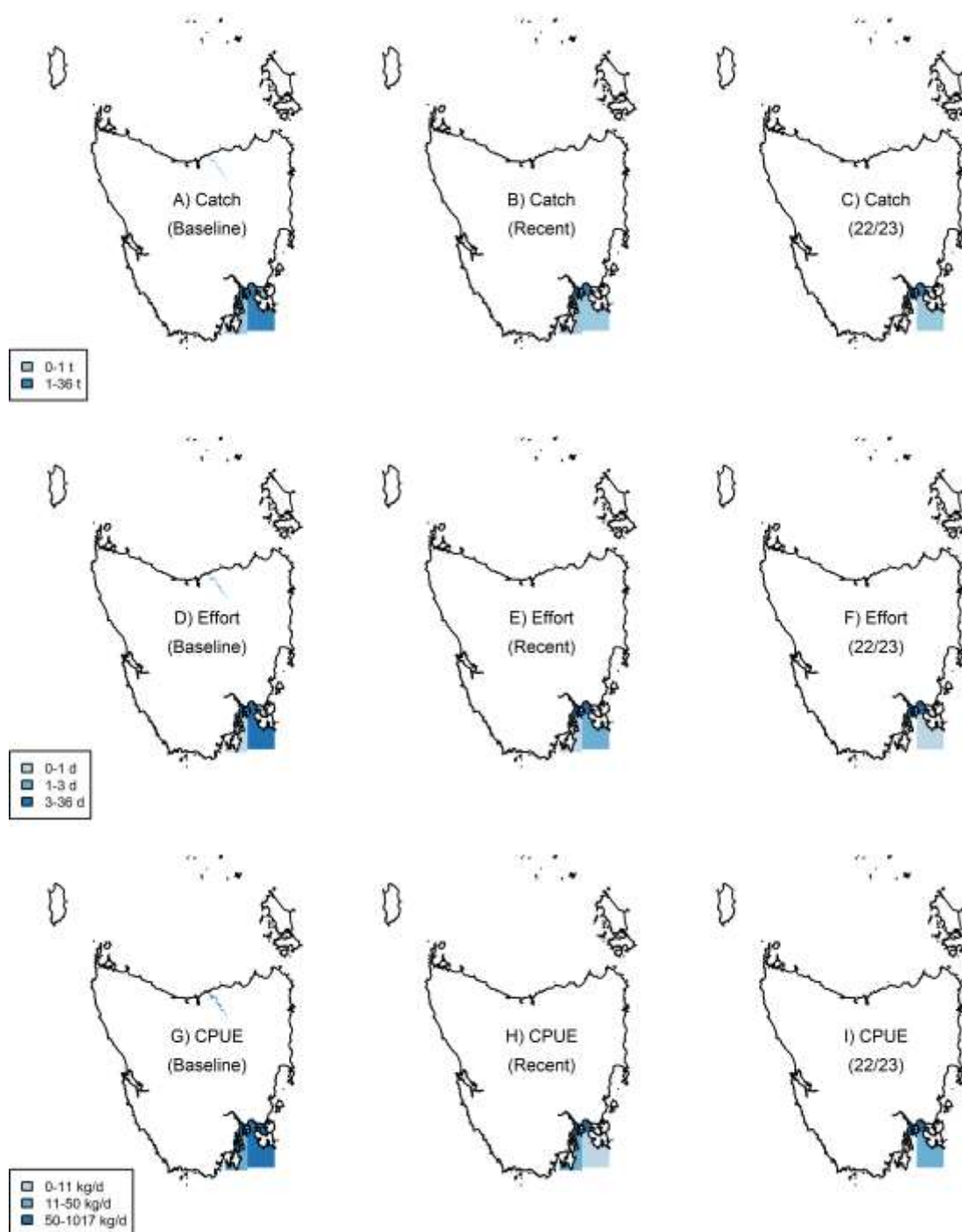


Figure 5.10 Eastern School Whiting catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1998/99 to 2007/08 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

Stock status

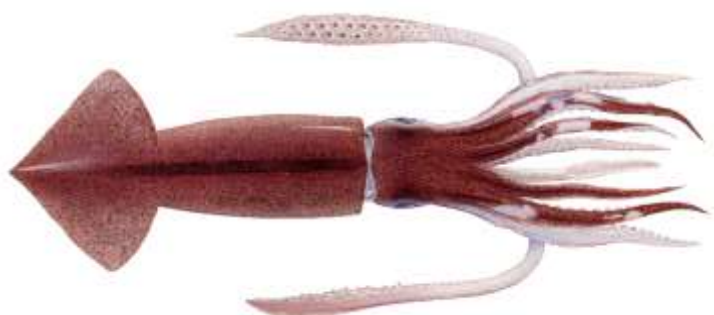
SUSTAINABLE

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

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. There is a substantial recreational fishery for Gould's Squid in Tasmania, but recreational catches are dwarfed by those of the commercial sector in years of significant effort. More detailed information on biological characteristics and current management of Gould's Squid fisheries is available from the [TasFisheriesResearch](#) webpage.

5.4.1 Catch, effort and CPUE

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). In 2022/23, Gould's Squid catch in Tasmania was 670.0 t (Figure 5.11 A), 257.0 t of which was caught by fishers operating under scalefish licences, the remainder (413 t) landed by Commonwealth-licensed fishers. The majority of catch in 2022/23 was taken around the east coast, as well as the northwest coast as far offshore as King Island (Figure 5.12, Figure 5.13).

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).

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).

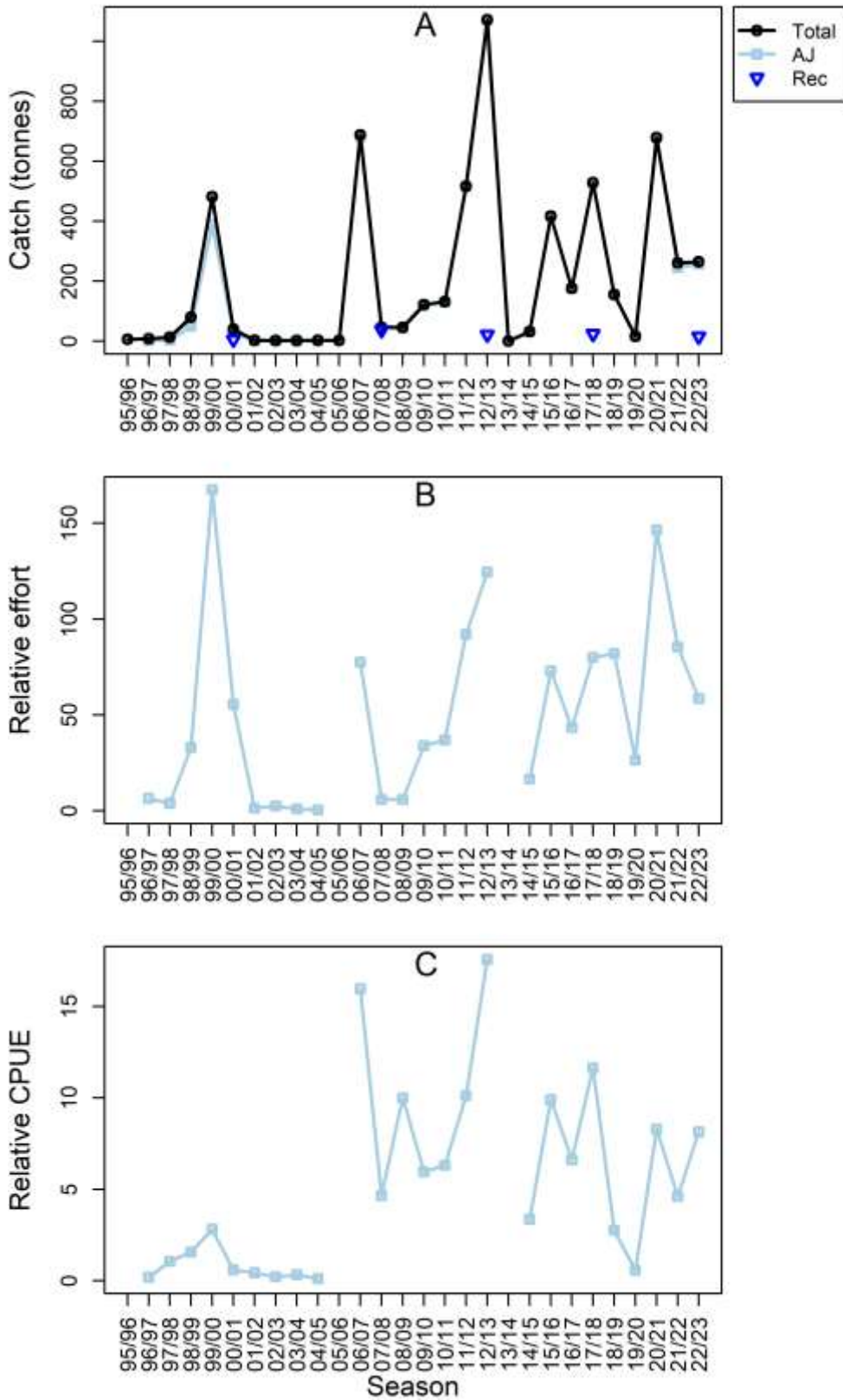


Figure 5.11 (A) Annual commercial Gould's Squid catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. AJ = automatic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

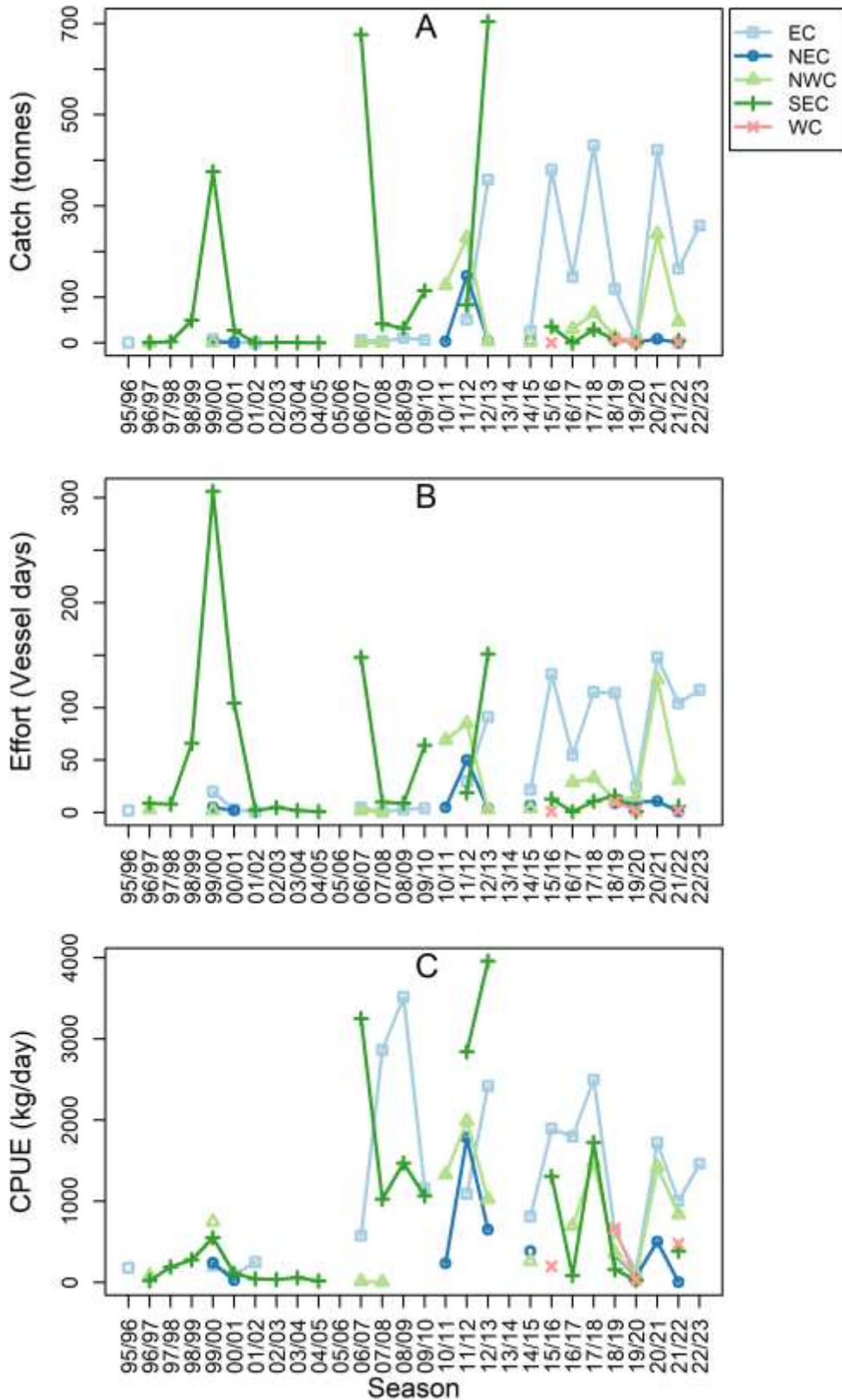


Figure 5.12 Regional commercial Gould's Squid catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for automatic squid jig. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

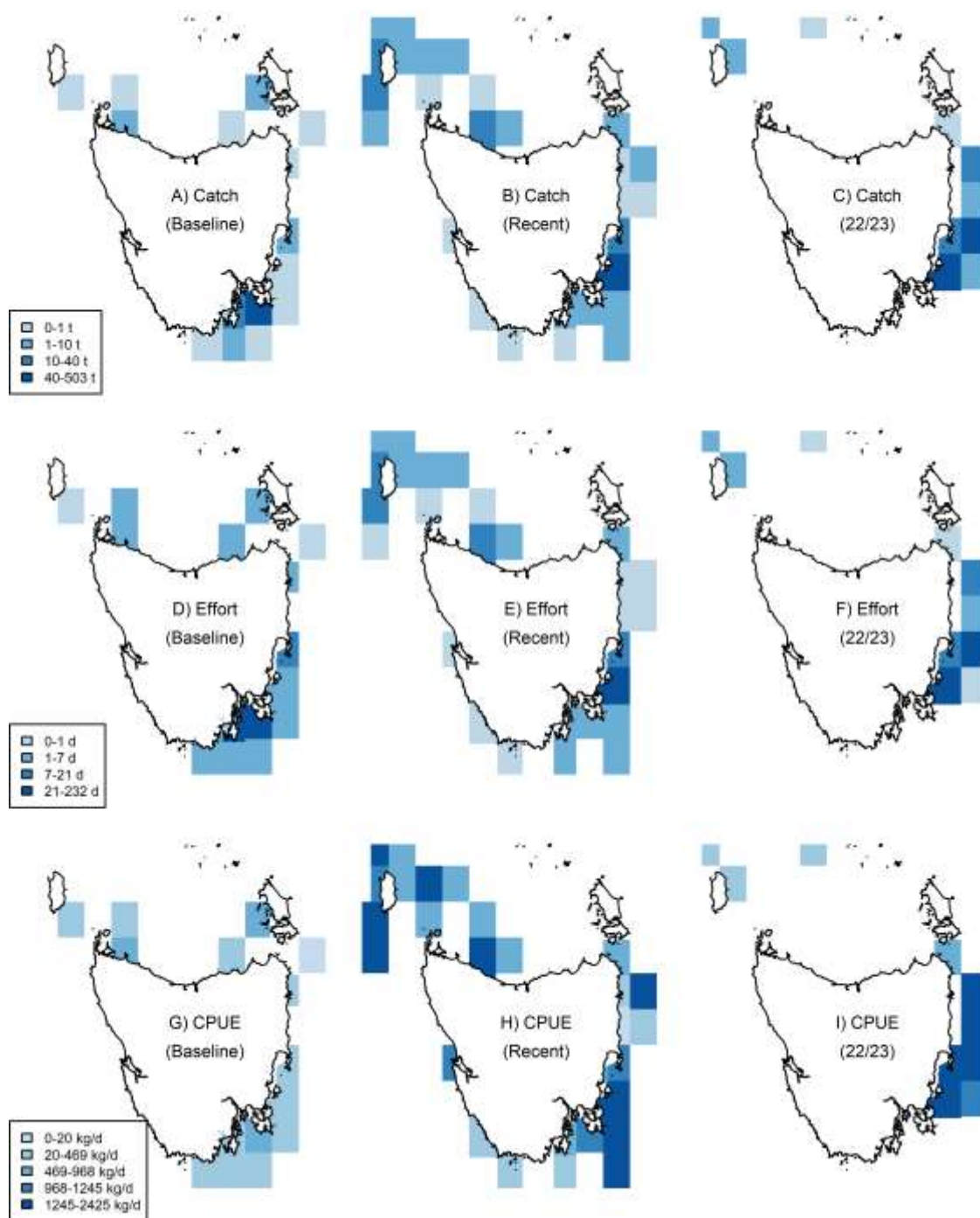


Figure 5.13 Gould's Squid catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 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; Noriega, Krueck, and Hall 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, which is primarily caught in Tasmania, has been classified as 'Overfished' and 'Subject to Overfishing' by ABARES in the Fishery Status Report 2022. Catch and effort reported by scalefish fishers in Tasmania have been low for the past 16 years.	
IMPORTANCE	Minor
INDICATOR(S)	Catch, effort and CPUE trends
MANAGEMENT	Commonwealth



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

Jackass Morwong is a large, long-lived species associated with exposed sand and silt habitat from central Queensland to southern Western Australia, including Tasmania (Edgar 2008). Abundance of Jackass Morwong is low in Tasmanian waters and, as such, the species is not targeted in Tasmania, but landed as by-product of gillnetting.

Commonwealth assessments have previously managed the eastern (southern New South Wales to eastern Tasmania) and western (southern New South Wales to western Tasmania) stocks of Jackass Morwong stocks as one management unit. This unit has been classified as "Overfished" previously (from 2008 to 2010) but stocks were classified as Sustainable in the 2020 ABARES Fishery Status Report. In the 2021 ABARES Fishery Status Report, the two biological stocks of Jackass Morwong were assessed to have different statuses, leading to separate management of the stocks. The eastern stock, which Tasmania predominantly catches, was found to be below the "Limit Reference Point." This means that the catch in 2021 was too high and unlikely to allow for the rebuilding of the stock above this Harvest Strategy Policy reference point. As a result, it is classified as "Overfished" and "Subject to Overfishing." On the other hand, the western stock is still classified as "Sustainable" and represents the stock found on the western coast of Tasmania. However, since Jackass Morwong is predominantly caught from the eastern stock in Tasmania and based on the precautionary principle, the Tasmanian classification is deemed "Overfished."

There is a significant recreational fishery for Jackass Morwong in Tasmania, primarily targeting the species using gillnet gear. More detailed information on biological characteristics and current management of Jackass Morwong fisheries is available from the [TasFisheriesResearch](#) webpage.

5.5.1 Catch, effort and CPUE

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). Total commercial catch in 2022/23 was 5.3 t - the highest catch since 2009/10, increased from 3.5 t the previous season. Jackass Morwong is 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). The Tasmanian Scalefish Fishery predominantly accesses the eastern Jackass Morwong stock, which is also accessed by the Commonwealth managed Southern and Eastern Scalefish and Shark Fishery (SESSF). In 2019/20, the SESSF recorded 76.7 t of eastern Jackass Morwong catch (Pidcocke et al. 2021).

Jackass Morwong is an important recreational species with all estimates of catch at higher levels than those of the commercial fishery operating 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).

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). Most of the fishing effort occurred on the east coast, with effort in other regions low and relatively stable (Figure 5.15 B). Trends in nominal CPUE by region were largely masked by an apparent outlier value of peak CPUE on the northeast coast when catch was relatively low but effort almost zero. The most notable trend was the above-mentioned initial decline in CPUE until 2007/08, which was attributable to the region of peak fishing effort on the east coast (Figure 5.16 C).

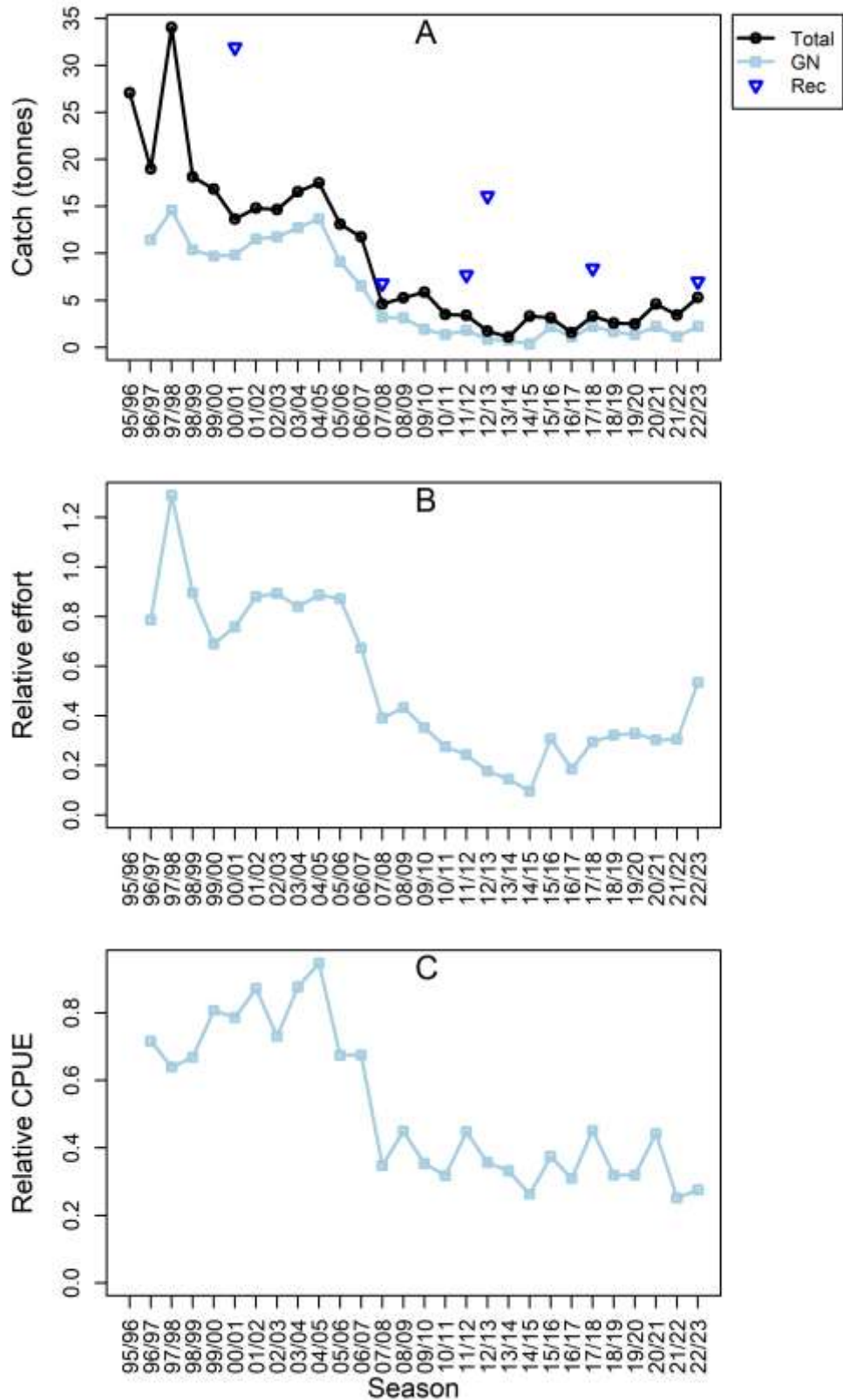


Figure 5.14 (A) Annual commercial Jackass Morwong catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 1995/96; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 1995/96. GN = gillnet,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

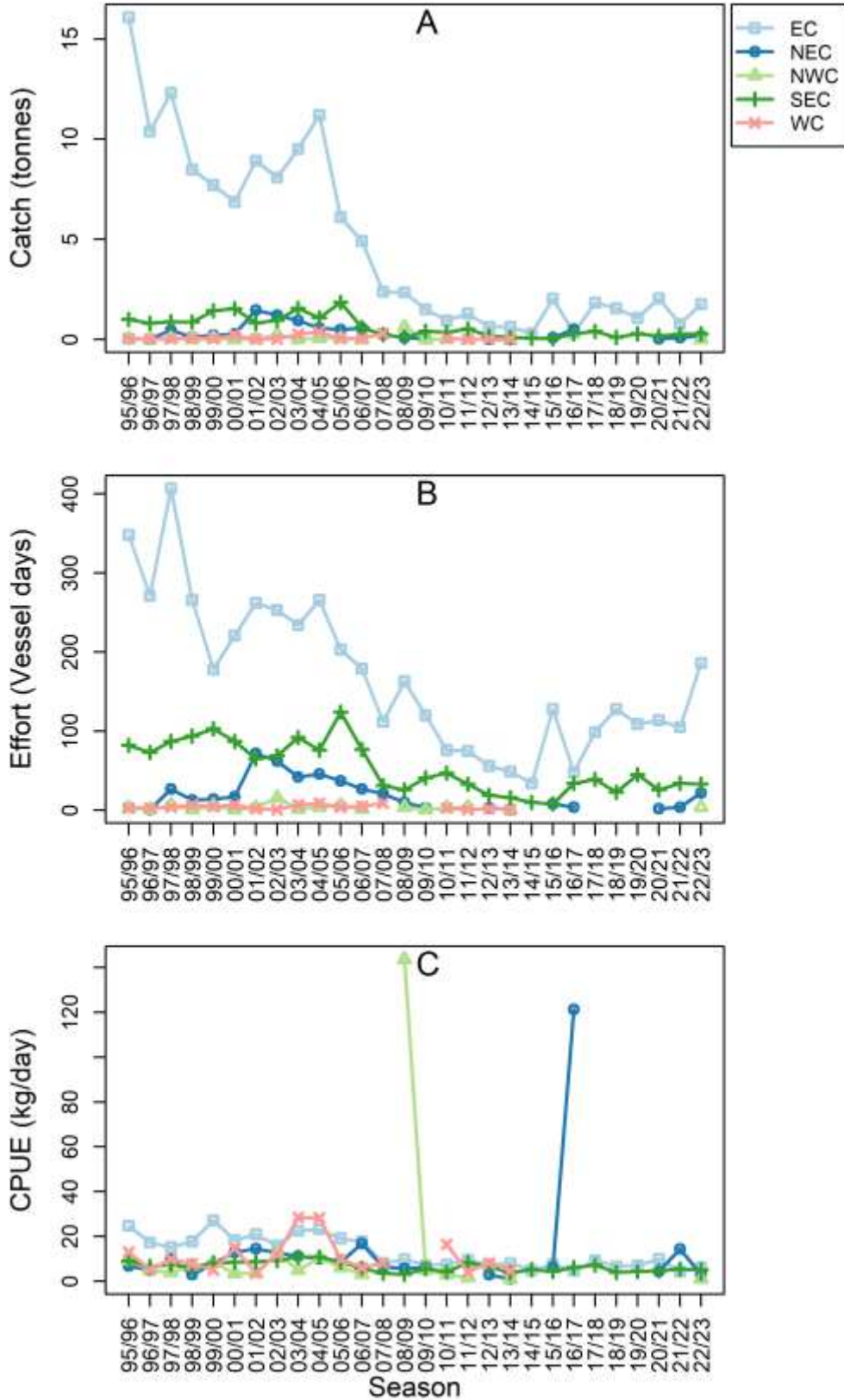


Figure 5.15 Regional commercial Jackass Morwong catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for gillnet. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = west coast.

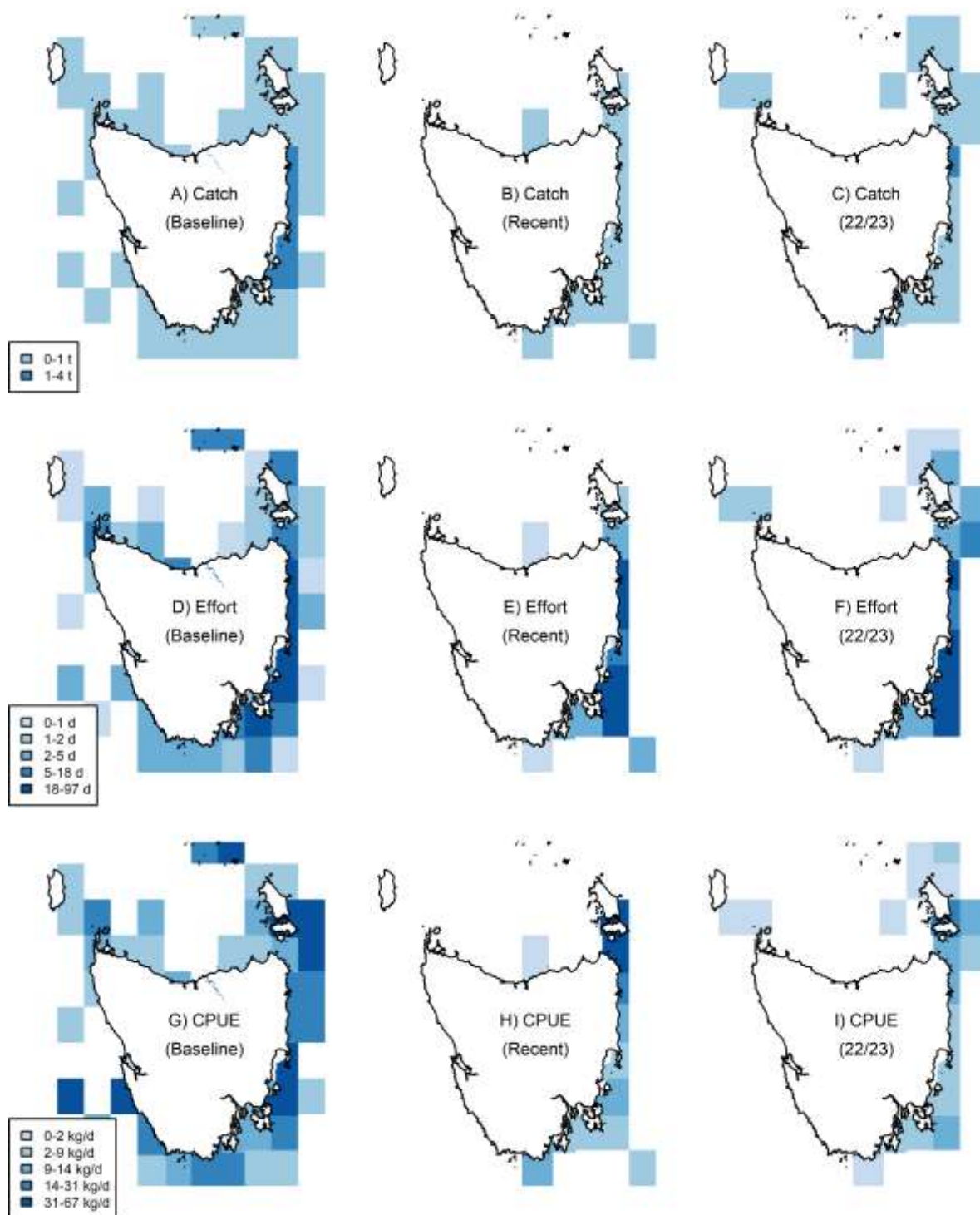


Figure 5.16 Jackass Morwong catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (1995/96 to 2004/05 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 fishing season.

Stock status**DEPLETED**

A single Eastern Australian stock of Jackass Morwong is shared between the Commonwealth and Tasmania. 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, Vieira, and Stobutzki 2013; M. 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 2021 (Patterson et al. 2021). It has been classified as Sustainable in the 2020 Status of Australian Fish Stocks Report (Pidcocke et al. 2021). 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

Tiger Flathead is associated with exposed sand and silt at depths of 10 – 400 m in southeast Australian waters of New South Wales, Victoria, and Tasmania (Edgar 2008). Southern Sand Flathead and Tiger Flathead are the most targeted flathead species in Tasmania, with Tiger Flathead dominant in commercial catches. Commercially, Tiger Flathead is taken mainly by Danish seine, with some recreational handline catches. Commercial Danish seine fishing operations in Tasmania target either Tiger Flathead or Eastern School Whiting (primarily 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 the two species. More detailed information on biological characteristics and current management of Tiger Flathead fisheries is available from the [TasFisheriesResearch](#) webpage.

5.6.1 Catch, effort and CPUE

Whilst Tiger Flathead has a long history of commercial fishing in Tasmania, this species has only been distinguished from Southern Sand Flathead in fishery returns data since 2007/08. 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). In the current season (2022/2023), commercial catch of Tiger Flathead was 50.5 t. 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). Previous stock assessment reports show back-calculated estimates of species-specific catch prior to 2007/08 (Fraser, Hartmann, and Krueck 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 CPUE in 2022/23 increased on both the east and southeast coasts relative to the previous year (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.

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](#)).

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, Hartmann, and Krueck 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).

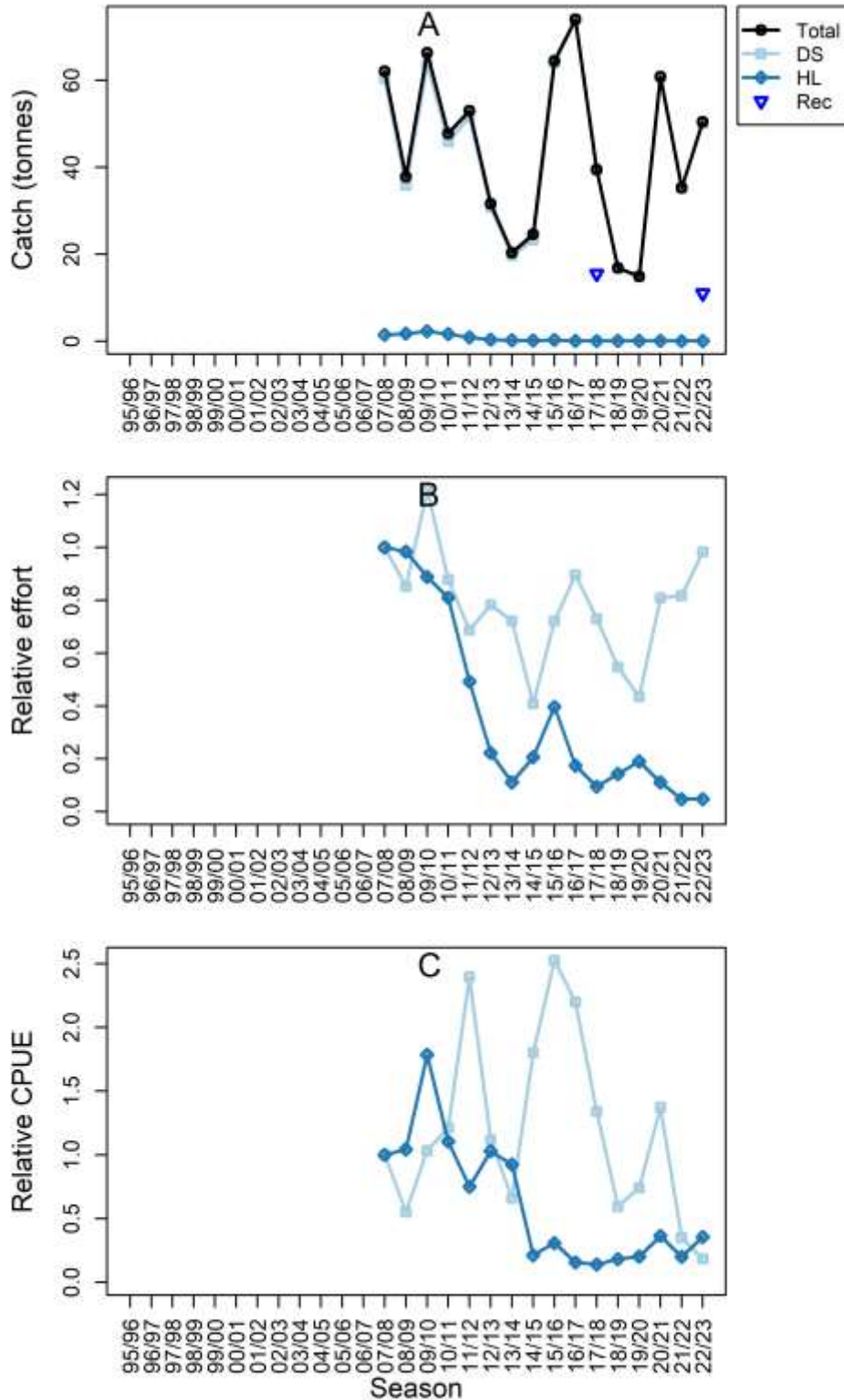


Figure 5.17 (A) Annual commercial Tiger Flathead catch (t) by gear; (B) annual commercial effort for main gear type(s) based on days fished relative to 2007/08; (C) annual commercial catch per unit effort (CPUE) based on the geometric mean of weight per days fished relative to 2007/08. DS = Danish seine,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

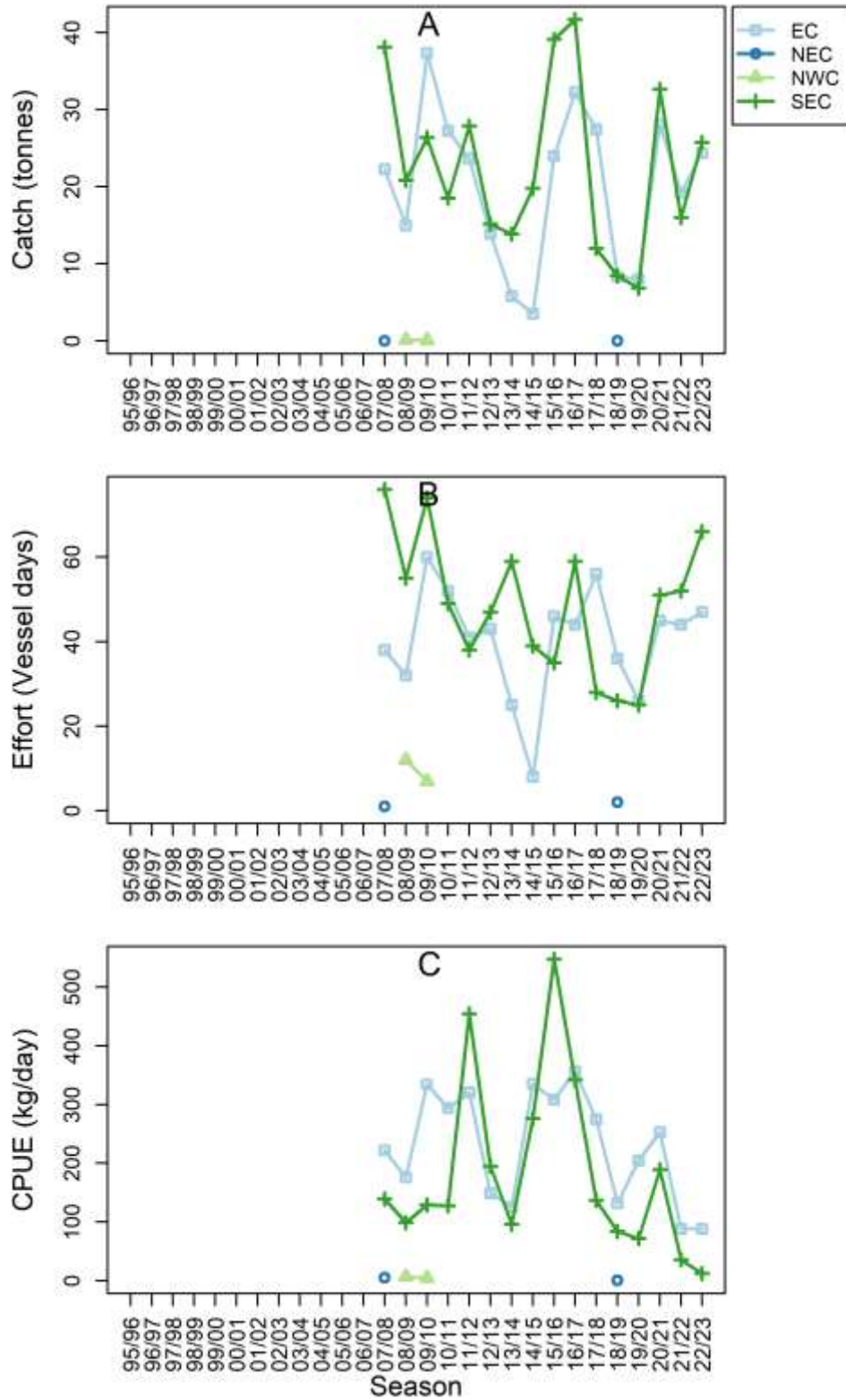


Figure 5.18 Regional commercial Tiger Flathead catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for Danish seine. EC = east coast, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast.

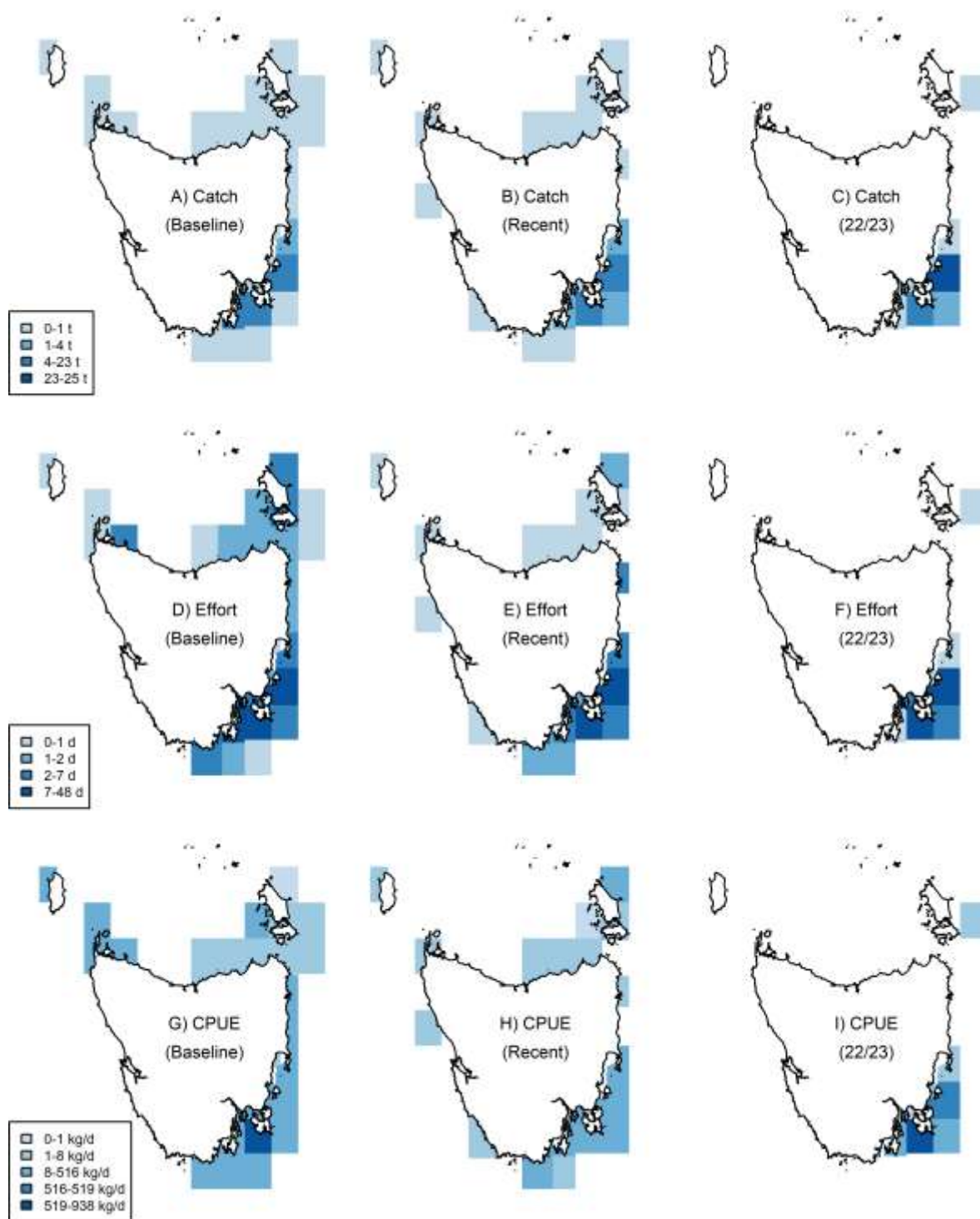


Figure 5.19 Tiger Flathead catches (t), effort (fishing days), and CPUE (kg/day) by fishing block for all main gear types combined. 'Baseline' data represent the average per fishing block across the ten-year period from the reference year (2007/08 to 2016/17 for this species). 'Recent' data represent the average per fishing block across the last five fishing seasons (2017/18 to 2021/22). '22/23' represent data from the 2022/23 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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7 APPENDICES

Appendix 1: Common and scientific names of species

Common name	Scientific name	Common name	Scientific name
Alfonsino	<i>Beryx</i> spp.	Pilchard	Fam. Clupeidae
Anchovy	Fam. Engraulidae	Rays bream	Fam. Bramidae
Atlantic salmon	<i>Salmo salar</i>	Redbait	<i>Emmelichthys nitidus</i>
Australian Salmon	<i>Arripis</i> spp.	Red fish	Fam. Berycidae
Australian Sardine	<i>Sardinops sagax</i>		
Barracouta	<i>Thyrsites atun</i>	Red Mullet	<i>Upeneichthys</i> spp.
Boarfish	Fam. Pentacerotidae	Silverfish	Fam. Atherinidae
Bream	<i>Acanthopagrus butcheri</i>	Snapper	<i>Pagrus auratus</i>
Butterfish	Spp unknown	Stargazer	Fam. Uranoscopidae
Cardinal fish	Fam Apogonidae	Sweep	<i>Scorpiis</i> spp
Cod deep sea	<i>Mora moro</i>	Tailor	<i>Pomatomus saltatrix</i>
Cod, bearded rock	<i>Pseudophycis barbata</i>	Thetis fish	<i>Neosebastes thetidis</i>
Cod, red	<i>Pseudophycis bachus</i>	Trevalla, white	<i>Serirolella caerulea</i>
Cod, unspec.	Fam. Moridae	Trevally, silver	<i>Pseudocaranx dentax</i>
Dory, john	<i>Zeus faber</i>	Trout, rainbow	<i>Oncorhynchus mykiss</i>
Dory, king	<i>Cyttus traversi</i>	Trumpeter, bastard	<i>Latridopsis forsteri</i>
Dory, mirror	<i>Zenopsis nebulosus</i>	Trumpeter, striped	<i>Latris lineata</i>
Dory, silver	<i>Cyttus australis</i>	Trumpeter, unspec.	Fam. Latridae
Dory, unspec.	Fam. Zeidae	Warehou, blue	<i>Serirolella brama</i>
Eel	<i>Conger</i> spp.	Warehou, spotted	<i>Serirolella punctata</i>
Flathead	Fam Plactycephalidae	Whiptail	Fam. Macrouridae
Flounder	Fam. Pleuronectidae	Whiting	Fam. Sillaginidae
Garfish	<i>Hyporhamphus melanochir</i>	Whiting, King George	<i>Sillaginoides punctata</i>
Gurnard	Fam. Triglidae & Fam. Scorpaenidae	Wrasse, Bluethroat	<i>Notolabrus tetricus.</i>
Gurnard perch	<i>Neosebastes scorpaenoides</i>	Wrasse, Purple	<i>Notolabrus fucicola</i>
Gurnard, red	<i>Chelidonichthys kumu</i>	'Commonwealth' spp	
Hardyheads	Fam. Atherinidae	Blue grenadier	<i>Macruronus novaezealandiae</i>
Herring cale	<i>Odax cyanomelas</i>	Gemfish	<i>Rexea solandri</i>
Kingfish, yellowtail	<i>Seriola lalandi</i>	Hapuka	<i>Polyprion oxygeneios</i>
Knifejaw	<i>Oplegnathus woodwardi</i>	Oreo	Fam. Oreosomatidae
Latchet	<i>Pterygotrigla polyommata</i>	Trevalla, blue eye	<i>Hyperoglyphe antarctica</i>
Leatherjacket	Fam. Monocanthidae	Tunas	
Ling	<i>Genypterus</i> spp.	Albacore	<i>Thunnus alalunga</i>
Luderick	<i>Girella tricuspidata</i>	Skipjack	<i>Katsuwonus pelamis</i>
Mackerel, blue	<i>Scomber australasicus</i>	Southern bluefin	<i>Thunnus maccoyii</i>
Mackerel, jack	<i>Trachurus declivis</i>	Tuna, unspec.	Fam. Scombridae
Marblefish	<i>Aplodactylus arctidens</i>	Sharks	
Morwong, banded	<i>Cheilodactylus spectabilis</i>	Shark, angel	<i>Squatina australis</i>
Morwong, blue	<i>Nemadactylus valenciennesi</i>	Shark, blue whaler	<i>Prionace glauca</i>
Morwong, dusky	Fam. Cheilodactylidae	Shark, bronze whaler	<i>Carcharhinus brachyurus</i>
Morwong, grey	<i>Nemadactylus douglasii</i>	Shark, elephant	<i>Callorhynchus milii</i>
Morwong, jackass	<i>Nemadactylus macropterus</i>	Shark, gummy	<i>Mustelus antarcticus</i>
Morwong, red	Fam. Cheilodactylidae	Shark, saw	<i>Pristophorus</i> spp.
Morwong, unspec.	Fam. Cheilodactylidae	Shark, school	<i>Galeorhinus galeus</i>
Mullet	Fam. Mugilidae	Shark, seven-gilled	<i>Notorynchus cepedianus</i>
Nannygai	<i>Centroberyx affinis</i>	Shark, spurdog	Fam. Squalidae
Perch, magpie	<i>Cheilodactylus nigripes</i>	Cephalopods	
Perch, ocean	<i>Helicolenus</i> spp.	Calamari	<i>Sepioteuthis australis</i>
Pike, long-finned	<i>Dinolestes lewini</i>	Cuttlefish	<i>Sepia</i> spp.
Snook	<i>Sphyrnaena novaehollandiae</i>	Octopus	<i>Octopus</i> spp.
		Squid, Gould's	<i>Nototodarus gouldi</i>

Appendix 2: 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 factor¹.

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 3: Annual Tasmanian Scalefish Fishery Production

Table 3 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
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
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
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
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
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
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
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
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
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
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*
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

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	
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	
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	
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	
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	
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	145.6	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	
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	
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	0.1	3.4
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	
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	
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	
Sharks²																													
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	
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	
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	
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	
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	
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	
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	
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	

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 4: Catch (tonnes) of all species assessed in this report and ordered by volume in the 2022/23 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
Gould's Squid	39.7	2.4	1.9	2.1	2.7	1.8	688	45.9	47.1	121	131	517	1078	0	31.4	417	176	528	155	15.8	670	244.5	670
Southern Calamari	78	105	109	86.8	114	44.6	85.4	89	78.6	51.1	54.9	50.8	63.9	67.8	75.9	106	123	60.6	108	84.3	82.2	86.3	84.2
Tiger Flathead								62	37.8	66.3	47.7	53	31.6	20.3	24.6	64.4	74	39.4	17.1	15.6	60.8	34.2	50.4
Eastern School Whiting	36.5	39.6	35.9	50.9	31.6	2.3	38.1	31.4	32.4	26.7	34.2	15.4	13.7	36.5	1.8	20.6	26	16.1	43.9	43.6	54	41.9	38.8
Bluethroat Wrasse	3.1	7.3	11.6	7.1	13.4	3	2.2	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	26.3	29.7	35.2
Purple Wrasse	1.4	5	9.7	3.8	0.8	3.9	5.3	20.1	26	25.6	19.4	19.5	13.2	12.8	17.5	15.6	19	21.4	18.6	11.4	7.3	12.3	22
Southern Garfish	81.4	87.8	92.5	66.2	85.5	89.3	50	31	63	49.3	43.2	53	51.5	37.9	33.8	21.9	16.4	8.9	7.4	10.7	17	16.5	19
Striped Trumpeter	45.5	39.9	36.6	36.9	23.9	19	18.7	12.2	10.7	10.8	19.7	20.9	17.3	10.5	13	7.1	12.1	14.1	7.1	7.8	8.2	4.4	11.5
Eastern Australian Salmon	485	462	407	167	337	254	115	256	339	372	204	189	331	65.6	42.2	89.3	18.9	76.1	38.7	14.5	9.5	7.12	8.5
King George Whiting	0.2	0.2	0.3	0.6	0.8	2.6	2	0.7	0.7	0.3	0.4	0.7	1.7	0.7	1.2	2.1	3.3	3	0.9	1.6	3.6	5.1	7.8
Pike/Snook (Short Finned)	5.9	6.6	6.6	3.7	2.2	2.9	6.7	7	8.7	7.9	7.5	6.7	6.3	9.1	9	2.6	9.4	5.9	2.7	2.7	2.3	4.8	5.4
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	5.3
Bastard Trumpeter	26.1	23.9	21	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	6.2	5.9	3.2	4.6
Blue Warehou	36	66.4	49.3	27.6	19.1	20	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	3.8
Yelloweye Mullet	4.8	2.5	4	4.3	2.4	3.2	2	0.1	1.3	1.8	2.1	0.5	4.4	0.5	0.7	2	0.2	0.1	0.2	0.8	0.8	1.4	2.3
Greenback Flounder	10.8	13	10.7	13.9	14.7	10.8	12.9	3.4	4.3	5.2	4.9	3.7	1.9	2	1.5	1	3.3	3.9	2.2	3.5	2.7	1.7	2.1
Southern Sand Flathead								11.5	13	9.2	6.7	7.5	5.5	6.8	8.2	2.7	6.4	3.5	2.8	2.1	3.3	3.8	1.6
Common Jack Mackerel	9.2	19.4	19.4	41.1	12.8	6.8	2.6	203	920	910	35.7	56.4	0.2	0.4	5.5	1	0.1	2	0.2	0.1	0.4	2.1	1.6
Longsnout Boarfish	3.6	5.5	3.6	4.3	3.6	5	5.2	0.7	1.5	2.7	1.9	2.9	2.1	1	0.6	0.7	0.6	1.1	0.9	0.5	1.1	1	1.2
Barracouta	15.1	136	67.5	87.5	101	60.1	26.6	13.3	13.3	7.6	5	4	1.1	1.1	1.7	0.4	1.4	0.9	1.1	0.7	0.8	2.3	1.0
Leatherjackets	16.7	16.6	13.7	14.8	10.4	8.5	8.8	5.3	5.5	3	2.9	2.2	2.4	2.9	2.1	1.3	2.6	2.6	4.3	2.3	0.6	0.1*	0.3
Australian Sardine	0.1							13.1	14.5	0.4				0.1	0		33.3	0.1	0	0	0.1	0.2	0.1

Table 5 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	ES	Description
1995/96	17.39	0.67	4.43		0.41	10.75		0.43	2.92	26.44	14.12	3.22	80.78	ES01	Derwent River
1996/97	16.71	0.35	2.63		0.56	15.01		0.92	6.12	12.29	6.98	1.78	63.35	ES06	Port Davey
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	ES07	Macquarie Harbour
1998/99	14.21		1.38		0.90	19.60		1.59	10.04	36.50	23.19	4.87	112.28	ES08	Mersey River
1999/00	4.73		0.98		0.45	14.15	0.18	2.56	18.90	28.51	10.23	2.77	83.46	ES09	Port Sorell
2000/01	16.10		0.25		0.13	12.70	0.05	1.17	15.46	27.93	27.33	1.88	103.00	ES10	Tamar River
2001/02	13.88		2.23		0.19	73.82		1.19	8.86	64.06	32.33	2.00	198.56	ES11	Ansons Bay
2002/03	28.13		8.02		0.16	27.64	0.55	0.81	14.55	35.23	23.00	1.57	139.66	ES12	Georges Bay
2003/04	40.05		6.06		1.00	25.12			5.17	59.52	21.83	0.81	159.56	ES17	Blackman Bay
2004/05	25.99		4.93		1.76	34.47		<0.05	9.46	25.87	23.14	0.66	126.28	ES18	Norfolk Bay
2005/06	2.19	0.07	23.16		0.95	33.15	1.29		6.64	14.18	9.67	0.84	92.14	ES19	Frederick Henry Bay
2006/07	30.97	0.25	9.93		2.00	23.60	0.17		8.72	20.01	19.74	1.36	116.75	ES20	Pitt Water
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		

Table 6: Species catches > 0.2 tonnes total from estuaries in the 2022/23 season, ordered by total catch.

Species	ES01	ES06	ES07	ES10	ES11	ES12	ES17	ES18	ES19	ES20	Total
Eastern School Whiting	35.02								3.70		38.72
Southern Calamari				0.62			0.63	0.29	1.27		2.81
Eastern Australian Salmon				2.75							2.75
Southern Garfish				1.31							1.31
Greenback Flounder			0.70							0.98	1.68
Māori Octopus								1.69			1.69
Yelloweye Mullet				2.24							2.24
Jack Mackerel				1.06							1.06
Snook				0.40							0.4
Blue Mackerel				0.21							0.21
Bluethroat Wrasse				0.53				0.56			1.09
Silver Trevally				1.13							1.13
Blue Warehou				0.26							0.26
Barracouta				0.59							0.59
King George Whiting				0.45							0.45

Appendix 4: Annual stock status classifications by species

Table 7: 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 not 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	
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		
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 5: Southern Calamari results reported for previous reporting regions.

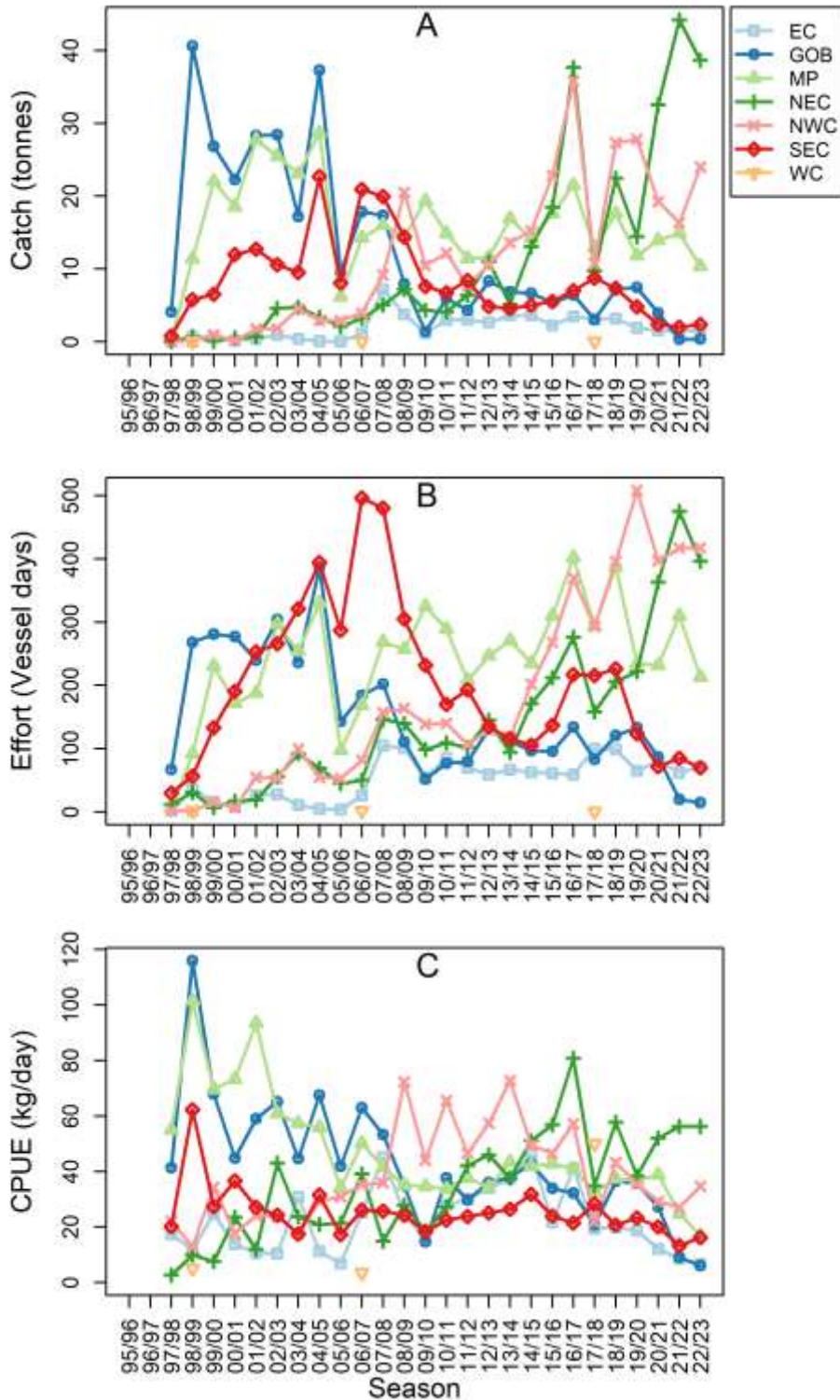


Figure 7.1: Regional commercial Southern Calamari catch (A), effort (B), and catch per unit effort (CPUE) (C) recorded for squid jig. EC = east coast, GOB = Great Oyster Bay, MP = Mercury Passage, NEC = northeast coast, NWC = northwest coast, SEC = southeast coast, WC = West Coast.