Stock Status Summary – 2022/23

NSW Stock Status Summary – Blue-eye Trevalla (*Hyperoglyphe antarctica*)

Assessment Authors and Year

Smoothey, AF 2023. NSW Stock Status Summary 2022/23 – Blue-eye Trevalla (*Hyperoglyphe antarctica*). NSW, Department of Primary Industries, Fisheries. 15 pp.

Stock Status

Current stock status	On the basis of the evidence contained within this assessment, Blue-eye Trevalla are currently assessed as **sustainable**.

Stock structure & distribution

Blue-eye Trevalla (*Hyperoglyphe antarctica*) are a benthic species that are found in areas of rocky ground on continental slopes waters to depths of 200-900 m. They are distributed in continental slope waters off South America, South Africa, New Zealand and Australia. Their Australian distribution stretches along the southern continental margin in waters from Moreton Island in Queensland to 30°S in Western Australia (AFMA, 2023). Blue-eye Trevalla also occur on the seamounts off eastern Australia and south of Tasmania, Lord Howe Island and Norfolk Island. Adults and sub-adults occur in mid-water at depths of around 500 m and are associated with rocky ground on the continental slope where the majority of fish are found between 200 and 600 m, but a small number have been reported to occur at depths of up to 900 m. They generally remain close to the seabed during the day and move into the water column at night.

In recent years, stock structuring has been reported based on phenotypic variation in age and growth, otolith chemistry and potential larval dispersal between regions suggests spatial patterns may delineate natural subpopulations of Blue-eye Trevalla (Williams et al. 2017). Four geographically distinct subpopulations around the Australian coast were identified: 'West' – comprising continental slope fishing grounds off Western Australia, South Australia and western Victoria to western Tasmania; 'South' – continental slope grounds around Tasmania and north eastwards to eastern Bass Strait; 'East' – fishing grounds on the NSW continental slope and Tasmanian seamounts; and 'Offshore' – fishing grounds on the Lord Howe Rise (Williams et al. 2017). Blue-eye Trevalla stock areas do not reflect truly separated biological stocks because there is some exchange between them during pelagic early life history (Williams et al. 2017). However, local-scale residency by adults implies there are discrete adult populations on the continental slope and seamounts and that there is not extensive migration between them. Therefore, within the Commonwealth fisheries, Blue-eye Trevalla are managed as a single biological stock in the Southern and Eastern Scalefish and Shark Fishery (SESSF; Patterson et al. 2022), however, these findings led to separate RBCs being determined for the slope and seamount stocks, but a global TAC applied and catch restrictions introduced for the seamount stock for the 2019/20 fishing season.

Scope of this assessment

The fishery scientific assessment summarised in this report is considered adequate to meet the legislative requirements for supporting a Total Allowable Catch (TAC) determination for NSW Blue-eye Trevalla that is done by the CSIRO, commissioned by the Australian Fisheries Management Authority (AFMA) and published as 'Blue-eye Trevalla (*Hyperoglyphe antarctica*)' by the Australian

Bureau of Agricultural and Resource Economics and Sciences (Patterson et al. 2022; hereinafter referred to as the Commonwealth assessment).

Assessment of the status of the stock of Blue-eye Trevalla that is fished by commercial and recreational fishers in New South Wales (NSW) is principally based on the modelling and assessment done for this species by the Commonwealth of Australia for Eastern Australia. The Commonwealth fisheries, primarily Southern and Eastern Scalefish and Shark Fishery (SESSF) takes 85-95% of the historical catch of Blue-eye Trevalla. The primary mechanism for controlling the harvest of Blue-eye Trevalla in SESSF is through the allocation of an TAC. Determination of annual TACs for the Commonwealth SESSF is based on the SESSF Harvest Strategy Framework (HSF) that derives from the Commonwealth Fisheries Harvest Strategy Policy (HSP).

The Commonwealth assessment for Blue-eye Trevalla is done as a Tier 4 assessment on catch and CPUE for the slope stock and as a Tier 5 for the seamount stock. However, the assessment of the status of the stock of Pink Ling that is fished by commercial and recreational fishers in New South Wales (NSW) is principally based on the Tier 4 assessment. The Tier 4 analysis determines a Recommended Biological Catch (RBC) by selecting CPUE reference points (Limit Reference Point, LRP and Target Reference Point, TRP) that are taken as proxies for the estimated biomass. This is done by assuming that the CPUE is proportional to stock abundance. If the stock was at unexploited equilibrium at the start of fishing, then the initial CPUE level at the start of the time series would correspond to the unexploited biomass or B_0, and the other reference points are the appropriate fractions of this (e.g. 20% for B_{20}).

This assessment of the status of Blue-eye Trevalla, in waters under NSW jurisdiction, comprises:

(1) a summary of the most recent Commonwealth stock assessment (Tier-4 for slope stock) for Blue-eye Trevalla and current determinations of status based on criteria specified by the Commonwealth and also those used for the Status of Australian Fish Stocks;

(2) the rationale by which the Commonwealth assessment for Blue-eye Trevalla is considered to be relevant and valid for determining the status of the Blue-eye Trevalla stock fished within NSW jurisdiction (Appendix 1);

(3) information that may inform the determination of the 2023-24 NSW TAC for Blue-eye Trevalla in the Ocean Trap and Line – Line East Fishery (Appendix 2). This is done in the absence of: (i) a formal NSW harvest strategy for this species/fishery; and (ii) a formal resource sharing agreement between NSW and the Commonwealth.

Biology

Blue-eye Trevalla are commonly found around 60 cm in length and 3 kg, however, they can grow up to 1.4 m in length and 50 kg, with maximum age reported to be 76 years. Female Blue-eye Trevalla reach sexual maturity at 11-12 years of age (72 cm fork length), while males mature at 8-9 years of age (62 cm fork length). Spawning occurs in summer and autumn in waters from central New South Wales to north-eastern Tasmania. Eggs are released in batches of 3-4 and females produce 2-11 million eggs per spawning season (AFMA, 2023).

FISHERY STATISTICS

Catch information

Commercial

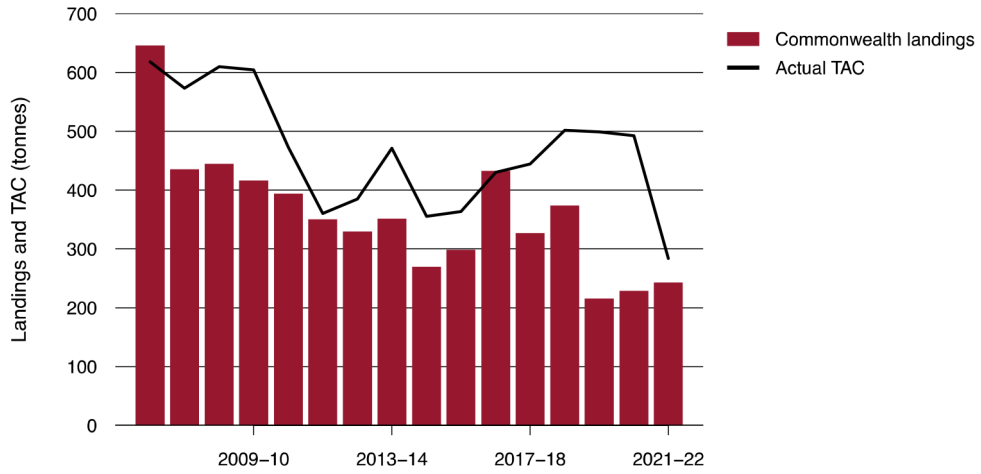
Fishery statistics presented in this report are restricted to those used to inform the Commonwealth assessment and are summarised here from Patterson et al. (2022) and references therein. The Commonwealth assessment of Blue-eye Trevalla uses data from the Commonwealth Ocean Trawl Fishery within Commonwealth fishing zones 10 and 83 (south-eastern Australia).

Descriptions of NSW fishery statistics are provided in Appendix 2 of this report and the changes in NSW commercial fishery reporting requirements and sources of NSW commercial fishery data are discussed.

The description of catch information below is summarised from Paterson et al. (2022).

> In 1997 catches of Blue-eye Trevalla peaked at over 800 t and gradually declined since then (Figure 1). Commonwealth landed catch in the 2016-17 fishing season was 432 t, 215.5 t in 2019-20, 224.6 t in 2020-21 and 242.7 t in the 2021-22 fishing season. Data on discards and state catches are not available for 2021-22, however, the weighted average discards and state catches over the past four calendar years (2017 to 2020) were 8.2 t and 12.3 t, respectively (Althaus et al. 2021). For the 2021-22 fishing season, total catch and discards were estimated to be 263.2 t. Commonwealth catches have varied in response to changes in the TAC, but in some years, there has been uncaught quota.

Figure 1 Blue-eye Trevalla annual catches (CTS, SHS and states) and fishing season TACs, 2006-07 to 2021-22 (Source: AFMA catch disposal records, cited in Patterson et al. 2022).



Recreational & Charter boat

Recreational catches have not been accounted for in the Commonwealth assessment of Blue-eye Trevalla. The model is conditioned on commercial catch data alone. Accounting for recreational catch has been raised as an issue for consideration in Commonwealth assessments. In NSW, there is a combined recreational bag limit of five Hapuku, Banded Rockcod, Bass Groper, Gemfish and Blue-eye Trevalla. Recreational catch of Blue-eye Trevalla in New South Wales are unknown. Surveys of the catches in NSW by NSW-resident recreational fishers during 2013-14 and by 1-3

year licence holders in 2017/18 did not report any catches of Blue-eye Trevalla (West et al, 2015; Murphy et al. 2020, 2022). There is, however, anecdotal evidence, including photographs and reports on social media websites, indicating that Blue-eye Trevalla are targeted and captured by a small subset of recreational anglers using specialist gear. State-wide operators within the nearshore charter fishery landed 110 Blue-eye Trevalla during the 2017/18 survey period, with 58% caught during summer (Hughes et al. 2021). The interpretation of the survey results and the evidence from social media is that catches of Blue-eye Trevalla by recreational fishers in NSW are negligible, relative to the magnitude of commercial catches.

Indigenous

Neither the Commonwealth assessment nor the process for determining the Commonwealth TAC from RBC includes estimates of Blue-eye Trevalla catches by the Aboriginal sector. Given the depths inhabited by Blue-eye Trevalla, it is unlikely that this species was a traditional target species for Aboriginal fishers. As for the recreational catch, any catches by the Aboriginal fishers in recent history are negligible, relative to the magnitude of commercial catches. Thus, the omission of Aboriginal catch from the model and Commonwealth assessment has little effect on the assessment outcome of the Blue-eye Trevalla stock.

Illegal, Unregulated and Unreported

The level of Illegal Unregulated and Unreported (IUU) fishing has not been quantified.

Fishing effort information

N/A

Catch Rate information

Standardised CPUE for the slope stock have declined since 2014 but remain between the target reference point and limit reference point (Figure 2). Two factors that could influence the catch rates and fishing behaviour resulting in a low bias for CPUE are depredation by killer whales (orcas, *Orcinus orca*) and exclusions from historical fishing grounds following closures implemented to rebuild the stocks of gulper sharks (Patterson et al. 2022).

Figure 2 Standardised auto-longline and dropline CPUE index for Blue-eye Trevalla to the east and west of Tasmania (includes slope and GABTS data), 1997 to 2020 (Source: Sporcic 2021, cited in Patterson et al. 2022).

STOCK ASSESSMENT

Although new Tier 4 (Sporcic 2021) and Tier 5 (Thomson and Hadden 2021) analyses were done in 2021, the 2020 Tier 4 analysis (Sporcic 2020) and 2018 Tier 5 analysis (Haddon & Sporcic 2018a, b) informed the management of the stock for the 2021-22 fishing season reported on in this report.

The 2020 Tier 4 analysis on the slope population, which didn't include data from the Great Australian Bight Trawl Sector (GABTS) (Sporcic 2020b), suggested that standardisation catch-per-unit-effort (CPUE) had declined since 2014 but remained between the target reference point (TRP) and the limit reference point (LRP) as defined by the SESSF HSF (AFMA 2021a). Subsequently, an RBC of 227 t for the 2021-22 fishing period was produced. Based on the output of the 2018 Tier 5 age-structured stock reduction analysis and catch-MSY analysis (Haddon and Sporcic 2018a, b), SERAG recommended an RBC of 36 t for the seamount stock. Combining this with the 227 t RBC for the slope stock led to a total RBC of 263 t for the 2021-22 fishing season (Patterson et al. 2022).

A new Tier 4 analysis on the slope population (including GABTS data) was done in 2021 indicating that the standardised CPUE was between the TRP and LRP (Figure 2) this led to an RBC of 349 t for the 2022-23 fishing season being recommended. The increase in the RBC, when compared with the output from the previous analysis, was mostly likely due to inclusion of the Great Australian Bight data in the CPUE standardisation analysis (Patterson et al. 2022).

Although of lesser relevance to NSW, the new Tier 5 age-structured stock reduction analysis of the seamount population done in 2021 predicted that constant catches of around 30-40 t would lead to relative stability in depletion (Thomson and Haddon, 2021). SERAG subsequently generated a MSY of about 45-60 t, if biomass is above 50% of the unfished biomass (Thomson and Haddon, 2021). These analyses suggested that an annual catch of around 30-40 t would lead to relative stability in depletion (Thomson and Haddon, 2021).

For the 2022-23 fishing season, SERAG recommend an RBC of 385 t, 36 t for the seamount stock and 349 t for the slope stock. It is worth noting that the South East Management Advisory

Committee recommended not increasing the TAC from the previous season due to ongoing declines in standardised CPUE when Great Australian Bight data were excluded from the standardised CPUE series (AFMA 2022).

Stock Assessment Methodology

Year of most recent assessment:

2021 - slope stock (Sporcic 2022c).

2021 - seamount stock (Thomson and Haddon 2021).

Assessment method:

Commonwealth Tier 4 analysis - slope stock - standardised CPUE (including discards).

Commonwealth Tier 5 analysis - seamount stock - catch at maximum sustainable yield (MSY) and age-structured stock reduction analysis approaches.

Main data inputs:

CPUE - Commonwealth Trawl Fishery; Zones 20-50; Depth 200-600 m including Great Australian Bight Trawl Sector.

Catch (Total) is the sum of Discards, State (Vic, Tas and NSW), Non-trawl and SEF2 catches.

Discard rates.

The DayNight factor has been updated to account for additional auto-line records that have both start and end times to estimate an average time fished for specific gear types and fishery.

Commonwealth Tier 5 - catch at maximum sustainable yield (MSY) and age-structured stock reduction analysis approaches.

Key model structure & assumptions:

Tier 4 – Standardised CPUE (Commonwealth harvest strategy policy).

Assumptions: catch rate provides a relative index of abundance (not subject to hyper-stability or hyper-depletion and not overly influenced by other factors not accounted for through standardisation); the reference period provides a good estimate of the stock when at a depletion level of $0.48B_0$; estimates of catch during the target period are accurate.

Sources of uncertainty evaluated:

Uncertainty associated with Tier 4 assessment: factors considered in the CPUE standardisation: Year, Vessel, Month, Zone, Depth category and Month:Zone; investigation of additional zones (84 and 85). Two factors that could influence catch rates and fishing behaviour, resulting in a low bias for CPUE, include the presence of killer whales (orcas—*Orcinus orca*) and Commonwealth fishery closures implemented to rebuild stocks of gulper sharks. The previous analysis by Haddon (2016) did not detect large effects on CPUE due to the closures, but uncertainty remains about the effect of killer whale depredation on CPUE (Patterson et al. 2022). SERAG has supported the modifications to logbooks to require longline operators to routinely report the presence of orcas and evidence of depredation, to allow for this issue to be accounted for in future assessments (AFMA 2022).

Status Indicators - Limit & Target Reference Levels

Biomass indicator or proxy	Standardised CPUE (AFMA 2017)
Biomass Limit Reference Point	Standardised CPUE at $0.20B_0$ = Limit Reference Point
Biomass Target Reference Point	Standardised CPUE at $0.48B_0$ = Target Reference Point
Fishing mortality indicator or proxy	Catch (including discards) as a proportion of RBC. Note, the RBC calculation does not account for predicted discards of predicted State catches.
Fishing mortality Limit Reference Point	NA
Fishing Mortality Target Reference Point	$CPUE_{48}$ at or above target, F_{48} (Fishing mortality rate that achieved B_{48})

Stock Assessment Results

The 2021 Tier 4 slope stock analysis (Sporcic 2021) estimated that the recent average standardised CPUE-based proxy for biomass to be above the LRP. The 2018 Tier 5 seamount analyses (Haddon and Sporcic 2018a, b) identified that constant catches of 40 t or less would maintain the biomass at around 33% of the unfished level (0.33 B_0; and above the LRP). Commonwealth commercial catches on the seamounts in 2021-22 were less than this (estimated to be 17.9 t). Therefore, based on this evidence, the combined stock is classified as **not overfished** (Patterson et al. 2022).

For the 2021-22 fishing season, total catch and discards were estimated to be 263.2 t. This is slightly above the combined RBC of 263 t calculated form the 2020 Tier 4 analysis (Sporcic 2020) and 2018 Tier 5 analyses (Haddon and Sporcic 2018a, b). However, total mortality for 2021-22 fishing season was below the combined RBC of 385 t calculated from the 2021 Tier 4 (Sporcic 2021) and 2018 Tier 5 analyses (Haddon and Sporcic 2018a, b). In combination, this indicated that the fishing mortality in 2021-22 would be unlikely to deplete the stock to a level below the LRP. The stock is therefore classified as **not subject to overfishing**.

The 2022-23 RBC was set at 249 t, resulting in a 100.2 t decrease compared to the 2021-22 RBC. This 28.7% decrease in RBC between consecutive assessments can be mostly attributed to the use of the new standardised CPUE series which resulted in a lower most recent four-year average compared with the corresponding average standardised CPUE from the previous assessment (AFMA 2022). This is combined with the 36 t MYTAC from the Seamount 2021 assessment. Also, SERAG recommended a single-year TAC to ensure the slope CPUE series is closely assessed (AFMA 2022).

The status of the eastern Australian stock of Blue-eye Trevalla was defined as **sustainable**, under the criteria for SAFS in 2016 (Georgeson et al. 2016), 2018 and 2020 (Emery et al. 2020).

Stock Assessment Result Summary

Biomass status in relation to Limit	Recent average standardised CPUE (Biomass proxy) is between the Target and Limit Reference Point (Sporcic 2021, Haddon and Sporcic 2018a, b Patterson et al. 2022).
Biomass status in relation to Target	Biomass proxy (Standardised CPUE) is above Target Reference Point (Sporcic 2021, Haddon and Sporcic 2018a, b Patterson et al. 2022).
Fishing mortality in relation to Limit	N/A
Fishing mortality in relation to Target	N/A
Current SAFS stock status	Sustainable
Current Commonwealth stock status	Sustainable

Fishery interactions

Interactions between the Commonwealth Trawl and Auto-longlining Fisheries are described by Haddon and Sporcic (2018a, b), who associate declines in the trawl sector since the mid-2000s with increased catches in the auto-longlining sector.

Commonwealth fisheries interact with other commercial and non-commercial bycatch and discard marine species, a range of endangered threatened and/or protected species and marine habitats (Wayte et al. 2007).

Qualifying Comments

Supplementary information relevant for to the interpretation of the assessment is provided in Appendix 1 and 2.

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Appendix 1

Reliability and Relevance of the Commonwealth Assessment to assessment of stock status in NSW

The current Commonwealth assessment of Blue-eye Trevalla could adequately inform the decision process for an NSW TAC determination, accepting and understanding the limitations and restrictions of the Commonwealth assessment framework and understanding that data collected and analysed at a finer resolution and considered within the NSW jurisdiction could deliver some outcomes inconsistent with the Commonwealth assessment. The benefits of adopting Commonwealth assessments include the application of processes exposed to broad review, including by management, science and industry representatives within the Commonwealth fishing sector, as well as observers from other stakeholder groups (e.g. NSW DPI Fisheries). The Commonwealth assessments have not, however, been developed to provide specific outputs for jurisdictions other than the Commonwealth and do not necessarily include or apply data at resolutions more applicable to alternate jurisdictions. Therefore, applying these assessments to inform NSW total allowable catch (TAC) determinations is done understanding that there are limitations in the data used and the application of the data to a scale other than that to which the assessment was applied.

Moreover, applying the assessment of Blue-eye Trevalla from the Commonwealth to inform the status of NSW Blue-eye Trevalla and reliably inform management decisions for this species assumes (among other issues) that the assessment represents the same population(s) being harvested by these fisheries. Support for this assumption is provided by the 2020 determination of the stock structure of Blue-eye Trevalla for the 2020 SAFS reports as a management unit at the scale of eastern Australia (Emery et al. 2020).

NSW and Commonwealth SESSF catch rates

Trends in standardised catch rates (CPUE) for Blue-eye Trevalla taken by dropline in the Ocean Trap and Line, Line East fishery operating within NSW jurisdiction (Figure 7) are generally consistent with indices of abundance based on spawning stock biomass trends in Commonwealth Trawl Sector and Scalefish Hook Sector (Figure 2). Both sources of data, show decreasing trends in abundance between 2013 and 2019, with similar increases in abundance peaking in 2015.

Abundance subsequently decreased to the lowest point in 2019. The recent magnitude of error from 2020-2021 reflects uncertainty in accuracy of reported catch and effort. Given the large declines in catch and effort (combined with inaccuracy of reporting) the observed increase in standardised commercial catch-rates in 2021/22 should not be interpreted cautiously. Further investigation is required to assess Commonwealth SESSF catch rates trends post 2019 to determine whether they are similar to those recent trends in CPUE observed in the NSW OTLLE fishery. However, the trends in CPUE for Blue-eye Trevalla taken in the OTLLE fishery and within SESSF suggests that the component of the stock in NSW waters is currently exhibiting similar dynamics (with respect to abundance) to the component of stock under Commonwealth jurisdiction and this is consistent with the assumption of a single biological stock.

Appendix 2

NSW catch statistics and additional information relevant to TAC setting in NSW

Information presented in figures below is summarised by fiscal year (July to June). Commercial fishery data presented in this section is limited to data from the Ocean Trap and Line Fishery from 2009/10, as contemporary supplementary information to the assessment and to inform NSW TAC determinations. The exception to this the reported total catches of Blue-eye Trevalla from all fishing methods from 1998/99. Data reporting total catch and catch of different gear types within the OTLLE endorsement from 2009/10 have been sourced from the NSW DPI database FishOnline.

NSW commercial fishery records have not been consistently reported throughout the history of the fishery. Notably, between 1997/98 and 2008/09 (inclusive), fishers reported monthly catch and effort (in days) for each fishing method (gear type). From 2009/10, monthly reports of daily catch and effort (hours) and fishing method have been required. To construct a longer time series of data (from 1997/98 to present), daily records from 2009/10 are re-aggregated into monthly catches (kg) by fisher and gear type, with effort in days per month estimated from the number of distinct fishing dates in each month where the method was reported and where there was a reported landing of the species of interest in that month, irrespective of whether the species was reported on each of the days, to be consistent with earlier reporting.

State-wide fisheries catch

Annual catches of Blue-eye Trevalla have generally declined over the last two decades, from over 100 t in the late 1990s to < 10 t in the last two years (Figure 3). In 2021/22, the total catch of Blue-eye Trevalla was 5.61 t (Figure 3). Annual catches are dominated, almost exclusively (≥ 96.8%) by those from the NSW OTLLE endorsement (Figure 4). In the 2021/22 season, total landings of Blue-eye Trevalla in NSW were 2.32% of the total commercial landings from the Commonwealth fisheries (242.7 t; Southern and Eastern Scalefish and Shark Fishery SESSF).

Ocean Trap and Line Fishery catch and catch rate

Within the OTLLE fishery, Blue-eye Trevalla are caught predominantly using dropline and setline fishing methods (Figure 5) with dropline dominating the catch (2009/10-2020/21; range 3.17–38.8 $t.yr^{-1}$). Since 2009/10, setline gear has averaged about 2.5 $t.yr^{-1}$, equating to about 19% of the total OTLLE catch (Figure 5).

Levels of catch and effort (days), where a consistent effort series is available, have been declining since at least the late 1990s (Figure 6). Prior to 2008/09, annual catches exceed 40 $t.yr^{-1}$ (range 41–118 $t.yr^{-1}$) and effort (days) exceed 700 $days.yr^{-1}$ (range 775–1538 $days.yr^{-1}$). Since 2009/10, catches have declined from > 30 $t.yr^{-1}$ to < 5 $t.yr^{-1}$. In 2021/22 effort (days) was 32 days, the lowest recorded levels in the history of the fishery (Figure 6). Commensurate declines in catch and effort through time have resulted in a generally stable time series of CPUE ($kg.day^{-1}$), although a

substantial decline reported between 2012/13 and 2013/14, and low levels of CPUE in recent years suggest stocks may be less stable and/or fleet behaviour and dynamics has changed (Figure 7a, b). Furthermore, the recent magnitude of error in the 2020/2021 fishing season (Figure 7a, b) reflects uncertainty in accuracy of reported catch and effort. Given the large declines in catch and effort, combined with inaccuracy of reporting, the observed increase in standardised commercial catch-rates in 2021/22 should not be interpreted cautiously.

Macbeth and Gray (2015), from fishery-dependent observer days, reported Blue-eye Trevalla comprised the greatest proportion of dropline catch in the NSW OTL Fishery (23.4% of the catch by number) and in the northern region (19.9% of the catch by number), with > 99% of the dropline catch of Blue-eye Trevalla being retained. The catch rate (fish per dropline day) of Blue-eye Trevalla reported by Macbeth and Gray (2015) ranged between 12.5–20.5 fish per dropline day in the south region, and 2.8–7.3 fish per dropline day in the north region. In addition, size-class frequency distributions of Blue-eye Trevalla from observed dropline days fished, indicate substantially larger and fewer fish in the north and central regions of the state (modal size class 75–79 cm FL) compared with smaller but more frequent fish in the south region (50–54 cm FL) (Macbeth and Gray 2015).

Additional information relevant to TAC setting in NSW

1. The NSW Blue-eye Trevalla TAC for the 1 May 2021 to 30 April 2022 fishing season was set at the 5-year maximum catch of 30.0 tonnes.

2. The IAP recommended that the initial allocation of quota shares for Blue-eye Trevalla be calculated based on 20% on the proportion of access shares held + 80% on recorded landings for an individual fishing business in the Ocean Trap & Line – Line East Share Class over the selected criteria period 2009/2010 to 2016/2017 (inclusive), but with the "worst catch year" for each business removed (https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/832464/Ocean-Trap-and-Line-IAP-Final-Report.pdf).

3. Statistics describing landings of Blue-eye Trevalla from NSW commercial fisheries may inform determination of a NSW TAC that is consistent with the development an inter-jurisdictional resource sharing policy.

4. Landings (quota usage) of 5.62 t were reported against a TAC of 30.0 t in 2021/22 which suggests that the current TAC was not constraining total catches.

5. In 2021/22 fishing period approximately 9.2 t of quota was held by fishing business that reported nil landings of Blue-eye Trevalla. However, if you consider fishers that did not use their allocated quota, yet transferred it to other fishers, the result is 8.0 t.

6. 4.86 t (16.2%) of the 2022/23 Blue-eye Trevalla TAC (30.0 t) was taken in NSW at 18th January 2023.

7. SESSF TAC recommendation for Blue-eye Trevalla for 2022/23 was 241 t.

Figure 3 Annual catch (t) of Blue-eye Trevalla from all fishing methods reported to NSW from 1998/99 to 2021/22.

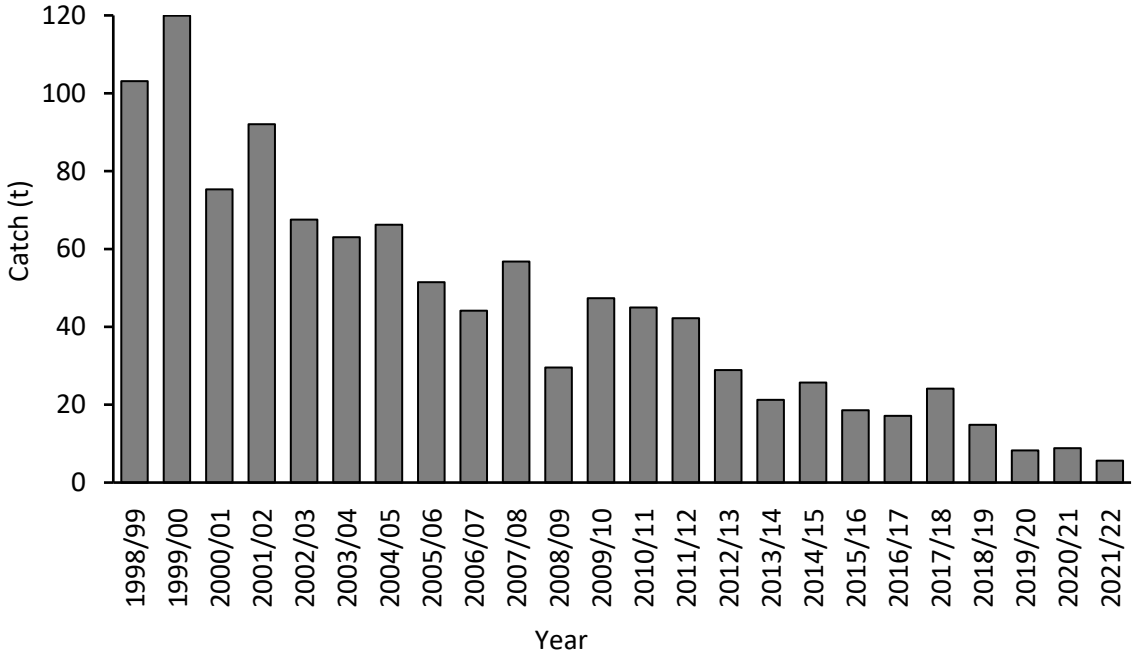


Figure 4 Annual catch (t) of Blue-eye Trevalla from NSW Ocean Trap and Line – Line East (grey; OTLLE) and all other endorsement codes (black, OTHER) from 2009/10 to 2021/22.

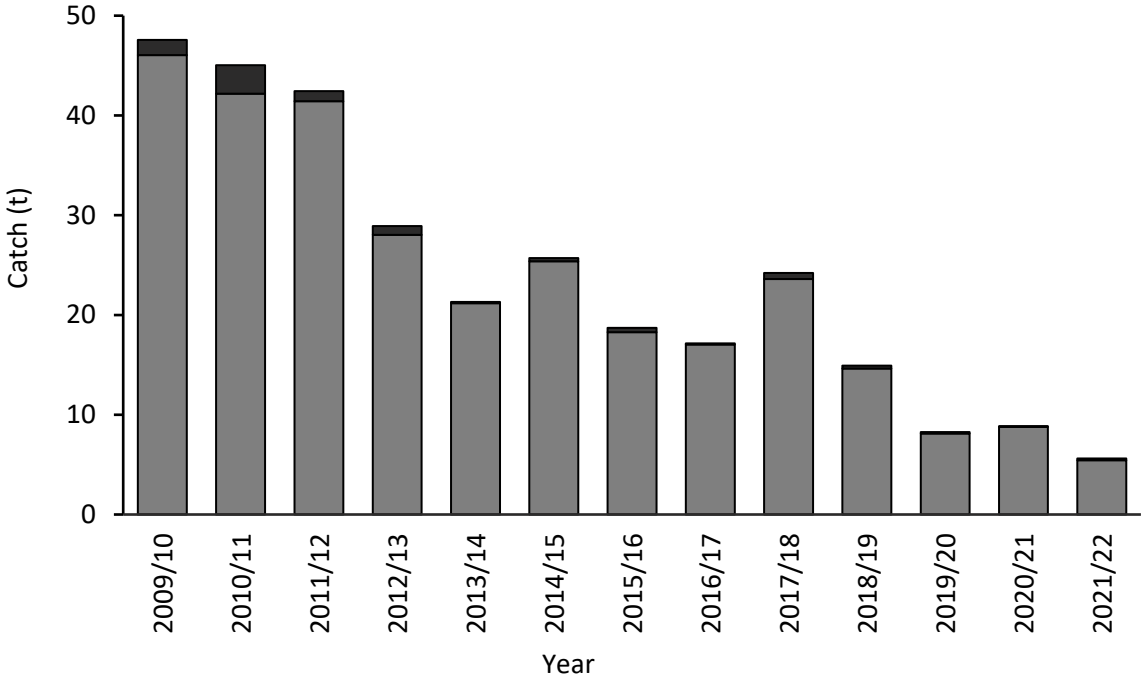


Figure 5 Annual catch of Blue-eye Trevalla from NSW Ocean Trap and Line - Line East (OTLLE) – Dropline (dark grey; DPL), Handline (light grey), Setline (white; demersal, trotline and unspecified setline), and all other methods (black) from 2009/10 to 2021/22.

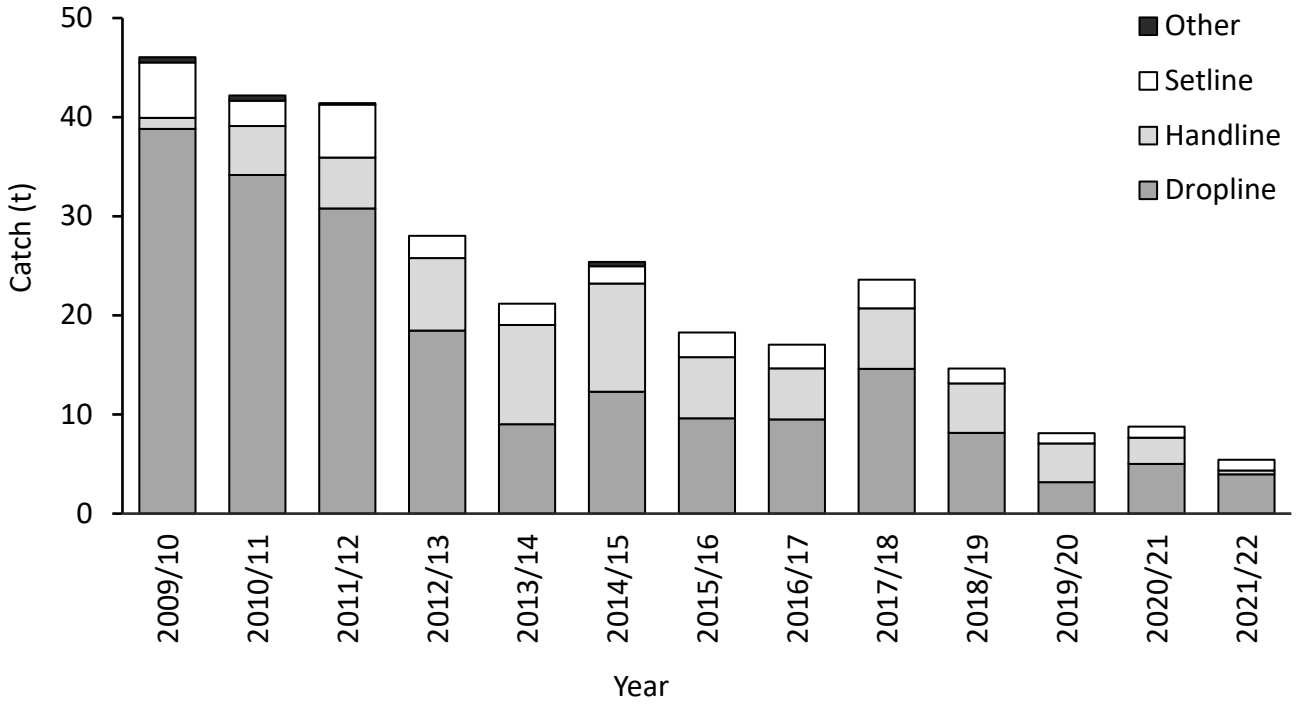


Figure 6 Dropline only - Annual effort (days) using dropline in the OTLLE from 1997/98 to 2021/22.

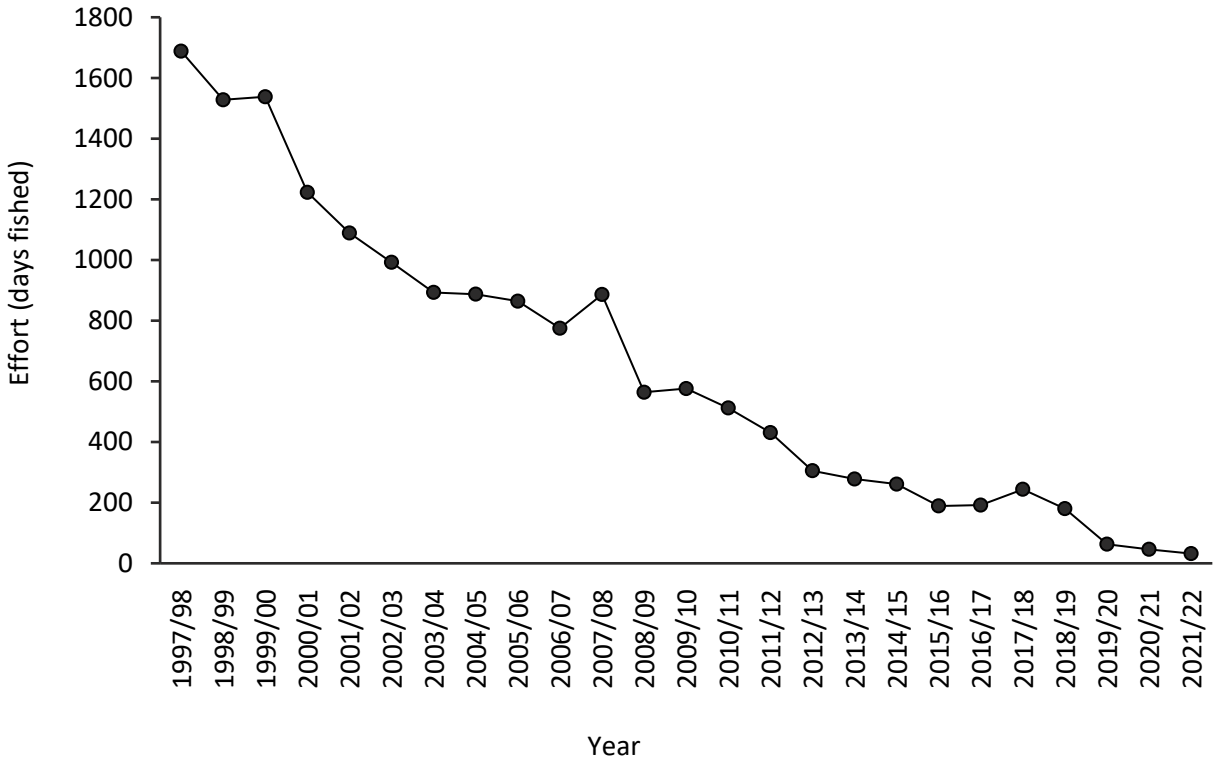
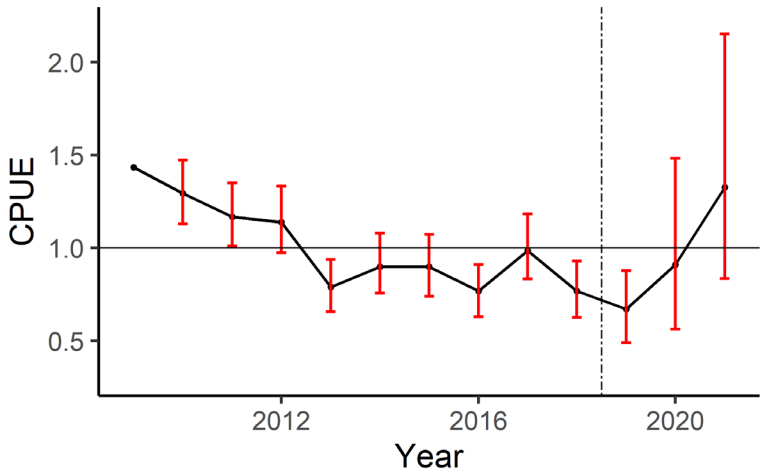


Figure 7 Dropline only – (a) Annual standardised commercial catch rates (CPUE kg.day^{-1}, solid black line with red error bars) using dropline in the OTLLE from 2009/10 to 2021/22 and (b) Fit of linear regression model to standardised catch rates with standard error of the regression line shown (grey shading). Dashed vertical line indicates transition to quota management.

(a)



(b)