

Beachworms (*Onuphidae*)

Assessment Authors and Year

Taylor, M.D., Chick, R.C. and Fowler, A. M. 2025. Stock Status Summary 2023/24 – Estuary General Fishery (Hand Gathering) – Beachworms (*Onuphidae*). NSW Department of Primary Industries. Fisheries NSW, Port Stephens Fisheries Institute. 14 pp.

This stock status summary report provides an update to the data series presented in the previous assessment (Chick and Fowler 2024), to inform a determination of stock status for the most recent fishing period.

Stock Status

Current stock status	On the basis of the evidence contained within this assessment, the NSW Beachworm stock is currently assessed as depleting .
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A balanced interpretation of the weight-of-evidence provided suggest that the biomass of Beachworms is unlikely to be depleted and that recruitment is unlikely to be impaired. However, for the period FY2019 to FY2024, evidence suggests the biomass declined, but the stock is not yet considered to be recruitment impaired. The weight-of-evidence is less supportive of an inference that the current level of fishing mortality is likely to cause the stock to become recruitment impaired.

Stock structure & distribution

Beachworms are polychaete worms in the family *Onuphidae*. In NSW, they are predominantly *Australonuphis teres* (stumpy or kingworm) and are harvested for bait from wave-exposed intertidal sandy beaches. Their distribution ranges from South Australia to Queensland (Dakin et al. 1952; Paxton 1979), with main populations of *A. teres* between Lakes Entrance in Victoria to Maroochydore in Queensland. Other species of Beachworms occurring in NSW that are recognised as different species by fishers include *A. parateres* (slimy) and *Hirsutonuphis mariahirsuta* (wiry or white headed wiry), but they are far less abundant than kingworms (Paxton 1996).

A genomic study on *A. teres*, sampled from hierarchically nested spatial scales along 900 km of NSW coast, identified six genetic groups with no clear geographic pattern to their distribution, suggesting considerable gene flow among populations (Padovan et al. 2020). Little is known about the genetic structure of the other species of Beachworms but, as they also adopt a similar, broadcast spawning life history (Paxton 1986), with larval distribution a function of oceanographic processes and likely larval behaviour, it is highly probable they represent broad, interconnected

populations. Although not supported by quantitative sampling, Paxton (1979) observed that *A. teres* lives where more wave action occurs, with *A. parateres* preferring more sheltered areas, and small *A. teres* living higher on the shore than larger individuals. Anecdotal evidence, from irregular observations from divers, indicates large *A. teres* can occur at ocean depths >1.5 m and >200 m offshore. For the purposes of this assessment, it is assumed that Beachworms in NSW constitutes a single multi-species management unit.

Scope of this assessment

This stock status summary presents an update to the information and results from the most recent assessment of the NSW Beachworm stock (Chick and Fowler 2024) that aimed to: 1) define the stock structure and provide a summary of the biology of the species; 2) assess and determine the biological status of NSW Beachworms; 3) summarise the available fishery statistics and additional data sources to inform the assessment; 4) outline information and data limitations and uncertainty; and 5) comment on the strategic direction of future research and the assessment. Assessment of the NSW Beachworm stock is based on a weight-of-evidence approach, as current knowledge of stock structure and available data do not support a reliable model-based stock assessment.

Biology

Beachworms are dioecious (i.e., separate male and female individuals). Sexual maturity is reached at about 42 cm in length for *A. teres*, and 39 cm for *A. parateres* and they are presumed to be repeat spawners throughout their lifespan (Paxton 1979). Mature gametes have been observed throughout the year, with *A. teres* containing >100,000 eggs in the middle third of their body (Paxton 1986). As the size of Beachworms increase, the number of gamete-bearing segments and fecundity also increases. Paxton (1979) described mature oocytes of *A. teres* to be 250–260 µm in diameter and uniformly light green, whereas those of *A. parateres* were 260–280 µm in diameter and cream coloured. Beachworms are broadcast spawners. Spawning occurs throughout the year (Paxton 1986) with possible reproductive peaks in February and October (Fielder and Heasman 2000). Ontogenetic changes in morphology have been observed throughout juvenile development of various onuphid species, but not in detail for Beachworms (Paxton 1986).

Rates of growth of Beachworms have not been recorded, but Paxton (1979) found *A. teres* grew up to 100 cm and *A. parateres* grew up to 300 cm in length. The smallest Beachworms that have been collected were 30 mm in length (Paxton 1979). Independent surveys of *A. teres* from along the NSW coast included Beachworms between 91 and 954 mm long and ranging in age from <1 year to 9 years old (DPIRD unpublished data). Population size structure appeared to be normally distributed, with individuals weighing between <1 g and 35.5 g (DPIRD unpublished data).

Fishery statistics

Catch information

Commercial

Statewide fishery harvest increased between FY1985 and FY1997 during an apparent developmental phase in the fishery, reaching a peak exceeding 35 t in FY1997 (Figure 1). Harvest abruptly decreased to <20 t y⁻¹ in FY1998, and gradually continued to decrease to about 10 t y⁻¹ until FY2010. The pattern of declining annual catches continued from FY2010 (11.3 t; noting this was the time of transition to the current reporting system) to FY2016 (~5.5 t). Since FY2016, catches have averaged around 5 t y⁻¹ including a total harvest of 7.3 t in FY2019 (the last year prior to implementation of a TAC). Total harvest has continued to decline with total harvest in the last two years being the lowest two levels since the early 1980s. In FY2024, 3.4 t was reported, equating to about half of the FY2024 TAC (7 t; Figure 1). Importantly, these relatively recent (since FY2010) patterns of change in harvest for the statewide fishery are not necessarily consistent with patterns at finer spatial scales (Figure 2).

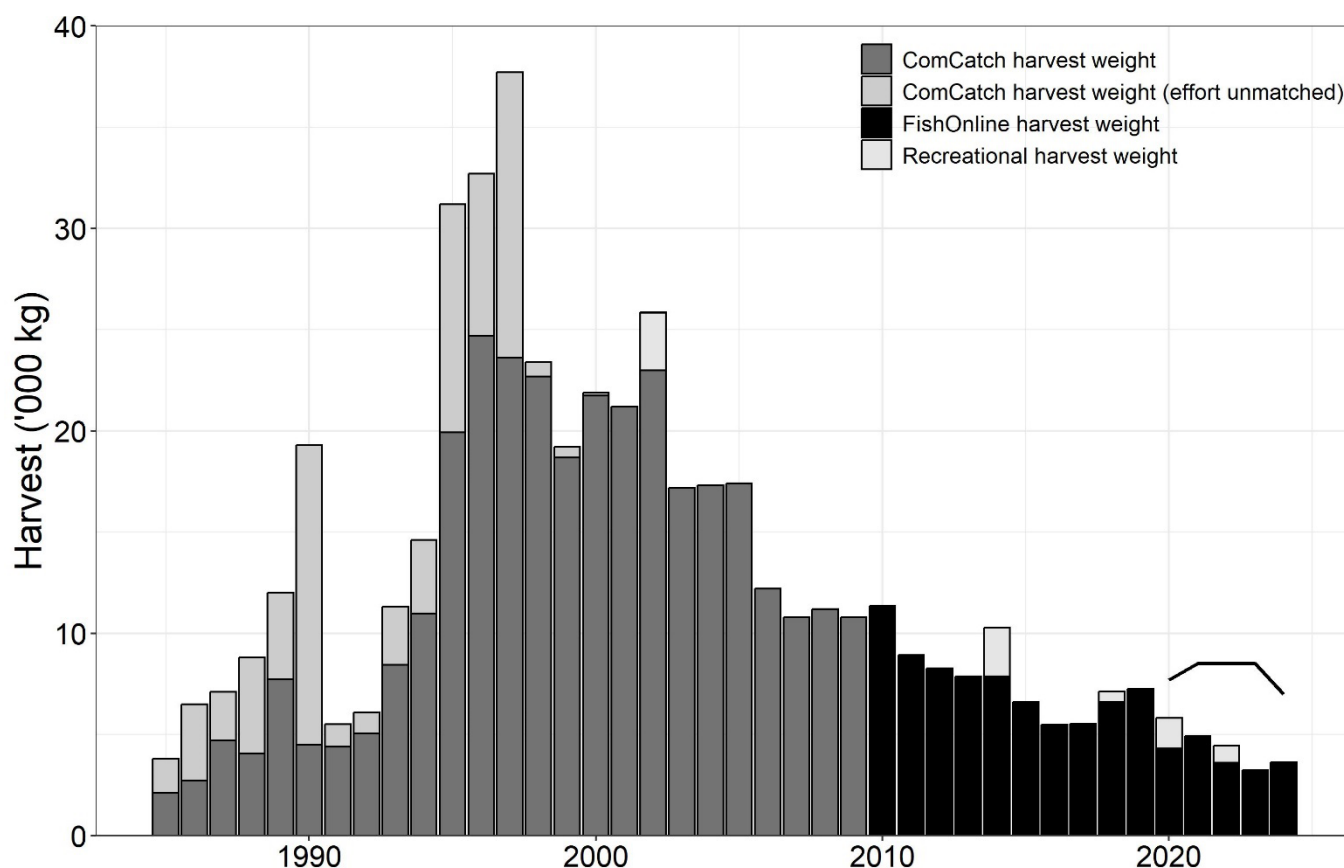


Figure 1. Total annual Beachworm harvest reported for the Estuary General Fishery within NSW from FY1985 – FY2024. Data derived from different catch reporting systems (ComCatch and FishOnline) are indicated in the figure legend, as are harvest volumes for which effort could not be directly matched (and were thus not included in calculation of CPUE indices). Estimates of recreational harvest is also indicated for years in which surveys were conducted. Annual TAC is shown as a solid black line (since FY2020).

Since FY2010, catches of Beachworms have been reported from most regions with EGF hand gathering endorsements, except Region 5 (Figure 2). There has been no harvest in Regions 2 or 7 in recent years (Figure 2), and harvest from Regions 1, 3, 4 and 6 have accounted for an average of 98% of the annual statewide harvest since FY2010 (Figure 2). Most of the harvest over the past 10 years has occurred in Region 3, however in FY2024 harvest from Region 4 was greater (Figure 2), accounting for 58% of statewide harvest. Harvest in Region 4 has been gradually increasing since FY2020 (Figure 2). Harvest in Region 1 and Region 6 generally comprises only a small proportion of

the statewide total. As a consequence of this spatial bias in harvest, only Regions 1, 3, 4 and 6 have been examined at the regional level in the catch rates analyses below.

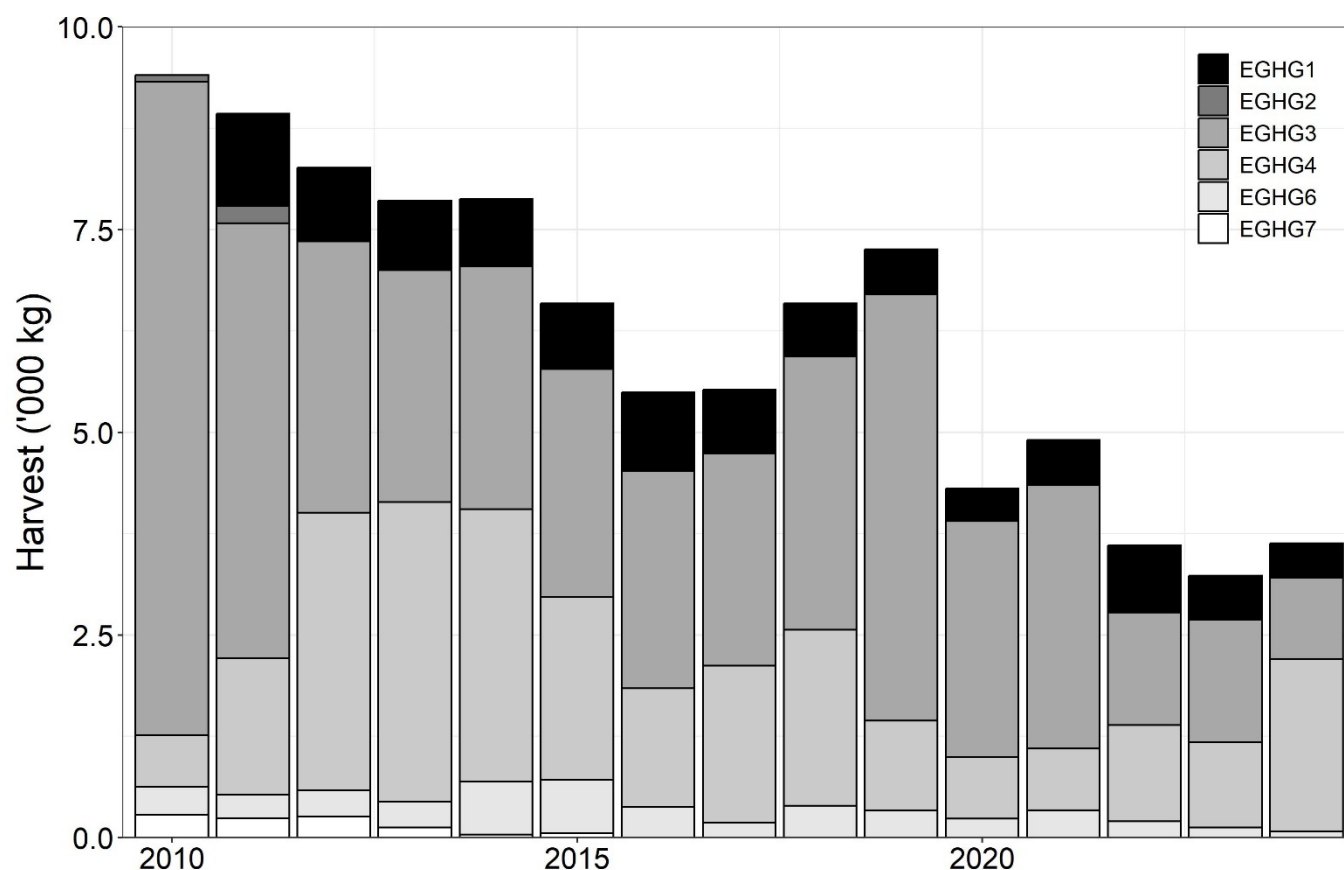


Figure 2. Total annual Beachworm harvest reported for the Estuary General Fishery within NSW by Region (EGHGx – see legend) from FY2010 to FY2024. Note there was no harvest reported from EGHG5 during the period considered

Recreational and charter boat

Estimates of recreational harvest (total number retained) are available from the National Recreational and Indigenous Fishing Survey (FY2001, Henry and Lyle 2003), and more recently through ongoing surveys of harvest by NSW long-term Recreational Fishing Licence (ltRFL) holders and their household members, through the Recreational Fisheries Monitoring Program (RFMP). These surveys provide estimates of harvest in 2013/14 (West et al. 2015), and then biennially from 2017/18-2021/22 (Murphy et al. 2020; Murphy et al. 2022; Murphy et al. 2024). In 2000/01, the recreational harvest (kept numbers) was estimated to be $285,663 \pm 72,697$ worms (mean $\pm$ SE). At an average weight of 10 g (as defined for the conversion of commercial numbers of Beachworms to weight), the 2000/01 estimate equates to a total recreational harvest of $\sim 2.9 \pm 0.7$ t y⁻¹. In 2013/14, 2017/18, 2019/20 and 2021/22 the statewide survey estimated the retained recreational harvest of Beachworms to be $239,085 \pm 85,662$; $54,046 \pm 20,044$; $150,299 \pm 96,222$; and $86,549 \pm 47,666$ Beachworms, respectively — equating to $\sim 2.4 \pm 0.9$ t; $\sim 0.5 \pm 0.2$ t; 1.5 ± 0.96 t; and 0.9 ± 0.48 t (Figure 1), respectively (West et al. 2015; Murphy et al. 2020; Murphy et al. 2022; Murphy et al. 2024). Corrections made to the 2013/14 survey outcomes, to account for differences in survey designs, indicate the comparable recreational harvest was 1.5 t $\pm$ 0.8 t (Murphy et al. 2020). Notably, Beachworm estimates from statewide surveys are typically from a low sample size and the estimate

from 2013/14 was associated with relatively high standard error (i.e., >40%, Murphy et al. 2020). Estimates of recreational harvest represent 12%, 30%, 8%, 35% and 27% of the reported commercial harvest for each of the years, respectively.

Indigenous

The benefits (and costs) of fishing to the cultural, broader social, health, wellbeing and prosperity of Indigenous people and communities are substantial (Voyer et al. 2016). Schnierer and Egan (2012) described a case study in NSW of the impact of management changes on the viability of Indigenous commercial fishers and the contribution commercial fishing and aquaculture makes to Indigenous communities. Included in this case study are estimates of the contribution Indigenous commercial fishers make to Indigenous communities, including the contribution of between 5% - 20% of their annual commercial catch. The contribution made to Indigenous communities by Indigenous commercial fishers was, on average, 9.8% of annual harvest and the contribution from broader Indigenous commercial fishers was greater than that made by hand gathering in the EGF, with this being a consequence of hand gathering being a "...traditional skill that is widely practiced by coastal families so they can fulfil their own needs." (Schnierer and Egan 2012). Moreover, Schnierer and Egan (2012) reported substantial harvests of hand gathered species (principally Pipi) by Aboriginal fishers that were either not reported in commercial harvest records, or reported as 'other' species and went unrecorded as species specific catches and were utilised for personal and community use.

Synthesis of catch composition from Indigenous cultural fishing in NSW indicated that there are at least 18 species in the EGF that overlap with Indigenous fisheries (Schnierer and Egan 2016). In a survey based in the Tweed region, annual harvest of Beachworms by Indigenous fishers was estimated at between 1,869 and 4,350 worms (Schnierer 2011). Based on an average weight of 10 g, the harvest from Aboriginal fishers in the Tweed region in NSW is estimated at <0.5 t.year⁻¹. Schnierer (2011) described Beachworms as among the top ten culturally most important species but they consisted of less than 5% of the total cultural harvest in terms of total numbers of species. Total effort estimated from this area for the Aboriginal fishery was 542 hours or 92 days (Schnierer 2011). Cultural harvest of bait, including Beachworms was also seen to be important in delivering economic benefits to the community (Schnierer 2011).

Illegal, Unregulated and Unreported

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

There are anecdotal reports of IUU fishing occurring at certain beaches, related to minor incidents in both the commercial and recreational fishing sectors. NSW Fisheries Compliance provide annual summaries of seizures of fish and invertebrates due to non-compliance. These reports do not indicate IUU activity related to seizures for Beachworms for the years 2010/11 to the most recent report in FY2023 (<https://www.dpi.nsw.gov.au/fishing/compliance/fisheries-compliance-enforcement>).

Fishing effort information

During the period FY1985-FY1997 fishers were required to report their catch monthly and effort (in days fished) by gear type, not linked to catch unless only a single gear type was used (and then not

even linked to species catch within a gear type). Therefore, prior to FY1998 reported fisher-days attributed to hand gathering within the EGF cannot be specifically allocated to harvest of a particular species, and reflects the total fisher-days reported for hand gathering by the fisher for each month where one method was reported and the species of interest was also reported in that month. Effort in fisher-days (effort_d) has generally reflected that of harvest over the history of the fishery. Effort increased from 945 days in FY1985 to a peak of 7,442 days in FY1997 (Figure 3). From FY1998 to FY2009, effort_d decreased from >6,000 days to about 4,000 days. Since FY2010, effort_d has continued to decline from ~3,000 days to ~1,300 days in FY2022 and FY2023 (the lowest levels of effort_d since FY1985), but then increased to ~1,800 days in FY2024 (Figure 3). Similarly, effort in hours fished (effort_h) has also generally declined from >10,000 hours in FY2010 to <3,700 hours in FY2022 and FY2023 (the lowest levels since FY2010), and increased to exceed 5,000 hours in FY2024 (Figure 3).

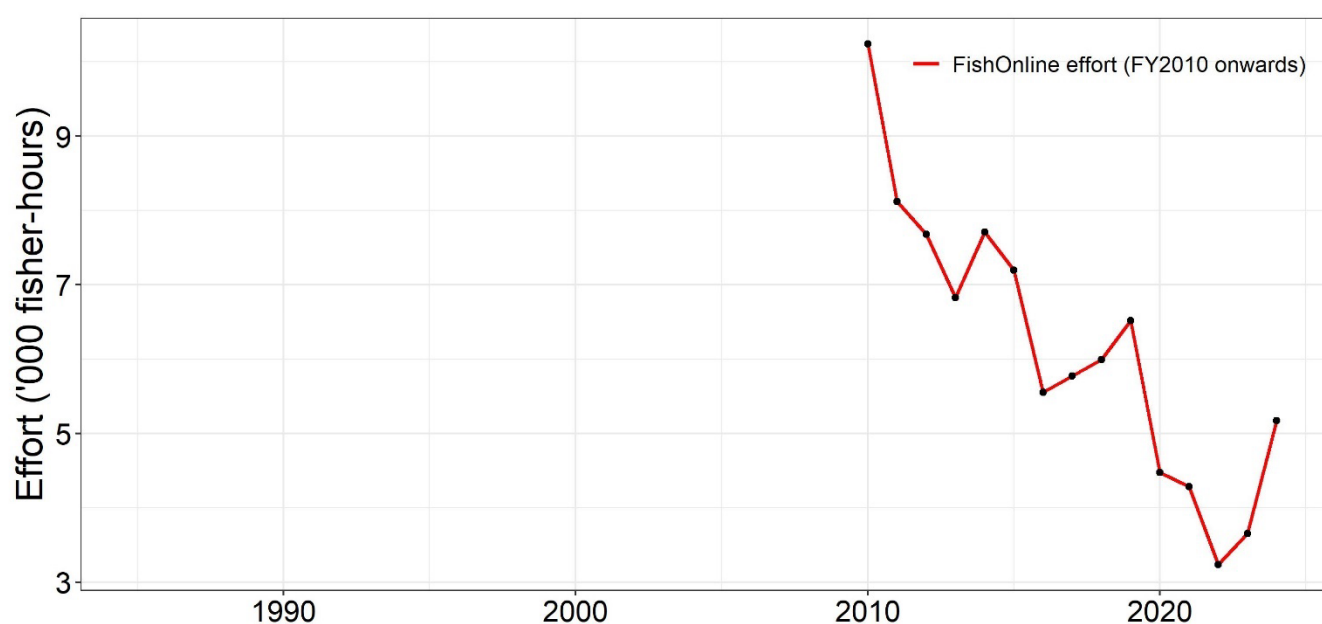
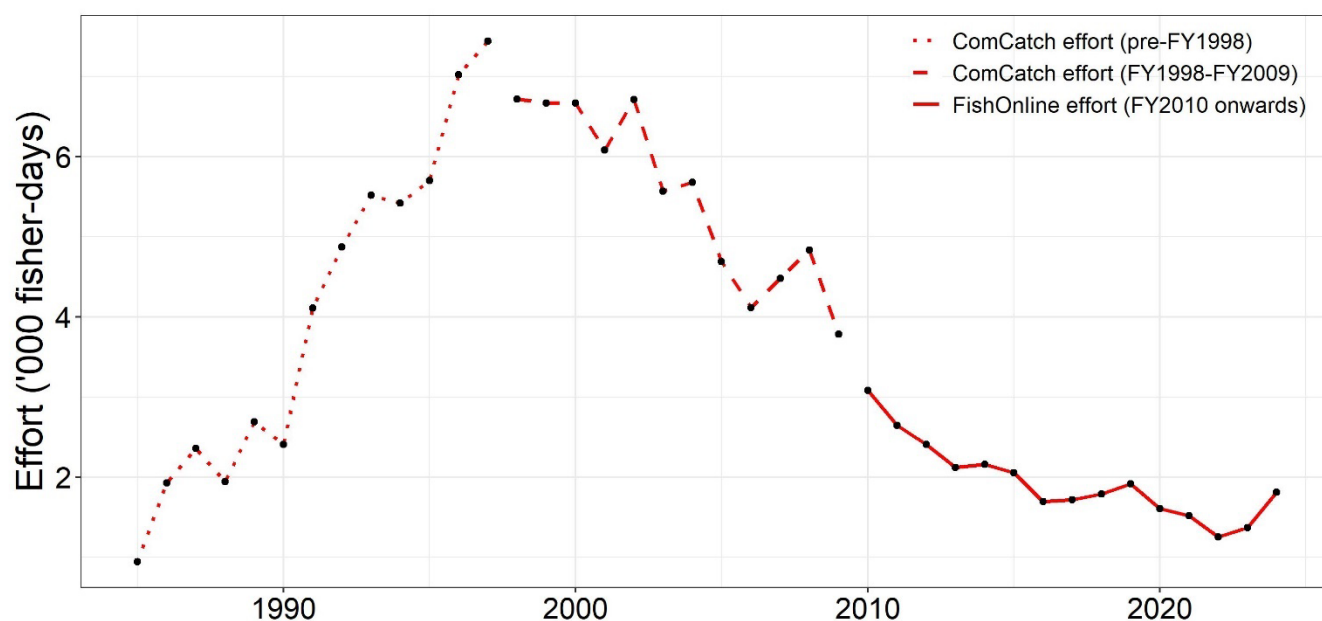


Figure 3. Total annual hand-gathering effort reported against Beachworm harvest in the Estuary General Fishery within NSW from FY1985 – FY2024, reported as fisher-days (upper panel) and fisher-hours (lower panel). Fisher-hours is only available for the FishOnline series (post-FY2010).

Catch rate information

Catch per FisherDay ($CPUE_d$) is a difficult indicator to interpret prior to FY2010, for reasons outlined for the catch and effort_d time series. Nonetheless, $CPUE_d$ was comparatively low and highly variable (between 1 and 2.9 kg d⁻¹) from FY1985 to FY1994. From FY1995 to FY2005, $CPUE_d$ generally remained above 3 kg d⁻¹, but declined below this after FY2007 and to a 14-year low of 2.3 kg d⁻¹. For the FishOnline time series, $CPUE_d$ remained above 3 kg d⁻¹ until FY2019, and then started to decline. FY2024 had the lowest $CPUE_d$ for the FishOnline time series (2 kg d⁻¹, Figure 4), and this decline was mirrored by declines in nominal and standardised catch per fisher-hour ($CPUE_h$) in most of the regions supporting harvest (Figure 5).

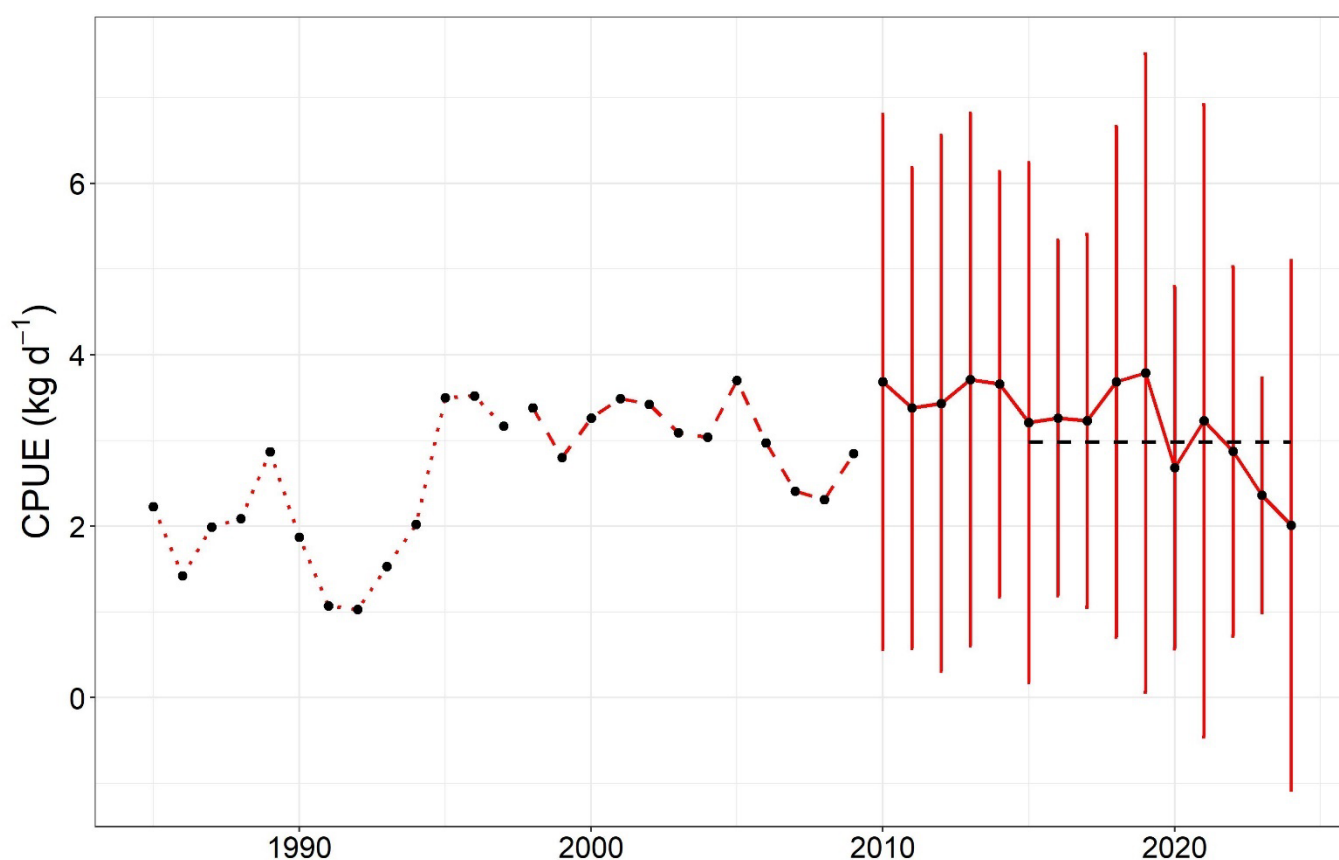


Figure 4. Average annual nominal Beachworm catch-per-unit-effort ($CPUE_d$) within NSW from FY1985 – FY2024, aggregated and calculated at the statewide level. Calculations for the early ComCatch timeseries are presented as a dotted line, whereas the later ComCatch and FishOnline timeseries are presented as a dashed line and solid line respectively. Error bars reflecting one standard deviation are included for the FishOnline data series. The horizontal black dashed line indicates the most recent 10-year average.

Patterns of harvest and trends in both standardised and nominal $CPUE_h$ (sCPUE and nCPUE) have varied greatly among regions through time (Figure 5). In Region 1, overall catch has gradually declined since FY2011 (Figure 2), and both nCPUE and sCPUE have decreased substantially, particularly in the last few years. FY2023 and FY2024 had the lowest catch rates observed in the FishOnline series (Figure 5), and FY2024 was well below the 10-year average (Figure 5). In Region 3,

both sCPUE and nCPUE have been comparatively stable throughout the entire FishOnline series (Figure 5), however both indices declined sharply in FY2024 (accompanied by a ~30% reduction in catch for that region, Figure 2). Annual harvest in Region 4 has been more variable through time than that in other regions, and CPUE indices have been similarly variable. In FY2024, harvest from Region 4 dominated the fishery (Figure 2), and the sharp declines in CPUE observed in the other regions were not observed for Region 4 (although sCPUE has remained below the 10-year average for the past 3 years, Figure 5). Region 6 supports a lower harvest than Regions 1, 3 and 4, but overall harvest has been declining since FY2015 to the lowest yet recorded in FY2024 (Figure 2). The was accompanied by a sharp decline in nCPUE and sCPUE in FY2023 and FY2024. CPUE_h in FY2024 is the lowest since the commencement of the FishOnline reporting series for three out of the 4 major harvest regions (Figure 5), and this was also reflected in the statewide CPUE_d index.

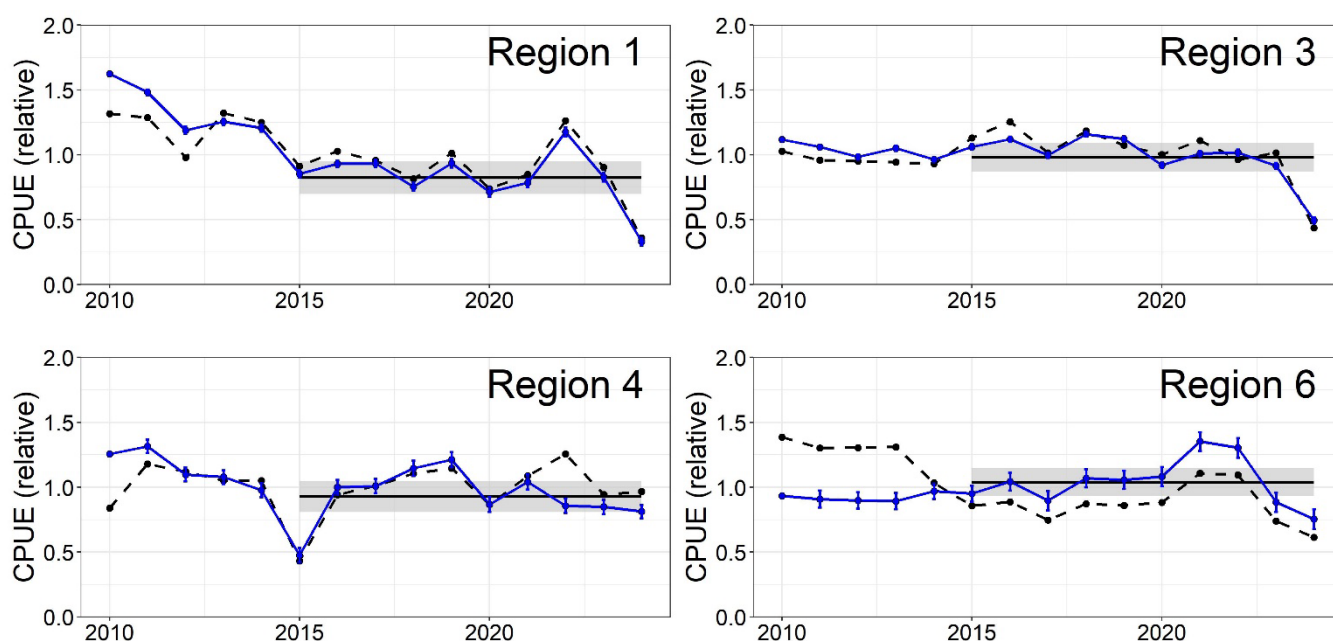


Figure 5. Beachworm catch-per-unit-effort (CPUE_h) for the top four NSW regions (by catch) from FY2010 to FY2024, calculated for the FishOnline timeseries (FY2010-FY2024). Standardised (sCPUE, blue line, with standard errors indicated) and nominal (nCPUE, black line, representing the geometric mean CPUE for each fiscal year) CPUE series are presented. The solid black line indicates the most recent 10-year average, and the grey shaded area indicates the 95% confidence intervals surrounding this mean.

Stock Assessment

Stock Assessment Methodology

Year of most recent assessment:

2024

Assessment method:

Assessment of the NSW Beachworm stock is based on a weight-of-evidence approach. This is done as current knowledge of stock structure and available data does not support a reliable model-based stock assessment.

Main data inputs:

- Harvest (commercial, NSW EGF, t) – FY2010 to FY2024
- Standardised and nominal commercial catch rate (NSW EGF Regions 1, 3, 4 and 6) – FY2010 to FY2024
- Harvest (NSW Recreational Fishery) (t) 2000/01, 2013/14, 2017/18, 2019/20, 2021/22

Data interpreted at statewide and regional scales.

Key model structure & assumptions:

Standardised catch rates calculated using the `rforcpue` package (<https://github.com/haddonm/rforcpue>) as a relative index of abundance, noting the assumption that these are not unduly influenced by factors other than those accounted for through standardisation.

Sources of uncertainty:

General data limitations and uncertainty was considered in the weight-of-evidence approach.

There is uncertainty in the assessment and determination of stock status presented in this report. Fishery-dependent measures of fishery and stock performance have declined at the statewide level, and across key regions of the fishery, and there are indicators of depleted stocks. However, changes in the operation of the fishery over recent years (e.g., introduction of TAC and ITQ since 2019) are coincident with more recent declines, creating uncertainty regarding whether they reflect changes to the stock (including inter-tidal, fished stocks and any sub-tidal, off-shore components) changes in fishery operations.

Further sources of uncertainty include: i) the assessment is for the species complex of NSW beachworms and assumes the data available represents the broader species complex; ii) while genetic stock structure is known to be complex, with no clear geographic pattern to the distribution of 6 genetic groups of *A. teres* (Kingworms), there remain further uncertainties regarding the dynamics of biologically functional stocks and the reliance of persisting populations, at a beach or larger scale, on other stocks (e.g., larval sources) throughout the State; iii) recreational fishery data from moderately different sampling frames through time and with limited spatial resolution (not beach level) and a general trend of reduced recreational fishing activity, that may impact domestic demand for beachworms; iv) the influence of management arrangements (past and recent), on the utility and reliability of commercial fishery data – in particular, recent changes have allowed unlicensed (unendorsed) ‘crew’ to harvest Beachworms with an endorsement holder, and it is not clear whether additional effort has been systematically captured (e.g., if an unendorsed person contributed to the fishing activity) through logbook reporting; and v) unknown or unaccounted for factors influencing the available data and unrelated to abundance (e.g., economic/market and social factors), or directly influencing population abundance and productivity, and unrelated to fishing

(e.g., environmental variables – such as low salinity on beaches as a result of heavy rain/flooding, as observed in NSW in recent years) and are generally unaccounted for in the assessment.

Factors other than fishing, including global phenomena – e.g., COVID-19 and associated social impacts (FAO 2021), and climate change – large scale, statewide disruptions – e.g., natural disasters (Ochwada-Doyle et al. 2024) – and also, more local factors (e.g., flooding, land-use influences and environmental factors), may affect change in the abundance, catchability and productivity of Beachworms and/or the operations of the fishery. How these factors may influence the reliability of the available data and continuity of the time series is not well known and are not considered in this assessment beyond their acknowledgement. Influences at local scales are likely to be spatially and temporally variable. Identifying and quantifying (where possible) the likely effect of these otherwise unaccounted for factors on the Beachworm fishery would help inform the relative effects of fishing.

Status Indicators - Limit & Target Reference Levels

Biomass indicator or proxy	None specified This assessment used a weight-of-evidence approach, with data including: • Nominal CPUE_d (statewide) • Nominal and standardised CPUE_h (for main harvest regions)
Biomass Limit Reference Point	None specified
Biomass Target Reference Point	None specified
Fishing mortality indicator or proxy	None specified This assessment used a weight-of-evidence approach, with data including: • Harvest (statewide and regional)
Fishing mortality Limit Reference Point	None specified
Fishing Mortality Target Reference Point	None specified

Stock Assessment Results

The NSW Beachworm stock status is classified as **depleting**. This classification is consistent with definitions within the Status of Australian Fish Stocks (SAFS) national reporting framework (www.fish.gov.au/; Piddocke et al 2021) and is a change in the stock status classification of ‘sustainable’ determined in previous years, since FY2020 (Chick and Barnes 2020). The weight-of-evidence provided in this report, and summarised below, suggests that the biomass of Beachworms is unlikely to be depleted and that recruitment is unlikely to be impaired. However, for the period FY2019 to FY2024, evidence suggests that biomass declined, but the stock is not yet considered to

be recruitment impaired. The weight-of-evidence is less supportive of an inference that the current level of fishing mortality is likely to cause the stock to become recruitment impaired. Whether reduced levels of harvest together with biomass declines indicate a proportional increase in fishing mortality, such that overfishing is occurring, is not known.

A weight-of-evidence approach has been taken for the assessment and to support the stock status determination of 'depleting' for the NSW Beachworm stock. Evidence supporting this assessment includes:

- i) low and declining levels of statewide catch, remaining well below the TAC
- ii) nominal statewide catch rate (kg d^{-1}) showing an overall decline in average annual levels during the last 6 years, to below the 10-year average in each of the last 3 years;
- iii) regional catches (in Regions 1, 3, 4 and 6 which account for 98% [range 94% - 100%] of total annual harvest each year from FY2010, are generally low and at or among historically low levels;
- iv) both nominal (nCPUE) and standardised catch rates (sCPUE) in Region 1, 3 and 6 declined to the lowest levels observed in the FishOnline series in FY2024, and Region 3 had historically supported the largest catches in NSW;
- v) sCPUE in Region 4 (which currently supports the largest harvest) has been below the 10-year average for the past 3 years;
- vi) statewide levels of recreational harvest have declined over the available time series from estimates in 2000/01 and 2013/14 of 2.9 t and 2.4 t, respectively, to estimates in FY2020 and FY2022 of 1.5 t and 0.9 t, respectively. Noting that these are likely minimum estimates given the sampling design.

A balanced interpretation of the weight-of-evidence provided suggest that the biomass of Beachworms is unlikely to be depleted and that recruitment is unlikely to be impaired. However, for the period FY2019 to FY2024, evidence suggests the biomass declined, but the stock is not yet considered to be recruitment impaired. The weight-of-evidence is less supportive of an inference that the current level of fishing mortality is likely to cause the stock to become recruitment impaired, and it is suspected that there are many areas that support Beachworm biomass that are not exploited. On the basis of the available evidence the NSW Beachworm stock is classified as **depleting**.

Stock Assessment Result Summary

Biomass status in relation to Limit	Weight-of-evidence suggests that the biomass of Beachworms is unlikely to be depleted and that recruitment is unlikely to be impaired. However, for the period FY2019 to FY2024, several indicators suggest the biomass declined, but the stock is not yet considered to be recruitment impaired.
Biomass status in relation to Target	Not assessed.

Fishing mortality in relation to Limit	Weight-of-evidence is less supportive of an inference that the current level of fishing mortality is likely to cause the stock to become recruitment impaired.
Fishing mortality in relation to Target	Not assessed.
Current stock status	Depleting

Fishery interactions

Fishing for Beachworms in the EGF is done through hand collection of individuals. There are limited, if any interactions with other fisheries. There are no recorded interactions with TEPS or other protected habitats.

Stakeholder engagement

EGF stakeholders with hand gathering endorsements were invited to participate in online presentations of fishery assessments for Pipi, Cockles, Beachworms and Nippers on 6 March 2025. Unfortunately, no stakeholders directly involved in the harvest of Beachworms attended. Commentary from other EGF stakeholders that were present suggested: 1) that endorsed fishers may have been harvesting a lower amount of Beachworms, but selling them for a higher price; and 2) that fishers may have been electing to harvest Pipi, Giant Mud Crab, and other more valuable species, rather than Beachworms. DPIRD Fisheries Managers also noted that Region 3 had a new fisher, which may contribute to the lower catch and CPUE from that location.

Qualifying Comments

Importantly, there is uncertainty associated with the assessment outcome. Patterns or trends in the available data, supporting the assessment outcome, have become more apparent in the last 2-3 years, with the exception of those in Region 1, where data has indicated a decline over a longer period of time. However, whether declines and current levels of indicators of biomass are at levels that would trigger less precautionary, formal stock and fishery performance reference levels, defined by stakeholder groups, is not known. Moreover, while recent indices of catch rates are at or below long-term average levels in most regions and their combination suggests a depleting stock, there are factors other than fishing that impact stock biomass, and factors other than stock biomass that effect fishing activity and fishery-dependent data. Discerning any proportional influence of these sources of uncertainty, the fishery, and their interactions on changes in levels of biomass and mortality, at scales relevant to the stock and its management, is challenging and made more difficult in the absence of formal definitions of stock and fishery performance indicators and their reference levels. The statewide classification is determined as an aggregate of information available at statewide and finer spatial scales (e.g., regions), with the later generally assumed more representative of smaller-scale populations throughout NSW, for which there are limited or no data.

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However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Regional NSW or the user's independent adviser.