NSW TOTAL ALLOWABLE FISHING COMMITTEE

EASTERN ROCK LOBSTER FISHERY

DETERMINATION FOR THE 2024/25 FISHING PERIOD

5 June 2024

Executive Summary

Preamble

The New South Wales (NSW) Total Allowable Fishing Committee (TAFC) has statutory responsibilities set out in Part 2A of the *Fisheries Management Act 1994* (the Act) to determine the Total Allowable Commercial Catch (TACC) or Total Allowable Commercial Effort (TACE) by NSW fishers holding the relevant endorsement in some commercial fisheries. Various fishing regulations under the Act also contain provisions requiring the making of fishery determinations.

The TAFC is an independent statutory body established under Schedule 2 of the Act. In making a determination on catch or effort in a commercial fishery, the TAFC must consider the ecological, economic and social issues associated with each fishery and make determinations that 'on balance' pursue the objectives of the Act.

The TAFC is not subject to the control or direction of the Minister as to any determination made. However, the Minister may direct the TAFC on the procedures to be followed and the matters to be taken into account in making a fishing determination. A Harvest Strategy is in place for the Eastern Rock Lobster Fishery and the TAFC has given due consideration to this strategy in determining the TACC.

This determination is for Eastern Rock Lobster for the period 1 August 2024 to 31 July 2025.

Management recommendations & supporting actions

The TAFC provides the following recommendations to the Minister, DPI Fisheries and the fishing industry towards improving the management of the fishery:

1. Efforts should be made to stratify fishery data and indicators to better represent identifiable stock components and to adapt the stock assessment to incorporate and integrate these stock component indices.
2. That NSW DPI and industry work together to explore alternative sources of reliable price data from other markets to improve GVP estimates.
3. DPI Fisheries continue to make efforts to significantly improve the estimates of recreational catch of ERL.
4. DPI Fisheries make an estimate of Aboriginal catch based on permits granted and other likely sources of mortality attributable to that sector, and the methodology and data sources are included in the ERL stock assessment.
5. The significance of rock lobster bycatch mortality in other fisheries should be investigated and estimated at least every five years and included in the calculation of the TAC.

Determination

The Total Allowable Fishing Committee, pursuant to Part 2A of the *Fisheries Management Act 1994*, determines that the commercial catch of Eastern Rock Lobster should be controlled and allocated through the following measure:

- A TACC of **200 tonnes** during the fishing period 1 August 2024 to 31 July 2025.

Introduction

The Eastern Rock Lobster (ERL) Fishery operates across all waters managed by NSW, with the exception of those areas closed to fishing. Management of the commercial fishery uses a range of input and output controls, including a total allowable commercial catch (TACC) with individual transferable quotas (ITQs); a maximum (180 mm) and minimum (104 mm) size limit; prohibition on the taking of berried females and fishing gear restrictions (traps). Tags must be fitted to each lobster landed in the commercial fishery, immediately after landing or prior to transferring lobster into a pen, to another boat or consigning to a market.

Although considered a single species fishery, there is a reasonable level of retained by-catch in the fishery, with the top four species being Ocean Jacket, Grey Morwong, Snapper and Octopus.

Shareholders in the ERL Fishery are eligible for an endorsement if holding a minimum of 55 shares in the fishery (if a new entrant) and may take the lobster themselves or nominate another licensed commercial fisher to operate their fishing business. Shares were first allocated for this fishery in 2000 and were automatically renewed for a further 10-year period in 2010 and 2020. During February 2023, the maximum shareholding for the fishery was increased from 350 shares to 3,848 lobster shares (40% of fishery shares), consistent with the basis for the maximum shareholding that applies in each of the five multi-species share management fisheries. The total number of shares in the fishery is currently 9,621. In 2023/24, there were 95 lobster fishery shareholders with 68 authorised fishers[1].

The ERL Fishery is assessed as sustainable. Gross value of production for 2023/24 (predicting that the 200 tonne TACC will be taken) is estimated at approximately $14.1 million.

The TAFC met with DPI Fisheries and a number of shareholders in the ERL Fishery on-line on 23 May 2024 to discuss fishery biology, catch and associated management issues. Written submissions by shareholders on the stock status for the fishery and other fishery management issues were provided to the Committee by DPI Fisheries. A current stock assessment report on the fishery was also provided to the Committee by the Department[2].

[1] McKinnon, F (2024) Lobster fishery management report. Total Allowable Catch Determination 2024/25. *NSW Department of Regional NSW (DPI Fisheries).*

[2] G.W. Liggins, M.E. Miller & G. Ballinger (2024) RESOURCE ASSESSMENT: Eastern Rock Lobster *(Sagmariasus verreauxi).* Prepared for the Total Allowable Fishing (TAF) Committee process for the determination for the Total Allowable Commercial Catch of NSW Lobster for the 2024/25 season. *NSW Department of Primary Industries.*

Biological considerations

Eastern Rock Lobster (ERL) range from Queensland to the Victoria border. They can live for more than 30 years, grow up to 260 mm carapace length (CL), and mature at around 167 mm CL. Minimum legal length (MLL) of ERL is 104 mm CL and the stock is managed with an upper maximum legal size of 180 mm CL. Small lobsters are found in inshore waters <10m depth. Medium size lobsters occur across the continental shelf in depths up to 200m. Spawning stock and lobsters greater than the maximum legal length (oversize) are concentrated on the north coast of NSW in depths 10-120 metres. Larvae progress through an extended pelagic phase to a post-larval puerulus stage, which then settle on nearshore rock reefs throughout NSW.

Fishery catch and effort

ERL commercial catches have been documented in a variety of reporting systems since 1885, although reporting was substantially incomplete prior to about 1994/95. Industry surveys provided estimates of substantial unreported catches over 1970 - 1993, with unreported catch being at least as large as reported catch. These estimates were extrapolated backwards to provide estimates of total commercial catch over 1885 - 1970, adding ~40% to the reported catches. Since 1995, catches have been well reported in daily logbooks, with low unreported catches, assumed to have been constant at 11.95 tonnes since 2010/11.

This reconstructed catch history indicates that commercial catches peaked at ~500 tonnes in 1929/30 and again in 1949/50, before declining to ~150 tonnes in 1979/80. Catches then increased to an estimated 375 tonnes in 1983/84, over half of which was unreported. During the recent logbook reporting period, commercial catches have increased steadily from ~100 tonnes in 1994/95 to 200 tonnes by 2022/23. Estimates of recreational catch are highly uncertain, but based on three surveys over 2000 – 2018, a constant recreational annual catch of 8.6 tonnes has been assumed since 1969/70 for assessment purposes. Aboriginal catches are unknown, but considered to be low.

A TACC quota system for commercial ERL catch was introduced in 1994, with annual quotas starting at 91.6 tonnes and increasing steadily to 200 tonnes in 2022/23. Since 1995/96 the quota has been fully caught (96% - 100%). Catch during the current incomplete fishing year (2023/24) was only 142.67 tonnes as at 12 May 2024.

Over the recent period of increasing catches since 2000/01, reported fishing effort has decreased steadily from ~260,000 trap lifts in 2000/01 to ~60,000 trap lifts in 2022/23.

Stock assessment and stock status

The stock assessment of ERL uses a length-based integrated assessment model with numerous data inputs, including: CPUE indices of abundance based on commercial catch rates; puerulus (post-larval) abundance from larval collector surveys; abundance of juvenile sub-legal-size lobsters recorded in commercial

catches; and fishery independent surveys of abundance of the spawning stock. A deterministic implementation of the model is used to examine sensitivity to key input parameters and historical catches. A stochastic implementation of the model accounts for uncertainties associated with catch and CPUE between 1969/70 and the present. The stochastic model is projected one year into the future, to provide estimates of future biomass, for use in the harvest control rule to determine the recommended TACC for the coming year.

Most indices used in the model are currently showing strong positive indications for stock status:

- Information on recruitment of post-larvae (pueruli) to the population collected from puerulus collector surveys showed that puerulus abundance at three of the four locations (Coffs Harbour, Tuncurry and Ulladulla) in 2023/24 was at or above long-term average levels, following the greatest on-record catch rates of pueruli at the two northern locations the previous year. There has been a trend for increasing rates of catch of pueruli across the 29-year time-series.
- The preliminary catch rate of sub-legal-size lobsters in depths < 10 m during 2023/24 predicts a weaker recruitment of legal-size lobsters to the shallow inshore fishery than recent years. However, major rainfall and associated floods during February and March of 2021 and 2022 are likely to have resulted in some mortality of juvenile lobsters in the shallow inshore waters or movement of juvenile lobsters into greater depths.
- Based on the 2022/23 fishery-independent survey of spawning stock done at eight sites on the north coast of between Tuncurry and Iluka, catch rates now indicate the greatest abundance of spawning stock observed during the 25-year history of the survey. Estimated abundance during the 2022/23 survey was substantially greater than all previous surveys with the catch rate for each size-class and for berried females being the greatest observed during the 25-year history of this time-series. Indices of spawning stock abundance in 2022/23 almost ten times greater than observed during the first 10 years of the survey.
- The combination of increasing catch and decreasing effort has resulted in overall catch rate (CPUE) increasing steadily from ~1.5 kg/trap month in 2000/01 to ~3.7 kg/trap month in 2018/19, before increasing dramatically to ~6 kg/trap month in 2021/22. CPUE has decreased since then back to around 4 kg/trap month, but this has reportedly been associated with a substantial increase in the catch of octopus and it seems likely that the increased presence of octopus in traps has resulted in reduced catch rates of lobsters in 2023/24.

Based on these indicators and data inputs, spawning biomass at the start of 2023/24 was estimated to be 33.6% of the pre-exploitation biomass, well above the 20% limit reference point and 25% trigger reference points specified in the current Harvest Strategy for the fishery. Exploitable biomass within the legal-size range 104 - 180 mm CL at the start of 2023/24 was estimated to be 52.8%, with an estimated maximum sustainable yield (MSY) of 215.8 tonnes and Optimum Sustainable Yield (OSY) of 210.4 tonnes.

Under the Lobster Fishery Harvest Strategy, the recommended Total Allowable Catch (TAC) and Total Allowable Commercial catch (TACC) are estimated by applying the agreed harvest control rule to the projected estimate of exploitable biomass from the stock assessment. The estimated exploitable biomass at the start of 2024/25 was 1,356 tonnes and the estimated harvest rate at OSY was 0.163 resulting in a TAC determination of 221.03 tonnes. Subtracting from this TAC the assumed current magnitudes of unreported commercial catch (11.95 t) and non-commercial catch (8.6 t), results in a TACC of 200.48 tonnes. Applying the Harvest Strategy small change limiting rule of 5 tonnes results in a recommended TACC of 200 tonnes for the 2024/25 fishing year.

There are no signals in the auxiliary indicators presented in the assessment that suggest that there have been substantial changes that are out-of-step or not well fitted by the model, or that there are substantial problems with underlying model assumptions. There are therefore no reasons to deviate from the recommended TACC of 200 tonnes.

Recommendation

- There is strong structure to the spatial distribution of lobsters, with different size/age ranges differentially distributed by depth, latitude and season. The industry has adapted their fishing patterns to selectively exploit different lobster size ranges in different areas and seasons and overall indicators (such as fishery-wide CPUE) are not ideal for indicating the relative status of different stock components. Efforts should be made to stratify fishery data and indicators to better represent identifiable stock components, and to adapt the stock assessment to incorporate and integrate these stock component indices.

Economic considerations

The ERL fishery predominantly supplies the NSW domestic market. Around 30-40% of the commercial catch is sold through Sydney Fish Market (SFM). Other domestic markets include co-operatives and direct sales. Exports comprise a relatively small proportion of total commercial catch estimated at just under 8% in 2020/1 (BDO Econsearch, Economic and Social Indicators for the NSW Lobster Fishery 2020/21).

Real beach prices of ERL have been trending upwards since the early 2000s peaking in 2018/9 after which prices have begun to fall (Figure 1).

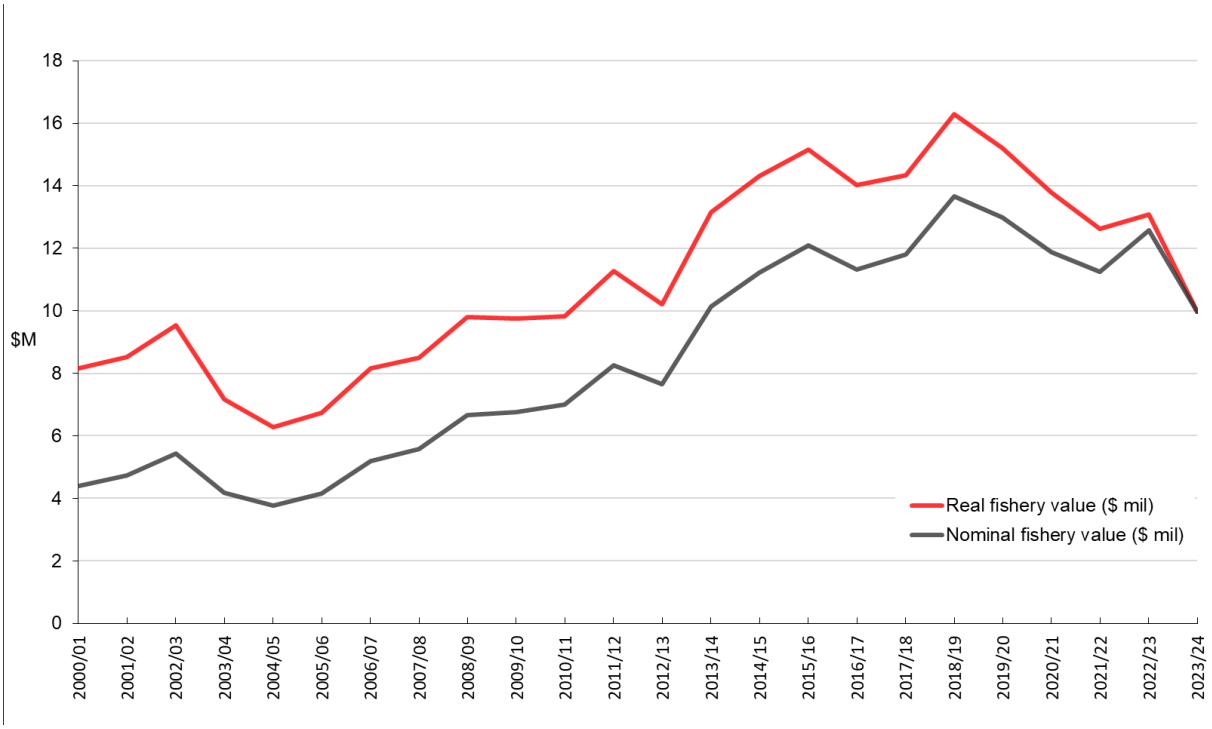


Figure 1. Nominal estimated fishery value and CPI adjusted (real value) by fishing period (predicted 23/24 total for 200 tonne TACC). Taken from McKinnon, F (2024).

COVID-19 and more recently, reductions in consumer spending are likely contributing factors for this reduction.

GVP for the fishery is estimated by using the average annual price of all ERL sold at SFM. For the periods 2020/21, 2021/22 and 2022/23, real GVP is estimated to be $11.87m, $11.25m and $12.57m respectively. Using average real price data up to May 2024 and assuming the current 200 tonne TACC is fully caught, GVP for 2023/24 is forecast to increase to $14.1m.

Commercial ERL fishers have reported that prices obtained in domestic and export markets have been lower than of SFM prices (e.g. the BDO EconSearch survey results of fishers in 2020/21 estimated average price for that year as 16% lower than SFM price for the same period). However, in the absence of reliable price data from other markets, SFM data is the only available consistent index of price over time which can be used to estimate GVP.

Recommendation

- That NSW DPI and industry work together to explore alternative sources of reliable price data from other markets to improve GVP estimates.

Share and quota trading

The total number of shareholders has remained relatively static over the last 10 years with shares tending to consolidate to larger shareholders- generally consistent with a mature quota fishery. In the 2023/24 fishing period, there are 95 shareholders

and 68 authorised fishers, of which 29 are nominated fishers, authorised to operate the business on the shareholders behalf. Shareholdings spread over fisheries regions with greater concentrations between Coffs Harbour and Port Stephens and the Central Coast and Illawarra.

Since 2013/14, the real share transfer (sale) price has increased substantially which is indicative of confidence in the fishery and healthy economic returns. This is corroborated by previous BDO Econsearch estimates of net economic returns of 15.9% and 10.6% in 2019/20 and 2020/21 respectively. It should be noted that share prices are indicative only because information is provided voluntarily and, in some cases, reported prices are for trades between related businesses and may not reflect market price. Nevertheless, the trend in the available price series is likely to reflect trends in market price.

Quota units (expressed in kgs) are allocated to each shareholder depending on the number of shares they hold. Quota can be traded within each fishing period, with a maximum of twice the shareholders initial allocation able to be transferred to their shareholding. The trend in quota price is a simple indicator of short-term expectations of the economic performance of the fishery.

DPI Fisheries has requested quota price information from shareholders on a voluntary basis since 2003/04. Whilst the number of trades with price being reported varies between fishing periods, the long-term average is that around 23% of all transferred quota units have reported price since 2009/10. As with share price information, these quota prices may not accurately reflect the average market price in each fishing period, but the trend is likely to be indicative of trend in market prices. Reported prices (in real terms) have increased since data collection began.

Increased reporting on share and quota prices would provide more robust indicators of fishery economic performance.

Conclusion

One of the strategic objectives of the 2022 Harvest Strategy is to support profitability of the commercial fishery over the long term. The stock assessment report notes that the primary indicator for this objective, BspCURRENT / BspUNFISHED has not been triggered. Secondary economic indicators for this strategic objective include market conditions, economic surveys and share and quota trading.

Based on the economic considerations described above and informed by submissions from shareholders regarding share and product market conditions, there is no compelling economic reason or exceptional circumstance to justify deviation from the TACC of 200 tonnes as determined by the model-based decision rules under the current Harvest Strategy.

Fishery management considerations

In the early 1990s, the ERL Fishery was considered overfished with the stock at around 10% of initial biomass and a TACC set at around 90 tonnes. Since then, regulatory reforms to the commercial fishery have been made to rebuild the fishery.

These have included share management, lobster tags, minimum and maximum size limits and output controls (total allowable commercial catches and individual transferable quotas (ITQs)). In addition, the recreational fishing possession limit was reduced from five to two in 1993. Today these management reforms can be regarded as a success, with the TACC at 200 tonnes and a recreational possession limit of three lobsters. Puerulus settlement has also improved over the past 15 years supporting strong year-classes entering the fishery. Compliance rates in the commercial fishery are now high at 92%. To continue to maintain the high integrity level of the commercial fishery, fishers need to continue to remain vigilant. Ensuring they are tagging lobsters correctly and cutting tag tails flush to ensure they remain tagged post landing.

This management section focusses on sources of mortality (other than the reported commercial catch) and compliance matters. Those sources of mortality are non-commercial catch (recreational and Aboriginal), unreported commercial catch, bycatch in other fisheries and illegal catch arising from compliance seizures. Estimates of non-commercial and unreported commercial catch are explicitly included in the ERL Harvest Strategy (HS) when determining the TACC, whereas bycatch from other fisheries and compliance seizures are not. However, the TAFC does consider them relevant in determining the TACC.

The TAFC remains concerned at the precision of the estimates for recreational and unreported commercial catch, particularly as they were pegged (as a percentage) to the commercial catch, no matter what level it is. The need for more precise estimates is paramount, given the recent increase in the recreational possession limit from two to three lobsters. The TAFC reiterates that due to the low number of recreational lobster fishers, the standard recreational fishing surveys applied in NSW will not lead to improved precision of recreational catch estimates. The TAFC notes that the Department is attempting to refine the sampling framework with the aim of collecting more precise recreational catch information and supports the general direction being taken.

Recommendation

- DPI continue to make efforts to significantly improve the estimates of recreational catch of ERL.

The HS requires that Aboriginal catch also be formally included in the TAC calculation. Historically this has been assumed to be less than 1,000 lobsters per year (< 1 t). Larger permitted catches can be taken under *Section 37 Cultural Fishing Permits* (permits) granted to the Aboriginal sector. While there is apparently no record of how many lobsters were taken against each permit, it provides an upper bound on what could have legally been taken. For the previous three years (2020/21 to 2022/23), the permitted number of lobsters for harvest under permit has been in the range of 200 to 550, equating to a weight of approximately 150 to 425 kg and centred on the Far South Coast. However, there are several other sources of Aboriginal catch (*Aboriginal Cultural Fishing Local Management Plans*, *Aboriginal Cultural Fishing Interim Access Arrangements*, Native Title) for which there is also no catch information. The Aboriginal Cultural Fishing Interim Access Arrangement

allows a cultural fisher to take twice the recreational possession limit which equates to six lobsters. This does not mean the current estimate of < 1 tonne is wrong, but how the Aboriginal catch is estimated requires an assessment review.

Recommendation

- DPI makes an estimate of Aboriginal catch based on permits granted and other likely sources of mortality attributable to that sector, and the methodology and data sources are included in the ERL stock assessment.

Other sources of fishing mortality are bycatch from other fishing fleets and compliance seizures. Demersal fish and prawn trawling are two fishing methods that can have significant ERL bycatch. There was the incidence of the illegal take of 32 lobsters in 2023/24 by a Commonwealth trawl vessel. Historically there are countervailing forces at work. On the one hand, fishing effort in both the NSW and Commonwealth trawl fleets that overlap the range of the ERL stock has been in decline for several decades. On the other hand, the abundance of lobsters has been increasing over the last two decades. Furthermore, the survival rate of lobsters caught in trawl nets is unknown. The use of video monitoring on trawl vessels for the purpose of fisheries management and/or to meet the conditions of third-party accreditation (e.g. Marine Stewardship Council) may over time allow better estimation of lobster bycatch and bycatch trends in these fisheries.

Recommendation

- The significance of rock lobster bycatch mortality in other fisheries should be investigated and estimated at least every five years and included in the calculation of the TAC.

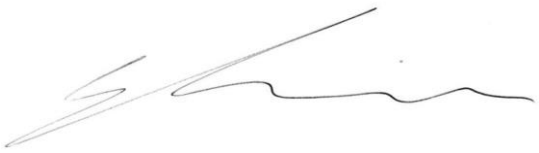
Determination

The Total Allowable Fishing Committee, pursuant to Part 2A of the *Fisheries Management Act 1994*, determines that the commercial catch of Eastern Rock Lobster should be controlled and allocated through the following measure:

- A TACC of **200 tonnes** during the fishing period 1 August 2024 to 31 July 2025.

Species	**Catch Limit 2024/25 (tonnes)**
Eastern Rock Lobster (*Sagmariasus verreauxi*)	200

Signed (for and on behalf of the TAFC)



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5 June 2024