NSW TOTAL ALLOWABLE FISHING COMMITTEE

SEA URCHIN AND TURBAN SHELL RESTRICTED FISHERY: RED URCHIN

DETERMINATIONS FOR THE 2024 AND 2025 FISHING PERIODS

6 November 2023

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.

This Determination is for the Sea Urchin and Turban Shell (SUTS) Restricted Fishery for the fishing periods 1 January to 31 December 2024 and 1 January to 31 December 2025. The Red Urchin fishery is a part of the SUTS multi-species restricted fishery that is managed by a combination of input controls (e.g., minimum size limits) and a TACC allocated equally amongst endorsement holders as individual transferable quota. There are 37 SUTS holders in the fishery and each endorsement has received an annual ITQ of 1,622 kg for Red Urchin under a TACC of 60 tonnes since 2002. This was reduced to 30 tonnes in 2023, which equated to 811 kg per endorsement holder. Red Urchin ITQ cannot be separated from the SUTS endorsement and ownership cannot be permanently transferred amongst endorsed fishers, but the quota can be leased within a fishing period.

To provide some protection against overfishing and serial and/or localised depletion, the TAFC supported the setting of Regional Catch Limits (RCLs) across five (5) regions in 2000 (Appendix 1). In both Regions 3 and 4, historical and recent peaks in fishing effort and catch have been followed by rapid and substantial declines in catch rate. A similar pattern was historically seen in Region 2, with periods of increased catch being followed by rapid declines in catch rate. These declines in catch rate indicate that the stock is subject to serial localised depletion, even at the relatively low catch levels reported in recent years.

The Red Urchin (RU) fishery has been subject to substantially lower fishing effort in the past four fishing periods, due to COVID-19 restrictions, floods, bad weather for diving activities and low catch rates. Total catch is at historically low levels.

Given the currently low CPUE in open areas, the protection of spawning adults in closed areas and the minimum size limit (MSL) become important management settings to assist stock rebuilding. As some closed areas have been reopened for Purple Urchin fishing in 2023, knowing the status of Red Urchin in closed areas is the top research priority for fisheries management.

A TAFC meeting was held with interested SUTS shareholders on 23 October 2023 and representatives from the NSW Department of Primary Industries (Fisheries). Various management issues were discussed, including low total catch, market conditions, shallow water diving opportunities and stock status uncertainty. An updated fisheries statistics summary was provided by NSW DPI (Chick 2023)[1].

Management recommendations & supporting actions

The TAFC provides the following research recommendations to the Minister, NSW Department of Primary Industries and the SUTS fishing industry towards improving the management of the fishery:

1. Surveys of Red Urchin within closed areas in all Regions is a priority to prove or disprove the hypothesis that significant densities of urchins are protected in these closed areas, thus providing a large spawning biomass to assist the fishery to recover in areas open to fishing.
2. An estimate of stock size in each of the Regions 1 to 4 be updated by measuring catch rates, which would necessitate calculating effort by Region.

Determination

The Total Allowable Fishing Committee, pursuant to Part 2A of the *Fisheries Management Act 1994*, determines that the commercial catch of Red Urchin in the NSW Sea Urchin and Turban Shell restricted fishery should be controlled and allocated through two separate, but dependent measures:

1. A TACC for Red Urchin during the period 1 January to 31 December 2024 and 1 January to 31 December 2025 of **9.5 tonnes**; and
2. Regional Catch Limits (RCLs) across the specified five (5) regional zones that collectively should not exceed **9.5 tonnes** as follows:

Region	**Catch Limit 2024 (tonnes)**
1	1.18
2	2.45
3	3.06
4	2.81
5	0.0
Total	**9.50**

[1] Chick, R.C. (2023) Fishery statistics summary 2023 – Sea Urchin and Turban Shell Fishery – Red Sea Urchin (*Heliocidaris tuberculata*). NSW Department of Primary Industries. 21 pp

Introduction

The commercial harvest of Red Urchin in NSW is managed as part of the Sea Urchin and Turban Shell (SUTS) Restricted Fishery. The SUTS fishery is a declared restricted fishery under Division 1 of Part 9 of the *Fisheries Management (General) Regulations 2019*, pursuant to Section 111 of the *Fisheries Management Act (NSW) 1994*. The commercial fishery for Red Urchin is managed through a combination of input (minimum size limit; spatial closures) and output controls (quota; regional and state-wide catch limits)[2].

The commercial Red Urchin (RU) fishery commenced in 1999 with a peak harvest of 85.5 tonnes (t) in 2000. Early concerns about overfishing resulted in a total allowable commercial catch (TACC) being established in 2002 at 60 t. Commercial harvest has remained well below the 60 t TACC since 2002. The TACC is allocated equally amongst 37 endorsement holders, but only a small number of fishers target RU.

To further restrict high levels of fishing effort and serial depletion, Regional Catch Limits (RCLs) were introduced into the fishery in 2002. The commercial catch has never reached the combined RCLs, or the TACC and this is of ongoing concern for the fishery management, based on evidence of declining catch rates and a historically low total catch. In 2023, the TACC was reduced to 30 t and the RCL reduced to 9.5 t to assist stock rebuilding.

Biological considerations

Red Urchin (*Heliocidaris tuberculata*) are slow growing with low biological productivity compared to Purple Urchin (*Centrostephanus rodgersii*). Areas closed to fishing and a minimum size limit, are used to prevent overfishing of the NSW stock. The 2020 status of the overall NSW stock was declared 'Sustainable' by definition based on the amount of areas closed to fishing. Areas closed to fishing include:

1. A fishing closure in Region 5 (Montague Island to Cape Howe);
2. A number of sub-zones closed since 1994 as stock assessment reference points and refugia; and
3. Marine parks and aquatic reserves.

The populations in the closed areas have not been re-surveyed since 2000.

Outside of the closed areas was assessed as depleting in 2020, as both catch rates (CR) and catches have either recently declined, or been at historically low levels.

The stock assessment in 2023 was based on updated fishery data which indicated that catches of RU stock was only 1.6 t so far this year, down from 3.6 t in the previous year. Targeted (RU only) and Incidental effort (across the whole fishery) has continued to decline in both Fisher Days and Hourly Catch Rates. There have been no catches this year from Region 3.

Catch rate (CR) data were aggregated across all zones and thus do not reflect the status in Region 3. Catch rates of RU (only) since 2000 have varied from an initial

[2] Osterloh, I (2023) Management report 2023 – Red Sea Urchin. NSW Department of Primary Industries. 27pp

high of 250kg per day (90 kg per hour) to around 30 kg per day (40 kg per hour) in 2023. Peaks in CPUE have been experienced in 2007 (150 kg/hr) and 2016 (120 kg/hr), coming from predominantly different regions, indicating the possibility that the stock has been serially depleted. Since 2016, daily CR has declined steadily to current levels.

In 2019, the minimum size limit (MSL) changed from 115mm to 95mm and thus CRs since then are likely biased downward. Between 2020 and 2022, the hourly CR has been relatively constant, but in the past year has doubled, from 21.2 to 42.1kg/h. Daily catch rates have declined more consistently over the past four years. The difference between daily and hourly CRs thus was noticeably different, and possibly the result of the clustering and hyperstable nature of the stock. Alternatively, market demand is likely confounding the results, since the TACCs are significantly under-caught and RU are only targeted on an ad hoc basis, where patches of the species are known to occur in densities that make harvesting relatively easy. Overall, stock abundance that is encountered during an entire day is declining, but when patches are encountered that are at high enough densities, the CRs have increased. Of importance also, there has been no catch coming from Region 3 this year, whereas last year catches in Region 3 accounted for about 50% of the total catch.

There is no clear or compelling indication that the stock has declined from last year. Catch rates have been relatively stable (albeit very low) over the past four fishing periods since the new size limits were implemented. Catch rates (kg/hr) on RU only days has increased this year above the previous 5-year average and double that of 2022. Alternatively, the kg/day catch rates for RU+SUTS days declined between 2022 and 2023. These trends are potentially confounded by increased targeting of Purple Urchin. There is no compelling evidence to change the RCLs at 9.5 t and the TACC should be aligned with these catch limits.

Recommendation

- That the TACC and RCL be aligned and considered for a multi-year TACC.

Recommendation

- An estimate of stock size in each of the Regions 1 to 4 be updated by measuring catch rates, which would necessitate calculating effort by Region.

Economic considerations

Within the SUTS fishery, the catch of RU by volume remains small relative to the catch of Purple Urchin. Commercial fishers report that targeting RU is usually opportunistic, based on weather windows and sometimes driven by specific market requests. The market for RU roe is domestic, primarily sold in NSW. Between 2013 and 2022, average real beach price (per kg) of RU was increasing. However, following a high of $15.57 in 2022, real average beach prices in 2023 (as of 23 October) have fallen to $13.85. Given the available information on RU price and demand, market factors are unlikely to be a contributing factor to low catches.

In 2023, (as of 23 October) GVP is estimated at just over $22,000 for the entire fishery. Only 8 of the 37 endorsed commercial fishing businesses have reported taking RU in the current fishing year.

Red urchin quota may be traded within each fishing period. The price at which quota is traded can be a good indicator of the economic performance of the Fishery. However, no price information is available for the current fishing period, although this information has been requested since the 2003/04 season on a voluntary basis.

No quota transfers occurred in the 2021 fishing period. In the 2022 fishing period, there was one quota transfer. In the 2023 fishing period, no quota transfers have been reported as at 22 September 2023. Since the roll-out of the Fisher Direct- Fish Online app, quota transfers are simpler and easier with improved visibility of quota use and availability for commercial fishers.

The recommended reduction in the TACC to 9.5 t will mean that each shareholder will receive an allocation of 256.8 kg for the 2024 and 2025 fishing periods. If recent (last two fishing period) catches are indicative, less than half the active fishers may need to access relatively small amounts of additional quota - if they do not own any additional endorsements in the SUTS fishery. Accessing additional quota will incur some additional costs (transaction and lease costs). Given that 29 shareholders are holding RU quota and have not historically fished for RU, there will be up to 7.0 t of quota available for lease. Supply is likely to greatly exceed demand based on fishing activity in recent years. In the absence of any information on quota transfer prices, it would be expected that transfer prices will be relatively low should active fishers require additional quota and the use of Fisher-Direct-Fish Online will minimise any transaction costs.

Fishery Management considerations

Red Urchin (RU) currently represents a small portion of the catch and value of the SUTS fishery, comprising less than 25% of the catch since 2002 and less than 4% for the past three years. An expanding market and increased processing capacity have driven a significant increase in the catch of Purple (Long Spined) Urchin in 2023, with the catch of that species to 4 September 2023 already equalling the catches from 2021 and 2022 (the previous two highest fishing periods) combined.

The Department categorises the RU stock in NSW as ‘Sustainable’, on the assumption that biomass protected in closed areas (amounting to approximately 30% of the NSW coast) is at or about levels of unfished stock. However, there have been no recent assessments of RU biomass in closed areas to verify this assumption. Areas open to the fishery are considered likely “depleting”.

Catch in 2022 and 2023 so far are at historically low levels. Catch rates in recent years are also among the lowest seen in the fishery, although there are some indications of improved catch rates for targeted RU fishing in 2023. Catch rates should however be interpreted with caution and were likely affected by the introduction of the LML in 2019 and the more recent increase targeting of Purple Urchins.

A TACC of 60 t was established in 2002 on the basis of a stock assessment at that time, however catches have been well below that level ever since. Regional Catch Limits (RCLs) across five regions amounting to 60 t were also established, with a 0.0 tonne limit for Region 5. In response to declining catch, effort and catch rates, and concerns about localised depletion, a minimum legal size was introduced into the fishery in 2019. The TACC was reduced to 30 t in 2023. The RCLs have been reduced three times since 2002, to a total of 9.5 t in 2023.

Submissions from industry suggest that there are signs of recovery in some areas of the fishery and that the decline in stocks seen since the early 2000s may have halted. However, there remain some concerns regarding biomass levels, stock recovery and economic viability of RU fishing, with suggestions that additional measures such as season closures, daily catch limits and further reductions in the TACC could be considered. Consultation indicates that industry continues to support the RCLs and minimum legal size.

Catch and effort data available to the TAFC does not provide any clear indication of decline or improvement in stocks in the last year. Catch to date in 2023 is consistent with catches at this time in 2022, and catch rates for RU targeting in 2023 are higher than recent years. As such, there is no compelling indication that changes to the 9.5 t of catch across the RCLs should be adjusted. Given no indices of abundance are available for regions, there is also no data to support changing the balance of RCLs across the regions from the 2023 determination: 1.18 t (Region 1), 2.45 t (Region 2), 3.06 t (Region 3), 2.61 t (Region 4), & 0.00 tonnes (Region 5).

Since 2019, the RCLs have been set below the TACC due to a concern that the few operators that target Red Urchins would be unreasonably constrained by the difficulty of trading and leasing quota in this fishery. The 2020 determination report stated that setting the combined RCLs below the TACC should be seen as an interim strategy, whilst changes were made to allow efficient quota trading (including leasing) to occur. It is the understanding of the TAFC that recent improvements and operational adjustments now allow for efficient quota trading and in season quota leasing, such that the rationale for separating the TACC from the RCLs no longer exists. As such, the TACC will now be aligned with the RCLs at 9.5 t. In the interests of stability, a multi-year TACC is recommended for fishing periods in 2024 and 2025.

Compliance rates have slightly decreased in the last year, but still remain relatively high at 80%. A current statewide operation targeting outstanding catch and effort returns has identified 29 fishing business in the SUTS fishery that have failed to submit completed catch returns over the past two years. The Department is working with these businesses; however many are expected to be nil returns. The Department advised the TAFC of concerns regarding compliance in the fishery, noting they have received anecdotal reports of urchin targeting in marine parks and that demand for RU may increase with the expanding market and processing capacity for Purple Urchin. While this activity is likely to be targeting Purple Urchin, RU may be taken opportunistically when encountered.

Other (non-commercial) sources of RU fishing mortality are from recreational fishing, aboriginal cultural fishing and illegal fishing. A survey in 2018-19 estimated an annual recreational harvest of approximately one tonne of all urchin species. The

Department’s qualitative advice is that the collective catches from other sources may amount to no more than five tonnes per annum. This is greater than the 2022 (and likely 2023) annual commercial catch of Red Urchin. It is therefore possible that these non-commercial catches are now having a greater impact on the stock than commercial harvest. Having uniform minimum size limits across all fishing sectors should be considered to better protect the resource.

Determination

The Total Allowable Fishing Committee, pursuant to Part 2A of the *Fisheries Management Act 1994*, determines that the commercial catch of Red Urchin in the NSW SUTS Restricted Fishery should be controlled and allocated through two separate but dependent measures:

1. A TACC for Red Urchin during the period 1 January to 31 December 2024 and 1 January to 31 December 2025 of **9.5 tonnes**; and
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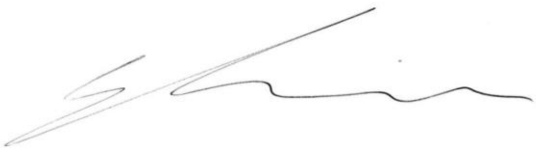
Signed (for and on behalf of the TAFC)



William Zacharin
Chair, TAFC

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Appendix 1: Regions in the Red Urchin commercial fishery