NSW TOTAL ALLOWABLE FISHING COMMITTEE

OCEAN TRAP AND LINE FISHERY

- Spanner Crab

DETERMINATION FOR THE 2023/24 FISHING PERIOD

18 April 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 Spanner Crab in the Ocean Trap and Line Fishery for the period 1 July 2023 to 30 June 2024.

Management recommendations & supporting actions

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

1. If data are available, the TAFC recommend an investigation into environmental effects on the CPUE standardisation in the stock assessment.
2. Further management dialogue between NSW and QLD is urgently required to harmonise their harvest strategies for this single stock to avoid overfishing.

Determination

The Total Allowable Fishing Committee, pursuant to Part 2A of the *Fisheries Management Act 1994*, determines that the commercial catch of Spanner Crab in the NSW Ocean Trap and Line Fishery should be controlled and allocated through the following measure:

1. A TACC of **100 tonnes** during the fishing period 1 July 2023 to 30 June 2024.

Introduction

The NSW Ocean Trap and Line Fishery (OTL Fishery) is a share managed, multi-method, multi-species fishery. The OTL Fishery is described in Schedule 1 of the *Fisheries Management Act 1994* (the Act) as:

> a) the use of a fish trap to take fish from ocean waters;
> b) the use of a line with hooks attached to take fish from ocean waters; and
> c) the use of a spanner crab net to take spanner crabs from ocean waters that are north of a line drawn due east from Korogoro Point (Hat Head).

The overall area of the OTL Fishery extends from the NSW coastal baseline seaward to the 4,000-metre depth contour, approximately 60 to 80 nautical miles offshore.

Spanner Crab is a single species fishery that occurs in ocean waters between Korogoro Point (Hat Head) and the NSW-Qld border. There is a combination of input controls (limited entry, restrictions on traps, temporal and spatial closures) and output controls (quota and minimum size limits). Access to the Spanner Crab fishery is limited to those shareholders (or their nominated fishers) who hold a minimum number of shares. New shareholders need a minimum of 40 shares to be eligible for a fishing endorsement. Two management zones exist in the fishery – northern zone (northern breakwall at Yamba to NSW/Qld border) and southern zone (southern breakwall at Yamba and north of Korogoro Point) with 19 shareholders currently endorsed in the northern zone and 6 shareholders in the southern zone. The taking of female crabs is prohibited from 21 October in any year to 20 January in the following year and a minimum size limit of 9.3 cm applies to all crabs[1].

The TAFC met with a number of shareholders in the Spanner Crab fishery in Ballina on 31 March 2023 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 the NSW Department of Primary Industries (the Department). A current stock assessment report on the fishery was also provided to the TAFC by the Department[2].

Biological considerations

Spanner Crab (*Ranina ranina*) are considered a single genetic stock extending from southern Queensland to northern NSW. The bulk of this stock and catch occurs in Queensland (85%) and there is thought to be regular southwards movement of crab larvae from Queensland into northern NSW. Settled crabs remain resident with no evidence of longshore migration between QLD and NSW. Historical fishery independent surveys (FIS) in the two states, show different trends in abundance driven by different exploitation rates in the two states.

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[1] McKinnon, F. (2023) Ocean Trap and Line Fishery Management Report – Total Allowable catch Determination 2023-24: Spanner crab (*Ranina ranina*).
[2] Johnson, D.D. (2023) Stock assessment report Spanner Crab (*Ranina ranina*) 2022/23 – Ocean Trap and Line Fishery. NSW Department of Primary Industries. Fisheries NSW, Port Stephens Fisheries Institute: 51 pp.

Recorded catches of Spanner Crab by the NSW fishery increased rapidly from 149 tonnes (t) at the start of the fishery in 1984/85 to a historical maximum of 488 t in 1987/88, then decreased to 209 t in 1989, before increasing again to a peak of 444 t in 1994. Recorded catches then decreased to remain around 218 t per year over 1999/00 – 2003/04, then decreased again on average to 114 t over 2005/06 – 2019/20, and exceeding 140 t in 2013/14 and in each year over 2015/16 – 2017/18. The last two fishing periods reported landings have been below 100 t.

The NSW component of the Spanner Crab stock is assessed annually using a number of fishery dependent and fishery-independent indicators, including commercial logbook catch per unit of effort (CPUE), fishery independent survey (FIS) CPUE and proportions of undersized crabs in FIS surveys. CPUE provides an index of abundance for the exploitable stock, while the proportion undersize provides a leading indicator of recruitment into the fishery. This year a draft harvest strategy has been proposed, using an index that combined the survey and industry catch rates.

Effort in the fishery as measured by 'FisherDays' was constant over the past five years, before falling below the long-term average last year. Effort as measured by 'NetLifts', has trended up from an all-time low in 2016 to the second highest year on record in 2020 (by approximately 20,000 Net Lifts), but last year declined to the long-term average. Historically, nominal commercial CPUE increased rapidly from below 100 kg/fisher day in 1984/85 to 189 kg/fisher day in 1995/96. As effort increased to a peak in the late 1990's CPUE declined to a low of 107 kg/fisher day in 2006/07. Commercial CPUE has tended to bounce around the long-term average. In the past three years it has been below the long-term average (Johnson 2023).

The FIS survey, for legal and sublegal sizes is below the long-term expected values. A recent peak in 2020 of legal and undersized was apparent, but not in the commercial catch rates. Length frequencies in 2014 and 2015 indicated undersized fish entered the fishery prior to the peak catch rates in 2016. Recent length frequencies show possibly a small cohort may enter the fishery next year. Pooled survey indices between QLD and NSW indicate that the stock has declined slowly, but consistently since 2005.

Industry representatives emphasised the possibility that the relation between CPUE and the stock may have changed because of changing ocean conditions. If data are available, incorporating environmental conditions into the CPUE standardisation could be informative for future TACC setting based on CPUE.

TACCs have not been constraining harvest as landings and CPUE have declined. The draft harvest strategy relies on a combination of fishery dependent and independent indicators, from both NSW and QLD. The draft harvest strategy relies on a trigger reference point that accelerates the reduction in TACC if the standardised commercial catch rates are seen to be below it. The trigger reference point of 1.6 kg/net lift, was developed in consultation with industry and NSW fisheries management and scientists. The current two-year average standardised CPUE is 1.545 kg/net lift and the draft harvest strategy response is a recommended reduction in the TACC.

However, the TAFC notes that a more significant reduction in TACC is required to constrain catch, if the current five year declining stock trend continues. To ensure that the 2023/24 harvest does not exceed recent annual catch levels, the TACC needs to be at 100 t.

Recommendation

- If data are available, the TAFC recommend an investigation into environmental effects on the CPUE standardisation in the stock assessment.

Economic considerations

Details of the economic characteristics of the Spanner Crab fishery, namely catch, price, gross value of production (GVP) are provided in the most recent management report (McKinnon 2023). Information on productivity factors directly affecting the economic performance of the fishery, namely catch, effort and catch rate for the fishery is provided in the recent assessment of Spanner Crab Stocks in NSW (Johnson 2023). In some parts of NSW (e.g., Ballina) access by fishers to the Spanner Crab fishing grounds is influenced by the condition of surf bars on a given day.

GVP in the fishery was estimated at approximately $1.78 million in 2021/22 fishing period and has been declining steadily from the contemporary peak of $2.5 million in 2016/17 in line with reduced landings. Of the 15 fishing businesses who reported Spanner Crab catch in the 2021/22 fishing period, five took approximately 68% of the total reported catch. This concentration of catch among a small number of fishing businesses has also occurred in previous fishing years.

In the 2021/22 fishing period, 28 OTL – Spanner Crab northern zone shares and 40 southern zone shares were transferred representing a decrease in share transactions for the fishery. As of February 2023, only one northern zone share has been transferred in the 2022/23 fishing period, however reliable price information for these transfers is unavailable.

Quota transfers as a percentage of the ITCAL/TACC have trended down since from 27% in 2015/16 to 10% in 2020/21 and 2% in 2021/22. Quota transfers are only 2% for 2022/23, although that fishing period is incomplete at the time of writing. The trend probably represents maturing of the quota market after initial implementation of the NSW fishery reform processes. It may also be influenced by the challenges that fishing businesses have had catching their existing quota and/or the real or perceived availability of quota to trade. It is unclear from available information if transfers are largely from related parties with separate business entities (e.g., between family members).

Most Spanner Crabs in the NSW fishery are sold domestically (mostly as live product) through the Sydney Fish Market (SFM). Although prices vary from year to year, based on Sydney Fish Market prices there has been a long-term price increase from $7.99 per kilo in 2009/10 to $20.17 per kilo in 2021/21. However, BDO

EconSearch (2023) report a lower price of $17.93 per kilo. This difference may be due to the inclusion of sales outside of the SFM. Prices for NSW Spanner Crabs are influenced by the activity and harvesting patterns of the Queensland Spanner Crab Fishery, which operates under a much higher TACC than the NSW fishery. Given the relative differences in the size of the TACC in NSW compared to Queensland, small changes in the NSW TACC are unlikely to significantly impact overall market supply of Spanner Crabs or price.

While information on GVP and spanner crab price in NSW is available, profitability in the fishery cannot be calculated as there is no information on the costs of fishing. Recent economic information[3] has been collected for the Queensland Spanner Crab Fishery, but it cannot be directly applied to the NSW fishery, principally due to the much longer transit times to most of the Queensland spanner crab fishing grounds. However, by way of background, for the Queensland Spanner Crab Fishery in 2018/19 total variable costs were estimated to be $101,623 per fishing business and total fixed costs were $66,558 per fishing business. Overall, the Queensland Spanner Crab Fishery generated a positive rate of return on total working capital of 4.7%. BDO EconSearch (2023) have collected information on the cost structure of the NSW Spanner Crab Fishery which reports a positive rate of return on total working capital of 2.4%. However, this is derived from businesses that report a relatively small volume of catch and as such may not be representative of the fishery in NSW as a whole.

The TAFC has recommended a quota reduction for the 2023/24 fishing period. The reduction in the NSW TACC by itself is unlikely to see an increase in Spanner Crab price, because of the relatively large volume of product from Queensland, which is the major price driver. Reliance of fishing businesses on Spanner Crab income will vary, as will the impact of a quota reduction on businesses and the ability of businesses to adapt to the change. It would be expected that businesses that have a greater reliance on Spanner Crabs and less opportunity to access other fisheries would be more impacted. It should be noted that the TACC has been substantially under caught in the previous fishing periods (60.5% in 2019/20, 72.8% in 2020/21, 63.3% in 2021/22 and currently 45.4% in 2022/23). In terms of income reduction from a reduced TACC, it is tempered by this under catch. However, from available economic information, it is not possible to determine the impacts of the TACC reduction on individual fishing businesses.

Fishery management considerations

The NSW Spanner Crab fishery management arrangements are set out in McKinnon (2023). The fishery has two management zones, Yamba to the Queensland Border (Northern) and Yamba to Hat Head (Southern) that extend 60-80nm seaward (approximating the 4000m depth contour). Each zone requires a separate fishing endorsement and most of the catch is taken in the northern zone. There is a single genetic spanner crab stock for Queensland and NSW, and while the NSW fishery is

[3] BDO EconSearch (2020) Economic and Social Indicators for the Queensland Spanner Crab Fishery, 2017/18 and 2018/19.

managed separately, it relies on the southern QLD Spanner Crab stock for most of its recruitment.

Seasonal weather conditions such as floods and storms, ocean currents and being able to transit the Ballina bar entrance can impact both catch and catch rate. These matters are important when interpreting fishery dependent data (including in stock assessments) and calculating the standardised catch rate, which is used as a sustainability indicator in the fishery. These fishery dependent data are also affected by industry members fully completing their logbooks and submitting them in a timely manner. When this does not occur, the quality of the data used in the stock assessment can decline and lead to more conservative TACC determinations by the TAFC.

The other stock assessment method is a Fishery Independent Survey (FIS). Data it collects on Spanner Crab size classes from the fishing grounds enables the fishery dependent data to be better understood. It also provides an indication of what to expect in terms of commercial catch over the next two years. The reliability of this assessment method when considered alone is regarded as limited, given the brief period over which it is collected and the limited area it covers.

Catches of Spanner Crabs by the recreational and Aboriginal sectors are unknown, but are estimated to be small, based on limited qualitative evidence. IUU catch is also regarded as low risk and low volume.

As part of making its determination, the TAFC considered the NSW draft harvest strategy (HS) for Spanner Crab that is yet to receive Ministerial approval. The current status of the stock under the NSW HS, if applied, would classify it as depleting and require a TACC reduction of between 10/30 t, since the standardised catch rate is below the trigger reference point of 1.6 kg/net lift. The science section of this determination provides a more detailed explanation of this approach.

The TACC has been 140 t p.a. for the last two fishing periods, with less than 100 t caught last year (21/22) and a similar result expected this year (22/23). In short, the application of the draft HS would have little or no effect on catch and therefore would not lead to an improving stock status.

The TAFC noted that the stock status of the NSW Spanner Crab fishery is highly dependent on QLD. This dependency is related to both the stock itself (e.g., for recruitment) and the management settings applied by QLD (e.g., through its HS). The latest NSW FIS suggests recruitment to the NSW portion of the fishery is likely to be poor for the next two fishing periods and the QLD HS currently applies no effective constraint on catch that may improve future recruitment in this shared fishery.

Industry participants at the TAFC meeting in Ballina on 31 March 2023 agreed that the fishery was under stress, but did not generally support a TACC reduction. The TAFC Chair pointed out that the Spanner Crab catch had been in long-term decline in QLD for many years and for the past five years in NSW, with the NSW catch currently well below the TACC. Some industry members did acknowledge that the

fishery was not performing as well as it used to and pointed to environmental factors as the main cause in their view.

However, given the declining CPUE and evidence from the FIS about both short-term recruitment to the fishery and low standardised catch rates, the TAFC concluded that were this a NSW-only stock, a reduction in the TACC was necessary for 2023/24. Guidance from the draft HS suggested this should be between 10/30 t, noting this would have no material effect on catch and therefore was unlikely to lead to an improvement in stock status. A TACC reduction of at least 40 tonnes is considered necessary to achieve any improvement. However, the TAFC also recognised that any action to reduce the NSW TACC had to be accompanied by the same scale of TACC reduction by QLD to provide a high likelihood of stock rebuilding. Differences in reference points and decision rules between the NSW and QLD HS (as drafted) was confounding any coordinated rebuilding efforts. The TAFC strongly encourages both jurisdictions to agree to a HS with complementary reference points and decision rules to avoid conflict over stock status and necessary management actions.

Regarding a TACC determination for the NSW fishery for 2023/24, the TAFC decided not to follow the draft HS decision rules, given their likely ineffectiveness without strong parallel QLD management action. However, the committee cannot ignore the declining status of the stock. In weighing up all the evidence, the TAFC determined a 40 t TACC reduction for 2023/24 to cap the catch at around current levels and provide time for further dialogue between NSW and QLD to harmonise their harvest strategies for this single stock.

Recommendation

- Further management dialogue between NSW and QLD is urgently required to harmonise their harvest strategies for this single stock to avoid overfishing.

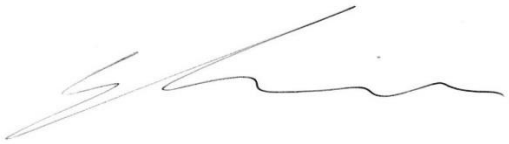
Determination

The Total Allowable Fishing Committee, pursuant to Part 2A of the *Fisheries Management Act 1994*, determines that the commercial catch of Spanner crab in the Ocean Trap and Line Fishery should be controlled and allocated through the following measure:

1. A TACC of **100 tonnes** during the fishing period 1 July 2023 to 30 June 2024.

Species	**Catch Limit 2023/24 (tonnes)**
Spanner crab (*Ranina ranina*)	100

Signed (for and on behalf of the TAFC)



William Zacharin
Chair, TAFC

18 April 2023