NSW TOTAL ALLOWABLE FISHING COMMITTEE

OCEAN TRAP AND LINE FISHERY

- Spanner Crab

DETERMINATION FOR THE 2022/23 FISHING PERIOD

19 May 2022

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 2022 to 30 June 2023.

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. The Committee discussed the role of the three stock assessment approaches used in the spanner crab fishery and recommends they be reviewed considering the needs of the pending spanner crab harvest strategy.

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 **140 tonnes** during the fishing period 1 July 2022 to 30 June 2023.

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 are 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 6 May 2022 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. A current stock assessment report on the fishery was also provided to the TAFC by the Department.

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 and there is thought to be regular southwards movement of crab larvae from Queensland into northern NSW. Settled crabs remain resident. There is 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.

Recorded catches of Spanner Crab by the NSW fishery increased rapidly at the start of the fishery in 1984/85 from 149 tonnes to a historical maximum of 488 tonnes in

[1] McKinnon, F (2022) Ocean Trap and Line Fishery – Spanner crab Management Report – Total Allowable catch Determination 2022-23

1987/88, then decreased to 209 tonnes in 1989 before increasing again to a peak of 444 tonnes in 1994. Recorded catches then decreased to remain around 218 tonnes per year over 1999/00 – 2003/04, decreased again to an average of 114 tonnes over 2005/06 – 2019/20, then exceeded 140 tonnes in 2013/14 and in each year over 2015/16 – 2017/18[2].

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 CPUE and proportions of undersized crabs in the FIS surveys. CPUE provides indices of abundance for the exploitable stock, while the proportion undersize provides leading indicator of recruitment into the fishery. This year a biomass dynamics model was fitted to commercial CPUE. Sensitivities were applied to this model by fitting different intervals of data and using data from the QLD component of the stock.

Effort, as measured by FisherDays, has been steady since 2008, but as measured by Net Lifts has varied between about 40,000 and 70,000 per year. Effort in the fishery as measured by 'Fisher Days' has been constant over the past five years. Effort as measured by 'Net Lifts', has trended up in that time by roughly 50% (i.e., approx. 20,000 Net Lifts).

Historically, 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 increase in that time to record high levels of over 200 kg/fisher day in 2016/17.

Standardised commercial CPUE declined from 1997 to 2005, which since has tended to increase. This pattern is echoed in the FIS for legal and sublegal sizes. One of the main differences between commercial and FIS CPUE is a recent peak in 2020 of legal and sublegal individuals in the FIS catch rates. This peak in 2020 is of the same order as 2016, but is not apparent in the commercial catch rates.

A surplus production model was fit to the standardised commercial CPUE, which gave an estimated biomass around 36% B_0, and MSY around 200 tonnes. A combine NSW and QLD model estimated the entire stock to be at about 37% B_0, and MSY of 1,690 tonnes. The committee noted and discussed the likelihood that the NSW stock depended on spawning output from QLD, but this did not raise any concerns for the NSW component of the fishery. The Committee discussed the role of the three stock assessment approaches used in the spanner crab fishery and recommends they be reviewed considering the needs of the pending spanner crab harvest strategy.

Record floods and COVID-19 impacts continue to impact on fishing activities and affect fish landings and data analysis. However, there are no compelling reasons to change the TACC at this time.

[2] Johnson, D (2022): Stock assessment report 2021/22 – Ocean Trap and Line Fishery – Spanner Crab

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 2022). Information on productivity factors directly affecting the economic performance of the fishery, namely catch, effort and catch rate for the fishery is provided in Johnson (2022). 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 any given day. The region where the fishery operates has also been impacted by severe and prolonged flooding which has impacted access to fishing grounds and supply chains. Impacts related to COVID-19 and associated restrictions also remained a factor in the last fishing period.

GVP was estimated at approximately $1.9 million in the 2020/21 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 22 licenced fishing businesses reporting Spanner Crab catch for the 2020/21 fishing period, five contributed 56% of the catch.

Quota transfers as a percentage of the ITCAL/TACC have trended down from 27% in 2015/16 to 10% in 2020/21. Quota transfers are only 2% for 2021/22, 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. 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 2019/20. 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

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

4.7%. NSW DPI has currently commissioned economic assessments of the fishery and this will inform a range of economic parameters linked to estimating the cost of fishing including the impacts of management charges on fishing businesses.

Fishery management considerations

The Spanner Crab Fishery has two management zones, Yamba to the Queensland Border (Northern) and Yamba to Hat Head (Southern) that extend 60-80nm seaward (approximating the 4,000m depth contour). Each zone requires a separate fishing endorsement and most of the catch is taken in the northern zone. A single genetic Spanner Crab stock is most likely for Queensland and NSW, with the NSW fishery treated as a separate management unit. This fishery relies on the southern QLD Spanner Crab stock for most of its recruitment, with some contribution from the NSW stock. The NSW Spanner Crab Fishery has been assessed as sustainable since 2015, as has the QLD Spanner Crab Fishery since 2021.

Fishing for Spanner Crabs is undertaken from small boats (generally less than 16m in length by law). Factors such as ocean currents (especially on the seafloor), floods and storms and being able to transit the Ballina bar can impact fishery performance through both catch and catch rate. These matters are important to be aware of when interpreting fishery dependent data (including when used in stock assessments) and annual catch against the TACC.

The quality of fishery dependent data (catch, effort and location) is reliant on industry completing the logbook and submitting it to NSW DPI in a timely manner. While this is improving, there remain a small number of operators who are not fully completing and/or submitting it in a timely manner. This leads to greater uncertainty in results from the CPUE-based stock assessments applied to the fishery and may result in a more conservative TACC being determined by the TAFC. NSW DPI clarified that it is the CPUE -based assessments that it regards as the most reliable when it comes to determining stock status.

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

Catches of Spanner Crabs by the recreational and Aboriginal sectors are unknown but anecdotally are not regarded as significant, based on qualitative evidence. The same is true of any Illegal, Unregulated and Unreported (IUU) catch. The TAFC noted that compliance advice regarding the Spanner Crab Fishery was sparse for this year's determination and could be improved. However, available information suggested that there were no significant compliance risks in the fishery.

The TAFC understands that a harvest strategy being developed by NSW DPI with the participation of the Spanner Crab industry and other stakeholders (including QLD) is nearing completion and should be available to the TAFC for the 2023-24

determination. The harvest strategy will provide greater certainty to commercial fishers about how stock status and associated reference points and decision rules will lead to a TACC increase, decrease or no change. The TAFC encourages NSW to work with QLD toward common reference points and decision rules where possible.

Industry participants at the TAFC meeting in Ballina raised several matters including the effects of oceanographic/marine environment conditions on recruitment and catches, along with the impacts COVID-19 and supply chain issues were having on market access. While these may be relevant to broader fishery management, their effects on the TACC determination are limited. Industry was also asked about setting a multi-year TACC, as QLD had done for 2022-23 and 2023-24, but did not support doing so, citing the pending NSW Spanner Crab harvest strategy as the main reason.

In summary, there is no compelling evidence to change the TACC at this time.

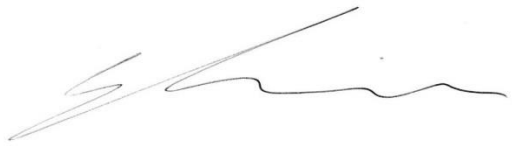
Determination

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 **140 tonnes** during the fishing period 1 July 2022 to 30 June 2023.

Species	**Catch Limit 2022/23 (tonnes)**
Spanner crab (*Ranina ranina*)	140

Signed (for and on behalf of the TAFC)



William Zacharin
Chair, TAFC

19 May 2022