Department of Primary Industries

OUT22/5305

Minutes

Meeting	Spanner Crab Harvest Strategy Working Group		
Meeting Number(s)	3	Date	28 - 29 April 2022
Location	Ballina	Time	28th – 13:00 – 17:00 29th – 09:00 – 15:00
Members	Independents: James Findlay (Chair), Julian Morison (Economist), Jeremy Prince (Scientist) Commercial Fishing Representatives: Andrew Rigby, John Joblin, Ian McRae, Gary Bordin, Mitchell Sanders (Commercial Fishing NSW Advisory Council – CommFish NSW), Tricia Beatty (Professional Fishers' Association) DPI Fisheries Manager: Darren Reynolds DPI Fisheries Scientist: Daniel Johnson		
Executive Officers	Shane McGrath, David Kirby		
Observers	Nancy Trieu (QLD), Samuel Williams (QLD), Nicholas Giles (DPI), Rowan Chick (DPI), Ashley Fowler (DPI)		
Apologies	Ian McRae for 28 April		

Agenda Item	Issue	Notes & Actions
		Day 1
1.	Welcome and introduction	1.1 Welcome and introduction The Chair opened by acknowledging the Traditional Custodians of the lands on which Working Group members were meeting, paying respects to leaders past, present and emerging. Members were welcomed to the meeting. 1.2 Apologies and recognition of observers Apologies were received from Ian McRae for the first day; observers were recognised and welcomed to the meeting. 1.3 Confirmation of Agenda

		The Agenda for the meeting was accepted without modification. 1.4 Update of declaration of pecuniary interests An update was received from one member. 1.5 Minutes of Meeting 2 – 29 October 2021 Previous meeting minutes were accepted.
2.	Harvest Strategy Draft Schedule and Agendas	A draft schedule and Agenda were provided to map out the complete process and topics required for developing the harvest strategy for potential adoption before the end of 2022. **Discussion:** Members acknowledged and agreed with the timeline, and expressed interest in reviewing the developing strategy document.
3.	Changes to Temporal spawning closures	Temporal spawning closures are in place for commercial harvest of spanner crab in both NSW and Queensland. The working group considered a referred recommendation from CommFish NSW regarding changing the dates for the male closure. Members consider protection to spawning activity important to sustainability of the fishery, and also recognised the benefits of improved and equitable market access for both NSW and QLD. **Discussion:** Consensus was reached to support the recommendation to: 1. Work with DPI on a co-management approach to flexible seasonal closures, and 2. In the interim, progress a change to the existing male closure of 21 November to 20 December to apply this closure from 15 November to 14 December (inclusive)). Members also agreed that spawning activity, and particularly presence of berried females during January could vary and should be considered in any future co-management arrangements. Members considered that co-management should be developed independently to the harvest strategy.
4.	Introduction to fishery indicators and reference points	Members discussed presentations regarding the function and usage of fishery indicators and reference points. Fishery indicators are data used to track and measure the performance of a fishery over time against Operational or Strategic Objectives of a harvest strategy, commonly grouped (and used) as primary or secondary indicators. Indicators are chosen from available data sources for a fishery, and the harvest strategy could also support collection of new data sources for user in future versions.

		Harvest strategies use indicators to establish clear links between the harvest strategy objectives, fishery performance and management decisions needed to achieve the objectives. Reference points (or levels) are established for chosen indicators to measure performance, and to guide decisions to maintain or change harvest levels to meet the objectives. This is done through decision rules designed to maintain or return the fishery to the target indicator reference level. **Discussion:** Members discussed the role and availability of indicators and reference points for the NSW fishery, as well as how these could be incorporated into the harvest strategy to support the sustainability of the fishery. This could include use of more than one indicator to determine a management response, such as use of standardised CPUE and Independent Survey results to determine management actions. Recognising that the NSW strategy will apply to the NSW component of the broader fishery, discussion also considered consistency with monitoring and changes to stock health that may occur in the QLD component. Use of proxy values (for example a certain CPUE or biomass level as a proxy for economic objectives) was also discussed, recognising that proxies provide a means to establish targets where specific quantitative analysis or modelling may not be available for a particular stock or fishery data component.
5.	Presentation from Queensland – Spanner Crab Harvest Strategy indicators	A presentation was provided on the QLD fishery, including harvest strategy indicators, changes to TACC and reported catch, decision rules, and points of review of the harvest strategy, its components and performance. The QLD strategy primarily uses a 'pooled indicator' index, which uses both CPUE data from commercial fishery records, and data from independent surveys (as proxies for biomass targets) as primary indicators. The 'Annual standardised catch rate (CPUE) by commercial fishers' and 'Catch rate of legal-size crabs from the standardised fishery independent survey in QLD waters' are used as primary indicators with associated target reference points, as they are considered to be the most informative indicators of stock abundance. These indicators are used in the pooled index (i.e. a combined indicator value) to guide decision rules for changes to TAC in order to meet the primary strategy objective of rebuilding the stock to 60% of exploitable biomass (as a proxy for maximum economic yield). Additional components are included in the decision rules to govern the level of TAC change including minimum and maximum TAC changes and TAC limits, a limit level of CPUE that will result in closure for 'Area

		A', and a catch threshold that could result in closure for 'Area B' if trends are considered likely to continue. The QLD strategy has been reviewed and revised over time, with the current strategy having been subject to extensive Management Strategy Evaluation (MSE) testing. **Discussion:** Members discussed the QLD strategy, its performance and revision over time. Key learnings included: • the consistency of indicators available from the NSW stock assessment • the benefits of having harvest strategies that react to changing stock health or fishery circumstances but also provide economic stability • potential impacts from continued declines in stock health and/or significant and sudden changes to TAC. Members observed that there are likely to be benefits from ensuring the clarity of Operational Objectives. It was also concluded that the hierarchy of indicators used in harvest strategies should be defined and clear to avoid potential for conflict between indicators, and instances where particular data might not be available should also be considered (e.g. if independent surveys are not able to be completed).
6.	CSIRO Review of NSW Spanner Crab Stock Assessment	CSIRO undertook an independent review of the NSW Spanner Crab stock assessment to evaluate the robustness of the assessment approach and provide recommendations on potential alternate approaches or improvements. The review found that the current approach is appropriate using all the available data, and uses appropriate methods to undertake the fishery-independent survey and standardise both the commercial and fishery-independent catch rates (CPUE). The review noted that an empirical harvest control rule could be developed based on the existing standardised commercial and fishery-independent catch rates and appropriate reference points or levels. A more robust assessment could be developed for the entire stock or the NSW component of the stock, however this is likely to require additional investment in data collection and model development. Even if the size of the spawning population in Queensland provides the bulk of the recruitment to NSW, the NSW population can still be modelled with adjustments to the handling of the stock-recruitment relationship. **Discussion:** Members recognised the outcomes of the independent review. Dr Prince also provided a presentation on Length Based Spawning Potential Ratio (LBSPR) stock assessment. The working group noted that

		the method has considerable merit for the future Spanner Crab stock assessment if length-frequency data representative of commercial catches was collected (considering spatial and temporal variations in sizes-structure of catches in both NSW and QLD). Given limits to independent survey information and reporting of size distribution in commercial records, certainty of spatial distribution and abundance remains limited. Members raised difficulty around reporting size information given effect on fishing efficiency, and the meeting noted potential trade-offs between certainty and efficiency or costs of increased observer coverage. Use of cameras across the fishery, with image processing using artificial intelligence to collect information on size distribution of retained and returned catch, and numbers returned, could improve ability to use more advanced assessment methods (consistent with CSIRO review). The cost/benefit for improving data and further developing the assessment model would also need to be considered. This method could also be considered if a whole-of-stock assessment is developed in the future. DPI presented a short summary of research completed to understand connectivity and patterns of larval supply in the east Australian spanner crab stock. Findings indicate the QLD and NSW fisheries are highly connected and the broad-scale patterns identified could provide an indicator of potentially good or bad recruitment years, particularly as finer resolution, and refined reproductive biology knowledge on spanner crabs becomes available. It was agreed that there are pros and cons of all assessment options and there could be benefits to multiple indicators for the assessment and harvest strategy, but the group has to identify what can be done now as well as how to improve in future.

Day 2		
7.	Discussion - Fishery indicators for the draft NSW Spanner Crab Harvest Strategy	Discussion initially continued on indicators for use in the harvest strategy. Discussion was assisted by a presentation on available indicator information collected through the existing commercial and independent monitoring programs. It was recognised that the shared nature of the QLD and NSW Spanner Crab fisheries supports a harvest strategy for NSW being compatible with the QLD strategy. The following potential indicators are already available from the NSW assessment: • CPUE based on commercial catch (kg) and effort (net lifts) based on daily records 2009/10-2020/21

		• CPUE based on commercial catch (kg) and effort (days) based on monthly records 1997/98-2020/21 • CPUE from NSW independent surveys 2005-2021 • CPUE from collaborative (NSW+QLD) independent surveys 2005-2021. **Discussion:** Discussion centred around trends and time series available through and between daily and monthly records data. Use of standardised CPUE was accepted as the likely primary indicator, with further discussion during the topic on reference points. It was noted that standardisation of CPUE was critical to reduce the impact of changing fishing power over time. The Fishery Independent Survey (FIS) in NSW was recognised as being broadly consistent with standardised CPUE trends but not necessarily representative if used alone given limited extent and duration. Availability of economic information was discussed as a potential indicator given the economic aspirations of the draft objectives for the harvest strategy. Economic information can be used in a range of ways in harvest strategies, occasionally explicitly (e.g. using bio-economic models to target profitability), but these can be expensive and more often economic indicators are used as secondary indicators. It was agreed to consider economic information as a secondary indicator, so that decisions to change TAC would also consider how this may affect profitability (e.g. if price was falling and a decision to increase TAC would further drive down price and profitability).
8.	Discussion – Reference points for the draft NSW Spanner Crab Harvest Strategy	Reference points are particular values of the indicator(s) that relate to different fishery conditions. The harvest strategy will define reference points in the operational objectives to determine the target level (a value to target, such as a certain level of CPUE), a potential trigger (point of review), and a limit (a value to avoid). Decision rules will determine changes to harvest to meet these objectives. QLD uses average CPUE for the period 2006-2010 as a target reference point. If the NSW harvest strategy is also to use CPUE then the group must consider the value of CPUE that represents a healthy stock and good fishing. **Discussion:** Members considered a presentation depicting historical performance of the fishery using CPUE trends. The group noted that catch rates can vary between fishers, and noted advice from industry members that the long term averages aligned generally with good fishery performance and profitability. It was also agreed that catches being near the full TAC are desirable from a fisher and management perspective. Members considered catch rates suitable for a fishery target, trigger and limit, noting those provided in the QLD strategy for consistency, and

		also the comparative difference considering different net sizes used between the States. The meeting discussed the following draft reference points, recognising further deliberation as the strategy develops: • Target: 2.0-2.5kg/net lift • Trigger: 1.5kg/net lift • Limit: 0.5-0.7kg/net lift Industry representatives noted the importance of discussing potential reference points with fishers not on this group. The Chair encouraged this and DPI confirmed there would be broader consultation on the draft harvest strategy and feedback would be considered by this group prior to finalisation of the strategy.
9.	Responsibilities for determining TAC	For the Spanner Crab fishery, the Minister or Secretary of the Department of Regional NSW will determine TAC for each fishing period. This is determined under regulation, as is the requirement to have regard to factors relevant to the fishery. The harvest strategy will recognise these responsibilities. **Discussion:** Noted by members.
10.	Role of Harvest Strategies for TAC determinations	The Spanner Crab Harvest Strategy will operate as a framework to establish clear objectives and management actions for changes to harvest levels (i.e. TAC) in the Spanner Crab fishery. The strategy will provide guidance to statutory decisions of the TAF Committee or Secretary, noting that: • Determinations of Total Allowable Commercial Catch (TACC) will remain the decision and responsibility of the TAF Committee or Secretary, and • Any departure of decisions from strategy guidance should contain clear justification. **Discussion:** Noted by members.
11.	Ecologically Sustainable Development and assessments	Ecologically Sustainable Development (ESD) is a key legislative objective in the NSW *Fisheries Management Act 1994* and across other Australian jurisdictions. NSW harvest strategies will – as far as possible and over time as data and information improves – seek to integrate the ecological, economic, social and cultural dimensions of fisheries management. An Environmental Impact Assessment (EIS) has already been completed for the Ocean Trap and Line fishery, and any new assessment can use this as a starting point to build upon. If a risk assessment identifies fishing impacts that are considered to generate an undesirable level of

		risk, this may be managed through a review of the harvest strategy or using external mechanisms as appropriate. **Discussion:** Noted by members.
12.	Other Business and Next Meeting	The PFA provided an update on their work with the Marine Stewardship Council (MSC) to seek assessment of several NSW fisheries including the Spanner crab fishery.

Next meeting: The Working Group will next meet in June 2022, TBC.