



Gascoyne Demersal Scalefish Resource

Fisheries Science Update – April 2023

Key points: 2022 stock assessment outcomes

- The Gascoyne Demersal Scalefish Resource (GDSR) comprises more than 60 species inhabiting Gascoyne oceanic waters (excluding inner Shark Bay), with pink snapper and goldband snapper recognised as the two indicator species.
- Oceanic pink snapper is five years into a 20-year recovery plan following a 2017 stock assessment that showed the stock was at severe risk.
- The GDSR oceanic pink snapper recovery plan is based on limiting the annual total fishing mortality of oceanic pink snapper to 100 tonnes (all sectors combined) and providing targeted protection for key spawning aggregations.
- The Department of Primary Industries and Regional Development (DPIRD) tracks stock status by undertaking weight-of-evidence stock assessments of GDSR indicator species every 5 years.
- This latest assessment provides a ‘health check’ on the status of goldband snapper and on the recovery progress of oceanic pink snapper in the GDSR.
- The 2022 stock assessment shows that goldband snapper remains sustainable and there are some early signs of recovery of oceanic pink snapper.
- The 2022 stock assessment shows that management changes in 2018 have successfully increased spawning biomass of oceanic pink snapper above the Limit reference point, however, it has not yet fully recovered to sustainable levels.
- Oceanic pink snapper is expected to continue to rebuild at a satisfactory rate over the next five years under current fishing mortality limits and level of spawning protection.
- The next GDSR stock assessment is scheduled for 2027.

Gascoyne Demersal Scalefish Resource Management

Commercial fishing for pink snapper in the Gascoyne is one of WA's oldest quota managed fisheries. Since the early 2000s, the commercial pink snapper quota has been reduced on several occasions to assist in rebuilding oceanic pink snapper spawning biomass. Demersal scalefish also provide great fishing experiences for recreational and charter fishers in the Gascoyne Coast Bioregion.

The GDSR is managed in accordance with the GDSR Harvest Strategy (Fisheries Management Paper No. 284). The Harvest Strategy was developed in 2016 by a stakeholder-based working group with membership including an independent chair, Recfishwest, the WA Fishing Industry Council, Marine Tourism WA and Department of Fisheries (prior to the formation of DPIRD). The GDSR has not been formally allocated between the commercial and recreational sectors.

Current oceanic pink snapper recovery plan

An assessment of the GDSR in 2017 concluded that the risk to the oceanic pink snapper stock was severe. In line with the GDSR Harvest Strategy, a 50-100% reduction in fishing mortality was needed to recover oceanic pink snapper.

Following extensive community consultation, new management arrangements were introduced in 2018 to recover the oceanic pink snapper stock. These included:

- Reducing the commercial sector pink snapper quota from 277 tonnes to 51.42 tonnes to ensure total fishing mortality by all sectors was below 100 tonnes.
- Introducing the northern Bernier Island pink snapper spawning closure to provide targeted protection for key spawning aggregations.
- A three-year trial reduction in the commercial minimum size limit of pink snapper from 410 mm to 380 mm to reduce post-release mortality.

In 2018/19, the GDSR working group was engaged to develop a recovery plan for oceanic pink snapper for the period 2018-2037. The Minister for Fisheries approved the GDSR recovery plan in May 2020 (Fisheries Management Paper No. 298).

The GDSR oceanic pink snapper Recovery Plan outlines agreed recovery objectives, milestones and control rules with predefined management strategies aimed at recovering the stock by 2037 (Figure 1). Key milestones were set to rebuild the stock to the target level within 20 years, in line with the Marine Stewardship Council standard for recovering species like pink snapper with generation times that exceed 10 years.

Commercial, charter and recreational fishers and their representative organisations (WA Fishing Industry Council, Marine Tourism WA and Recfishwest) have played a key role in supporting these arrangements to recover the Gascoyne oceanic pink snapper stock.

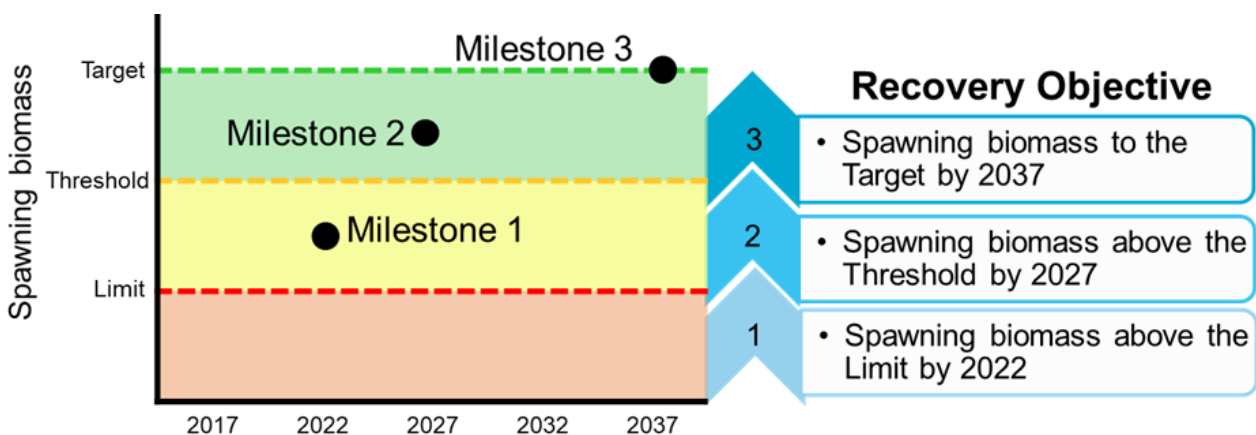


Figure 1. Gascoyne oceanic pink snapper spawning biomass recovery milestones.

Taking stock – latest science

The 2022 GDSR weight-of-evidence stock assessments of goldband snapper and oceanic pink snapper included catch and biological information collected up to 2021. Following the reduction in allowable catch of pink snapper, biological data for this stock has included samples collected by fishery-independent surveys undertaken between 2018 and 2021.

Finfish weight-of-evidence stock assessments

Assessments of scalefish stocks in WA comprise a range of analyses to provide an understanding of stock status, including:

- Evaluating trends in commercial, recreational and charter catches over time.
- Analysis of catch per unit effort information as a proxy for stock abundance.
- Analysis of biological information collected by fishery-dependent (catches) and fishery-independent (research) sampling to evaluate length and age compositions and estimate growth, length and age at maturity, selectivity by fishing gear, etc.
- Fitting stock assessment models of varying complexity to available data to provide estimates of fishing mortality and relative spawning biomass to compare with internationally recognised reference points.

For each assessment, a weight-of-evidence approach is used to consider all available information, evaluating the outputs from each analysis to determine the current status of stocks, and the risk of future depletion. This information is reviewed against the Harvest Strategy to inform the required management response to ensure sustainability.

Latest GDSR science outcomes

The science shows that the goldband snapper stock in the Gascoyne is currently sustainable, with the most recent estimate of female spawning biomass (relative to the unfished level) remaining above the target reference level (Figure 2).

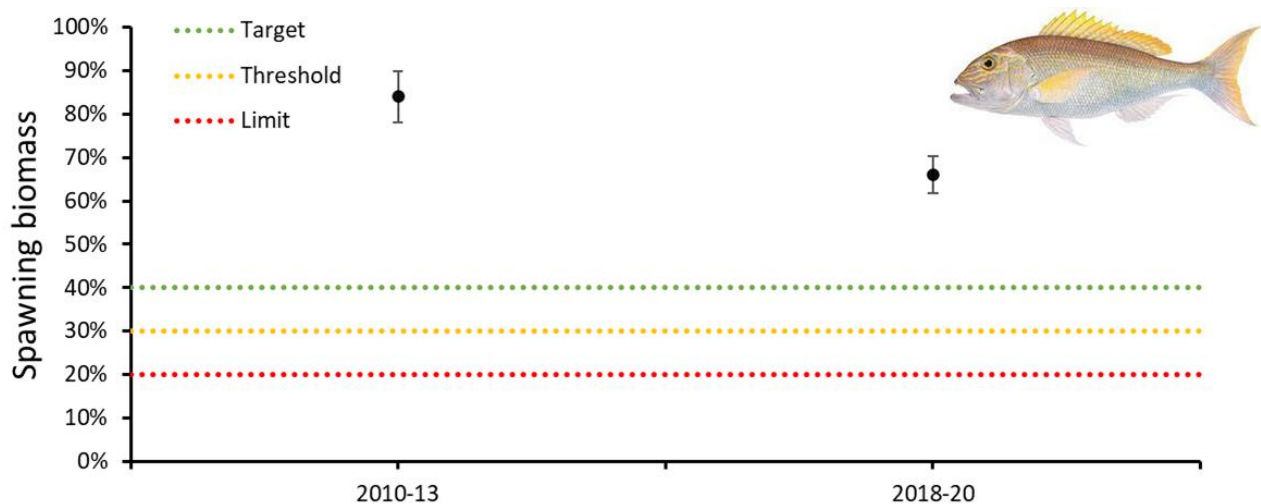


Figure 2. Estimates of relative female spawning biomass ($\pm 60\%$ CLs) of goldband snapper in the Gascoyne Coast Bioregion against Target (green), Threshold (yellow) and Limit (red) reference levels.

Management action taken in 2018 has achieved milestone 1 of the recovery plan for the oceanic pink snapper stock by rebuilding female spawning biomass to above the limit reference level by 2022 (Figure 3). The science suggests that maintaining the combined total fishing mortality of oceanic pink snapper by all sectors below 100 tonnes should allow the stock to recover to above the threshold reference level by 2027 (i.e. milestone 2) under average levels of recruitment. Any increase in the total fishing mortality limit of 100 tonnes

will be considered once the spawning biomass of oceanic pink snapper (and associated confidence levels, CLs) recovers to above the threshold reference level.

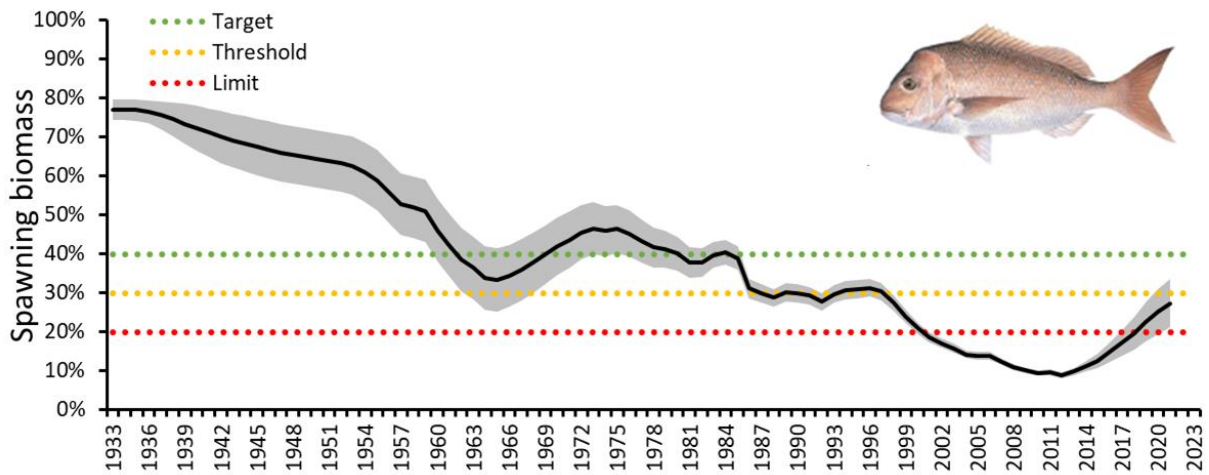


Figure 3. Estimates of relative female spawning biomass ($\pm 60\%$ CLs) of oceanic pink snapper against Target (green), Threshold (yellow) and Limit (red) reference levels.

Management has successfully maintained Gascoyne goldband snapper catch at sustainable levels and oceanic pink snapper fishing mortality (retained catch + post-release mortality) below 100 tonnes since the recovery plan was established in 2018 (Figure 4).

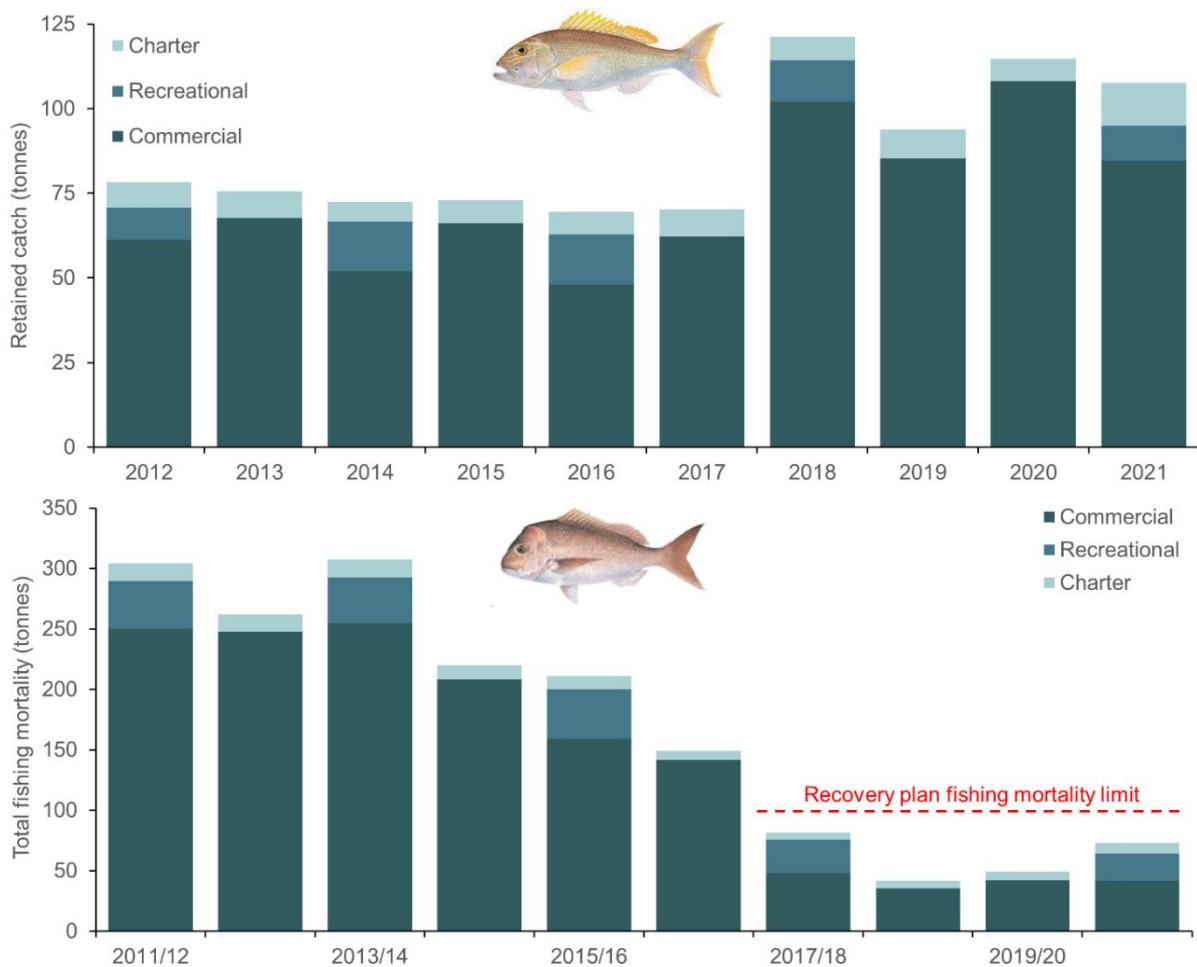


Figure 4. Goldband snapper retained catch (top) and oceanic pink snapper total fishing mortality (retained catch + post-release mortality) against the fishing mortality limit in the Recovery Plan (bottom) by recreational, charter and commercial fishers in the Gascoyne Coast Bioregion over the past 10 years. Note: recreational catch information is only available in years when the Statewide Recreational Fishing Survey was undertaken.

The science shows that there is a healthy spread of ages within the Gascoyne goldband snapper stock, with some sampled fish above 30 years old (Figure 5). In contrast, the recent age composition sample of oceanic pink snapper is dominated by young fish less than 15 years old (Figure 5), despite a maximum recorded age of 30 years for this stock. The lack of older fish demonstrates that more time is required to build resilience and fully recover the oceanic pink snapper stock.

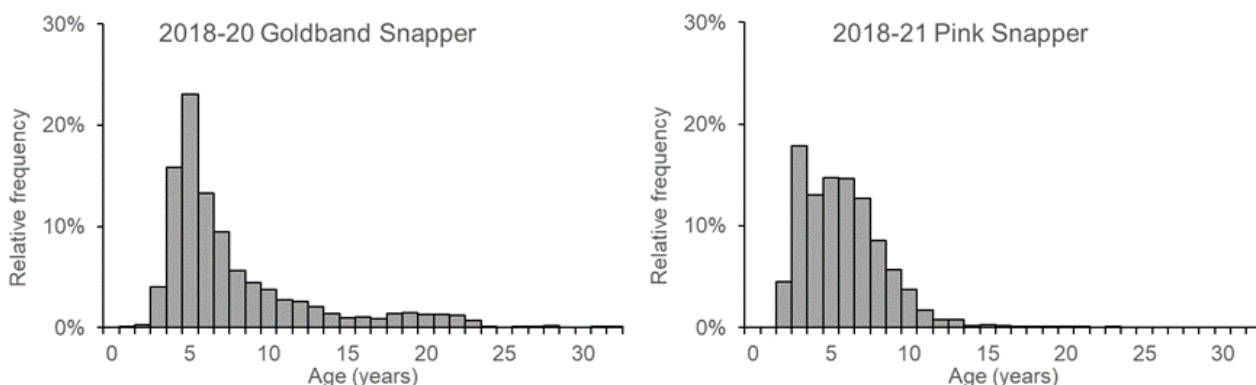


Figure 5. Age composition for GDSR goldband snapper from 2018-20 (left) and oceanic pink snapper from 2018-21 (right).

So, what next?

Goldband snapper is expected to remain sustainable at current catch levels. The oceanic pink snapper stock is expected to continue to recover over the next five years if current catch settings and level of targeted spawning protection are maintained.

DPIRD will engage with the stakeholder-based GDSR working group to review the stock assessment against the Harvest Strategy and oceanic pink snapper Recovery Plan to develop management recommendations. Any recommendations that propose changes to management will be subject to further consultation.

An updated Resource Assessment Report will be published in mid-2023 to provide detailed information on the 2022 stock assessment and past science to support the GDSR.

DPIRD acknowledges commercial, charter and recreational fishers for contributing catch and fishing information and thanks the commercial fishers who facilitated recent collections of oceanic pink snapper data through the DPIRD fishery-independent sampling program.

For more information, visit www.fish.wa.gov.au

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