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Department of
**Primary Industries and
Regional Development**

Fisheries Management Paper No. 298

Gascoyne Demersal Scalefish Resource: Oceanic Pink Snapper Recovery Plan 2018- 2037

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Important disclaimer

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1.0 INTRODUCTION

This document is an ancillary document to be read in conjunction with the Fisheries Management Paper No. 284: Gascoyne Demersal Scalefish Resource Harvest Strategy 2017 - 2021 (Harvest Strategy).

This recovery plan has been developed in line with the WA Harvest Strategy Policy (Fisheries Management Paper No. 271) and establishes explicit performance levels that represent an appropriate rate of recovery for Gascoyne oceanic pink snapper. This rate of recovery is consistent with the vulnerability and productivity of Gascoyne oceanic pink snapper and the dynamics of the commercial, recreational and charter fisheries that target the Gascoyne Demersal Scalefish Resource.

Under the Harvest Strategy, when an indicator species (i.e. pink snapper and goldband snapper) spawning biomass is below the limit, action is required to reduce fishing mortality by an agreed level (between 50-100%) to rebuild spawning biomass to above the threshold level within one generation (Harvest Strategy). Based on the approach outlined in the [Marine Stewardship Council Fisheries Standard](#) (approximate generation time (when $0.1 \leq M \leq 2$) = $\frac{1}{\text{Natural mortality}}$ + age at 50% maturity), one generation time for Gascoyne Demersal Scalefish Resource indicator species oceanic pink snapper and goldband snapper is 13 and 11 years, respectively.

In 2017, the Department of Primary Industries and Regional Development (Department) established the Harvest Strategy Reference Group to:

- assess the Gascoyne Demersal Scalefish Resource performance indicators against the reference levels in the Harvest Strategy; and
- provide advice on strategies aimed at achieving the objectives of the Harvest Strategy.

2.0 2017 GASCOYNE DEMERSAL SCALEFISH RESOURCE STOCK ASSESSMENT

A 2017 Gascoyne Demersal Scalefish Resource stock assessment of key indicator species found that:

- oceanic pink snapper was at severe risk (i.e. below the limit) and action was required to recover the oceanic pink snapper stock; and
- goldband snapper was at medium risk (i.e. between Target and Threshold) and no action was required.

3.0 THE PLAN FOR THE RECOVERY OF OCEANIC PINK SNAPPER

As oceanic pink snapper spawning biomass is below the limit, the Harvest Strategy requires that appropriate management action be taken as soon as is practicable to reduce the fishing mortality by 50-100%, applicable to all fishing sectors, to enable a return to above the threshold within one generation (i.e. 13 years).

Three steps have been identified as part of the process to recover Gascoyne oceanic pink snapper in accordance with the requirements of the Harvest Strategy (Figure 1):

Step 1: Initiate recovery (Milestone: Spawning Biomass above Limit by 2022)

Step 2: Rebuild spawning biomass above the threshold (Milestone: Spawning Biomass above Threshold by 2027 – sustainability objective met).

Step 3: Rebuild spawning biomass to near the target (Milestone: Spawning Biomass near the Target by 2037 subject to economic and social objectives being met).

Please note milestones are based on the scheduled delivery timeframe for a major GDSR stock assessment (generally every five years) within the one generational time period to ensure an estimate of spawning biomass against Target, Threshold and Limit reference points will be available and to ensure the recovery period is no longer than 20 years.

In accordance with the requirements of the Harvest Strategy, two key strategies have been identified to support the development of a recovery plan for oceanic pink snapper stocks:

1. Reduce total fishing mortality of oceanic pink snapper (by 50-100%) to an agreed level of 100 tonnes; and
2. Provide targeted protection for oceanic pink snapper spawning aggregations.

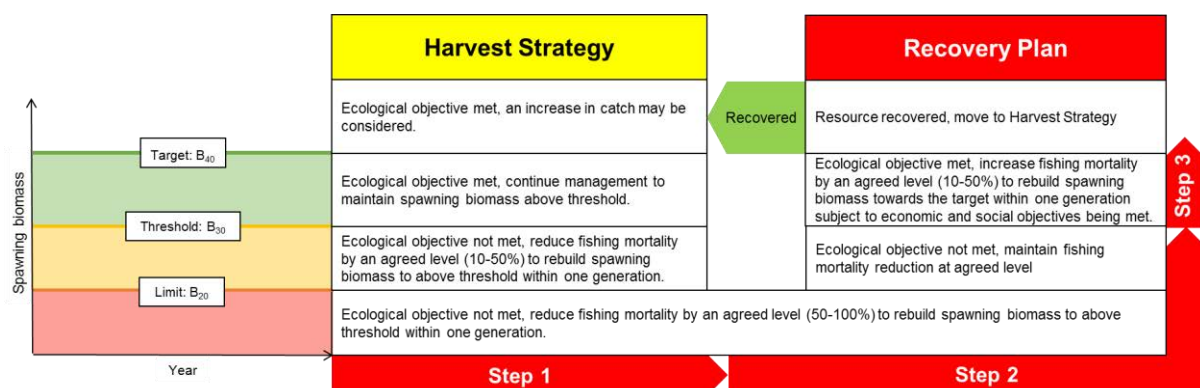


Figure 1. Graphical illustration of Gascoyne Demersal Scalefish Resource harvest control rules when under the Harvest Strategy or Recovery Plan. Refer to the Harvest Strategy (Fisheries Management Paper No. 284) for further information on the setting of the Target, Threshold and Limit reference points.

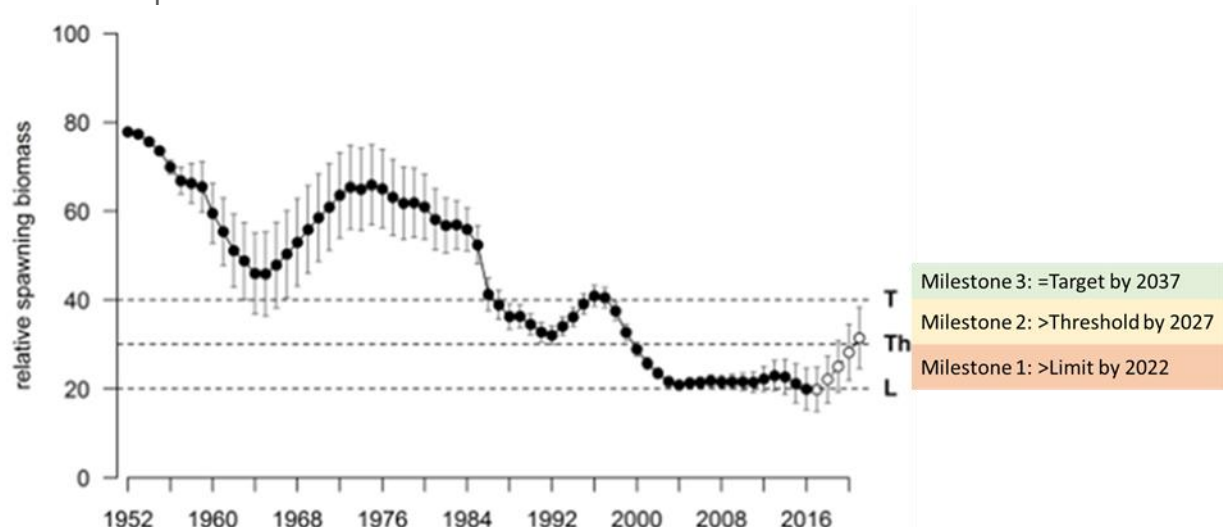


Figure 2. Estimated annual trends in relative female spawning biomass, when fitting the integrated model to the available catch rate data. Results are presented for the 5 year model projection assuming constant total fishing mortality of 100 tonnes with proposed milestones outlined.

3.1 Fishing mortality

It is known that a portion of demersal scalefish (including pink snapper) that are released will die (i.e. post-release mortality) due to a range of factors including species biology (e.g. susceptibility to barotrauma), depth of capture, capture and handling practices, hooking injuries and shark depredation. The Department estimates that on average, approximately 25% of pink snapper die following release due to the influence of these factors.

Fishing mortality accounts for the combined mortality associated with **both** retained catch and post-release mortality generated by fishing activities (Figure 3).

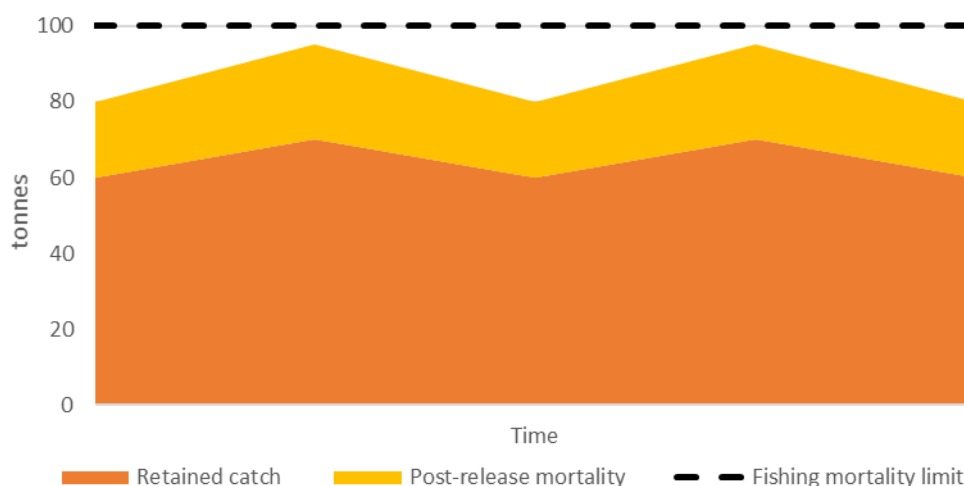


Figure 3. Schematic of fishing mortality incorporating both retained catch and post-release mortality of released fish and the need to maintain this below a fishing mortality limit.

4.0 STEP 1: INITIATE RECOVERY

Step 1 Aim: To initiate the recovery of Gascoyne oceanic pink snapper, the Harvest Strategy requires that appropriate management action be undertaken as soon as practicable to reduce the fishing mortality by 50-100%, applicable to all fishing sectors, to enable a return to above the threshold within one generation (i.e. 13 years).

4.1 Actions taken under Step 1

To provide urgent and effective reductions in fishing mortality and protection of pink snapper spawning aggregations during the 2018 peak spawning period (June-August), in May 2018, the Minister for Fisheries approved:

- a reduction in the commercial total allowable catch from 277 tonnes to 51.42 tonnes to ensure total fishing mortality by all sectors was below 100 tonnes; and
- the introduction of a pink snapper [spawning closure to provide targeted protection of key spawning aggregations at the northern end of Bernier Island](#) (northern Bernier Island closure).

4.2 When is further action required under Step 1

If the outcomes of the next stock assessment (due for delivery in 2022) indicate that pink snapper spawning biomass is not above the Limit, management action applicable to all fishing sectors should be undertaken as soon as practicable to reduce total fishing mortality of pink snapper by a further 50-100%.

5.0 STEP 2: REBUILD SPAWNING BIOMASS ABOVE THE THRESHOLD

Step 2 Aim: To rebuild Gascoyne oceanic pink snapper spawning biomass to above the threshold within one generation (i.e. by 2027).

To achieve Step 2 Aim, the Department proposes the following management strategy:

1. limit total fishing mortality (retained catch + post-release mortality) of oceanic pink snapper by all sectors to no more than 100 tonnes; and
2. provide targeted protection for key oceanic pink snapper spawning aggregations.

5.1 Proposed actions under Step 2

5.1.1 *Limit total fishing mortality of oceanic pink snapper by all sectors to no more than 100 tonnes.*

Due to the urgent nature of actions taken under Step 1, direct management action was taken to significantly reduce fishing mortality (retained catch + post-release mortality) by commercial fishing through a reduction to the TACC (although the northern Bernier Island closure may also reduce fishing mortality by all sectors). Where a formal sectoral allocation has not been made, any management changes driven by sustainability issues are generally implemented in proportion with each sector's historical catch proportion. However, noting the requirement for immediate action, a significant reduction in the commercial pink snapper TACC was implemented to reduce total fishing mortality by all sectors below 100 tonnes to initiate recovery (under actions taken in Step 1). If the next stock assessment (due 2022) indicates stocks have not yet commenced recovery (i.e. spawning biomass still below the Limit) and further action is required under Step 1, any further reductions in fishing mortality for each sector should be made in line with historical catch proportions prior to initial management action taken in 2018.

Noting the agreed total fishing mortality by all sectors of 100 tonnes to meet the requirements of the Harvest strategy (50-100% reduction), the Department has implemented fishing mortality limits for each sector to ensure total fishing mortality remains below 100 tonnes per annum (Table 1). These sectoral fishing mortality limits include the combined retained catch and post-release mortality by each sector and are consistent with current arrangements following actions undertaken in Step 1 to initiate recovery of oceanic pink snapper in 2018.

Table 1. Fishing mortality limits (including both retained catch and post-release mortality) for each sector to ensure total fishing mortality of oceanic pink snapper remains below 100 tonnes.

Sector	Total fishing mortality limit (retained catch + post-release mortality)
Recreational (private boat-based) sector limit	25 tonnes
Charter sector limit	15 tonnes
Commercial sector limit	60 tonnes
Total fishing mortality limit	100 tonnes

For example, the commercial sector's retained catch component of fishing mortality is limited under the current total allowable commercial catch (TACC) of 51.42 tonnes. The 60 tonne commercial sector fishing mortality limit outlined in Table 1 provides some allowances

for post-release mortality associated with the release of under size pink snapper and shark depredation in addition to the current 51.42 tonne TACC.

The commercial sector operates with hydraulic handlines and typically in depths greater than 60 meters which increases the susceptibility of released undersize pink snapper to post-release mortality (i.e. from barotrauma, handling, hooking injuries and shark depredations). To reduce the commercial sector's potential post-release mortality impact on oceanic pink snapper, the HSRG have recommended that the commercial sector undertake a 3-year trial reduction in the commercial minimum size limit for the Gascoyne Demersal Scalefish Managed Fishery from 410 mm to 380 mm. This proposed trial reduction in the commercial minimum size limit is likely to provide a net benefit to oceanic pink snapper recovery by reducing the post-release mortality component of the commercial sector's catch while maintaining the:

- opportunity for oceanic pink snapper to spawn prior to capture (Gascoyne oceanic pink snapper length at maturity is 378 mm for females and 353 mm for males); and
- current total allowable commercial retained catch at 51.42 tonnes.

To support this trial, information on size of released fish on commercial vessels will be monitored by the Department to quantify the potential change in fishing mortality from the commercial sector. The results will be provided to the HSRG for review at the conclusion of the 3-year trial. If successful, the long term implementation of a reduced size limit for both the commercial and recreational sectors will be considered.

5.1.2 Provide targeted protection for key oceanic pink snapper spawning aggregations.

It is proposed that the current northern Bernier Island closure during the peak spawning period (June-August) be maintained until the Step 2 aim is achieved (i.e. until spawning biomass is above the Threshold).

The HSRG has identified a key pink snapper spawning aggregation in waters north of Dirk Hartog Island (i.e. Turtle Bay/Cape Inscription) that may warrant targeted protection to fast track an increase in oceanic pink snapper spawning biomass towards the Threshold. Triggers for the implementation of any additional protection of key pink snapper spawning aggregations is outlined under the section 5.2 "when is further action required under Step 2". Once Step 2 aim is achieved, a review is to be undertaken in consultation with the HSRG, to determine the appropriateness of continuing to provide targeted protection for oceanic pink snapper spawning aggregations in these waters.

5.1.3 Communication and education

Ongoing communication and education on the oceanic pink snapper recovery to:

- build support for key strategies employed to recover oceanic pink snapper;
- promote stewardship of the resource by stakeholders and the community; and
- address issues impacting the recovery of oceanic pink snapper (i.e. post-release mortality).

5.1.4 Monitoring and assessment

The Department undertakes a range of fishery dependent and fishery independent monitoring and periodic stock assessments of key indicator species (pink snapper and goldband snapper) for the GDSR (refer to Section 3.7 of the Harvest Strategy). The timing of monitoring and

assessment, review of performance of key strategies and progress against recovery objectives and milestones is outlined in Appendix 1.

In addition, the Department will undertake annual fishery independent sampling during the peak spawning period (including within the northern Bernier Island closure) to provide the necessary data inputs to monitor and assess the progress of the oceanic pink snapper recovery against the recovery objective and key milestones. The HSRG will provide ongoing input into this program to ensure it provides the necessary information to assess recovery and meets the expectations of stakeholders and the community.

5.2 When is further action required under Step 2

5.2.1 Further action is required if a sector breaches a fishing mortality limit (Table 1).

In the event that one of these scenarios occurs, a review is to be completed within one month. Appropriate management action will be taken as soon as is practicable to reduce that sector's fishing mortality below limit levels.

Where a sector breaches its snapper fishing mortality limit, appropriate management action for each sector may include:

- Commercial sector - reduction in the total allowable commercial catch (TACC)
- Recreational sector – reduction in bag limits, introduction of a boat limit and/or spatial/temporal closures.
- Charter sector – reduction in bag limits, introduction of a boat limit, spatial/temporal closures and/or specific arrangements to limit catch/effort.

5.2.2 Further action required if effort or catch increases on key spawning aggregations

To ensure the integrity of the northern Bernier Island spawning closure to provide targeted protection of key oceanic pink snapper spawning aggregations in Gascoyne oceanic waters, further action is required if effort by any sector increases within this spawning closure.

To expedite an increase in oceanic pink snapper spawning biomass towards the Threshold, protection for key pink snapper spawning aggregations from all sectors in the waters north of Dirk Hartog Island (i.e. Turtle Bay/Cape Inscription) will be implemented if:

- Gascoyne oceanic pink snapper spawning biomass is not above the threshold by the next stock assessment (due 2022); or
- The proportion of annual oceanic pink snapper catch by any sector increases above historical levels in waters north of Dirk Hartog Island (10x10 nm catch blocks 252125 and/or 252130) during the peak spawning period (June-August) including:
 - Equal to or above 9% of annual commercial catch of pink snapper from the Gascoyne Demersal Scalefish Managed Fishery; or
 - Equal to or above 5% of annual charter catch of pink snapper in the Gascoyne Coast Tour Operator Zone.

In the event that one of these scenarios occurs, a review is to be completed within one month. If deemed to be required, appropriate management action will be taken as soon as is practicable to provide targeted protection for key pink snapper spawning aggregations.

6.0 STEP 3: REBUILD SPAWNING BIOMASS TO THE TARGET

Step 3 Aim: To rebuild Gascoyne oceanic pink snapper spawning biomass to near the Target within one generation (i.e. by 2037) subject to economic and social objectives outlined in the Harvest Strategy being met.

Under Step 3, the Department will undertake a review in consultation with the Harvest Strategy Reference Group to consider the appropriate levels of fishing mortality and spawning protection required to allow oceanic pink snapper spawning biomass to rebuild to near the Target by 2037 subject to economic and social objectives outlined in the Harvest Strategy being met.

7.0 APPENDIX. MONITORING AND ASSESSMENT SCHEDULE FOR GASCOYNE OCEANIC PINK SNAPPER RECOVERY

Table 2. Proposed timing for monitoring, assessment delivery, key strategy reviews and the objective and milestones during the recovery of oceanic pink snapper.

Year	Monitoring				Assessment		Review			Aims achieved? Recovery milestone
	Commercial catch + effort	Charter catch + effort	Recreational catch + effort	Fishery independent data	Level 2 assessment	Level 5 Stock assessment	Fishing Mortality below limit levels?	Key spawning aggregations protected?	Spawning biomass meeting recovery milestones?	
2017	●	●	●		●	●			●	
2018	●	●		●	●		●	●		Action taken to initiate recovery
2019	●	●	●	●	●		●	●		
2020	●	●		●	●		●	●		
2021	●	●		●	●		●	●		
2022	●	●	●	●	●	●	●	●	●	Spawning biomass above Limit? OR Spawning biomass above Threshold?
2023	●	●		●	●		●	●		
2024	●	●		●	●		●	●		
2025	●	●	●	●	●		●	●		
2026	●	●		●	●		●	●		
2027	●	●		●	●	●	●	●	●	Spawning biomass above Threshold?
2028	●	●	●	●	●		●	●		
2029	●	●		●	●		●	●		
2030	●	●		●	●		●	●		
2031	●	●	●	●	●		●	●		
2032	●	●		●	●	●	●	●	●	Spawning biomass at Target?
2033	●	●		●	●		●	●		
2034	●	●	●	●	●		●	●		
2035	●	●		●	●		●	●		
2036	●	●		●	●		●	●		
2037	●	●	●	●	●	●	●	●	●	Spawning biomass at Target?