



# Fisheries research update – December 2019

## West Coast Demersal Scalefish Resource



### Key points: recovery progress at the 10-year mark

- The West Coast Demersal Scalefish Resource (WCDSR) is 10 years into a 20-year recovery plan following a period of overfishing in the 1990s and 2000s.
- The latest science shows that fishing mortality rates for indicator species (dhufish and pink snapper) have been trending downward in recent years, signalling some early signs of recovery.
- However, they are still above their limit reference points and need to fall well below the threshold reference points to indicate recovery of stocks.
- The trend in recovery is being driven by the Metropolitan and South-West areas with limited recovery in the Mid-West and Kalbarri areas, particularly for dhufish.
- This is because there continues to be very few older dhufish and pink snapper in the population and a small number of good years of recruitment are supporting both population replenishment and catches in the fishery.
- Increases in the number of recreationally caught demersal scalefish being released adds to fishing mortality and may also be impacting the rate of recovery.
- The next major stock assessment is due for completion in late 2020 and will provide an opportunity to evaluate whether the WCDSR is recovering at an acceptable rate.

## The recovery background

In 2007, a stock assessment of WCDSR 'indicator species' – dhufish, pink snapper and baldchin groper – concluded that overfishing was occurring. It also found that catches of demersal scalefish needed to be reduced by at least 50 per cent to allow stocks to recover within 20 years (Fisheries Research Report No.163). **A plan to recover the WCDSR by 2030 was developed based on reducing both recreational (including charter) and commercial catches by at least half of their respective 2005/06 levels (the 'recovery benchmark')**.

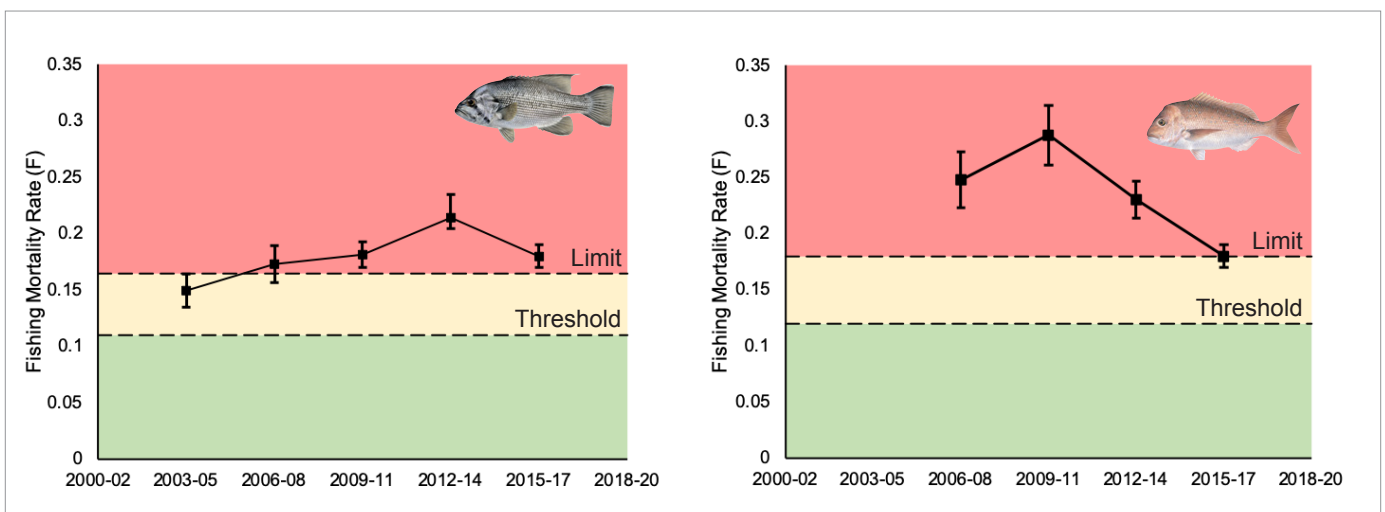
Following extensive community consultation, new management arrangements were introduced around 2010 to recover stocks. For the recreational sector, these included changes to bag, boat and size limits as well as a two-month demersal fishing closure. Changes for the commercial sector included a limit on the number of commercial licences, a limited number of hours available to fish each year and the closure of the Metropolitan area. Recreational and commercial fishers and their representative organisations (Recfishwest and the WA Fishing Industry Council) have played a key role in supporting these arrangements that were designed to help reduce the catch and recover the WCDSR.

## Taking stock of the recovery – latest research results

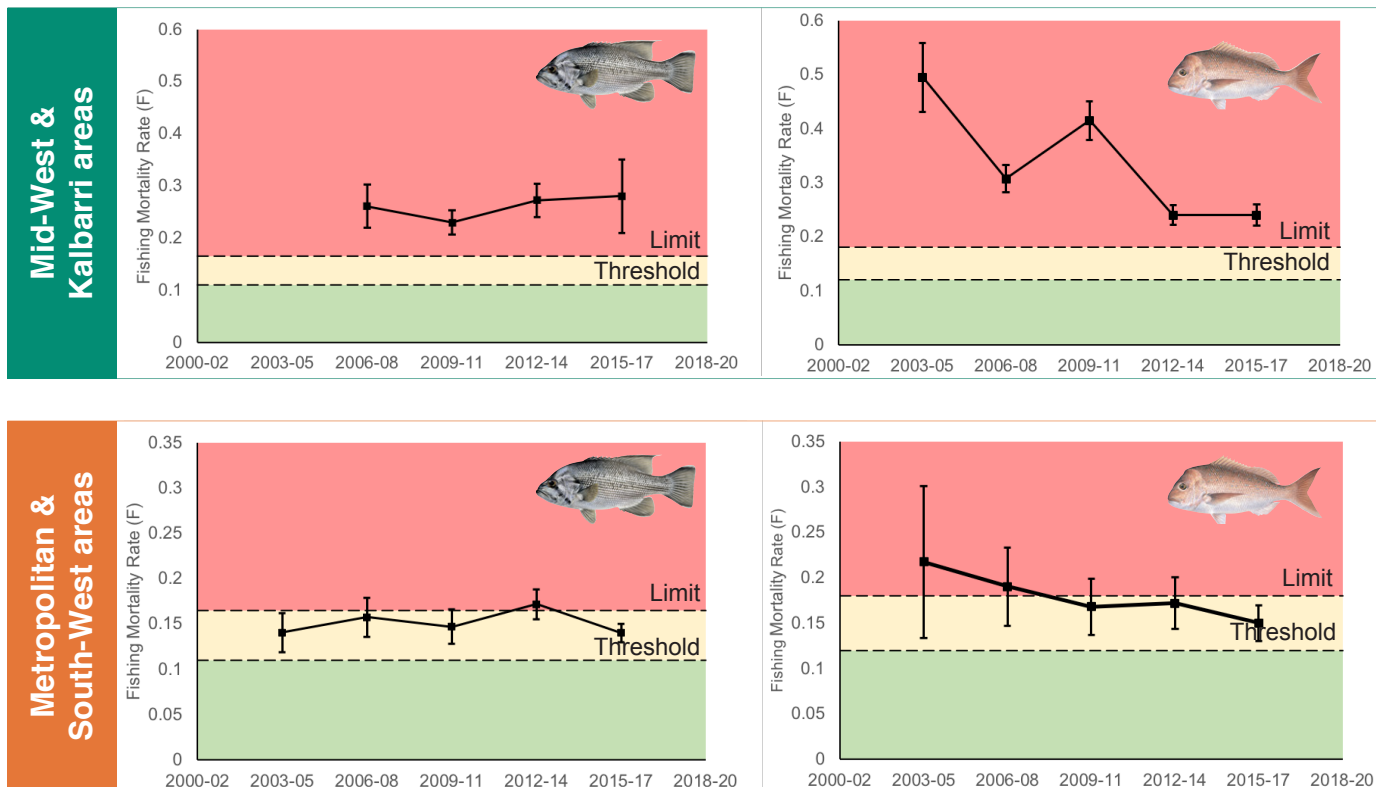
The Department undertakes age based stock assessments every three to five years of the indicator species to determine the status of the WCDSR. These stock assessments measure the fishing mortality rate, which is the proportion of fish that die each year as a result of commercial, recreational and charter fishing activities, against internationally accepted benchmarks (i.e. Threshold and Limit reference points). The WCDSR recovery target is to reduce fishing mortality rates below the threshold by 2030 (**Figure 1**).

At the 10-year mark of the WCDSR recovery, our latest research on the indicator species dhufish and pink snapper shows that their fishing mortality rates across the West Coast Bioregion have been trending downwards in recent years, signalling some early signs of recovery. However, they are still at or above their Limit reference points.

The recovery is being driven by reductions in fishing mortality in the Metropolitan and South-West areas of the West Coast Bioregion, however, there has been little or no sign of improvement in the Mid-West and Kalbarri areas of the West Coast Bioregion, especially for dhufish (**Figure 2**).



**Figure 1.** Dhufish and pink snapper fishing mortality rates across the West Coast Bioregion against reference points

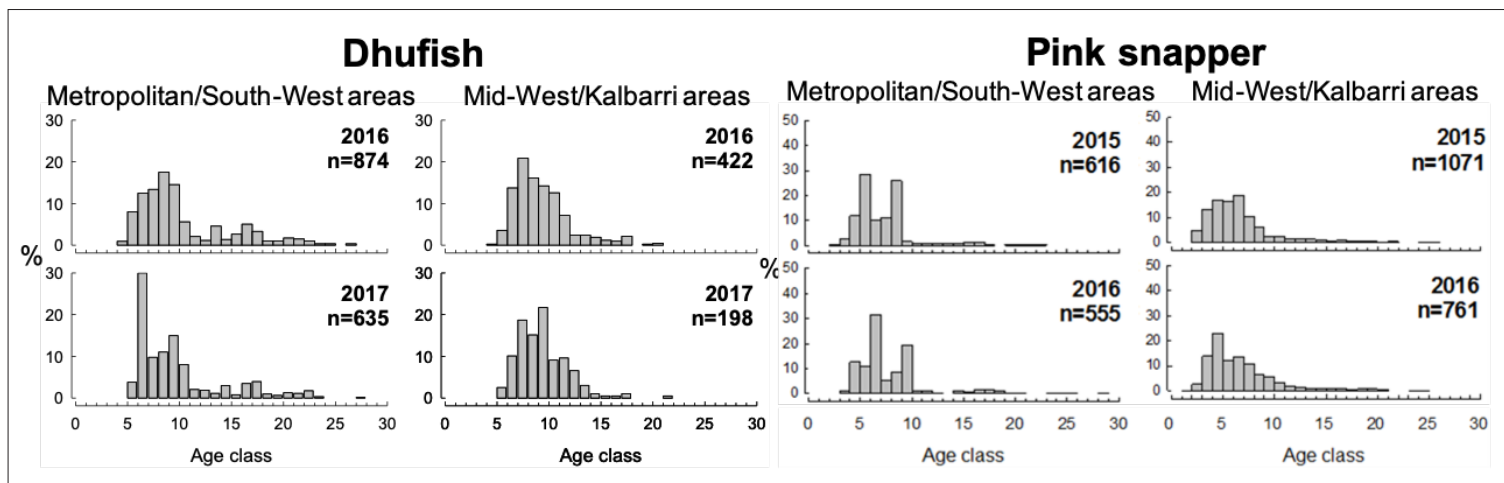


**Figure 2.** Dhufish and pink snapper fishing mortality rates in the Mid-West/Kalbarri and Metropolitan/South-West areas of the West Coast Bioregion against reference points

The lack of recovery of dhufish and snapper in these areas is influenced by populations being more depleted than the southern areas prior to management intervention in 2010. It would also be influenced by the current level of fishing pressure in addition to the effects of release mortality.

The latest age structures for dhufish and pink snapper across the West Coast Bioregion also show there is a continued over reliance on young fish to support catches (**Figure 3**).

Very few fish in the population are making it to more than 20 years of age, despite both species being able to live for over 40 years. A fish stock is considered healthy when there is adequate representation of older age classes in the population which can contribute to recruitment. Having an appropriate age structure will also help a stock be more resilient to fishing pressure when periods of low recruitment are experienced.



**Figure 3.** Age frequency distributions of dhufish (left) and pink snapper (right) collected in the Metropolitan/South-West areas and Mid-West/Kalbarri areas of the West Coast Bioregion between 2015 and 2017



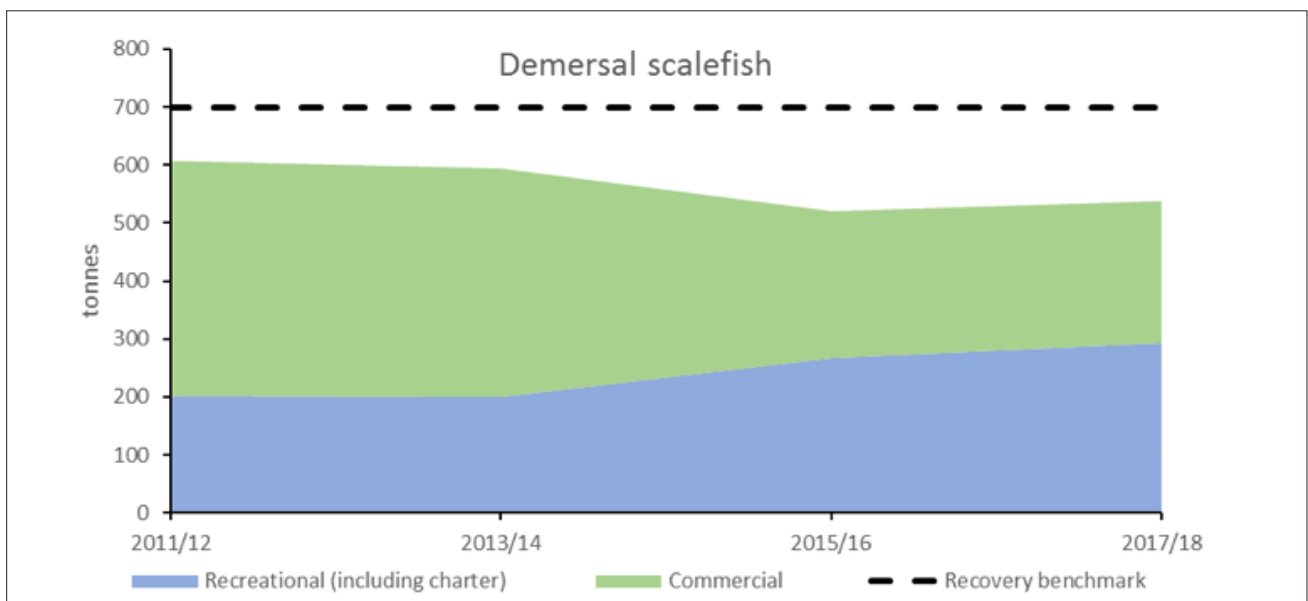
Our last research shows there are very few older dhufish like this left in the West Coast Bioregion

## Managing the catch – recovery benchmark levels

### Retained catches

As part of the recovery strategy launched in 2010, recovery benchmarks were determined for the commercial and recreational sectors based on reducing both sectors catches by 50 per cent of 2005/06 levels. The recovery benchmark for demersal scalefish taken in the West Coast Bioregion by the commercial sector was set at 450 tonnes, while the recovery benchmark for the recreational sector (including charter) was set at 250 tonnes.

Individual recovery benchmarks for the three indicator species (dhufish, pink snapper and baldchin groper) were also determined for the commercial and recreational sectors. The recovery benchmarks are in line with the formal allocation of the WCDSR between the commercial sector (64 per cent) and the recreational sector (36 per cent) under the WA Government’s Integrated Fisheries Management (IFM) policy in 2012.



**Figure 4.** Estimates of demersal scalefish retained catch taken by the recreational (including charter) and commercial sectors in the West Coast Bioregion. Note: 2017/18 data are preliminary estimates

The combined catch of demersal scalefish by all sectors was below the recovery benchmark in 2017/18 (**Figure 4**). However, recreational catches are above their recovery benchmarks, while commercial catches are below their recovery benchmarks.

### Post release mortality

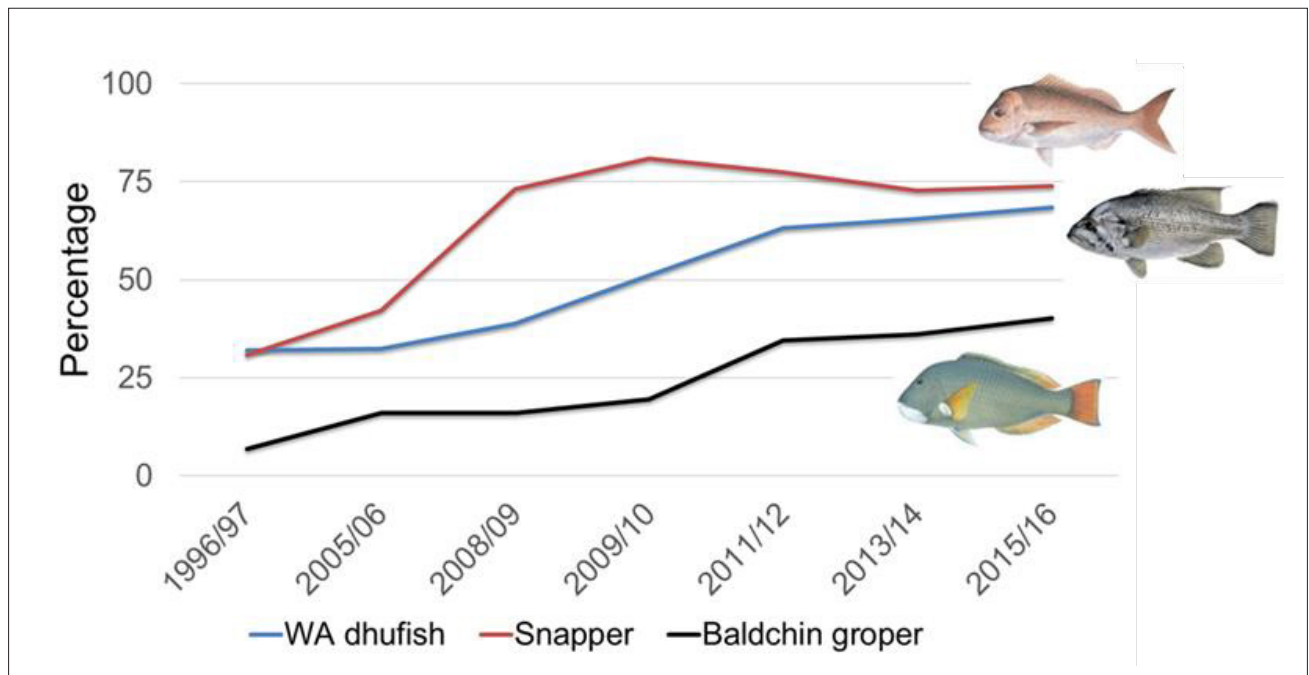
An additional factor potentially impacting on the rate of recovery of the WCDSR is 'post-release mortality'. A proportion of demersal scalefish do not survive being caught and released due to factors such as:

- barotrauma (damage to fishes' internal anatomy caused by water pressure changes when being reeled in);
- poor handling;
- hooking injuries; and
- being eaten by sharks when reeled in or soon after release.

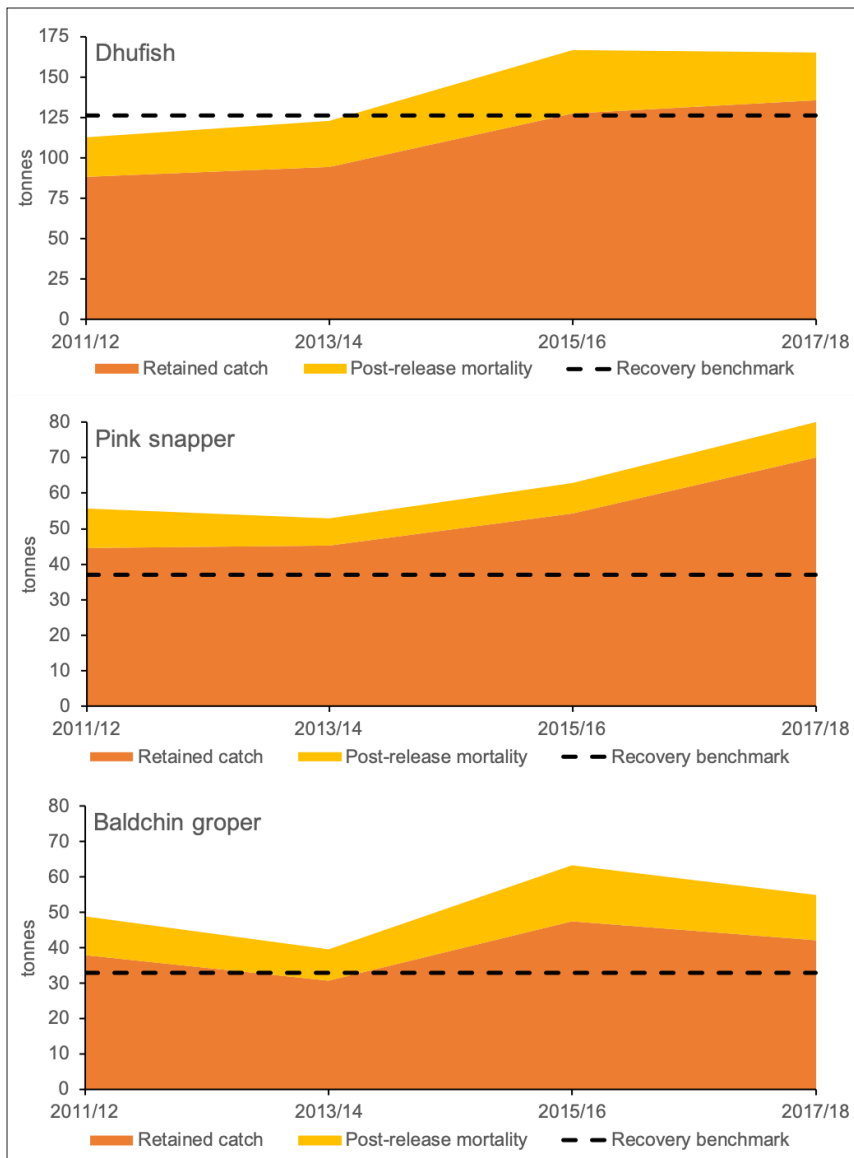
The proportion of dhufish, pink snapper and baldchin groper released by recreational fishers in the West Coast Bioregion has doubled over the last 10 years (**Figure 5**). Estimated post-release mortality rates for pink snapper, dhufish and baldchin groper are 25 per cent, 50 per cent and 90 per cent respectively.



Breaksea cod showing the effects of barotrauma



**Figure 5.** Proportion of demersal scalefish released by recreational fishers



The graph shows the cumulative impact of retained catches and estimated post-release mortality by the recreational (including charter) sector against recovery benchmarks in the West Coast Bioregion (**Figure 6**).

**Figure 6.** Estimates of retained catch and post-release mortality for WCDSR indicator species, dhufish, pink snapper and baldchin groper, taken by the recreational (including charter) fishers in the West Coast Bioregion. Note: 2017/18 data are preliminary estimates

## So what next?

Recreational catch estimates from the 2017/18 iSurvey are currently being finalised for publication in early 2020. However, preliminary estimates from this iSurvey have been included in this research update and additional information will be available when published.

The next WCDSR stock assessment is due in late 2020. This assessment will provide more in-depth analyses for the indicator species dhufish, pink snapper and baldchin groper in the West Coast Bioregion. The outcomes of this assessment will provide an opportunity to evaluate whether the WCDSR is recovering at an acceptable rate or whether additional management is required.

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