



Fisheries Science Update – November 2023

Spanish Mackerel

Key Points: 2023 stock assessment

- The statewide large pelagic finfish resource (SWLPR) is distributed throughout Western Australia (WA) and includes a range of tropical and temperate pelagic species.
- Spanish mackerel is an indicator species for the SWLPR.
- The latest stock assessment provides a ‘health check’ on the status of WA Spanish mackerel statewide and in each management region.
- The 2023 stock assessment shows WA Spanish mackerel remains sustainable with some concerns in the Pilbara region.
- Current management measures are expected to maintain WA Spanish mackerel at an acceptable level outside the Pilbara region.
- The next Spanish Mackerel stock assessment is scheduled for 2026.



Spanish Mackerel Management

The SWLPR is distributed throughout WA and includes a range of tropical and temperate pelagic species. The tropical indicator species for the resource are Spanish mackerel and Grey mackerel, and Samson fish for the temperate species.

Spanish mackerel is commercially fished by the Mackerel Managed Fishery under a quota management system within three management areas, the Kimberley, Pilbara and Gascoyne/West Coast. Commercial fishers use trolled lines to target Spanish mackerel in offshore reefs to mainly supply domestic markets.

Spanish mackerel is also a popular species for recreational and charter fishers that provides great line and spearfishing experiences. Recreational and charter fishers are subject to bag, possession and size limits when fishing for Spanish mackerel.

Finfish weight of evidence stock assessments

Finfish stock assessments in WA comprise a range of analyses to provide an understanding of the sustainability of stocks, which may include:

- 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) sampling to evaluate length and age compositions and estimate growth, length and age at maturity, and selectivity by fishing gear.
- 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 is used to inform whether management action is required to ensure ongoing sustainability.

Taking stock – latest Spanish mackerel science

The 2023 Spanish mackerel weight of evidence stock assessments included catch and biological information collected up to and including the 2021 calendar year.

The science shows that WA Spanish mackerel is currently sustainable, with the most recent estimate of spawning biomass for the overall WA stock remaining between the Threshold and Target levels. Estimated spawning stock biomass levels within the three management areas vary, with estimated stock levels in the Pilbara below the Threshold level (Figure 1).

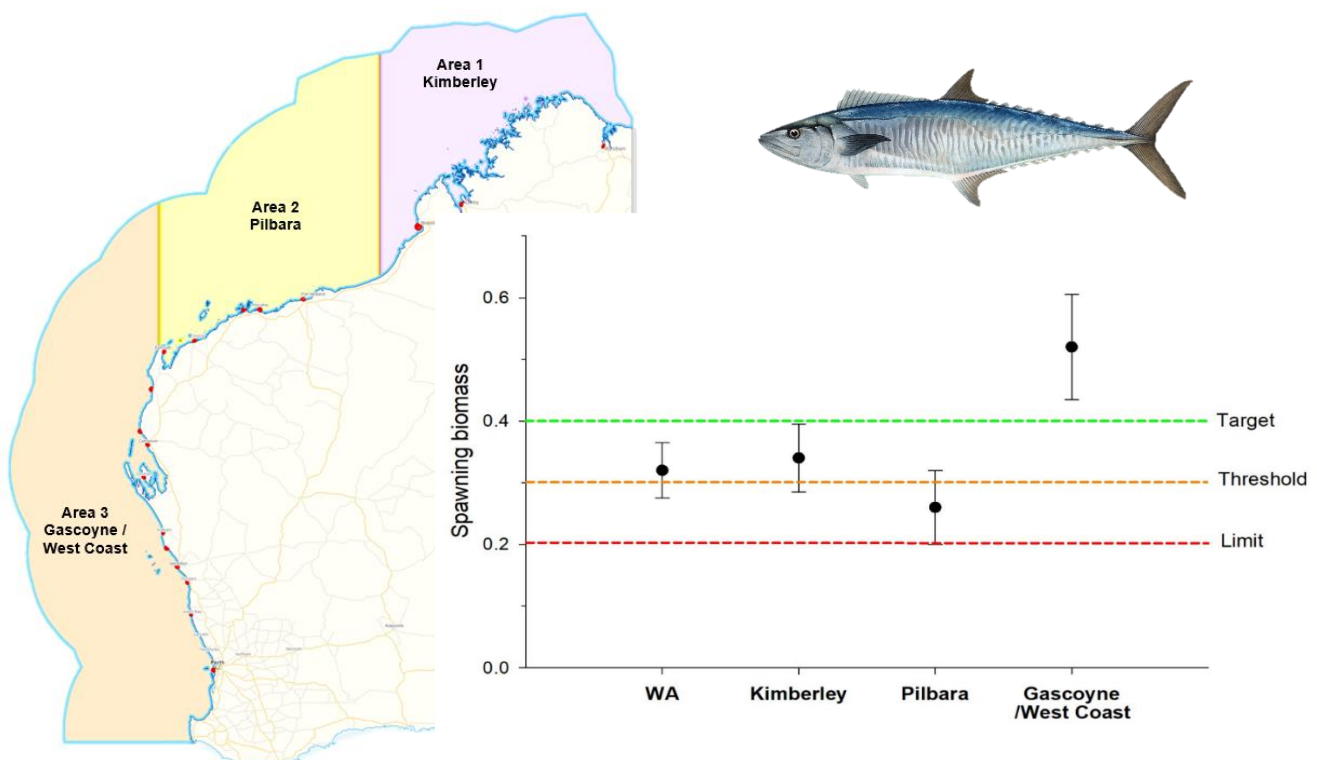


Figure 1. Estimates of relative female spawning biomass ($\pm 95\%$ Confidence Levels) of Spanish mackerel in WA, the Kimberley, Pilbara, and Gascoyne/West Coast management areas, against the Target (green), Threshold (yellow), and Limit (red) reference levels.

The science shows that the Spanish mackerel stock is dominated by relatively young fish less than 5 years old, with an age range of 1 to 15 years for fish in all management areas and only a single 19 year old fish sampled in the Pilbara. Despite a high proportion of young fish in the stock, the length composition assessment shows the majority of Spanish mackerel caught were 900mm – 1150mm so above the size at maturity. The lengths of the young fish are typical for Spanish mackerel, which are fast growing species that reach maturity at an early age of 1.5-2 years.

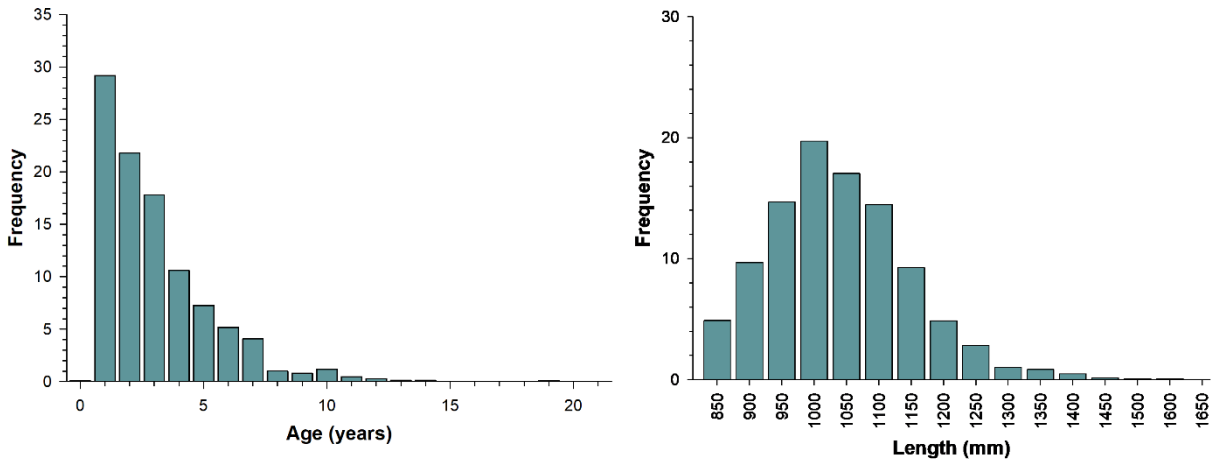


Figure 2. Age (left) and length (right) composition for Spanish mackerel from 2018-2021.

Catches of Spanish mackerel by the commercial, recreational, and charter fishing sectors have remained stable over the last 10 years. Commercial fishers landed an average of 214-322 tonnes of Spanish mackerel with annual catches in recent years below the catch limits in all management areas. Retained catch of Spanish mackerel by recreational and charter fishers is around 70 tonnes since 2017. A high proportion of recreational catches of Spanish mackerel are released and suffer post-release mortality and high anecdotal rates of shark depredation, which contributes to the overall fishing mortality.

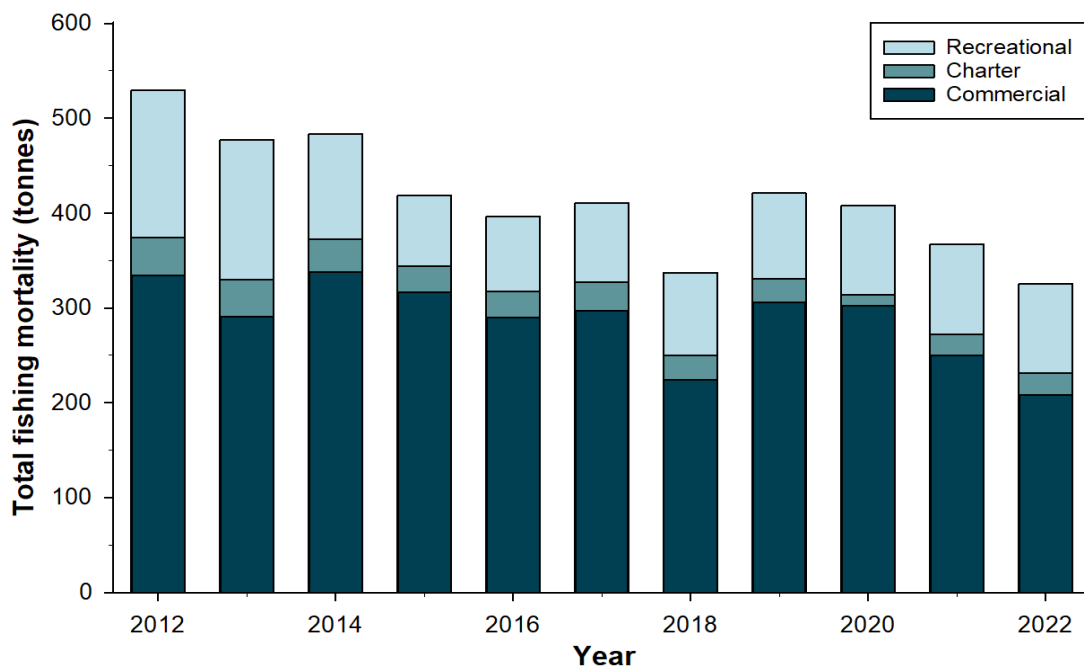


Figure 3. Spanish mackerel total fishing mortality (retained catch + post release mortality) by recreational, charter and commercial fishers in WA over the past 10 years.

Commercial fishers have reported depredation by sharks (number of Spanish mackerel lost per fishing session) since the managed fishery was established in 2006. Since 2018 rates of depredation in the commercial fishery have stabilised with reported depredation remaining higher in the Gascoyne/West Coast management area compared to the areas in the northwest. Although not formally recorded, anecdotal reports of shark depredation have been high by recreational and charter fishers.



Figure 4: Annual rate of shark depredation as percentage of commercial catch reported for each management area in the commercial mackerel fishery over the past 10 years.

Next steps

The WA Spanish mackerel stock as a whole is expected to remain sustainable at current catch levels.

Further action is required to reduce Spanish mackerel catches to an acceptable level in the Pilbara region. DPIRD have met with commercial operators and is currently in the process of developing management recommendations and a formal harvest strategy for the SWLPR.

Any proposed changes to management arrangements will be subject to further consultation in 2024 and approval by the Minister for Fisheries.

An updated Resource Assessment Report will be published in 2024 to provide detailed information on the 2023 stock assessment and ongoing science to support the SWLPR.

DPIRD acknowledges commercial, charter and recreational fishers for contributing catch and fishing information and will continue to work with fishers from all sectors to collect biological data for the next stock assessment.

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

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