

West Australian Dhufish (2023)

Glaucosoma hebraicum



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Recovering	Catch, fishing mortality, relative spawning biomass

STOCK STRUCTURE

Molecular analyses of microsatellite DNA indicates that West Australian Dhufish comprises a single biological stock in Western Australia, occurring primarily in the West Coast Bioregion (WCB) between 26°30'S latitude and 115°30'E longitude [Berry et al. 2012; Fairclough et al. 2013].

Here, assessment of stock status is presented at the biological stock level—Western Australia.

STOCK STATUS

Western Australia

Annual catches of West Australian Dhufish, which are primarily taken in the West Coast Bioregion (WCB), show a gradual increase from around 150 tonnes (t) in the mid-1970s to a peak close to 500 t in the mid-2000s. The retained catches of this species in Western Australia have fluctuated between 170 and 210 t annually since 2010, when significant management action was taken for both the commercial and recreational sectors to reduce fishing effort and catch of demersal scalefish in the WCB. Around 70% of these recent catches have been retained by recreational (including charter) line fishers. A 20-year recovery plan is in place to monitor the recovery of the West Coast Demersal Scalefish Resource (WCDSR). In addition to periodic assessments of indicator species [Newman et al. 2018], annual reviews of retained catches and estimates of post-release mortality (PRM) for key species are also undertaken against recovery

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benchmarks for each sector to inform management of the resource [DPIRD 2021].

In the WCB, catches of West Australian Dhufish retained by the commercial and recreational fishing sectors in 2020–21 were 43 t and 120 t, respectively, with the latter comprising 108 t landed by private boat-based fishers and 12 t landed by charter fishers [Ryan et al. 2022; Fisher et al. 2023]. The combined retained catch and estimated PRM (referred to hereafter as total fishing mortality) of West Australian Dhufish by the commercial sector has been below the original recovery benchmark of 91 t since 2009 (48 t in 2021–22). Total fishing mortality by the recreational sector exceeded the original recovery benchmark of 136 t for this species in 2015–16 (166 t), 2017–18 (165 t) and 2020–21 (137 t).

The last assessment of West Australian Dhufish was based on biological data collected up to 2017–18 and fishery information (e.g., catches) up to 2020 [Fairclough et al. 2021]. The estimated long-term, average F for fully-selected West Australian Dhufish at the bioregion (stock) level, calculated from age composition data from 2015–16 to 2017–18 using a catch curve model that accounts for annual recruitment variability, remained above the limit reference level of 1.5 times the value of natural mortality (M) [Fairclough et al. 2021]. For the first time, the assessment also applied an integrated stock assessment model that incorporates relevant biological and fishery information, catches from all fishing sectors, standardised commercial catch per unit effort (CPUE) data as an index of abundance, and age composition data sampled from catches taken by commercial and recreational fishers. The model accounts for the PRM of fish that are selected by fishing gear but are not retained due to being below the minimum legal length of 500 mm in place for West Australian Dhufish until 2023.

The 2021 integrated model assessment of West Australian Dhufish estimated that the spawning biomass (B , relative to unfished levels) in the WCB in 2020 was between the threshold and limit reference points of 0.3 (approximately corresponding to BMSY) and 0.2, respectively [Fairclough et al. 2021]. The model outputs show decreasing levels of fishing mortality (F) and an increasing trend in B at the bioregion (stock) level since management action was taken between 2007 and 2010 to reduce catches, however, this was driven by recovery in the south of the bioregion. Model projections based on future catches being equivalent to the original recovery benchmarks outlined in the harvest strategy suggested that while B in the combined southern (South-West and Metropolitan) management areas would rebuild to above the threshold by 2030, B in the combined northern (Mid-West and Kalbarri) areas would unlikely recover at the required rate.

Following a review of the 2021 WCDSR assessment outputs against the harvest strategy [DPIRD 2021], management action was taken in early 2023 to reduce the original recovery benchmarks for the demersal suite and key species by 50%, and to remove the minimum size limit for West Australian Dhufish to reduce the need to release fish. The indicator species approach used is based on management being focused on species at highest risk of further depletion, to ensure the overall WCDSR is sustainably fished [Newman et al. 2018]. While the slow recovery of West Australian Dhufish in the Metropolitan and northern management areas is of continued concern, updated model projections indicate that the recent management measures for the WCDSR are expected to recover the overall stock by 2030 if total fishing mortality is maintained below the new recovery benchmark.

On the basis of the evidence provided above, the West Australian Dhufish

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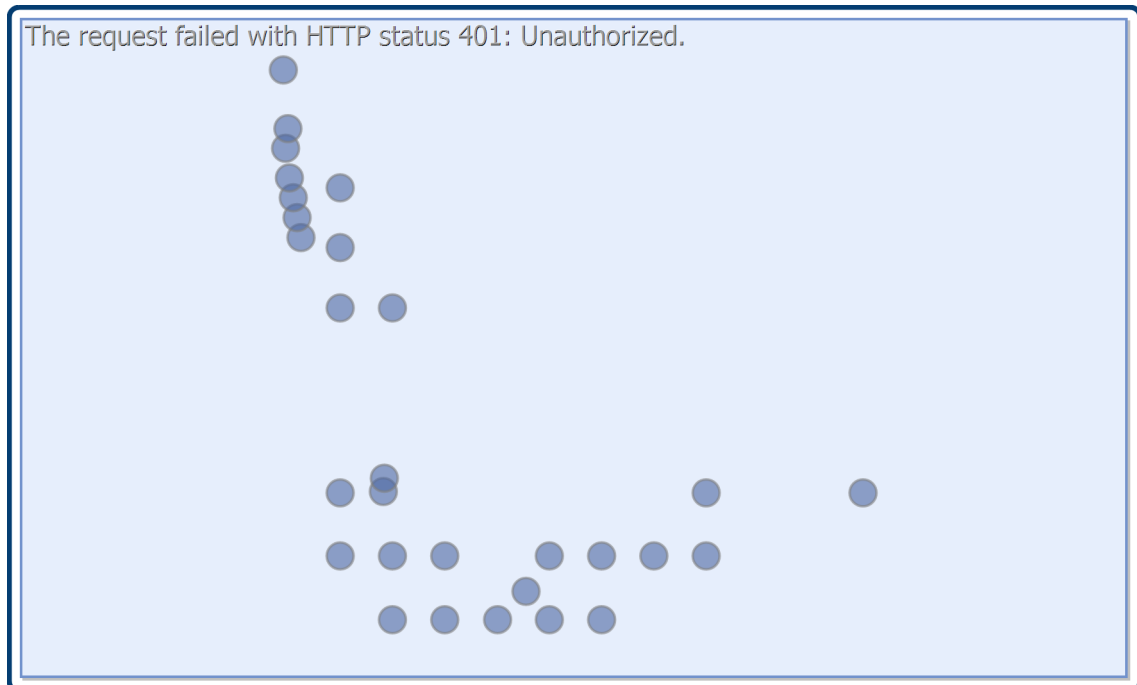
biological stock is classified as a **recovering stock**.

BIOLOGY

West Australian Dhufish biology [updated from Hesp et al. 2002]

Species	Longevity / Maximum Size	Maturity (50 per cent)
West Australian Dhufish	41 years, 1,220 mm TL	Approximately 3 years; Females 331 mm TL, Males 324 mm TL

DISTRIBUTION



Distribution of reported commercial catch of West Australian Dhufish

TABLES

Fishing methods	Western Australia
Charter	
Hook and Line	✓
Spearfishing	✓
Commercial	
Dropline	✓
Fish Trap	✓

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Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Line	✓
Longline (Unspecified)	✓
Recreational	
Hook and Line	✓
Spearfishing	✓

Management Methods	
	Western Australia
Charter	
Catch limits	✓
Gear restrictions	✓
License	✓
Limited entry	✓
Marine park closures	✓
Passenger restrictions	✓
Possession limit	✓
Spatial zoning	✓
Commercial	
Effort limits	✓
Gear restrictions	✓
Limited entry	✓
Marine park closures	✓
Spatial closures	✓
Spatial zoning	✓

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Total allowable effort	✓
Vessel restrictions	✓
Recreational	
Bag limits	✓
Boat limits	✓
Gear restrictions	✓
Licence (boat-based sector)	✓
Marine park closures	✓
Possession limit	✓
Spatial zoning	✓
Temporal closures	✓

Catch	Western Australia
Charter	8 t (2022)
Commercial	53 t (2022)
Indigenous	Unknown
Recreational	114 t (2020–21)

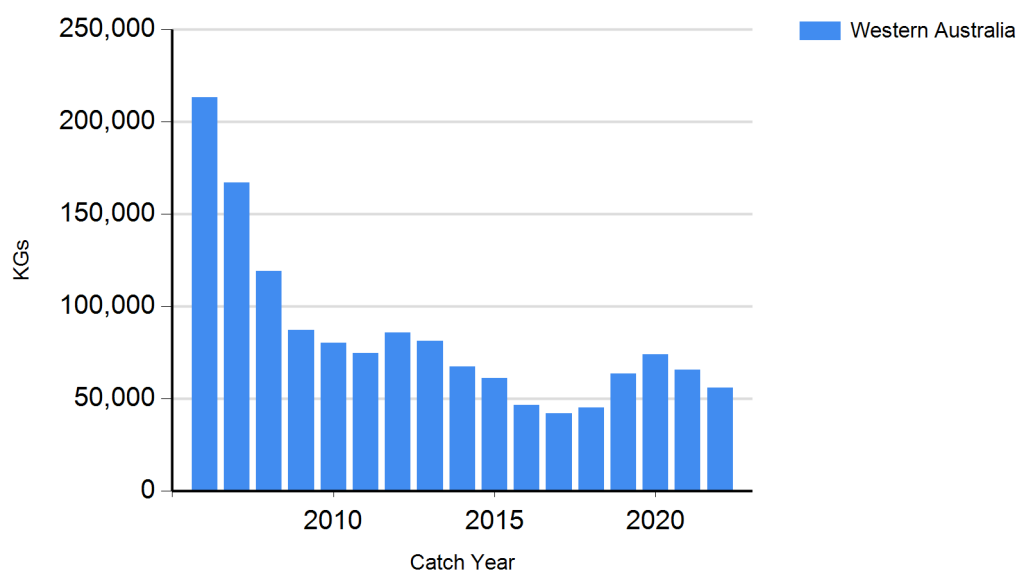
Western Australia – Commercial/Charter catches reported by calendar year.

Western Australia – Indigenous Subject to the defence that applies under Section 211 of the *Native Title Act 1993* (Cth), and the exemption from a requirement to hold a recreational fishing licence, the non-commercial take by Indigenous fishers is covered by the same arrangements as that for recreational fishing.

Western Australia – Recreational. Boat-based catches from 1 September 2020 to 31 August 2021.

CATCH CHART

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Commercial catch of West Australian Dhufish - note confidential catch not shown

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