

# West Australian Dhufish (2018)

*Glaucosoma hebraicum*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	Western Australia	FBLC74, FBLC74    JASDGLMF    WCDGLIMF    WCDSIMF    WL (SC), JASDGLMF, WCDGLIMF, WCDSIMF, WL (SC)	Recovering	Catch, fishing mortality, spawning potential ratio

JASDGLMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2) (WA), WCDGLIMF West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery (WA), WCDSIMF West Coast Demersal Scalefish (Interim) Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA), FBLC74 Fishing Boat Licence Conditions (WA), FBLC74 || JASDGLMF || WCDGLIMF || WCDSIMF || WL (SC) Various Fisheries combined due to 3 boat rule (WA)

## 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

Assessments completed in 2007 and 2009 demonstrated that fishing mortality ( $F$ ) rates for the Western Australia biological stock exceeded the limit reference point of 1.5 times natural mortality ( $M$ ) indicating this species may have been experiencing recruitment overfishing [Fairclough et al. 2009, O'Neill 2009, Wise et al. 2007]. Significant changes to the management of both the commercial and recreational sectors in the WCB were introduced between late-2007 and early-2010. These were designed to reduce retained catches in each sector by at least 50 per cent of 2005–06 levels to allow recovery of stocks, such that fishing

mortality rates would fall below the threshold level of  $F = M$ . These 50 per cent catch reduction levels equate to 82 tonnes (t) and 126 t for the commercial and recreational sectors, respectively. An assessment of West Australian Dhufish based on age structure data collected in 2008–09 to 2010–11, overlapping the period of management change, indicated that at that time  $F$  estimates were still around or above the limit, while the spawning potential ratio ( $SPR$ ) was between the limit and threshold [Fairclough et al. 2014].

Annual catches of West Australian Dhufish by the West Coast Demersal Scalefish Interim Managed Fishery (WCDSIMF) in the WCB have remained below 50 per cent of 2005–06 catch levels since 2009 [Fairclough et al., 2018], when effort limitations for this managed fishery commenced. Total commercial catches in the WCB have also been close to or below the benchmark of 82 t since 2009 and total commercial catches at the stock level in 2017 were 44 t. The decline in commercial catch in recent years is a result of reductions in effort entitlements of the WCDSIMF and unit entitlements of the WCDGDLIMF to limit catches of Snapper in the West Coast of Western Australia stock to its recovery benchmarks. Recreational sector catches in the WCB (based on biannual estimates of catch by recreational boat-based fishers [Ryan et al. 2017], plus annual charter catch estimates) have remained around or below the benchmark of 126 t since management changes were completed in early-2010. The most recent catch range estimate in the WCB in 2015–16 was 127 t (boat-based fishing 113 t, 95 per cent confidence interval = 97–129 t; charter fishing point estimate = 14 t) [Fairclough et al. 2018].

The most recent unpublished assessment from 2017 (based on 2012–13 to 2014–15 data) indicated that the estimated  $F$  of 0.21 year<sup>-1</sup> remained above the limit reference point of 1.5 $M$  (0.165 year<sup>-1</sup>) and thus well above the threshold, and the  $SPR$  (0.15) was below the limit of  $SPR = 0.2$  [Department of Primary Industries and Regional Development, unpublished data]. As that assessment was based on age composition data collected just after management changes were completed, it was not expected to demonstrate significant change, given the biological characteristics of West Australian Dhufish, for example, being long-lived [Hesp et al. 2002], and the likelihood that recovery would take ~20 years [Wise et al. 2007]. The above evidence indicates that the biomass of this stock is likely to be depleted and that recruitment is likely to be impaired. However, using a method that takes into account a change in  $F$  as a result of management change [Fisher 2013], estimated  $F$  for age classes recruited to the fishery after management changes commenced in 2008 were lower than for age classes recruited to the fishery prior to management changes (i.e.  $F = 0.13$  vs 0.27), indicating recovery had commenced [Department of Primary Industries and Regional Development, unpublished data]. The above evidence indicates that the current level of fishing mortality should allow the stock to recover from its recruitment impaired state.

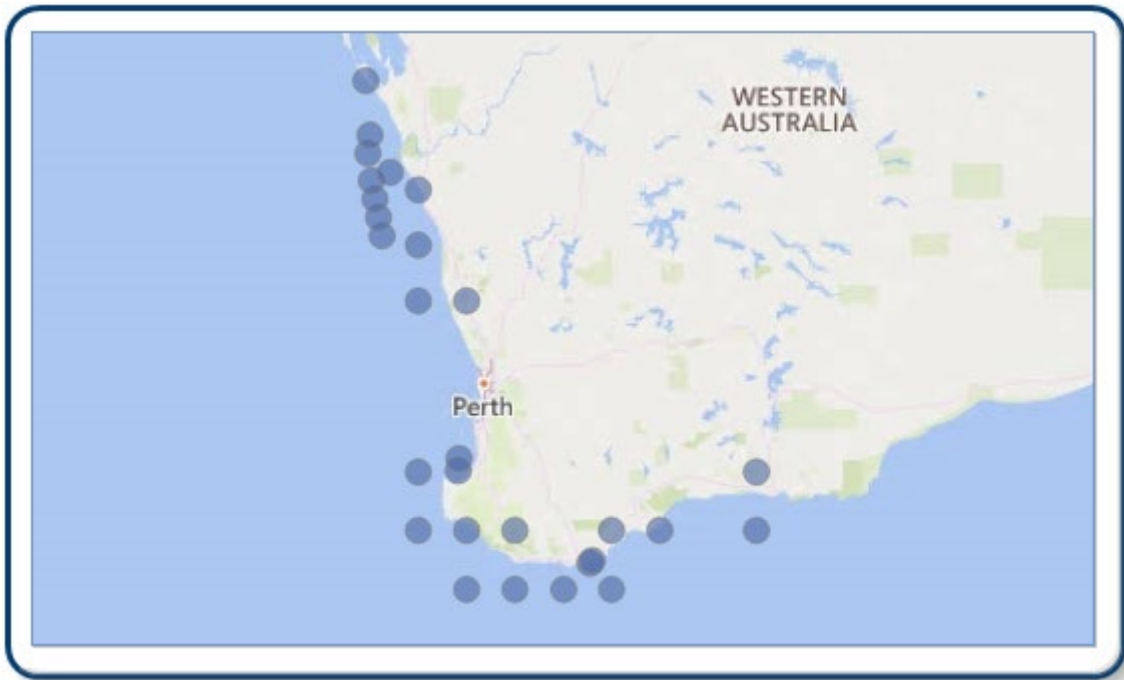
On the basis of the evidence provided above, the Western Australia biological stock is classified as a **recovering stock**.

## BIOLOGY

**West Australian Dhufish biology** [Hesp et al. 2002, Smallwood et al. 2013]

Species	Longevity / Maximum Size	Maturity (50 per cent)
West Australian Dhufish	~41 years, ~1 220 mm TL	~3 years Females ~300 mm TL Males ~320 mm TL

## DISTRIBUTION



Distribution of reported commercial catch of West Australian Dhufish

**TABLES**

<b>Commercial Catch Methods</b>	<b>Western Australia</b>
Dropline	✓
Fish Trap	✓
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Hook and Line	✓
Longline (Unspecified)	✓
Traps and Pots	✓
Unspecified	✓

<b>Fishing methods</b>	
	<b>Western Australia</b>
<b>Commercial</b>	
Dropline	✓
Fish Trap	✓
Gillnet	✓
Hand Line, Hand Reel or Powered Reels	✓
Hook and Line	✓
Longline (Unspecified)	✓

Unspecified	✓
<b>Indigenous</b>	
Hook and Line	✓
Spearfishing	✓
Traditional apparatus	✓
<b>Recreational</b>	
Hook and Line	✓
Spearfishing	✓
<b>Management Methods</b>	
	<b>Western Australia</b>
<b>Charter</b>	
Bag limits	✓
Boat limits	✓
Gear restrictions	✓
Licence	✓
Marine park closures	✓
Passenger restrictions	✓
Possession limit	✓
Size limit	✓
Spatial zoning	✓
Temporal closures	✓
<b>Commercial</b>	
Effort limits	✓
Gear restrictions	✓
Limited entry	✓
Size limit	✓
Spatial closures	✓
Vessel restrictions	✓
<b>Indigenous</b>	
Bag limits	✓
Boat limits	✓
Gear restrictions	✓
Possession limit	✓

Size limit	✓
Temporal closures	✓
<b>Recreational</b>	
Bag limits	✓
Boat limits	✓
Gear restrictions	✓
Licence (boat-based sector)	✓
Marine park closures	✓
Possession limit	✓
Size limit	✓
Spatial zoning	✓
Temporal closures	✓

<b>Active Vessels</b>	
	<b>Western Australia</b>
	9 in JASDGLMF, 5 in WCDGLIMF, 40 in WCDSIMF, 33 in WL (SC), 52 in Charter, &lt;3 in FBLC74,

**JASDGLMF** Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2)(WA)

**WCDGLIMF** West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery(WA)

**WCDSIMF** West Coast Demersal Scalefish (Interim) Managed Fishery(WA)

**WL (SC)** Open Access in the South Coast(WA)

**Charter** Tour Operator(WA)

**FBLC74** Fishing Boat Licence Conditions(WA)

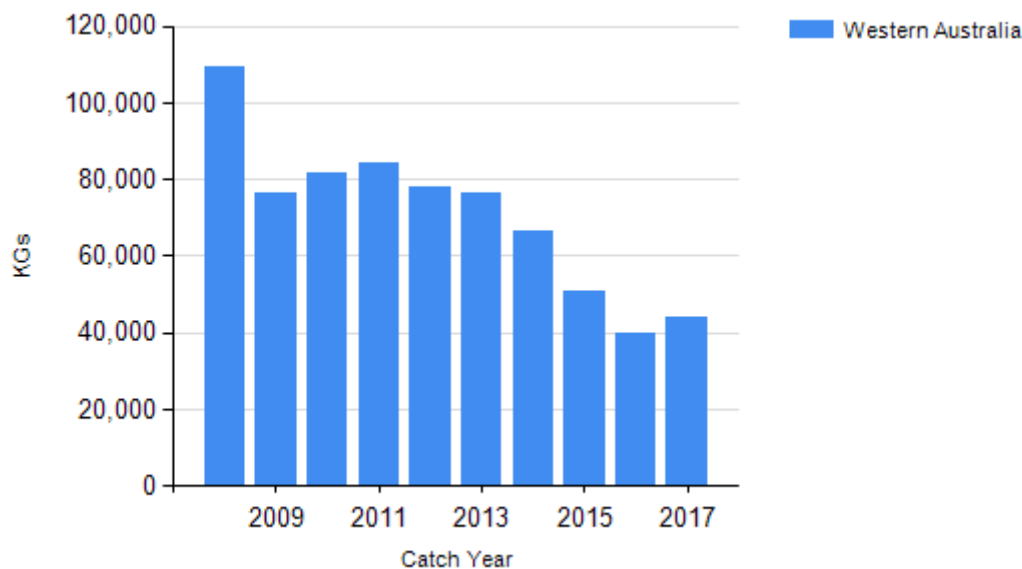
<b>Catch</b>	
	<b>Western Australia</b>
<b>Charter</b>	13.29 t in Tour Operator
<b>Commercial</b>	44.0353t in FBLC74    JASDGLMF    WCDGLIMF    WCDSIMF    WL (SC),
<b>Indigenous</b>	Unknown
<b>Recreational</b>	113 t (±16 t se;

2015–16)

JASDGDLMF Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery (Zone 1 & Zone 2) (WA), WCDGDLIMF West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery (WA), WCDSIMF West Coast Demersal Scalefish (Interim) Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA), FBLC74 Fishing Boat Licence Conditions (WA), FBLC74 || JASDGDLMF || WCDGDLIMF || WCDSIMF || WL (SC) Various Fisheries combined due to 3 boat rule (WA),

**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 – Commercial (catch)** (a) The GDSMF fishing season runs from 1 September–31 August; (b) The JASDGDLMF and WCDGDLIMF fishing seasons run from 1 June–31 May; (c) The WCDSIMF runs from 1 January–31 December; and (d) The WL(SC) fishery runs from 1 January–31 December.

## CATCH CHART



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

## EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

### ENVIRONMENTAL EFFECTS on West Australian Dhufish

References	
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