

# West Australian Dhufish (2016)

*Glaucosoma hebraicum*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	Western Australia	GDSMF, JASDGLMF, WCDGLIMF, WCDSIMF, WL (SC)	Transitional-recovering	Catch, fishing mortality

GDSMF Gascoyne Demersal Scalefish Managed Fishery (WA), 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)

## 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 between 26°30′S latitude and 115°30′E longitude[1,2].

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

## STOCK STATUS

**Western Australia** Assessments completed in 2007 and 2009 demonstrated that fishing mortality ( $F$ ) rates for the Western Australian biological stock exceeded the limit reference point of 1.5 times natural mortality ( $M$ )[3,4]. Significant changes to the management of both the commercial and recreational sectors in the West Coast Bioregion (WCB) were introduced between late-2007 and early-2010. These were designed to reduce catches in each sector by at least 50 per cent of 2005–06 levels to achieve a reduction in fishing mortality rates to below the threshold level of  $F = M$  and enable recovery of stocks. These 50 per cent catch reduction levels equate to 82 tonnes (t) and 126 t for the commercial and recreational sectors, respectively.

Annual catches of West Australian Dhufish by the West Coast Demersal Scalefish Interim Managed Fishery in the WCB have remained below 50 per cent of 2005–06 catch levels since 2008, when this managed fishery commenced. Total

commercial catches have been close to, or below, the benchmark of 82 t since 2009. The same is true for the estimated annual catches of the recreational sector (based on biannual estimates of catch by recreational boat-based fishers[5] plus annual charter catch estimates) since the suite of management changes were implemented in early-2010. The most recent assessment in 2014 (based on 2008–09 to 2010–11 data) indicated a decrease in fishing mortality from the previous period (2005–06 to 2007–08)[6]. However,  $F$  remained at or slightly above the limit reference point of  $1.5M$  or  $0.165 \text{ year}^{-1}$  and thus still well above the threshold. The above-mentioned trends in catch and fishing mortality indicate that the current level of fishing pressure should allow the stock to recover from its recruitment overfished state.

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

## BIOLOGY

West Australian Dhufish biology[7,8]

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

## DISTRIBUTION



Distribution of reported commercial catch of West Australian Dhufish

## TABLES

Commercial Catch Methods	Western Australia
Various	✓

<b>Fishing methods</b>	
	<b>Western Australia</b>
<b>Commercial</b>	
Various	✓
<b>Indigenous</b>	
Hand Line, Hand Reel or Powered Reels	✓
Spearfishing	✓
Traditional apparatus	✓
<b>Recreational</b>	
Hand Line, Hand Reel or Powered Reels	✓
Spearfishing	✓
<b>Management Methods</b>	
	<b>Western Australia</b>
<b>Commercial</b>	
Catch limits	✓
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	✓
Spatial closures	✓
Temporal closures	✓

Recreational	
Bag limits	✓
Boat limits	✓
Gear restrictions	✓
Licence	✓
Limited entry	✓
Passenger restrictions	✓
Possession limit	✓
Size limit	✓
Spatial closures	✓
Spatial zoning	✓
Temporal closures	✓

Active Vessels	
Western Australia	
	16 Vessel in GDSMF, 21 Vessel in JASDGLMF, 5 Vessel in WCDGLIMF, 37 Vessel in WCDSCMF, 69 Vessel in WL (SC),

**GDSMF** Gascoyne Demersal Scalefish Managed Fishery(WA)

**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)

**WCDSCMF** West Coast Deep Sea Crustacean Managed Fishery(WA)

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

Catch	
Western Australia	
Commercial	0.0163t in GDSMF, 8.54026t in JASDGLMF, 5.20227t in WCDGLIMF, 35.1742t in WCDSIMF, 1.462t in WL (SC),

<b>Indigenous</b>	Unknown
<b>Recreational</b>	14 t (2014–15)

GDSMF Gascoyne Demersal Scalefish Managed Fishery (WA), 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),

**a 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.

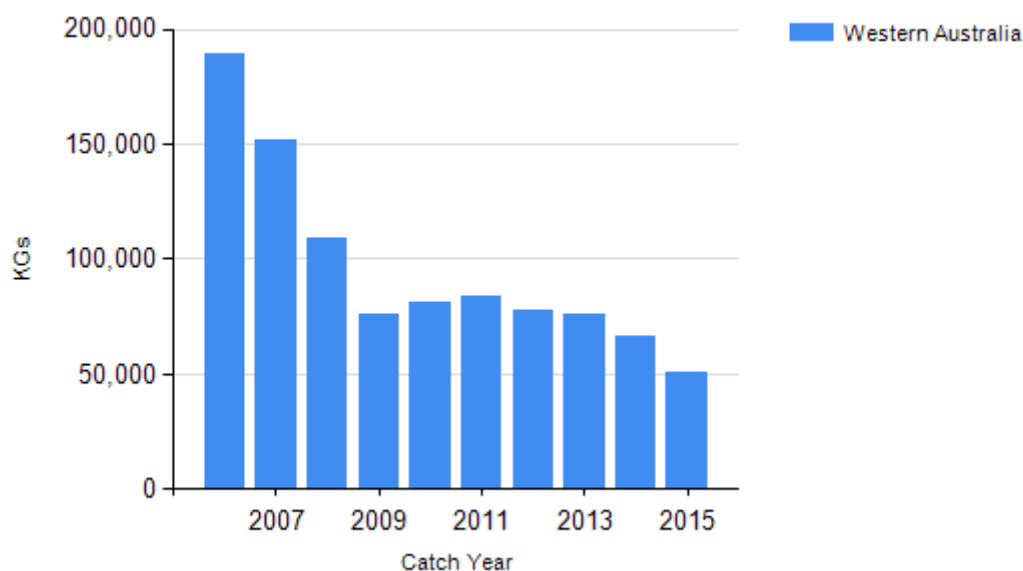
**b Western Australia – Commercial (catch)** The GDSMF fishing season runs from 1 September–31 August.

**c Western Australia – Commercial (catch)** The JASDGDLMF and WCDGDLIMF fishing seasons run from 1 June–31 May.

**d Western Australia – Commercial (catch)** The WCDSIMF runs from from 1 January–31

December.**e Western Australia – Commercial (catch)** The WL(SC) fishery runs from 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

- Line fishing—the main fishing method used in the commercial and recreational fishery for West Australian Dhufish—has little physical impact on the benthic environment and hence negligible risk to benthic habitats.
- A Fisheries Research and Development Corporation study[9] examined the past 30 years of catch data by commercial wetline, gillnet and longline fisheries in the West Coast Bioregion and found that the species composition in catches had changed over time. This may be a function of changes in targeting or differences in reporting methods but there was no evidence of a decline in the trophic level or mean size in catches representing a low risk to the ecosystem.

## ENVIRONMENTAL EFFECTS on West Australian Dhufish

- Recruitment success of West Australian Dhufish varies, with likely associations with temporal variation in environmental factors such as water temperature, currents and

- food supply, which would affect relative abundance and future catch rates[3,6,10].
- Climate change effects (for example increased water temperatures, acidification) could influence aspects of the biology of West Australian Dhufish, such as spawning success and recruitment patterns[11]. Extreme events, such as the marine heatwave in 2010–11[12,13], may have severe negative effects, including mortalities.

References	
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