

Western Yellowfin Bream (2023)

Acanthopagrus morrisoni



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Sustainable	Catch, catch rate, biomass, fishing mortality

STOCK STRUCTURE

Western yellowfin bream (*Acanthopagrus morrisoni*) is found throughout the Indo-Pacific region (Allen 1997). The species is distinct from *A. latus* (based on Iwatsuki 2013) and endemic to Western Australia where it is distributed throughout coastal waters of northwest Western Australia down to the Abrolhos-Geraldton region. While stock structure and connectivity has not been investigated, the level of mixing between Shark Bay, where the most important fishery for the species operates, and other areas of north-western WA are likely to be extremely low. On this basis, Western yellowfin bream is assessed and managed as a single management unit in Shark Bay.

STOCK STATUS

Western Australia

A recent stock assessment of Western Yellowfin Bream in Shark Bay used state space biomass dynamics models (JABBA, SPiCT) fitted to annual catch (1956–2022) and standardised catch rate (1975–2022) to estimate biomass (B) and fishing mortality (F) (DPIRD unpublished). Results indicated that Western Yellowfin Bream has recovered from early historical overfishing with both biomass dynamics models yielding similar results: current biomass (B/B_{msy} JABBA: 1.35 (95% CL 0.57–2.43), SPiCT: 1.26 (95% CL 0.58–2.71)) i.e., above B_{msy}, and the associated estimates of fishing mortality (F/F_{msy} JABBA: 0.63 (95% CL 0.25–1.37), SPiCT: 0.69 (95% CL 0.32–1.46)) remaining below

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Fmsy since the early 1960s. Since the mid-2000s, catches have typically been below estimates of MSY. A Catch-MSY analysis yielded a prediction for MSY (26 t) that was slightly higher than those from the two biomass dynamics models (JABBA: 20 t, SPiCT: 18 t). An abundance-MSY analysis, applied to standardised catch-rate data (1975–2022), yielded results consistent with outputs from the biomass dynamics models for the same period ($B/B_{msy} = 1.34$ (95% CL 0.78–1.99), $F/F_{msy} = 0.57$ (95% CL 0.25–0.94)). A historical assessment, based on mortality estimates from a catch curve analysis applied to commercial age composition data from 1999–2001 (Hall et al. 2004) yielded results consistent with outputs from the biomass dynamics models for that period. Estimates for fishing mortality from catch curve analysis and biomass dynamics models were similarly low. The above evidence indicates that the biomass of this management unit is unlikely to be depleted and that recruitment is unlikely to be impaired.

The commercial catch in Shark Bay in 2022 was 16 tonnes (t) with the recreational catch assumed to be around 1–2 t only. While there are no formal catch limits in place, catches in recent years have fluctuated within the historic range of 10–25 t and are unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Western Yellowfin Bream in Shark Bay is classified as a **sustainable stock**.

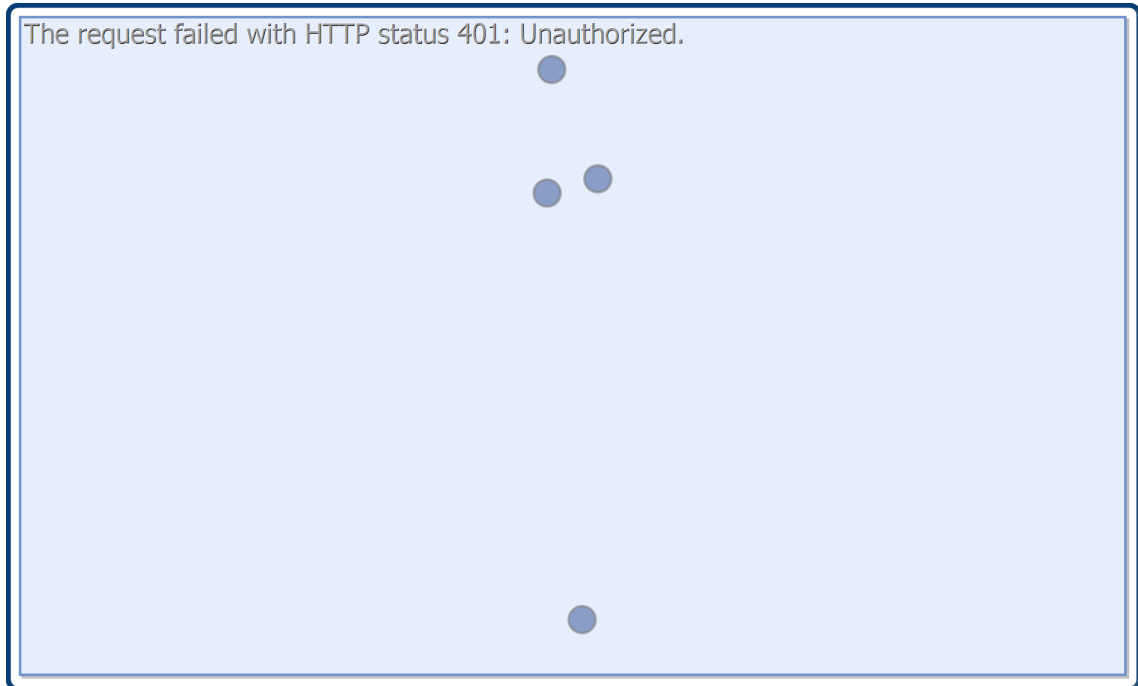
BIOLOGY

Western yellowfin bream biology [Hall et al. 2004; Hesp 2003; Hesp et al. 2004]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Western Yellowfin Bream	25 years, 466 mm (TL)	Protandrous hermaphrodite - L50 males 245 mm (TL), A50 1.75 years 50% change to females at 348 mm (TL), A50 4.78 years

DISTRIBUTION

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Distribution of reported commercial catch of Western yellowfin bream

TABLES

Fishing methods	
	Western Australia
Charter	
Rod and reel	✓
Commercial	
Beach Seine	✓
Hand Line, Hand Reel or Powered Reels	✓
Haul Seine	✓
Recreational	
Rod and reel	✓

Management Methods	
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Commercial	
Gear restrictions	✓

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Limited entry (licensing)	✓
Size limit	✓
Recreational	
Bag/boat limits	✓
Gear restrictions	✓
General recreational licence or fishing boat licence (not species specific)	✓
Size limit	✓

Catch	
	Western Australia
Commercial	24.4018 t
Recreational	1.0

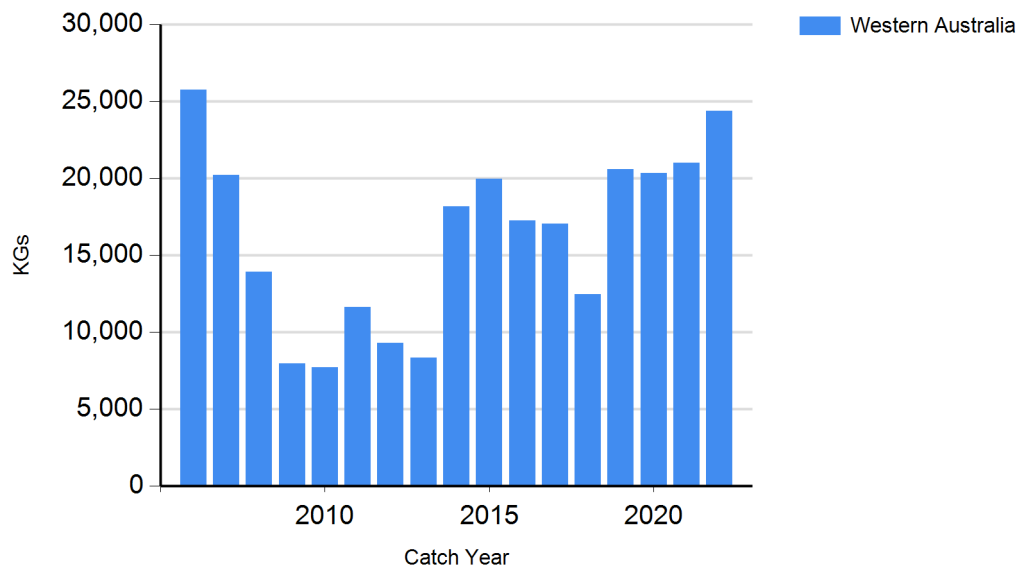
Western Australia – Commercial/Charter catches reported by calendar year.

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 Western yellowfin bream

References	
Hall et al. 2004	Hall, NG, Hesp, SA and Potter, IC 2004, A Bayesian approach for overcoming inconsistencies in mortality estimates using, as an example, data for <i>Acanthopagrus latus</i> . <i>Can. J. Fish. Aquat. Sci.</i> 61, 1202-1211.
Hesp 2003	Hesp, SA 2003, Biology of two species of sparid on the west coast of Australia. PhD thesis, Murdoch University, Perth WA, 216pp.
Iwatsuki 2013	Iwatsuki, Y 2013, Review of the <i>Acanthopagrus latus</i> complex (Perciformes: Sparidae) with descriptions of three new species from the Indo-West Pacific Ocean. <i>Journal of Fish Biology.</i> 83 (1): 64-95.
Hesp et al. 2004	Hesp, A, Potter, I and Hall, N 2004, Reproductive Biology and Protandrous Hermaphroditism in <i>Acanthopagrus latus</i> , <i>Environmental Biology of Fishes</i> , 70. 257-272.
Allen 1997	Allen, GR 1997, <i>Marine Fishes of Tropical Australia and SE Asia</i>