

# Blue Grenadier (2020)

*Macruronus novaezelandiae*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Commonwealth	Commonwealth Trawl Sector	Sustainable	Spawning stock biomass, current and historical fishing pressure
Commonwealth	Great Australian Bight Trawl Sector	Sustainable	Current and historical fishing pressure

## STOCK STRUCTURE

Comparative analysis of otolith chemistry and shape indicates two biological stocks of Blue Grenadier: one in the region of the Commonwealth Trawl Sector (CTS) of the Southern and Eastern Scalefish and Shark Fishery (SESSF), and the other in the region of the Commonwealth Great Australian Bight Trawl Sector (GABTS) of the SESSF [Hamer et al. 2009]. There is some evidence that Blue Grenadier from the western Tasmanian and eastern Bass Strait regions of the SESSF (CTS) may constitute separate sub-stocks, but these are currently assessed and managed as a single Commonwealth Trawl Sector stock [Morison et al. 2013].

Here, assessment of stock status is presented at the biological stock level—Commonwealth Trawl Sector (Commonwealth) and Great Australian Bight Trawl Sector (Commonwealth).

## STOCK STATUS

**Commonwealth Trawl Sector** Blue Grenadier in the Commonwealth Trawl Sector (CTS) of the Southern and Eastern Scalefish and Shark Fishery (SESSF)(Commonwealth) is managed under a multiyear total allowable catch (TAC).

Blue Grenadier in the CTS is managed as a Tier 1 stock under the SESSF Harvest Strategy Framework [AFMA 2019]. The 2018 Tier 1 stock assessment [Castillo-Jordan and Tuck 2018] informed the management of the stock for the 2019–20 fishing season.

The 2018 assessment (Castillo-Jordán and Tuck 2018) estimated the spawning stock biomass at the start of 2018 to be 83% (0.83SB0), which

was above the target reference point of 48% (0.48SB0). The biomass was estimated to have increased in recent years because of above-average recruitment between 2010 and 2014. This led to an RBC of 13,260 t for the 2019–20 fishing season. The stock is therefore unlikely to be depleted and recruitment is unlikely to be impaired.

Commonwealth landed catch in the CTS was 7,037.4 t in the 2019–20 fishing season (1,804 t in 2018–19 fishing season). Discards have been estimated to be 540.1 t based on the weighted average of the previous four calendar years (2015 to 2018) [Burch et al. 2019]. When estimated discards are combined with CTS landed catch for 2019–20, the total fishing mortality is below 13,260 t. This level of fishing pressure is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, the CTS (Commonwealth) biological stock is classified as a **sustainable stock**.

**Great Australian Bight Trawl Sector**

There have been no stock assessments for Blue Grenadier in the Great Australian Bight Trawl Sector (GABTS) of the Southern and Eastern Scalefish and Shark Fishery (SESSF) (Commonwealth). There are three catch triggers in place under the SESSF Harvest Strategy Framework [AFMA 2019]. The first is a trigger of 400 t and if this is exceeded, data collection and the development of an assessment plan are required. The second is a trigger of 500 t, which if exceeded in a single year leads to a cessation of fishing. Furthermore, an acoustic survey is triggered if a spawning aggregation is found. The final is a trigger of 1,000 t caught over a three-year period, resulting in a stock assessment being undertaken.

Blue Grenadier in the GABTS was historically caught on the upper continental slope (around 200–700 m depth). Fishing effort on the Great Australian Bight continental slope has decreased since 2005, with commercial catches of Blue Grenadier reducing from a peak catch of 423 t in 2005–06 to 23.4 t in the 2018–19 financial year. There are large areas of slope habitat across the Great Australian Bight and Western Australia, with fishing generally limited to a small area [Pitcher et al. 2018]. It is therefore likely that parts of this biological stock remain unfished.

The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Furthermore, the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, the Great Australian Bight Trawl Sector (Commonwealth) biological stock is classified as a **sustainable stock**.

**BIOLOGY**

**Blue Grenadier biology** [Hamer et al. 2009, Tuck and Punt 2006]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue Grenadier	25 years, 1 100 mm TL, weight 6 kg	4–5 years, females 640 mm TL, males 570 mm TL

**DISTRIBUTION**



Distribution of reported commercial catch of Blue Grenadier

**TABLES**

<b>Fishing methods</b>	
	<b>Commonwealth</b>
<b>Commercial</b>	
Danish Seine	✓
Midwater Trawl	✓
Otter Trawl	✓
<b>Recreational</b>	
Handline	✓

<b>Management Methods</b>	
	<b>Commonwealth</b>
<b>Commercial</b>	
Gear restrictions	✓
Limited entry	✓
Marine park closures	✓
Spatial closures	✓
Total allowable catch	✓

Trigger limits	✓
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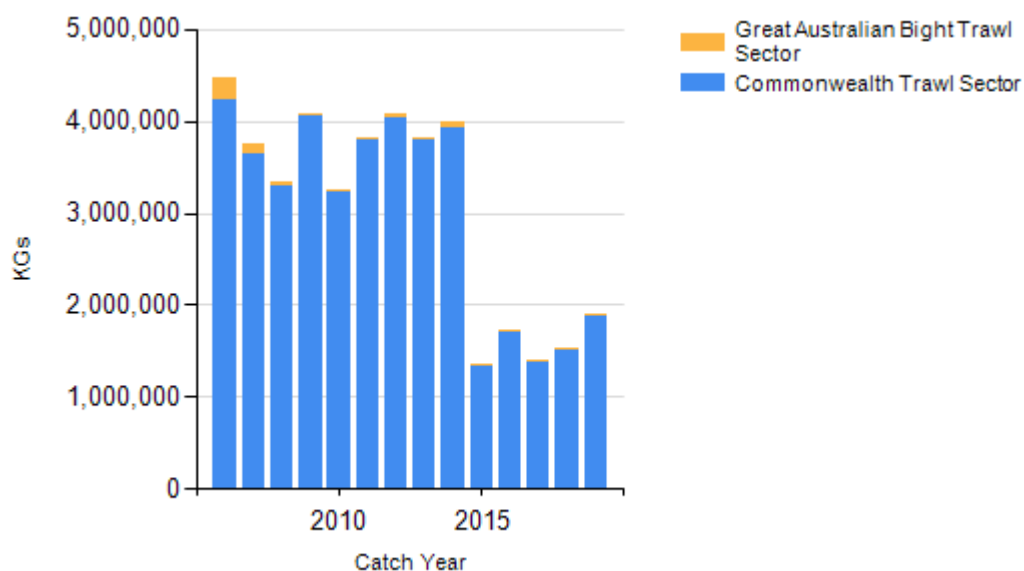
Catch	
	Commonwealth
Commercial	1911.98 t

**Commonwealth – Commercial (Management Methods/Catch)** Data provided for the Commonwealth align with the Commonwealth Southern and Eastern Scalefish and Shark Fishery for the 2018-19 financial year.

**Commonwealth – Recreational** The Commonwealth does not manage recreational fishing in Commonwealth waters. Recreational fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters, under its management regulations.

**Commonwealth – Indigenous** The Australian government does not manage non-commercial Indigenous fishing in Commonwealth waters, with the exception of Torres Strait. In general, non-commercial Indigenous fishing in Commonwealth waters is managed by the state or territory immediately adjacent to those waters.

### CATCH CHART



Commercial catch of Blue Grenadier - note confidential catch not shown

References	
Hamer et al. 2009	Hamer, P, Kemp, J, Robertson, S and Hindell, J 2009, Use of otolith chemistry and shape to assess the stock structure of Blue Grenadier ( <i>Macruronus novaezelandiae</i> ) in the Commonwealth Trawl and Great Australian Bight fisheries, final report to the Fisheries Research and Development Corporation, project 2007/030, Fisheries Research Branch, Queensland.
Morison et al. 2013	Morison, AK, Knuckey, IA, Simpfendorfer, CA and Buckworth, RC 2013, South East Scalefish and Shark Fishery 2012 stock assessment summaries for species assessed by GABRAG, ShelfRAG and Slope/DeepRAG, report for the Australian Fisheries Management Authority,

	January 2013.
Pitcher et al. 2018	Pitcher, CR, Rochester, W, Dunning, M, Courtney, T, Broadhurst, M, Noell, C, Tanner, J, Kangas, M, Newman, S, Semmens, J, Rigby, C, Saunders T, Martin, J and Lussier, W 2018, Putting potential environmental risk of Australia's trawl fisheries in landscape perspective: exposure of seabed assemblages to trawling, and inclusion in closures and reserves / FRDC project; no. 2016/039, FRDC.
Castillo-Jordán and Tuck, 2018	Castillo-Jordán, C & Tuck, G 2018, Blue grenadier ( <i>Macrurus novaezelandiae</i> ) stock assessment based on data up to 2017, CSIRO Oceans and Atmosphere, Hobart.
AFMA, 2019	AFMA 2019, Harvest strategy framework for the Southern and Eastern Scalefish and Shark Fishery 2009 (amended 2019), Australian Fisheries Management Authority, Canberra.
Burch et al. 2019	Burch, P, Althaus, F & Thomson, R 2019, Southern and Eastern Scalefish and Shark Fishery (SESSF) catches and discards for TAC purposes using data until 2018, Prepared for the SERAG Meeting, 3-4 December 2019, Hobart, CSIRO Oceans and Atmosphere, Hobart, Tasmania.
Tuck and Punt, 2006	Tuck, G and Punt A, 2006, Updated stock assessment of blue grenadier <i>Macrurus novaezelandiae</i> based on data up to 2005: application of new base-case models, harvest control rules and decision analysis, CSIRO Marine and Atmospheric Research, Castray Esplanade, Hobart 7000.