Dusky Flathead (2023)

Platycephalus fuscus

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Queensland	Queensland	Sustainable	Stock assessment (age and length structured model), commercial catch and CPUE, length and age
New South Wales	New South Wales	Sustainable	Commercial catch and CPUE, and length frequency
Victoria	Victoria	Undefined	Commercial catch and CPUE, angler diary catch rates and length frequency

STOCK STRUCTURE

The biological stock structure of Dusky Flathead populations is unknown.

In the absence of information on biological stock boundaries, assessment of stock status is presented at the jurisdictional level—Queensland, New South Wales and Victoria.

STOCK STATUS

New South Wales

Dusky Flathead occur throughout estuaries and inshore areas of New South Wales, where they form a single stock, with at least some movements between estuaries; both during early life stages and as mature fish during their reproduction [Gray and Barnes 2015; Taylor et al. 2020; Broadhurst and Stewart 2021; Gray et al. 2022; Gray 2023]. The species is an important commercial and

recreational target throughout its entire New South Wales distribution.

During the past decade, commercial catches of Dusky Flathead in New South Wales have fluctuated at between 110 and 172 tonnes (t) per year, and with more than 95% of the total caught using mesh nets (gillnets). During the past five years, catches have remained fairly stable at approximately 120 t, after reducing from 152 t in 2016. The latter reduction was associated with substantially reduced effort, but an increase in the nominal catch rate by mesh netters [Broadhurst and Stewart 2021]. Further, the sizes of Dusky Flathead measured from commercial catches in 2017 were similar to those from the preceding decade, suggesting broad temporal consistency in the size composition of the stock [Broadhurst and Stewart 2021].

The most recent recreational harvest estimate was approximately 182 000 or 115 t during 2019–20 [Murphy et al. 2022]. This estimate was based on a survey of recreational fishing licence (RFL) households, which comprised at least one person with a long-term (one or three year) fishing licence, but also included other fishers within the household. Similar surveys of RFL households were done in 2013–14 and 2017–18, during which considerably more (approximately 481 000 and 304 000) Dusky Flathead were recreationally harvested, but the numbers were commensurate with greater effort [Murphy et al. 2020; West et al. 2015]. In addition to these retained catches, large numbers (up to 68% of the total catches) of Dusky Flathead were released at each period (minimum legal size is 36 cm TL, and fishers are allowed only one individual greater than 70 cm TL within a total daily bag limit of 10 fish). The weight of evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

There are no modelled estimates of mortality for Dusky Flathead in New South Wales, with efforts limited to estuary-specific assessments of natural mortality based on maximum age [Gray 2023]. But it is well established that the species has very high short-term survival after being released by anglers [91%; Butcher et al. 2008]. While their survival after discarding by mesh netters is much less [23%; Broadhurst et al. 2009], in the last decade, mandated changes to mesh-net configurations, including increases in mesh size [Broadhurst et al. 2003, 2009; Gray et al. 2005] have improved selectivity, and therefore reduced discard mortality. Escape mortalities remain unknown, but these are presumed to be minimal [Uhlmann and Broadhurst 2015]. Consequently, the fishing mortality on undersized Dusky Flathead in New South Wales is likely to be quite low. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

On the basis of the evidence provided above, Dusky Flathead in New South Wales is classified as a **sustainable stock.**

Queensland

In Queensland, approximately 77% of the annual harvest for Dusky Flathead is caught by hook and line within the recreational sector [Yang et al. 2022]. The remaining harvest is predominantly caught by the commercial sector using mesh nets (mainly tunnel and gillnets) within the East Coast Inshore Fishery (ECIF). Most of the harvest in Queensland occurs in shallow coastal and estuarine waters south of Baffle Creek.

The most recent stock assessment on the Queensland jurisdictional stock of Dusky Flathead (based on 2020 data) estimated the spawning biomass to be at 46% of unfished levels [Yang et al. 2022]. The latest combined commercial and recreational harvest estimate was approximately 135 t; consistent with the

harvest recommended to maintain the stock at a target level of 50% unfished biomass (138 t per year), though considerably lower than MSY (189 t) [Yang et al. 2022]. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

According to Queensland logbook data, nominal effort in the commercial sector for Dusky Flathead peaked in 2004-05 (6440 boat days) and has gradually declined in the subsequent years. Part of this decline can be attributed to spatial closures within key fishing grounds. In March 2009, the Moreton Bay Marine Park Zoning Plan (2008) converted 16% of previously fishable waters to no-take zones and closed a further 8% to net fishing (van de Geer et al. 2013). A series of subsequent license buybacks by the Government substantially reduced the number of net license holders targeting Dusky Flathead (a decrease of 143 net licenses between 2008 and 2022). The commercial harvest of Dusky Flathead peaked in 1989–90 (approximately 85 t), subsequently declining to a historical low of approximately 23 t in 2020– 21. This decline can be partly attributed to the concurrent reduction in effort over this period. In 2021– 22, the commercial harvest of Dusky Flathead was approximately 27 t; less than half the long-term historical average (1988–89 to 2021–22: approximately 58 t). According to statewide surveys, the recreational harvest for Dusky Flathead has been variable among years, but with no clear changes over the last 20 years [QDAF 2021].

Since 2007, the size and age composition of Dusky Flathead in commercial and recreational catches have been relatively stable [unpublished, QDAF 2023]. All available size classes within the size slot limit (40–75 cm TL) are represented in the harvest, though fish between 40 and 60 cm TL are most common [unpublished, QDAF 2023]. The minimum size limit protects most male Dusky Flathead which grow slower and attain smaller maximum sizes than females [Gray and Barnes 2015, Gray, 2023]. It has been estimated that between 10 and 20 % of the yearly egg production in Queensland is likely to come from fish protected by the maximum size limit [Pollock 2015]. The above evidence indicates that the current level of fishing pressure is unlikely to cause this stock to become recruitment impaired.

On the basis of the evidence provided above, Dusky Flathead in Queensland is classified as a **sustainable stock**.

Victoria

Until its recent closure, the Gippsland Lakes Fishery was the only remaining Victorian fishery to commercially harvest Dusky Flathead. Recreational anglers continue to catch the species in the Gippsland Lakes, and in various eastern Victorian estuaries. Catch information is only available for the Gippsland Lakes, Mallacoota Inlet, and Lake Tyers. This assessment uses evidence from those locations and applies the findings to the Victorian jurisdictional stock.

The impact of fishing pressure on stock biomass was evaluated using recreational CPUE and size composition data from fishers participating in an angler diary program [Conron and Oliveiro 2016]. The CPUE obtained from angler diarists showed a declining trend in Gippsland Lakes over almost two decades noting the low sample sizes and associated high uncertainty in the data [Bell et al. 2023]. A reduction in participation in the angler diary program has increased the uncertainty of angler diarist CPUE in recent years.

There is no direct measure of recreational fishing pressure for the Gippsland Lakes, Mallacoota Inlet and Lake Tyers estuarine systems. From 2003, slot size limit regulations and reduced bag limits were introduced in Victoria specifically for Dusky Flathead to ameliorate the risks of overfishing. The regulations have

been refined over time as more information became available, with the current regulations (minimum legal length 30 cm, maximum legal length 55 cm TL, daily bag limit of 5) being established in 2012 [Hamer et al. 2019].

On balance, insufficient information exists to confidently determine stock status. Recreational catch rates (CPUE) have stabilised since 2014, however, future trends are uncertain as there is a lack of reliable information of recent recruitment.

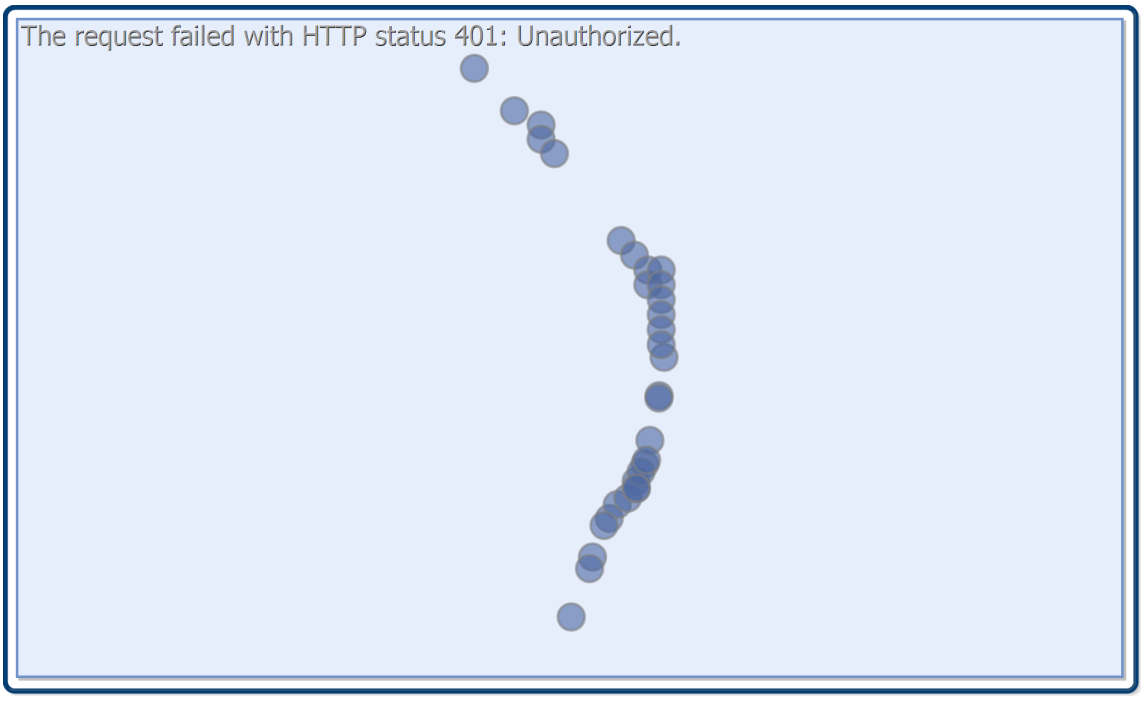
On the basis of the evidence provided above, Dusky Flathead in Victoria is classified as an **undefined stock**.

BIOLOGY

Dusky Flathead biology [Gray and Barnes 2015, Hicks et al. 2015, Kailola et al. 1993]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Dusky Flathead	Females: ≥ 16 years, 120 cm Total Length (TL); Males: ≥ 11 years, 62 cm TL	Females: 57 cm TL; Males: 32 cm TL

DISTRIBUTION



Distribution of reported commercial catch of Dusky Flathead

TABLES

Fishing methods			
	New South Wales	Queensland	Victoria
Charter			
Hook and Line	✓	✓	✓
Spearfishing		✓	
Commercial			
Line		✓	
Mesh Net	✓		
Net		✓	✓
Various	✓		
Recreational			
Hook and Line	✓	✓	✓
Spearfishing	✓	✓	

Management Methods			
	New South Wales	Queensland	Victoria
Charter			
Bag/possession limits		✓	
Fishing gear and method restrictions	✓		
Gear restrictions		✓	
In possession limits	✓		
Licence	✓		
Seasonal or spatial closures		✓	
Size limit	✓		
Size limits		✓	
Spatial closures	✓		
Commercial			
Gear restrictions	✓	✓	
Harvest Strategy		✓	

Limited entry	✓	✓	
Processing restrictions		✓	
Seasonal or spatial closures		✓	
Size limit	✓		
Size limits		✓	
Spatial closures	✓		
Temporal closures	✓		
Total allowable catch		✓	
Vessel restrictions		✓	
Recreational			
Bag and possession limits	✓		
Bag limits	✓		✓
Bag/possession limits		✓	
Fishing gear and method restrictions	✓		
Gear restrictions		✓	✓
Licence	✓		✓
Seasonal or spatial closures		✓	
Size limit	✓		✓
Size limits		✓	
Spatial closures	✓		

Catch			
	New South Wales	Queensland	Victoria
Commercial	110.765 t	26.3896 t	0 t
Indigenous	Unknown	Unknown	Unknown (No catch under permit)

Recreational	190 t (2017–18)	93 t (2019–20)	Unknown

Queensland – Indigenous (Management Methods). Please refer to https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing

Queensland – Commercial (Catch). QLD commercial and charter data have been sourced from the commercial fisheries logbook program. Further information is available from the Queensland Fisheries Summary Report https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/data/queensland-fisheries-summary-report

Queensland – Recreational Fishing (Catch). Data are based at the whole of Queensland level and derived from statewide recreational fishing surveys. Where possible, estimates have been converted to weight (tonnes) using best known conversion multipliers. Conversion factors may display regional or temporal variability. In the absence of an adequate conversion factor, data are presented as number of fish.

Queensland – Commercial (Management Methods). Harvest strategies are available at: https://www.daf.qld.gov.au/business-priorities/fisheries/sustainable/harvest-strategy

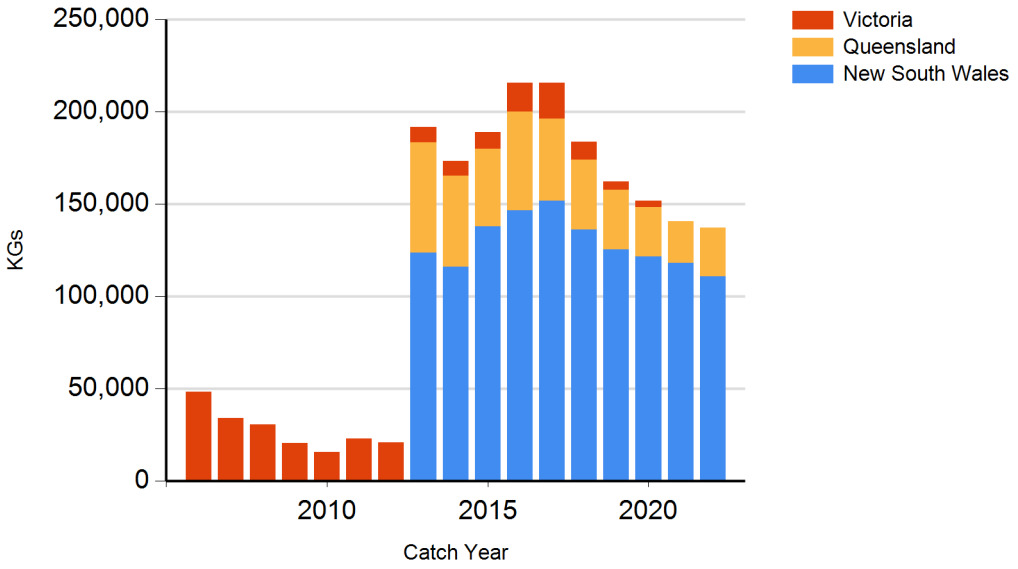
New South Wales – Recreational (Catch). Henry and Lyle [2003]; West et al. [2015]; Murphy et al. [2020; 2022].

New South Wales – Indigenous (management methods). https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing

Victoria – Indigenous (Management Methods). A person who identifies as Aboriginal or Torres Strait Islander is exempt from the need to obtain a Victorian recreational fishing licence, provided they comply with all other rules that apply to recreational fishers, including rules on equipment, catch limits, size limits and restricted areas. Traditional (non-commercial) fishing activities that are carried out by members of a traditional owner group entity under an agreement pursuant to Victoria's *Traditional Owner Settlement Act 2010* are also exempt from the need to hold a recreational fishing licence, subject to any conditions outlined in the agreement. Native title holders are also exempt from the need to obtain a recreational fishing licence under the provisions of the Commonwealth's *Native Title Act 1993*.

Victoria - Recreational fishing (Management Methods). A recreational fishing licence is required, and minimum and maximum legal sizes of 30 and 55 cm TL and a bag limit of 5 apply for Dusky Flathead. For further details see: **https://vfa.vic.gov.au/recreational-fishing/recreational-fishing-guide**

CATCH CHART



Commercial catch of Dusky Flathead - note confidential catch not shown

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