

Black Jewfish (2023)

Protonibea diacanthus



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Sustainable	Catch, indicator species status
Northern Territory	Darwin Region	Sustainable	Biomass, fishing mortality
Northern Territory	Regional Northern Territory	Sustainable	Biomass, fishing mortality
Northern Territory, Queensland	Gulf of Carpentaria	Undefined	Catch
Queensland	East Coast Queensland	Sustainable	Biomass, age structure, Stock Assessment (length-and-age population model)

STOCK STRUCTURE

Black Jewfish is a widespread Indo-Pacific species found from Exmouth Gulf in Western Australia, across Northern Australia to the central East Coast of Queensland. The stock structure for this species has been investigated across its entire Australian range. Recent research shows contrasting results in terms of the spatial extent of stocks based on different marker types. In the Northern Territory and Western Australia genetic markers suggested stock connectivity at spatial scales of 100s of kms, while parasites and otolith chemistry have indicated that stocks may exist at scales as low as 10s of kms [Porter et al. 2023; Randall et al. 2023; Saunders et al. 2016a; Taillebois et al. 2017]. In Queensland waters, recent tagging and population genetic analysis suggested stock connectivity over 100s of kms, fish moving up to 250km, and genetic stock structure of up to approximately 700km [Williams et al. 2023].

Genetic stock structure research also showed a shared biological stock is present across Queensland and Northern Territory waters within the Gulf of Carpentaria.

Here assessment of stock status is presented at the jurisdictional level—Western Australia, and at the management unit level—Darwin Region and Regional Northern Territory (Northern Territory); Gulf of Carpentaria (Northern Territory and Queensland) and Queensland East Coast.

STOCK STATUS

Darwin Region

This management unit is where the highest catches of Black Jewfish occur in the Northern Territory and is within an approximate radius of 300 km of Darwin. Black Jewfish is a targeted species of the Coastal Line Fishery, contributing 68% of the total harvest; the recreational fishing sector, contributing 21%; Fishing Tour Operators, contributing 5% and the rest comprising other commercial fisheries and an unknown Indigenous harvest. Given the fine-scale stock structure of this species in this region [Porter et al. 2023; Randall et al. 2023; Saunders et al. 2016a; Taillebois et al. 2017], it is likely that this management unit incorporates several populations. Consequently, the assessment has been driven by the populations that receive the highest harvest rates in this management unit and the assigned status can be assumed to be representative of these heavily-fished areas, with other less accessible areas being more lightly-fished. It is worth noting commercial catch quotas now apply for management areas within the Darwin Region (Channel Point, Mitchell Point and Point Stuart) to further safeguard these spatially separated populations.

A 2014 stock assessment using a Stock Reduction Analysis indicated that Black Jewfish were overfished, and that overfishing was occurring [Saunders et al. 2016b]. However, the most recent assessment using data up to 2019, indicates that current biomass has increased significantly to 93% of unfished levels [Saunders 2020a] suggesting that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired. While this biomass estimate is probably overly optimistic, there is evidence that strongly supports a significant increase in the abundance of Black Jewfish and the recovery of the stocks within this management unit. This includes successive years of above-average recruitment (indicated by the reduction in average length of monitored catches and an increase in the number of fish caught), a previous stock assessment indicating that the biomass had recovered to 50% of unfished levels [Penny et al. 2018] as well as the management measures (catch limits and area closures) introduced in 2015 that have reduced catches from the peaks that occurred in the mid-2000s [NTG 2017]. The model outputs also indicate the current fishing mortality is only 24% of that required to attain Maximum Sustainable Yield indicating that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired. However, it should be noted that the observable age structure of this population, when compared to recent evaluation of the east coast stock, provides some evidence that the Darwin population may be age truncated [Randall et al. 2023; Williams et al. 2023].

On the basis of the evidence provided above, Black Jewfish in the Darwin Region management unit is classified as a **sustainable stock**.

East Coast Queensland

Black Jewfish is harvested by commercial fishers (net and line) and recreational anglers on the Queensland east coast. Commercial catches have fluctuated over

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the last 20 years (average 26.8 tonnes (t), 2000–19), increasing to a peak of 136 t in 2018 due to the high value placed on Black Jewfish swim bladders on the export market. Concerns over rapid depletion of Black Jewfish stocks on the Queensland east coast led to the introduction of a 20 t Total Allowable Commercial Catch (TACC) on 1 January 2020. The TACC was applied to the commercial sector but has implications for recreational fishers, with take of the species becoming prohibited across sectors upon exhaustion of catch limits for the remainder of the quota season. In addition to the TACC, spatial closures were introduced as of 1 September 2019 to prohibit the take and possession of Black Jewfish in Dalrymple Bay and Hay Point, reducing fishing pressures on these key aggregation points.

A recent research project by Williams et al. [2023] evaluated the effect of periods of peak fishing pressure on the population biology of the Queensland east coast stock. The research found the East Coast population to have a higher maximum age that previously reported for the species (up to 15 years old) and a greater proportion of older fish than has been reported elsewhere for the species [Williams et al. 2023]. The age composition and observation of strong recruitment in the present study suggest that periods of increased fishing pressure on the East Coast were unlikely to have significantly impacted the health of the East Coast stock [Williams et al. 2023]. This information was combined with fishery data to inform a stock assessment which estimated the population to be at or above 56% biomass [Leigh et al. 2022]. The stock is not considered to be recruitment impaired, and the level of fishing mortality is unlikely to cause the stock to become recruitment impaired. The results of this work were used to inform management changes including an increase in the TACC to 54 t and recreational fishers being able to fish for the full season [Queensland Department of Agriculture and Fisheries 2023].

On the basis of the evidence provided above, the Queensland East Coast management unit is classified as a **sustainable stock**.

**Gulf of
Carpentaria**

In the Gulf of Carpentaria, Black Jewfish is taken by commercial trawl, net and line fishers as well as by recreational anglers and traditional indigenous fishers. Recent research highlighted that the gulf fishery encompasses a single shared genetic stock which extends as far as the top of Cape York Peninsula [Williams et al. 2023]. Black Jewfish was exposed to historical fishing from foreign fleets during the 1950s to the 1980s [O'Neill et al. 2011], however, these historical catches were relatively low (< 10 t).

In the Queensland portion of this management unit concerns over an increase in Black Jewfish targeting and catches due to the high value placed on Black Jewfish swim bladders led to the introduction of a 6 t TACC on 1 January 2020. The TACC is applied to the commercial sector but the fishery is yet to reach this limit. A limiting factor in the Queensland Gulf Commercial fishery not being able to catch the TACC is due to the current regulatory conditions (i.e. not allowing Black Jewfish to be line caught), rather than any lack of availability of fish. Prior to the TACC commercial harvest had averaged 8 t over the 2015–19 calendar year period and peaking at 13.5 t in 2016 in the Gulf of Carpentaria Inshore Fin Fish Fishery.

Black Jewfish are particularly vulnerable to fishing pressure due to their tendency to aggregate [Phelan 2008]. There is evidence that targeted fishing of Black Jewfish aggregations by traditional indigenous fishers in this management unit through the mid-late 1990s, while producing relatively low catches in absolute terms, was sufficient to significantly reduce abundance of large mature fish in the northern Cape York region [Phelan 2002]. The perceived overfishing

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of this aggregation area resulted in a two-year ban on fishing for Black Jewfish which was further extended as a permanent closure [Roelofs 2003]. No studies have been undertaken to measure recovery of this aggregation area, however, Williams et al. [2023] indicates that fishing does still occur but not at historical levels. The Northern Territory Demersal Fishery trawl fishery began increasing effort in 2012, resulting in higher levels of harvest of Black Jewfish in the western Gulf of Carpentaria. These catches are likely to be from the same stock as the Cape York aggregation so the impacts of this fishing activity may be connected. Additionally, while Black Jewfish are a popular recreational species in the Gulf of Carpentaria, there are no reliable estimates of recreational harvest [Roelofs 2003; Webley et al. 2015]. There is insufficient evidence to confidently classify the status of this management unit.

On the basis of the evidence provided above, Black Jewfish in the Gulf of Carpentaria management unit is classified as an **undefined stock**.

**Regional
Northern
Territory**

This management unit represents all Northern Territory waters outside the Darwin Region and Gulf of Carpentaria management units. Catch of Black Jewfish in this region is dominated by the finfish trawl vessels in the Demersal Fishery (DF). Additionally, foreign trawlers harvested substantial amounts (peak of 70 t) of Black Jewfish when they operated in this area in the 1970s and 1980s [Saunders 2020b]. Catches by the domestic trawlers have been significantly lower and for the period 2013 to 2022 averaged 6 t. Given the fine-scale stock structure of this species in the Darwin Region [Porter et al. 2023; Randall et al. 2023; Saunders et al. 2016a; Taillebois et al. 2017], it is likely that this management unit incorporates several populations. Consequently, the assessments will be driven by the populations that receive the highest harvest rates in this management unit and the assigned status can be assumed to be representative of these heavily-fished areas, with other less accessible areas being more lightly-fished.

An assessment was undertaken using catch data from all commercial fisheries to 2019 applied to a modified catch-MSY model (developed by Martell and Froese [2013] and modified by Haddon et al. [2018]). The results from the assessment indicate that the inferred biomass exceeded the target reference point, with the 95% confidence intervals positioned above the target [Saunders 2020a]. This indicates that the stock was unlikely to be depleted and that recruitment is unlikely to be impaired. Similarly, the fishing mortality in 2019 (7.5 t) was 0.04 which was well below the limit reference point indicating that the current level of fishing mortality was unlikely to cause the stock to become recruitment impaired. The average catch over the last 10 years has remained low (12 t) and although catch increased from 2019 (14 t in 2022) this harvest level remains well below the limit reference point.

On the basis of the evidence provided above, Black Jewfish in the Regional Northern Territory management unit is classified as a **sustainable stock**.

**Western
Australia**

Black Jewfish is caught primarily within the North Coast Nearshore and Estuarine Resource (NCNER) by the Kimberley Gillnet and Barramundi Managed Fishery (KGBMF) in small quantities as by-product. It is also caught in very small quantities as by-product in the Pilbara Fish Trawl Interim Managed Fishery, the Nickol Bay Prawn Managed Fishery, and the Pilbara Line Fishery. Black Jewfish is assessed primarily on the basis of the status of Barramundi and King Threadfin as indicator species [see Newman et al. 2018] for the NCNER. As these two species are classified as sustainable stocks in Western Australia. Given, the

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status of the indicator species, the level of risk associated with the sustainability of Black Jewfish in the NCNER is assessed as low. This assessment for Black Jewfish is also supported by predictions for biomass and harvest rate from a data-limited Catch-MSY assessment model, with catches compared periodically to a model prediction for maximum sustainable yield (MSY).

Catch levels for Black Jewfish across the NCNER over the last 10 years (2013–22) have ranged from 2.5–5.5 t, with a mean annual catch of 3.8 t. This is consistent with averages catches across the previous 10 years being 3.8 t. In recent years, overall commercial effort directed towards this species, and associated catches have declined, in part due to two commercial gillnet licenses being removed in 2013 from the Broome coast area of the fishery [Newman et al. 2022], along with closures to commercial gillnet fishing along the Pilbara coast and Eighty-mile beach in the mid-2000s. This large area of the fishery is thus now only exposed to recreational, charter, and indigenous fishing. Black Jewfish are mostly caught by commercial fishing, with the recreational and charter component of the total catch averaging approximately 34% in the past 10 years. The Catch-MSY model applied to data on annual catches for this species since 1976, indicate that since the early 2000s, annual catches have remained at or below the mean predicted value for MSY, which is consistent with the predicted values for biomass in recent years being above BMSY, and fishing mortality remaining below FMSY. However, it is important to recognise that Catch-MSY is a data-limited technique with relatively strong assumptions dependent on user inputs. For this assessment, these included specified ranges for initial depletion (0.8–0.975, based on assumed low catches pre-1976), final depletion (0.4–0.8, was based on the non-targeting nature and large closed areas within its distribution) and low resilience ($r=0.1–0.6$, noting that this species has a longevity of approximately 13 years). The above results for Black Jewfish and current status of the two indicator species for the NCNER indicates that the biomass of Black Jewfish is unlikely to be depleted and that the current level of fishing mortality is unlikely to be sufficiently high to cause this stock to become recruitment overfished.

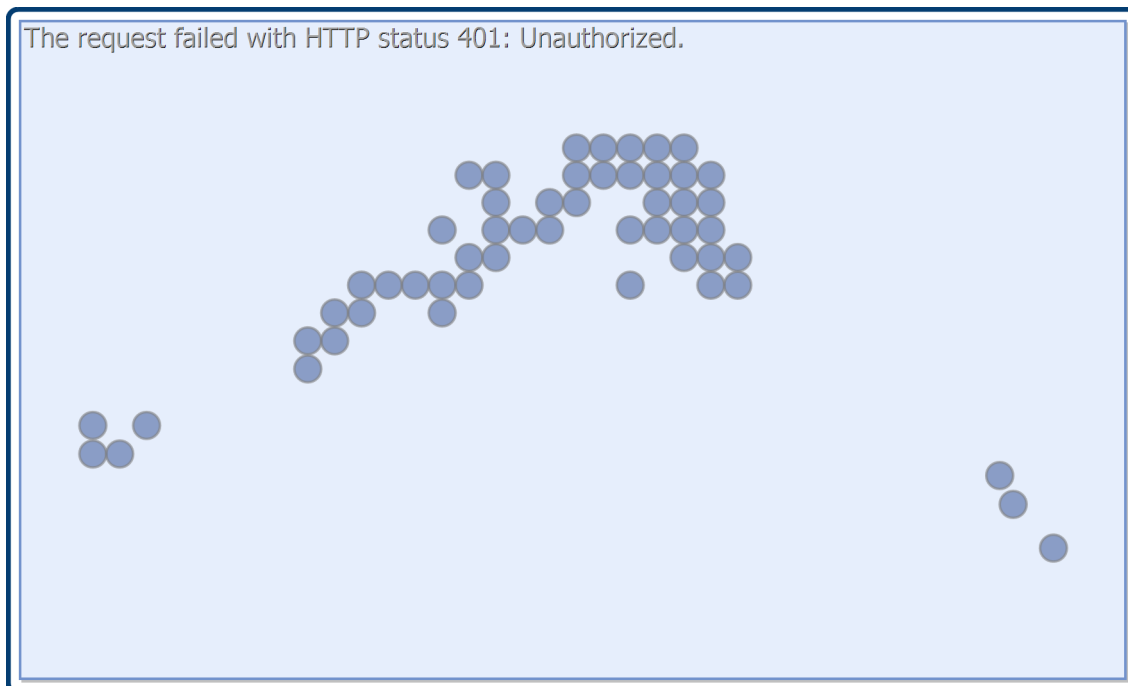
On the basis of the evidence provided above, Black Jewfish in Western Australia is classified as a **sustainable stock**.

BIOLOGY

Black Jewfish biology [Phelan 2002; Welch et al. 2014; Williams et al. 2023]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Black Jewfish	15 years, 1,500 mm TL, 30 kg	Northern Territory: 2 years, TL 890 mm Queensland: 2 years, TL 830 mm

DISTRIBUTION



Distribution of reported commercial catch of Black Jewfish. The Commercial Catch distribution of black jewfish in Queensland is limited by data confidentiality and management arrangements. As a result the map is not representative of the species distribution or catch distribution in Queensland

TABLES

Fishing methods	Northern Territory	Queensland	Western Australia
Charter			
Handline	✓		✓
Hook and Line	✓	✓	
Rod and reel			✓
Commercial			
Bottom Trawls	✓		
Fish Trap			✓
Gillnet	✓	✓	✓
Handline	✓		
Line		✓	
Midwater Trawl		✓	
Net		✓	
Otter Trawl			✓

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Unspecified	✓		
Recreational			
Handline	✓	✓	✓
Hook and Line	✓	✓	
Spearfishing	✓	✓	
Unspecified	✓		

Management Methods			
	Northern Territory	Queensland	Western Australia
Charter			
Bag limits			✓
Bag/possession limits		✓	
Boat limits		✓	
Gear restrictions		✓	
Limited entry	✓		✓
Passenger restrictions	✓		✓
Possession limit	✓		✓
Seasonal or spatial closures		✓	
Size limit			✓
Size limits		✓	
Spatial closures	✓		
Spatial zoning			✓
Vessel limits	✓		
Commercial			
Catch limits	✓		
Gear restrictions	✓	✓	✓
Harvest Strategy		✓	
Limited entry	✓	✓	✓
Processing restrictions		✓	

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Seasonal or spatial closures		✓	
Size limit			✓
Size limits		✓	
Spatial closures	✓		✓
Spatial zoning			✓
Temporal closures			✓
Total allowable catch		✓	
Vessel restrictions	✓	✓	✓
Recreational			
Bag limits			✓
Bag/possession limits		✓	
Boat limits		✓	
Gear restrictions	✓	✓	✓
Licence (Recreational Fishing from Boat License)			✓
Possession limit	✓		✓
Seasonal or spatial closures		✓	
Size limit		✓	✓
Spatial closures	✓		✓
Vessel limits	✓		

Catch				
	New South Wales	Northern Territory	Queensland	Western Australia
Charter		22 t		< 1 t
Commercial		144.383 t	21.3382 t	3.41547 t
Indigenous	Unknown	Unknown	Unknown	Unknown

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Recreational	28 t in FTO; 55.8 t (in 2016, unpublished)	35 t (2016)	Unknown	< 1 t
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Western Australia – Recreational (Catch). Boat-based recreational catch if from 1 September 2020–31 August 2021. These data are derived from those reported in Ryan et al. [2022].

Western Australia – Recreational (Management Methods). A Recreational Fishing from Boat Licence is required for the use of a powered boat to fish or to transport catch or fishing gear to or from a land-based fishing location.

Western Australia – Indigenous (Management Methods). Subject to application of 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 – Active Vessels. Data is confidential as there were fewer than three vessels operating in the Pilbara Fish Trawl Interim Managed Fishery.

Northern Territory - Charter (Management Methods). In the Northern Territory, charter operators are regulated through the same management methods as the recreational sector, but are subject to additional limits on license and passenger numbers.

Northern Territory - Indigenous (Management Methods). The *Fisheries Act 1988* (NT), specifies that: “Unless expressly provided otherwise, nothing in this Act derogates or limits the right of Aboriginal people who have traditionally used the resources of an area of land or water in a traditional manner to continue to use those resources in that area in that manner.

Queensland – Indigenous (Management Methods). For more information see:
<https://www.daf.qld.gov.au/business-priorities/fisheries/traditional-fishing>

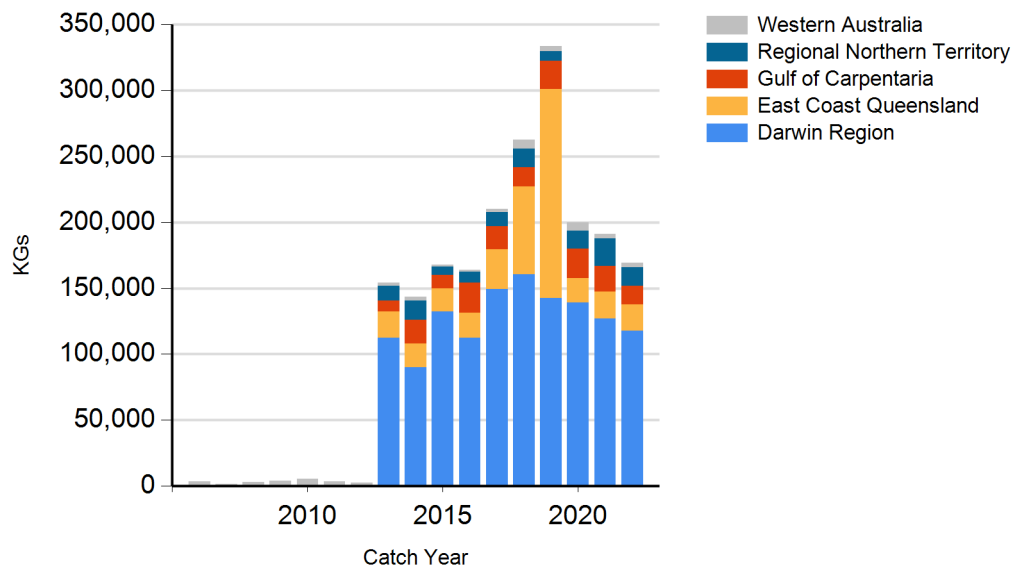
Queensland – Recreational Fishing (Catch). Data with high uncertainty (Residual Error > 50 %) have been excluded and listed as unknown. More information available at:
<https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-research/monitoring-reporting/statewide-recreational-fishing-surveys>

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

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

CATCH CHART

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Commercial catch of Black Jewfish - note confidential catch not shown

References	
Saunders et al. 2016a	Saunders, TM, Welch, D, Barton, D, Crook, D, Dudgeon, C, Hearnden, M, Maher, S, Ovenden, J, Taillebois, L and Taylor, J 2016a, Optimising the management of tropical coastal reef fish through the development of Indigenous capability. FRDC final report 2013/017.
Trinnie et al. 2023	Trinnie, F, Skepper, C, Newman, SJ, and Blazeski, S 2023, North Coast Nearshore and Estuarine Resource Status Report 2023. pp. 161-167. In: Gaughan, D.J. and Santoro, K. (eds.). 2023. Status Reports of the Fisheries and Aquatic Resources of Western Australia 2021/22: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia, Perth, Australia.
Newman et al. 2018	Newman, SJ, Brown, JI, Fairclough, DV, Wise, BS, Bellchambers, LM, Molony, BW, Lenanton, RCJ, Jackson, G, Smith, KA, Gaughan, DJ, Fletcher, WJ, McAuley, RB and Wakefield, CB 2018, A risk assessment and prioritisation approach to the selection of indicator species for the assessment of multi-species, multi-gear, multi-sector fishery resources. Marine Policy, 88: 11–22.
Ryan et al. 2022	Ryan, KL, Lai, EKM and Smallwood, CB. 2022, Boat-based recreational fishing in Western Australia 2020/21. Fisheries Research Report No. 327 Department of Primary Industries and Regional Development, Western Australia. 221pp.
NTG 2017	Northern Territory Government 2017, Status of key Northern Territory Fish Stocks Report 2015, Northern Territory Government Department of Primary Industry and Resources, Fishery Report 118.
Phelan 2008	Phelan, M 2008, Assessment of the implications of target fishing on Black Jewfish (<i>Protonibea diacanthus</i>) aggregations in the Northern Territory, Fisheries Research and Development Corporation project 2004/004, fishery report 91, Northern Territory Fisheries.
Roelofs 2003	Roelofs, AJ 2003, Ecological Assessment of the Gulf of Carpentaria Inshore Finfish Fishery - A report to Environment Australia on the sustainable management of a multi-species tropical gillnet fishery, Department of Primary Industries and Fisheries, Brisbane.
Phelan 2002	Phelan, MJ 2002, Fishery biology and management of the Black Jewfish <i>Protonibea squamosa</i> (Sciaenidae) aggregations near Injinoo community, Far Northern Cape York. Stage 1: Initial characterisation of the aggregations and associated fishery, Fisheries Research and Development Corporation project 98/135, Department of Primary Industries, Queensland and Balkanu Cape York Development Corporation, Cairns.
Webley et al. 2015	Webley, J, McInnes, K, Teixeira, D, Lawson, A and Quinn, R 2015, Statewide Recreational Fishing Survey 2013-14, Queensland Department of Agriculture and Fisheries, Brisbane.
Taillebois et al. 2017	Taillebois, L, Barton, DP, Crook, DA, Saunders, T, Taylor, J, Hearnden, M, Saunders, RJ, Newman, SJ, Travers, MJ, Welch, DJ, Greig, A, Dudgeon, C, Maher, S and Ovenden, JR 2017, Strong population structure deduced from genetics, otolith chemistry and parasite abundances explains vulnerability to localized fishery collapse in a large Sciaenid fish, <i>Protonibea diacanthus</i> , Evolutionary Applications, vol. 10, no. 10, pp. 978–993.

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Welch et al. 2014	Welch, DJ, Robins, J, Saunders, T, Courtney, T, Harry, A, Lawson, E, Moore, BR, Tobin, A, Turnbull, C, Vance, D and Williams, AJ 2014, Implications of climate change impacts on fisheries resources of northern Australia. Part 2: Species profiles, final report to the Fisheries Research and Development Corporation, project 2010/565, James Cook University, Townsville.
Saunders et al. 2016b	Saunders T, Roelofs A, Newman S and Errity C 2016b, Black jewfish <i>Protonibea diacanthus</i> . In: Stewardson, C, Andrews, J, Ashby, C, Begg, G, Fletcher, R, Gardner, C, Georgeson, L, Hansen, S, Hartmann, K, Hone, P, Horvat, P, Maloney, L, McDonald, B, Morre, A, Roelofs, A, Sainsbury, K, Saunders, T, Smith, T, Stewart, J, Stobutzki, I, and Wise, B (Eds.): Status of key Australian fish stocks reports 2016. Canberra: Fisheries Research and Development Corporation.
Saunders 2020b	Saunders, T 2020b, Stock Status Summary - 2020 Black Jewfish (<i>Protonibea diacanthus</i>), Darwin Region Stock Reduction Analysis. Unpublished Fishery Report.
Penny et al. 2018	Penny, S, Lovett, R, Trinnie, F and Newman, S 2018, Black Jewfish <i>Protonibea diacanthus</i> , in Carolyn Stewardson, James Andrews, Crispian Ashby, Malcolm Haddon, Klaas Hartmann, Patrick Hone, Peter Horvat, Stephen Mayfield, Anthony Roelofs, Keith Sainsbury, Thor Saunders, John Stewart, Simon Nicol and Brent Wise (eds) 2018, Status of Australian fish stocks reports 2018, Fisheries Research and Development Corporation, Canberra.
Saunders 2020a	Saunders, T 2020a, Regional Northern Territory Black Jewfish Stock Status Summary - 2020. Unpublished Fishery Report.
O'Neill et al. 2011	O'Neill, MF, Leigh, GM, Martin, JM, Newman, SJ, Chambers, M, Dichmont, CM, and Buckworth, RC 2011, Sustaining productivity of tropical red snappers using new monitoring and reference points. Fisheries Research and Development Corporation Project No. 2009/037, Published by the The State of Queensland, Department of Employment, Economic Development and Innovation. 108 pp.
Martell and Froese 2013	Martell, S and Froese, R 2013, A simple method for estimating MSY from catch and resilience. <i>Fish and Fisheries</i> 14:504–514.
Haddon et al. 2018	Haddon, M, Punt, A and Burch, P 2018, simpleSA: A package containing functions to facilitate relatively simple stock assessments. R package version 0.1.18.
Teixeira et al. 2021	Teixeira, D, Janes, R and Webley, J 2021, 2019/20 Statewide Recreational Fishing Survey Key Results. Project Report. State of Queensland, Brisbane.
Porter et al. 2023	Porter, M, Barton, DP, Hearnden, M, Randall, J, Crook, DA and Shamsi, S 2023, Relationships between local variability in parasite communities of the black-spotted croaker (<i>Protonibea diacanthus</i>) (Teleostei: Sciaenidae) and host population structure and seasonality. <i>Scientific Reports</i> 13(1): 10291.
Leigh et al. 2022	Leigh, GM, Janes, R, Williams, SM and Martin, TSH 2022, Stock Assessment of Queensland East Coast black jewfish (<i>Protonibea diacanthus</i>), Australia, with data to December 2021. Queensland Government.
Queensland Department of Agriculture and Fisheries 2023	Queensland Department of Agriculture and Fisheries 2023, Management changes for Black jewfish.
Williams et al. 2023	Williams, SM, Mitchell, JD, Barnett, A and Leahy, SM. Queensland Department of Agriculture and Fisheries, 2023, Assessing the population biology of Black Jewfish (<i>Protonibea diacanthus</i>) in Queensland, Brisbane, Australia, CC BY 3.0
Randall et al. 2023	Randall, J, Crook, D, Saunders, T, Barton, D, Porter, M, King, A, Kaestli, M, Gibb, K, Adair, B, Wedd, D, Roberts, B and Kopf, K 2023, Biology of Black jewfish (<i>Protonibea diacanthus</i>) in the Northern Territory: information to support stock assessment. Charles Darwin University, Australian Institute of Marine Science and Northern Territory Department of Industry, Tourism and Trade, 2023.