

Tailor (2023)

Pomatomus saltatrix



Lenore Litherland: Department of Agriculture and Fisheries, Queensland, **John Stewart:** New South Wales Department of Primary Industries, **Rubie Evans-Powell:** Department of Primary Industries and Regional Development, Western Australia, **Simon Conron:** Victorian Fisheries Authority, **Rodney Duffy:** Department of Primary Industries and Regional Development, Western Australia

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia	Western Australia	Sustainable	Catch, CPUE
Queensland, New South Wales, Victoria	Eastern Australia	Sustainable	Biomass, CPUE, catch, effort, fishery-dependent length and age, Stock Assessment

STOCK STRUCTURE

Tailor has a wide-ranging distribution with several separate stocks found in temperate and sub-tropical waters around the world. Genetic evidence indicates that there are two biological stocks of Tailor in Australia, one along the east coast and a second along the west coast [Nurthen et al. 1992]. The Eastern Australian biological stock is distributed from Bundaberg in southern Queensland along the entire New South Wales coast and into eastern Bass Strait in Victoria [Miskiewicz et al. 1996; Brodie et al. 2018]. The Western Australian biological stock is distributed along the western coastline of Australia from Exmouth to Esperance [Lenanton et al. 1996; Smith et al. 2013]. Within each stock, multiple spawning groups may exist that spawn at different times and locations [Miskiewicz et al. 1996; Young et al. 1999; Ward et al. 2003; Schilling et al. 2020]. However, characteristics such as the dispersal of pelagic eggs and larvae with prevailing currents, the movement of juveniles into sheltered nearshore or estuarine habitats in northern and southern areas of the species range, and the seasonal migration behaviour of adults, suggest that a genetically homogenous population occurs on each coast [Bade 1977; Juanes et al. 1996; Lenanton et al. 1996; Miskiewicz et al. 1996; Young et al. 1999; Ward et al. 2003; Brodie et al. 2018].

Here, assessment of stock status is presented at the biological stock level—Western Australia and Eastern Australia.

STOCK STATUS

Eastern Australia

The status presented here for the Eastern Australia biological stock has been established using evidence from the three jurisdictions which access this stock—Queensland, New South Wales and Victoria.

The Eastern Australian biological stock of Tailor has been harvested by commercial fisheries in Queensland, New South Wales and Victoria since the early-mid 1900s [Bade 1977; Leigh et al. 2017]. By the 1970s, recreational fisheries in Queensland and New South Wales predominantly harvested the stock, a trend that continues to the present day. Tailor is also a culturally significant species for Indigenous groups along the eastern seaboard, however harvest levels are unknown [Schnierer 2011].

The harvest of Tailor from Queensland and New South Wales peaked in the mid-late 1990s and was followed by a decline that has been attributed in part to changes in market demand, participation rates and management measures [Leigh et al. 2017]. The 2020 stock assessment which included data from 2019 for New South Wales and Queensland Fisheries corroborated the findings of the 2017 assessment and indicated that the spawning biomass fluctuates through time [Lovett et al 2020]. This is attributed to favourable environmental factors intermittently allowing large numbers of young Tailor to thrive, leading to high recruitment of spawning fish into the fishery [Leigh et al. 2017]. In 2019 the spawning biomass was approximately 51% of unfished levels [Lovett et al 2020].

In the 2021–22 period, the annual harvest (57 tonnes (t)) and nominal catch rate (8kg/100m) for the Queensland commercial net fishery for tailor (a component of the East Coast Inshore Fishery) were both above the 10-year average (53 t, 6 kg/100m respectively). Annual fishery-dependent monitoring of the Queensland harvest shows relatively consistent length structures and a range of ages, including older fish (4–7 year olds), are consistently present in the harvest [Lovett et al. 2020; QDAF Unpublished data]. The length composition in New South Wales commercial landings have remained consistent, typically ranging between 300–450 mm fork length [Stewart et al. 2015; Schilling 2019; Schilling et al., 2023]. These are positive indicators of a stable population with continuing recruitment.

The status of Tailor stocks in Victoria in 2022 can no longer be evaluated using nominal catch per unit effort (CPUE) for commercial mesh-net fisheries in the Gippsland Lakes (GL) as that fishery was closed from the beginning of April 2020 following a buy-out of all commercial licences, implemented to improve recreational fishing access by hook and line methods had been closed [Bell et al. 2023]. Tailor continues to be infrequently captured by fishers in Corner Inlet (CI) and by purse-seine fishers offshore, however there were insufficient data available from these fisheries to inform temporal abundance trends. A small recreational fishery persists in GL, but with insufficient data for assessment. Recreational fishers catch Tailor incidentally from Port Phillip Bay [Fishing Victoria Forum 2017], Lake Tyers [Day 2017], and Ninety-mile Beach [Wiki Fishing Spots 2020]. State-wide commercial Tailor harvests have been variable from less than 20 t to nearly 100 t representing changes in targeting, retention rates and availability of this highly mobile species [Bell et al. 2023]. Landings in the last ten years have also been variable but well within the bounds of historical peaks observed during the 1980s to 2000s [Bell et al. 2023]. There is no

evidence that recruitment to the stock has ever been impaired and the available evidence suggests the fishery has been sustainable and will remain so under current and future conditions [Bell et al. 2023]. The catch rates for this species were often highly variable between successive years but showed no evidence of a sustained decline. As the majority of catch is taken in NSW and Queensland, catch from Victoria is unlikely to influence the biomass of the biological stock. The above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

Estimates of maximum sustainable yield (MSY) for the combined Queensland and New South Wales harvest from the 2020 stock assessment varied from 469 t to 857 t depending on the predicted recruitment levels [Lovett et al. 2020]. The assessment identified the combined harvest in 2019 (204 t) was about half of the predicted MSY using the more conservative low recruitment scenario, and signalled the estimate of fishing pressure was safely below the limit reference point (F20) and FMSY [Lovett et al. 2020]. Total harvest in the 2021–22 period remained below the conservative predicted MSY (see catch table).

The recreational and commercial fisheries in Queensland, New South Wales and Victoria have been subject to numerous management measures that have reduced fishing pressure, as indicated in the trends shown in harvest and effort for both recreational and commercial fisheries [Stewart et al. 2015; Webley et al. 2015; West et al. 2015; Lovett et al. 2020; Teixeira et al. 2021; Murphy et al. 2022,]. Fishing pressure is considered adequately controlled in commercial fisheries. In New South Wales this is through restrictive daily trip limits of 100 kg per day (ocean haul nets) or 50 kg per day (other netting methods). In Queensland, gill net, seine net and haul net methods used by commercial fishers in nearshore and estuarine waters are deployed in a targeted manner and result in minimal bycatch relative to the harvest of the target species [Halliday et al. 2001]. Mesh-size regulations help ensure that target species caught by these methods are within an appropriate size range. Fishers using tunnel nets in Moreton Bay in Queensland operate under the Industry Code of Best Practice to minimise their impacts [MBSIA 2012]. The recreational harvest is constrained through size and bag limits as well as seasonal closures. The rates of survival for released line-caught Tailor are considered high [Ayvazian et al. 2002; Broadhurst et al. 2012]. In this context it is relevant to note that the 2019–20 Queensland recreational fishing survey reported that 69% of caught tailor were released [Teixeira et al. 2021], an increase from 35% reported as released in the 2013–14 survey [Webley et al. 2015]. Similarly in NSW 71% of Tailor were reported to have been released during 2019–20 [Murphy et al. 2022].

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, the Eastern Australia biological stock is classified as a **sustainable stock**.

Western Australia

The ability to produce reliable, quantitative stock assessments for Tailor is impacted by high uncertainty associated with recreational catches and consequently total catches across all fishing sectors. Due to the lack of a reliable annual catch time series for this species, several commonly used assessment approaches including Catch-MSY analysis, biomass dynamics models and integrated models which require this information, were not considered appropriate for its current assessment in Western Australia. Recently, a data-limited stock assessment approach was developed requiring only an index of spawning stock abundance which is available for Tailor in Western Australia. This

approach is the Abundance-Maximum Sustainable Yield (AMSY) model of Froese et al. [2020].

A preliminary stock assessment has thus recently been conducted for tailor in Western Australia using the AMSY model fitted to standardised CPUE data (1975–2022) to estimate biomass (B) and fishing mortality (F). Tailor in Western Australia exhibit a net northward movement of adults; therefore, it is likely that a high proportion of the spawning stock is located in the northern areas of its distribution in Western Australia (Gascoyne Coast Bioregion and the Kalbarri Zone of the WCB) [Smith et al. 2013]. Standardised CPUE from the inner gulfs of Shark Bay, where the majority of the commercial catch of this species is taken, is assumed to represent an index of spawning stock abundance for this species. The annual standardised commercial CPUE time series for Tailor in Shark Bay from 1976–2000 does not show an obvious long-term trend of increasing or decreasing abundance, although CPUE has been consistently lower in years after 2000. This method is applied to a time series of CPUE (adjusted for assumed increases in fishing efficiency), combined with specified prior ranges for resilience (i.e., range of values for population intrinsic increase, r) and for relative stock size, for a given year. For Tailor, an initial depletion range of 0.35–0.65 was specified at the beginning of the time series (1975), with resilience set to “low” (corresponding to $r=0.1–0.6$). Results indicate that, in recent years, B and F have fluctuated around their respective threshold levels (i.e., FMSY and BMSY).

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.

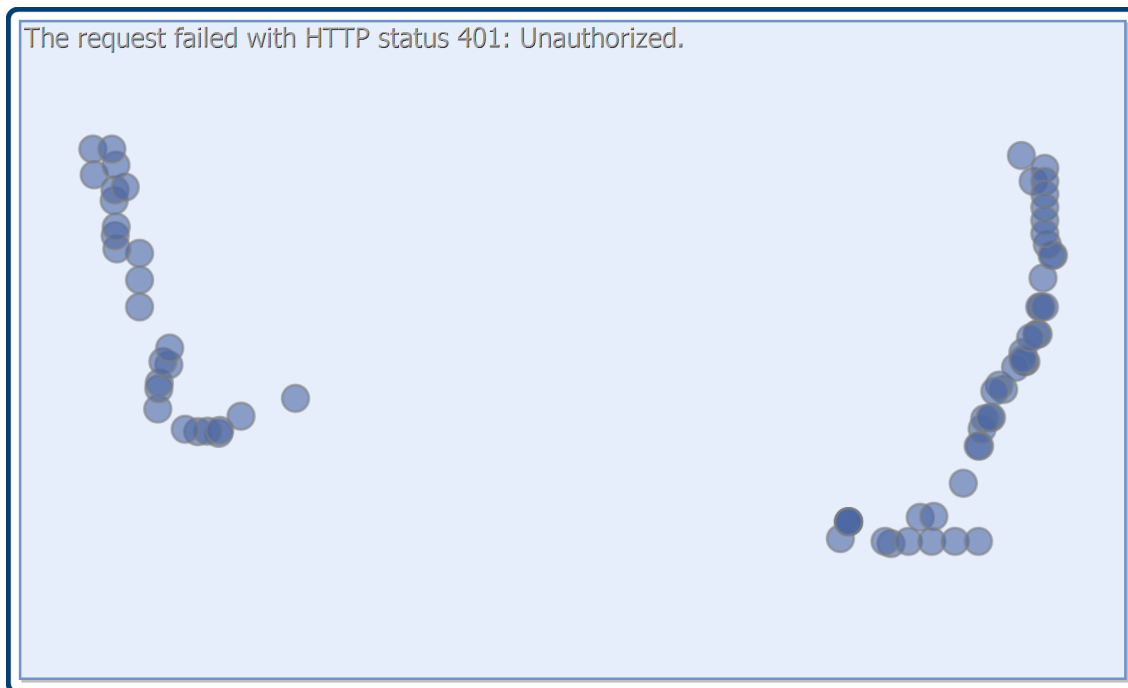
On the basis of the evidence provided above, tailor in Western Australia is classified as a **sustainable stock**.

BIOLOGY

Tailor biology [Bade 1977; Juanes et al. 1996; Young et al. 1999; Smith et al. 2013; Schilling et al. 2019, 2023,]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Tailor	11–13 years, 1,200 mm TL	Eastern Australian biological stock: 1–2 years, males 290 mm TL, females 310 mm TL Western Australian biological stock: 1–2 years, L50% 320 mm TL

DISTRIBUTION



Distribution of reported commercial catch of Tailor

TABLES

Fishing methods	New South Wales	Queensland	Victoria	Western Australia
Charter				
Hook and Line	✓	✓		✓
Spearfishing		✓		
Commercial				
Beach Seine				✓
Gillnet				✓
Hand Line, Hand Reel or Powered Reels				✓
Haul Seine	✓			✓
Hook and Line	✓		✓	
Line		✓		
Mesh Net	✓			
Net		✓	✓	
Trolling	✓			
Various	✓			

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Tailor (2023)

Recreational				
Beach Seine				✓
Gillnet				✓
Hook and Line	✓	✓	✓	✓
Spearfishing	✓	✓		

Management Methods				
	New South Wales	Queensland	Victoria	Western Australia
Charter				
Bag/possession limits	✓	✓		
Gear restrictions	✓	✓		
Licence	✓			
Marine park closures	✓			
Seasonal or spatial closures		✓		
Size limits	✓	✓		
Spatial closures	✓			
Commercial				
Gear restrictions	✓	✓	✓	✓
Harvest Strategy		✓		
Limited entry	✓	✓	✓	✓
Marine park closures	✓			
Seasonal or spatial closures		✓		
Size limits	✓	✓	✓	✓
Spatial closures	✓		✓	
Spatial zoning	✓			✓
Temporal closures			✓	✓

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Tailor (2023)

Total allowable catch		✓		
Total allowable effort				✓
Vessel restrictions	✓	✓		✓
Recreational				
Bag/possession limits	✓	✓	✓	✓
Gear restrictions	✓	✓	✓	
Licence	✓		✓	✓
Limited entry (Charter only)				✓
Marine park closures	✓			
Passenger restrictions (Charter only)				✓
Seasonal or spatial closures		✓		
Size limits	✓	✓	✓	✓
Spatial closures	✓		✓	
Spatial zoning (Charter only)				✓
Temporal closures			✓	✓

Catch	New South Wales	Queensland	Victoria	Western Australia
Charter	Included within Recreational	Included within Recreational		0.005 t
Commercial	73.4525 t	61.1313 t	1.1858 t	13.1197 t
Indigenous	Unknown	Unknown	Unknown (No catch under permit)	Unknown

Recreational	56,416 fish (31.8 t) retained (2019–20)	59 t (2019–20)	Unknown	5 t (2020–21) Boat-based
---------------------	---	----------------	---------	-----------------------------

Western Australia – Recreational (Catch). Current shore-based recreational catch and effort in Western Australia is unknown. Recreational catch estimated in 2020/21, for boat-based fishing only [Ryan et al. 2022]

Queensland – Recreational Fishing (Catch). Data based at the whole of Queensland level and derived from statewide recreational fishing surveys [Teixeira et al. 2021]. 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 presented as number of fish.

Queensland – Commercial (Catch). Queensland commercial and charter 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>

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

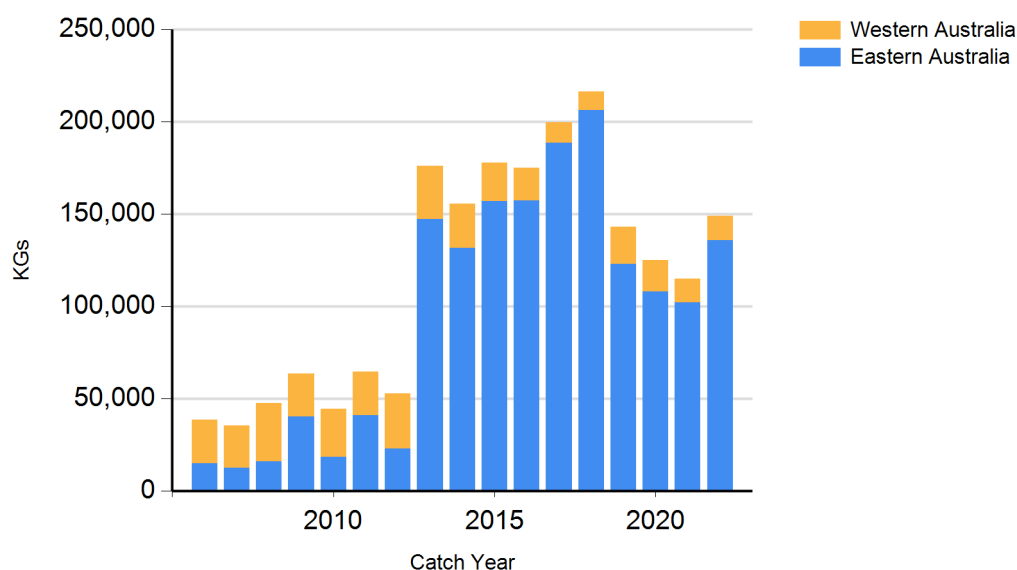
Victoria – Indigenous (Management Methods). A person who identifies as Aboriginal or Torres Strait Islander is exempt from the need to obtain a Victorian recreational fishing licence, provided they comply with all other rules that apply to recreational fishers, including rules on equipment, catch limits, 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*.

New South Wales – Recreational (Catch). Murphy et al. [2022].

New South Wales – Indigenous (Management Methods). <https://www.dpi.nsw.gov.au/fishing/aboriginal-fishing>

CATCH CHART

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Tailor (2023)



Commercial catch of Tailor - note confidential catch not shown

References	
Ayvazian et al. 2002	Ayvazian, SG, Wise, BS and Young, GC 2002, Short-term hooking mortality of tailor (<i>Pomatomus saltatrix</i>) in Western Australia and the impact on yield per recruit, <i>Fisheries Research</i> , 58, 241–248.
Bade 1977	Bade, TM 1977, The biology of tailor (<i>Pomatomus saltatrix</i>) from the east coast of Australia, University of Queensland, University of Queensland, Brisbane.
Broadhurst et al. 2012	Broadhurst, MK, Butcher, PA and Cullis, BR 2012, Catch-and-release angling mortality of south-eastern Australian <i>Pomatomus saltatrix</i> , <i>African Journal of Marine Science</i> , 34, 289–295.
Brodie et al. 2018	Brodie, S, Litherland, L, Stewart, J, Schilling, HT, Pepperell, JG and Suthers, IM 2018, Citizen science records describe the distribution and migratory behaviour of a piscivorous predator, <i>Pomatomus saltatrix</i> , <i>ICES Journal of Marine Science</i> , 75, 1573–1582.
Halliday et al. 2001	Halliday, IA, Ley, JA, Tobin, A, Garrett, R, Gribble, NA and Mayer, DG 2001, The effects of net fishing: addressing biodiversity and bycatch issues in Queensland inshore waters (FRDC Project no. 97/206), Department of Primary Industries, Queensland.
Juanes et al. 1996	Juanes, F, Hare, JA and Miskiewicz, AG 1996, Comparing early life history strategies of <i>Pomatomus saltatrix</i> : a global approach, <i>Marine and Freshwater Research</i> 47, 365–79.
Leigh et al. 2017	Leigh, G, O’Neil, MF and Stewart J 2017, Stock assessment of the Australian east coast tailor (<i>Pomatomus saltatrix</i>) fishery, Queensland Department of Agriculture and Fisheries, Brisbane, Australia.
Lenanton et al. 1996	Lenanton, RC, Ayvazian, SG, Pearce, AF, Strckis, RA and Young, GC 1996, Tailor (<i>Pomatomus saltatrix</i>) off Western Australia: where does it spawn and how are the larvae distributed? <i>Marine and Freshwater Research</i> , 47, 337–346.
MBSIA 2012	Moreton Bay Seafood Industry Association 2012, Moreton Bay tunnel net fishery code of best practice.
Miskiewicz et al. 1996	Miskiewicz, AG, Bruce, BD and Dixon, P 1996, Distribution of tailor (<i>Pomatomus saltatrix</i>) larvae along the Coast of New South Wales, Australia, <i>Marine and Freshwater Research</i> , 47, 331–6.
Nurthen et al. 1992	Nurthen, RK, Cameron, R and Briscoe, DA 1992, Population genetics of Tailor, <i>Pomatomus saltatrix</i> (Linnaeus) (Pisces: Pomatomidae), in Australia, <i>Marine and Freshwater Research</i> 43, 1481–6.
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.

STATUS OF AUSTRALIAN FISH STOCKS REPORT
Tailor (2023)

Schnierer 2011	Schnierer, S 2011, Aboriginal fisheries in New South Wales: determining catch, cultural significance of species and traditional fishing knowledge needs, FRDC PROJECT NO. 2009/038, Canberra.
Smith et al. 2013	Smith, K, Lewis, P, Brown, J, Dowling, C, Howard, A, Lenanton, R and Molony, B 2013, Status of nearshore finfish stocks in south-western Western Australia Part 2: Tailor, Fisheries Research Report No. 247, Department of Fisheries, Western Australia, Perth.
Stewart et al. 2015	Stewart, J, Hegarty, A, Young, C, Fowler, AM and Craig, J 2015, Status of Fisheries Resources in NSW 2013–14, NSW Department of Primary Industries, Mosman. 391pp.
Ward et al. 2003	Ward, TM, Staunton-Smith, J, Hoyle, S and Halliday, IA 2003, Spawning patterns of four species of predominantly temperate pelagic fishes in the sub-tropical waters of southern Queensland Estuarine Coastal and Shelf Science, 56, 1125–1140.
Webley et al. 2015	Webley, J, McInnes, K, Teixeira, D, Lawson, A and Quinn, R 2015, Statewide Recreational Fishing Survey 2013–14, Department of Agriculture and Fisheries, Queensland.
West et al. 2015	West, LD, Stark, KE, Murphy, JJ, Lyle JM and Doyle, FA 2015, Survey of recreational fishing in New South Wales and the ACT, 2013/14, Fisheries Final Report Series.
Young et al. 1999	Young, GC, Wise, BC and Ayzavian, SG 1999, A tagging study on Tailor, (<i>Pomatomus saltatrix</i>) in Western Australian waters: their movement, exploitation, growth and mortality, Marine and Freshwater Research, 50, 633–42.
Bell et al. 2023	Bell, JD, Ingram, BA, Gorfine, HK and Conron, SD 2023, Review of key Victorian fish stocks—2022, Victorian Fisheries Authority Science Report Series No. 38, First Edition, June 2023. VFA: Queenscliff. 89pp.
Lovett et al. 2020	Lovett, R, Leigh, G, Litherland, L and Stewart, J 2020, Stock assessment of the Australian east coast tailor (<i>Pomatomus saltatrix</i>) fishery. Technical Report. State of Queensland, Brisbane
Schilling 2019	Schilling, HT 2019, Ecology of Tailor, <i>Pomatomus saltatrix</i> , in eastern Australia, PhD thesis, University of New South Wales.
Schilling et al. 2019	Schilling, HT, Smith, JA, Stewart, J, Everett, JD, Hughes, JM, and Suthers, IM 2019, Reduced exploitation is associated with an altered sex ratio and larger length at maturity in southwest Pacific (east Australian) <i>Pomatomus saltatrix</i> , Marine environmental research, 147, 72-79.
Schilling et al. 2020	Schilling, HT, Everett, JD, Smith, JA, Stewart, J, Hughes, JM, Roughan, M, and Suthers, IM 2020, Multiple spawning events promote increased larval dispersal of a predatory fish in a western boundary current. Fisheries Oceanography, 29(4):309-323.
Fishing Victoria Forum 2017	Fishing Victoria Forum discussion post, accessed on 20/10/2020
Day 2017	Day, J 2017, Taming the mighty Tyers, Victorian Fishing Monthly Magazine, May 2017 edition.
Wiki Fishing Spots 2020	Wiki Fishing Spots website, 2020, McLoughlins Beach Victoria entry, last accessed 22/03/2021
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.
Murphy et al. 2022	Murphy, JJ, Ochwada-Doyle, FA, West, LD, Stark, KE, Hughes, JM and Taylor, MD 2022, Survey of recreational fishing in NSW, 2019/20—Key Results, NSW DPI—Fisheries Final Report Series No. 161. ISSN 2204-8669.
Froese et al. 2020	Froese, R, Winker, H, Coro, G, Demirel, N, Tsikliras, AC, Dimarchopoulou, D, Scarcella, G, Palomares, MLD, Dureuil, M, and Pauly, D 2020, Estimating stock status from relative abundance and resilience, ICES Journal of Marine Science, 77: 527–538
Schilling et al. 2023	Schilling, HT, Stewart, J, Litherland, L, Smith, JA, Everett, JD, Hughes, JM and Suthers, IM 2023, Age and growth of <i>Pomatomus saltatrix</i> in the south-western Pacific Ocean (eastern Australia), with a global perspective, Marine and Freshwater Research 74(6): 463-478
QDAF Unpublished data	Queensland Department of Agriculture and Fisheries, Unpublished Data, Fishery Monitoring Database (QFSFRM). Viewed 2 August 2023, Brisbane, Queensland.