

Luderick (2016)

Girella tricuspidata



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Queensland, New South Wales, Victoria, Tasmania	Eastern Australia	ECIFFF, EGF, GLF, OHF, SF	Sustainable	Catch, effort, CPUE trends, fishing mortality, size composition

EGF Estuary General Fishery (NSW), OHF Ocean Hauling (NSW), ECIFFF East Coast Inshore Fin Fish Fishery (QLD), SF Scalefish Fishery (TAS), GLF Gippsland Lakes Fishery (VIC)

STOCK STRUCTURE

Luderick occurs from southern Queensland to northern Tasmania and South Australia. While the biological stock structure of Luderick is unknown, tagging studies indicate that some adults move considerable distances along the eastern Australian coastline and across the jurisdictional boundary between New South Wales and southern Queensland[1]. Limited genetic data support the existence of a single Eastern Australian biological stock[2].

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

STOCK STATUS

Eastern Australia This cross-jurisdictional stock is fished in Queensland, New South Wales, Victoria and Tasmania. Each jurisdiction assesses that part of the biological stock that occurs in its waters. The status presented here for the entire biological stock has been established using evidence from all four jurisdictions.

Luderick is predominantly taken by the inshore commercial gillnet fishery in Queensland. An annual average of 14.5 tonnes (t) has been reported since 2005, although catches are known to have been greater in the past. Recent estimates of the recreational harvest of Luderick in Queensland are unreliable, because only one household reported catching the species in the 2013–14 survey[3]. A size limit, set at 300 mm total length (TL), close to the size at first maturity, applies to Luderick, which protects a portion of the spawning stock. A recreational possession limit of 10 restricts fishing pressure. While there are no

current concerns for Luderick in Queensland, there is insufficient information available to confidently classify the biomass or the level of fishing pressure for this part of the stock.

Estimated recreational catches in New South Wales declined by more than 50 per cent, from 383 t in 2000–01 to 150 t in 2013–14, associated with lesser declines in effort and a 27 per cent decrease in catch rates[4], but with high uncertainty (relative standard error of more than 40 per cent). The main commercial fishery for Luderick occurs in New South Wales estuaries and inshore ocean waters. Commercial landings in New South Wales reached a peak of more than 800 t in 1988 and then declined to less than 400 t in 2003. This decrease in landings coincided with a similar decrease in fishing effort. Over the past 10 years, annual landings have remained steady around an average of 373 t[5]. Nominal catch rates have also remained relatively steady and have been above long-term averages for the past 6 years. Landings (317 t) and catch rates in 2015 were similar to previous years. The above evidence indicates that the biomass of this part of the stock is unlikely to be recruitment overfished.

Reported commercial fishing effort for Luderick in New South Wales has decreased by around 50 per cent over the past 10 years[5]. There are no current estimates of fishing mortality for Luderick. Previous estimates from the late-1990s (prior to the decrease in fishing effort) varied considerably between estuaries, but in more than 50 per cent of cases were historically equal to, or less than, natural mortality estimates[6]. Fishing mortality is expected to have decreased since this early study due to the more recent reductions in fishing effort. Length frequency data up to 2010–11 suggests that the proportion of larger size classes has declined in recent years[5]. A minimum legal length (MLL) of 270 mm TL for commercial and recreational fishers, as well as spatial closures in New South Wales reduce fishing pressure on the spawning stock. Luderick has a relatively high survival rate (99 per cent from one study) when released by recreational anglers[7], but some discard mortality (17 per cent from one study) is likely from commercial gillnetting[8]. Collectively, the above evidence indicates that the current level of fishing pressure is unlikely to cause this part of the stock to become recruitment overfished.

In Victorian waters, Luderick is commercially harvested from the Gippsland Lakes Fishery (GLF) and is mainly caught using gillnets, although a small proportion of catch is attributed to haul seines[9,10]. Luderick is harvested year-round and mainly from Lake King. In 2015, approximately 2.5 t of Luderick was harvested, a significant decline from the 41.5 t peak catch in 2007. Catch rates have declined continually since the most recent peak in 2007–08[11]. The annual and recent 5-year average catch rates in 2014–15 were approximately 60 and 20 per cent below the long-term average, respectively[11]. However, because Luderick is generally taken as a bycatch species when fishers are targeting bream, CPUE may not provide a reliable index of abundance for Luderick. The uncertainty regarding interpretation of CPUE trends makes it difficult to know whether current fishing pressure is impacting the spawning stock biomass within the GLF. Fishing pressure is limited by a MLL of 230 mm TL for both commercial and recreational fishers, and a daily bag limit of 10 fish for recreational fishers. Harvesting within the lakes is unlikely to impact the overall biological stock, but there is insufficient information available to confidently classify the biomass or the level of fishing pressure for this part of the stock.

In Tasmanian waters, Luderick is a by-product species of the multi-gear, multispecies Tasmanian Scalefish Fishery, caught predominately using gillnet, seine and handline methods. Commercial catches have been minimal, with an annual average 0.37 t landed between 2000 and 2010 before declining to a historical low of 0.04 t in 2015. Reductions in commercial effort for Luderick are reflective of a general fishery-wide decline in effort. Given the species is not actively targeted, catch rates are not considered to provide a reliable index of abundance. Estimated recreational catch from handline and gillnet methods is also minimal[12]. Given the negligible level of commercial and recreational catch in Tasmania, the biomass of this part of the stock is unlikely to be recruitment overfished.

The evidence presented above indicates that for two parts of the stock, the status is undefined. However, only small catches and low effort are reported from these jurisdictions, and these are unlikely to have a significant impact on the overall biological stock. For the central part of the stock in New South Wales, where the bulk of the commercial and recreational catches are taken, the above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished and the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the Eastern Australian biological stock is classified as a **sustainable stock**.

BIOLOGY

Luderick biology[1,6,13]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Luderick	24 years; 560 mm <u>TL</u>	4–4.5 years; 280–300 mm <u>FL</u>

DISTRIBUTION



Distribution of reported commercial catch of Luderick

TABLES

Commercial Catch Methods	New South Wales	Queensland	Tasmania	Victoria
Coastal, Estuary and River Set Nets	✓			
Gillnet			✓	
Haul Seine	✓			✓
Line		✓		✓
Mesh Net	✓			✓
Net		✓		
Unspecified - Seine				✓
Various			✓	

Fishing methods	New South Wales	Queensland	Tasmania	Victoria
Commercial				
Coastal, Estuary and River Set Nets	✓			
Haul Seine	✓			✓
Line		✓		
Mesh Net	✓			✓
Net		✓		
Various			✓	

Recreational				
Gillnet			✓	
Hand Line, Hand Reel or Powered Reels	✓	✓	✓	✓
Spearfishing	✓	✓		✓
Management Methods				
	New South Wales	Queensland	Tasmania	Victoria
Commercial				
Fishing gear and method restrictions	✓	✓		✓
Limited entry	✓	✓	✓	✓
Size limit	✓	✓		
Spatial closures	✓	✓		✓
Temporal closures	✓			
Indigenous				
Bag limits	✓			
Fishing gear and method restrictions	✓			
Section 31 (1)(c1), Aboriginal cultural fishing authority	✓			
Size limit	✓			
Spatial closures	✓			
Recreational				
Bag limits	✓		✓	✓
Fishing gear and method restrictions	✓	✓		✓
In possession limits	✓	✓		
Licence	✓		✓	
Size limit	✓	✓		✓
Spatial closures	✓	✓		
Active Vessels				

	New South Wales	Queensland	Tasmania	Victoria
	260 License in EGF, 18 License in OHF,	33 License in ECIFFF,	7 Vessel in SF,	10 Fisher in GLF,

EGF Estuary General Fishery(NSW)

OHF Ocean Hauling(NSW)

ECIFFF East Coast Inshore Fin Fish Fishery(QLD)

SF Scalefish Fishery(TAS)

GLF Gippsland Lakes Fishery(VIC)

Catch	New South Wales	Queensland	Tasmania	Victoria
Commercial	286.513t in EGF, 29.7853t in OHF,	12.896t in ECIFFF,	0.0412t in SF,	2.553t in GLF,
Indigenous	Unknown	Unknown	Unknown	Zero
Recreational	150 t (in 2013–14)	Unknown	<0.5 t (2010)	Unknown

EGF Estuary General Fishery (NSW), OHF Ocean Hauling (NSW), ECIFFF East Coast Inshore Fin Fish Fishery (QLD), SF Scalefish Fishery (TAS), GLF Gippsland Lakes Fishery (VIC),

a Tasmania – Recreational (management method) In Tasmania, a recreational licence is required for fishers using dropline or longline gear, along with nets, such as gillnet or beach seine.

b Queensland – Indigenous (management methods) In Queensland, under the Fisheries Act 1994 (Qld), Indigenous fishers are able to use prescribed traditional and non-commercial fishing apparatus in waters open to fishing. Size and possession limits, and seasonal closures do not apply to Indigenous fishers. Further exemptions to fishery regulations may be applied for through permits.

c New South Wales – Indigenous (management methods) Aboriginal Cultural Fishing Interim Access Arrangement - allows an Aboriginal fisher in New South Wales to take in excess of a recreational bag limit in certain circumstances, for example, if they are doing so to provide fish to other community members who cannot harvest themselves.

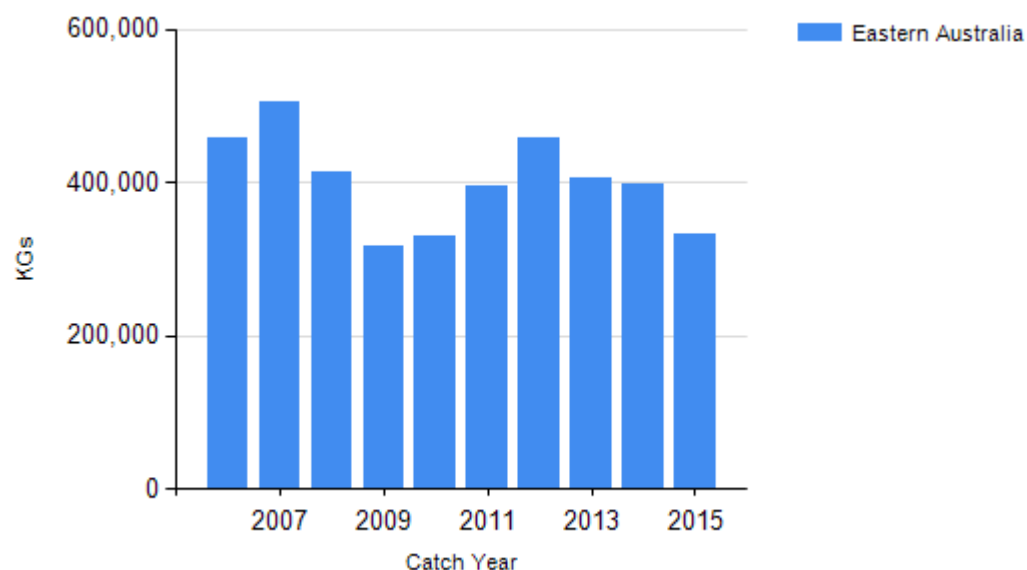
d New South Wales – Indigenous (management methods) Aboriginal cultural fishing authority - the authority that indigenous persons can apply for to take catches outside the recreational limits under the Fisheries Management Act 1994 (NSW), Section 37 (1)(c1), Aboriginal cultural fishing authority.

e Victoria – Indigenous (management methods) In Victoria, regulations for managing recreational fishing are also applied to fishing activities by Indigenous people. Recognised Traditional Owners (groups that hold native title or have agreements under the Traditional Owner Settlement Act 2010 [Vic]) are exempt (subject to conditions) from the requirement to hold a recreational fishing licence, and can apply for permits under the Fisheries Act 1995 (Vic) that authorise customary fishing (for example, different catch and size limits or equipment). The Indigenous category in Table 3 refers to customary fishing undertaken by recognised Traditional Owners. In 2015, there were no applications for customary fishing permits to access Luderick.

f Victoria – Indigenous (management methods) 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 Victorian recreational fishing licence, the non-commercial take by indigenous fishers is covered by the same arrangements as that for recreational fishing. **g Tasmania – Indigenous (management methods)** In Tasmania, aborigines engaged in aboriginal fishing activities in marine waters are exempt from holding recreational fishing licences, but must comply with all other fisheries rules as if they were licensed. Additionally, recreational bag and possession

limits also apply. If using pots, rings, set lines or gillnets, Aborigines must obtain a unique identifying code (UIC). The policy document Recognition of Aboriginal Fishing Activities for issuing a Unique Identifying Code (UIC) to a person for Aboriginal Fishing activity explains the steps to take in making an application for a UIC.

CATCH CHART



Commercial catch of Luderick - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

- In Queensland, coastal, river and estuary set gillnets have been shown to have minimal impact on the environment and are quite selective in their harvest[14]. Levels of bycatch are generally low when compared to the harvest of the target species[14]. Fishers using tunnel nets operate under an industry-developed code of best practice guidelines[15]. Marine turtles are released with minimal difficulty, and a very high proportion of undersized or unwanted catch is returned to the water alive.
- In New South Wales estuaries, Luderick are primarily targeted using mesh nets, which also catch other species, including undersized individuals targeted in other key fisheries[8,16–19]. These impacts can be minimised by using mesh nets that target Luderick above the minimum legal size[16].
- In a similar manner to the tunnel net fishery in Queensland, the New South Wales beach seine fishery operates in a manner that allows a proportion of non-target species to be released alive[20].
- The Victorian Bays and Inlets commercial fishers have adopted responsible fishing practices[21]. It is likely that fishing activities have minimal impact on the environment.
- Seabirds and other marine life often become entangled in discarded recreational fishing tackle[22]. In south-east Queensland, a Fishing Line Recovery Bin program was instigated in 2012 in order to minimise the occurrence of discarded tackle at popular shore-based fishing locations.

ENVIRONMENTAL EFFECTS on Luderick

- Luderick are dependent on estuarine and inshore coastal habitats throughout their life cycle[2]. Recruits and juveniles generally occur in shallow estuarine habitats, particularly over seagrasses[23]. Recruitment in Luderick is variable and is thought to be environmentally driven[23,24]. Adults can show high site fidelity[25], so physical impacts on coastal marine vegetation, subsurface topography, water quality and changes to local environmental conditions are likely to influence the resilience and productivity of Luderick populations at local scales.

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