

Eastern Sea Garfish (2018)

Hyporhamphus australis



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
New South Wales	Eastern Australia	EGF, N/A, OHF	Sustainable	Spawning stock biomass, fishing mortality rate, age composition, catch, effort

EGF Estuary General Fishery (NSW), N/A Not Applicable (NSW), OHF Ocean Hauling Fishery (NSW)

STOCK STRUCTURE

Eastern Sea Garfish (*Hyporhamphus australis*) is found in sheltered bays, coastal waters, and occasionally in the lower reaches of estuaries from Moreton Bay in Queensland to Eden in New South Wales, including Lord Howe and Norfolk Islands. The stock structure of Eastern Sea Garfish has not been formally examined through genetics. However, based on their limited distribution along south-eastern Australia it is likely to constitute a single biological stock [Stewart et al. 2005].

Here, the stock status of Eastern Sea Garfish is reported at the biological stock level—Eastern Australia.

STOCK STATUS

Eastern Australia

The most recent assessment of Eastern Sea Garfish [Broadhurst et al. 2018, NSW DPI Unpublished] estimated that biomass and recruitment levels have increased considerably (more than doubled) since the stock was assessed as being overfished during the early 2000s [Stewart et al. 2015]. Recruitment in Eastern Sea Garfish is variable, with peaks evident in 2009–10 and 2013–14 [Broadhurst et al. 2018, NSW DPI Unpublished], which have contributed to recovery of the stock. In addition to the increase in biomass, increases in the proportion of fish older than two years in landings since around 2007–08 [Broadhurst et al. 2018, NSW DPI Unpublished] indicate that the population has recovered to a more natural state.

Despite the recovery of Eastern Sea Garfish, there remain some concerns for the stock. The updated assessment for 2016–17 [NSW DPI Unpublished] estimated that the biomass had declined slightly from 2014–15 levels to approximately 150 tonnes (t). Monitoring of the fishery during 2016–17 found slight declines in landings and catch rates and estimated relatively few one year old fish in landings [NSW DPI Unpublished], possibly indicating recent weak recruitment.

The updated assessment also estimated low recruitment in 2015–16 and 2016–17 [NSWDPI Unpublished], although stock assessment estimates of recent recruitment are inevitably uncertain and need to be confirmed by future assessments [Broadhurst et al. 2018]. Notwithstanding these concerns, the above evidence indicates that the biomass of this stock is unlikely to be depleted and that recruitment is unlikely to be impaired.

Landings and fishing effort targetting Eastern Sea Garfish have declined considerably since they were overfished during the 1980s and 1990s. Commercial landings peaked at more than 250 t per year during the early 1990s but have averaged less than 50 t per annum over the past decade. Recreational landings are poorly estimated and considered relatively minor. Reported commercial effort targetting Eastern Sea Garfish has declined from approximately 800 boat days during 2004–05 to less than 150 boat days during 2016–17 [Broadhurst et al. 2018, NSW DPI Unpublished]. The minimum mesh size in garfish hauling nets was increased to 28 mm during the mid-1990s, reducing fishing mortality on juveniles considerably [Broadhurst et al. 2018]. Fishing mortality on fully recruited age classes declined to below the estimated natural mortality level in 2010–11 and has remained there since [Broadhurst et al. 2018, NSW DPI Unpublished]. The reported commercial catch in 2016–17 was approximately 33 t, which is around 23 per cent of the estimated biomass in that year. It is not known whether a harvest fraction at this level is sustainable for Eastern Sea Garfish; however similarly high harvest fractions have been found to be sustainable for other species with similar life-histories [Smith et al. 2015]. The above evidence indicates that the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

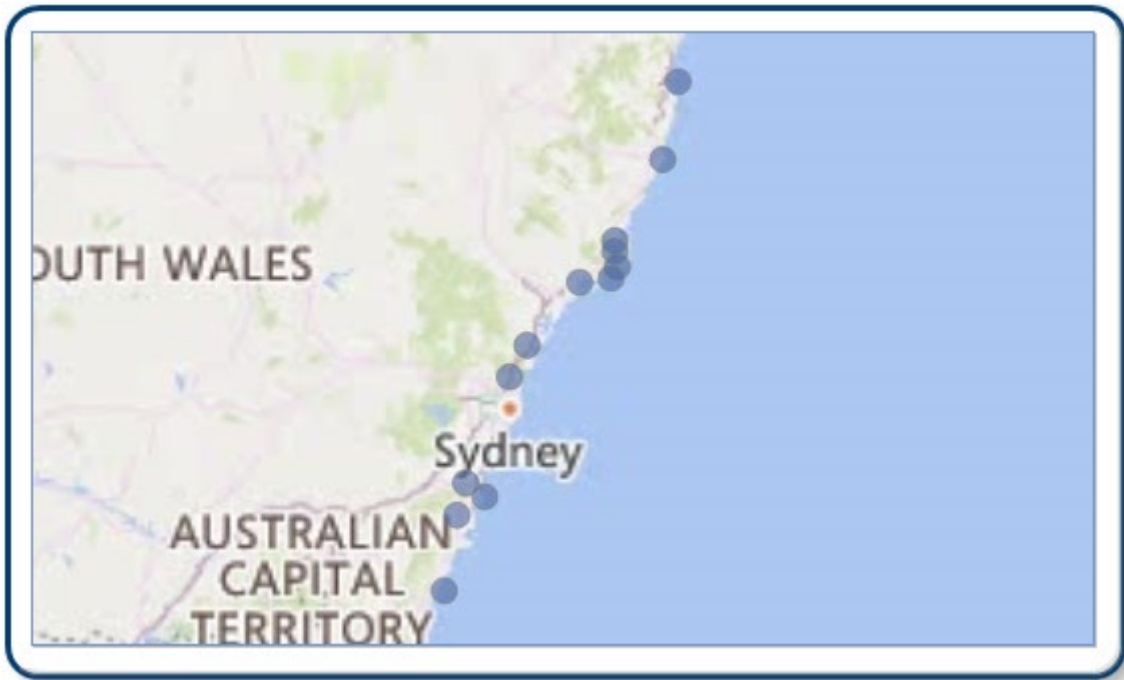
On the basis of the evidence provided above, the biological stock is classified as a **sustainable stock**.

BIOLOGY

Eastern Sea Garfish biology [Broadhurst et al. 2018, Collette 1974, Hughes and Stewart 2006]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Eastern Sea Garfish	6 years, 398 mm FL	210 mm FL, 1 year

DISTRIBUTION



Distribution of reported commercial catch of Eastern Sea Garfish

TABLES

Commercial Catch Methods	New South Wales
Haul Seine	✓
Haul Seine/Beach Seine	✓
Mesh Net	✓
N/A	✓
Net	✓

Fishing methods	New South Wales
Charter	
Hook and Line	✓
Commercial	
Haul Seine	✓
Mesh Net	✓
Net	✓
Indigenous	
Hook and Line	✓
Recreational	
Hook and Line	✓

Management Methods	New South Wales
Charter	

Bag and possession limits	✓
Bag limits	✓
Gear restrictions	✓
Licence	✓
Marine park closures	✓
Spatial closures	✓
Commercial	
Gear restrictions	✓
Limited entry	✓
Marine park closures	✓
Mesh size regulations	✓
Spatial closures	✓
Vessel restrictions	✓
Indigenous	
Bag limits	✓
Native Title	✓
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓
Recreational	
Bag and possession limits	✓
Bag limits	✓
Gear restrictions	✓
Licence	✓
Marine park closures	✓
Spatial closures	✓
Active Vessels	
	New South Wales
	15 Fishing Business in EGF. 7 Fishing

	Business in OHF,
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EGF Estuary General Fishery(NSW)

OHF Ocean Hauling Fishery(NSW)

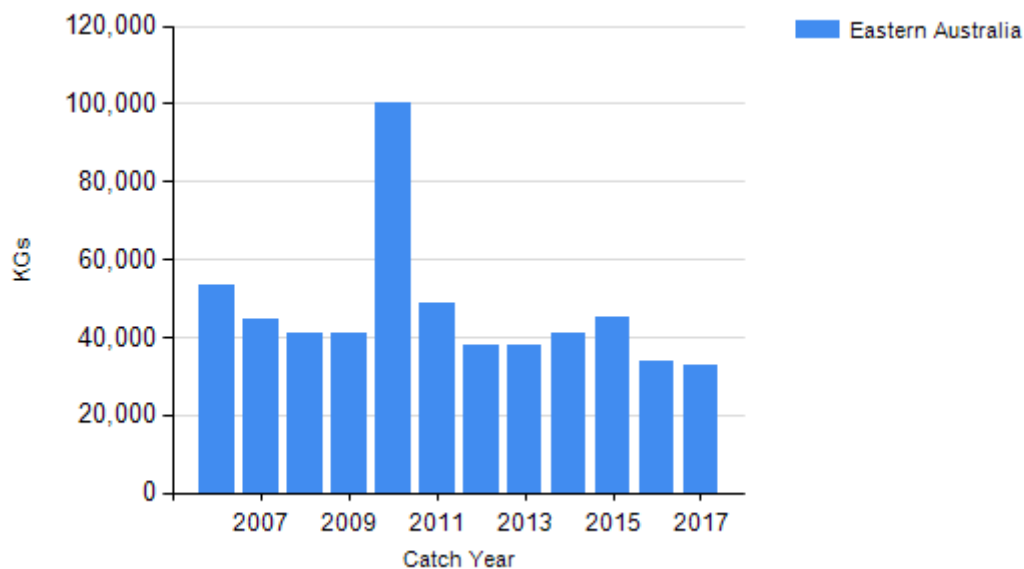
Catch	New South Wales
Charter	Unknown
Commercial	1.982t in EGF, 0.062t in N/A, 30.551t in OHF,
Indigenous	Unknown
Recreational	19 000 fish in 2013/14

EGF Estuary General Fishery (NSW), N/A Not Applicable (NSW), OHF Ocean Hauling Fishery (NSW),

New South Wales – Recreational (Catch) West et al. 2015.

New South Wales – Aboriginal Cultural Fishing Interim Access Arrangement—allows an Indigenous 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 for themselves. The Aboriginal cultural fishing authority is the authority that Indigenous persons can apply to take catches outside the recreational limits under the *Fisheries Management Act 1994* (NSW), Section 37 (1d)(3)(9), Aboriginal cultural fishing authority. In cases where the *Native Title Act 1993* (Cth) applies fishing activity can be undertaken by the person holding native title in line with S.211 of that Act, which provides for fishing activities for the purpose of satisfying their personal, domestic or non-commercial communal needs. In managing the resource where native title has been formally recognised, the native title holders are engaged with to ensure their native title rights are respected and inform management of the State’s fisheries resources.

CATCH CHART



Commercial catch of Eastern Sea Garfish - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Eastern Sea Garfish

References	
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1697	Hughes, JM and Stewart, J 2006, Reproductive biology of three commercially important Hemiramphid species in south-eastern Australia. Environmental Biology of Fishes, 75: 237–256.
1698	NSWDPI Unpublished. Status of Australian Fish Stocks 2018 – NSW Stock status summary– Eastern Sea Garfish (<i>Hyporhamphus australis</i>).
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1700	Stewart, J, Hughes, JM, Gray, CA and Walsh, C 2005, Life history, reproductive biology, habitat use and fishery status of eastern sea garfish (<i>Hyporhamphus australis</i>) and river garfish (<i>H. regularis ardelio</i>) in NSW waters. NSW Department of Primary Industries Fisheries Final Report Series 73. 180 pp. ISSN 1449–9967.
1701	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, 391 pp.
1702	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 No. 149. ISSN 2204-8669.