

Silverlip Pearl Oyster (2018)

Pinctada maxima



Anthony Hart: Department of Primary Industries and Regional Development, Western Australia, **Thor Saunders:** Department of Primary Industry and Resources, Northern Territory, **Luke Albury:** Department of Agriculture and Fisheries, Queensland

STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	Western Australia	POMF	Sustainable	CPUE, recruitment surveys, population surveys, biomass prediction modelling
Northern Territory	Northern Territory	MOPWHF	Undefined	Catch, effort
Queensland	Queensland	ECPF	Sustainable	Catch, effort

MOPWHF Mother of Pearl Wild Harvest Fishery (NT), ECPF East Coast Pearl Fishery (QLD), POMF Pearl Oyster Managed Fishery (WA)

STOCK STRUCTURE

Pinctada maxima or the Silverlip Pearl Oyster is the largest species in the pearl oyster family [Shirai 1994], and produces the largest pearls. It is distributed within the central Indo-Pacific region, bounded by the Bay of Bengal to the west, Solomon Islands to the east, Taiwan to the north, and Northern Australia to the south [Southgate et al. 2008], at depths from the shallow sub-tidal to more than 50 m. Within Australia, the population genetic distribution has been investigated in Western Australia and Northern Territory [Benzie et al. 2006]. The biological stock structure is uncertain; however, Western Australian stocks are generally considered to be one stock (with the possible exception of a localised population in Exmouth Gulf), separate from stocks in the Northern Territory. The biological stock structure for Queensland is unknown.

Here, assessment of stock status is presented at the jurisdictional level—Western Australia, Northern Territory and Queensland.

STOCK STATUS

Northern Territory

Large catches of Silverlip Pearl Oyster were taken from Northern Territory waters between 1901 and 1966. The catch peaked at 804 t in 1937 and the last significant catch was 339 t in 1957. Since that time, annual catches have been very low, primarily because the market for mother-of-pearl collapsed. Heavy historical fishing is considered to have depleted the stock in many areas along the Northern Territory coast [Knuckey 1995].

Surveys conducted in the 1990s found significant numbers of large, mature individuals, indicating that recruitment was occurring, but biomass was not estimated [Knuckey 1995]. Catches earlier this century were around 2 t (to supply niche markets) and there has been no harvest in the Northern Territory since 2008. Although no fishing pressure is currently being exerted, the lack of a biomass estimate means that there is insufficient information available to confidently classify the status of this stock.

On the basis of the evidence provided above, Silverlip Pearl Oyster in the Northern Territory is classified as an **undefined stock**.

Queensland

The East Coast Pearl Fishery (Queensland) is a small-scale, wild-harvest fishery that enables the collection of broodstock for the pearl aquaculture industry. The general demand for wild-harvested pearl oysters is very low as the aquaculture industry produces the majority of its broodstock needs from its own hatcheries. Catches have been low in recent years, rarely exceeding 500 shells per year and 50 days of effort [QDAF 2018]. There has been a long history of low catches and effort and no Silverlip Pearl Oyster have been collected since 2013. The above evidence indicates that the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, Silverlip Pearl Oyster in Queensland is classified as a **sustainable stock**.

Western Australia

The Western Australian Pearl Oyster Managed Fishery is the only remaining significant wild stock fishery for pearl oysters in the world. It is a quota-based dive fishery, operating in shallow coastal waters along the north-west shelf or North Coast Bioregion. The harvest method is drift diving, in which six–eight divers are attached to large outrigger booms on a vessel and towed slowly over the pearl oyster beds, harvesting legal sized oysters by hand as they are seen. The species targeted is the Indo-Pacific, Silverlip Pearl Oyster (*P. maxima*). The Western Australian pearling industry comprises three main components: the collection of pearl oysters from the wild; production of hatchery-reared pearl oysters and the seeding of pearls, followed by grow-out of pearl oysters on pearl farm leases. Quota limits are set for the take of pearl oysters from the wild to ensure the long-term sustainability of the resource. Quota in 2017 was 612 550 oysters, which resulted in a harvest of 143 tonnes (t).

In the Western Australian Fishery, the standardised catch per unit effort (CPUE) increased by 200 per cent between 2003 and 2010, declined to 2015, and increased to 2017. It is currently above the target reference level in the harvest strategy [DoF 2016]. The large fluctuation in standardized CPUE was due to an order of magnitude variation in recruitment. Recruitment in this fishery is measured using a spat settlement index (oysters aged 0+ years and 1+ years) and the large recruitment variability is caused by environmental variation, which also affects the fishing efficiency of the pearl oyster fleet [Hart et al. 2011]. The stock-prediction model, which uses the spat settlement index to predict future

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stock abundance, is forecasting an increase in standardized CPUE in 2018. Additional data, including population surveys, show that breeding stock levels are also currently above the target reference point [DPIRD 2016]. On the basis of this evidence, the biomass of the Western Australian pearl oyster fishery is unlikely to be recruitment overfished.

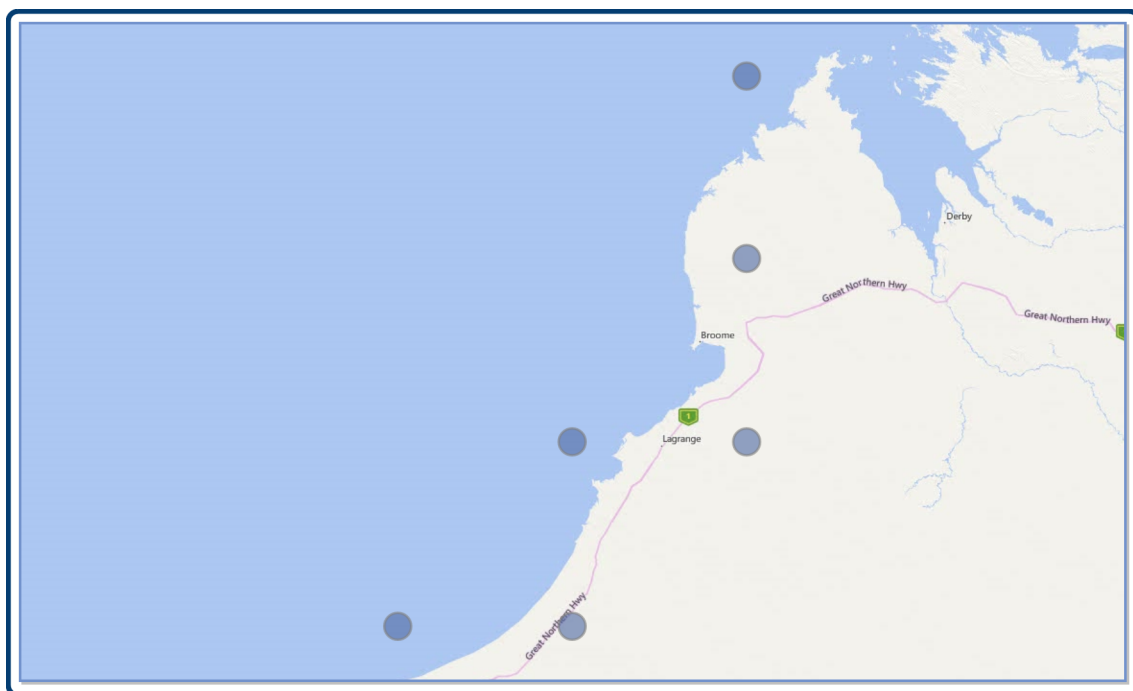
On the basis of the evidence provided above, Silverlip Pearl Oyster in Western Australia is classified as a **sustainable stock**.

BIOLOGY

Silverlip Pearl Oyster biology [Hart and Joll 2006]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Silverlip Pearl Oyster	30 years, 250 mm DVM	Males: 2–3 years, 110 mm DVM Females: 7–8 years, 175 mm DVM

DISTRIBUTION



Distribution of reported commercial catch of Silverlip Pearl Oyster

TABLES

Commercial Catch Methods	Northern Territory	Queensland	Western Australia
Diving	✓	✓	✓

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Fishing methods			
	Northern Territory	Queensland	Western Australia
Commercial			
Diving	✓	✓	✓
Indigenous			
Diving	✓	✓	✓
Recreational			
Diving		✓	
Management Methods			
	Northern Territory	Queensland	Western Australia
Charter			
Gear restrictions		✓	
Limited entry		✓	
Size limit		✓	
Spatial closures		✓	
Commercial			
Gear restrictions	✓	✓	✓
Limited entry	✓	✓	✓
Size limit		✓	✓
Spatial closures		✓	
Spatial zoning	✓		✓
Total allowable catch			✓
Recreational			
Gear restrictions		✓	
Limited entry		✓	
Size limit		✓	
Spatial closures		✓	

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Active Vessels	Western Australia
	5 in POMF,

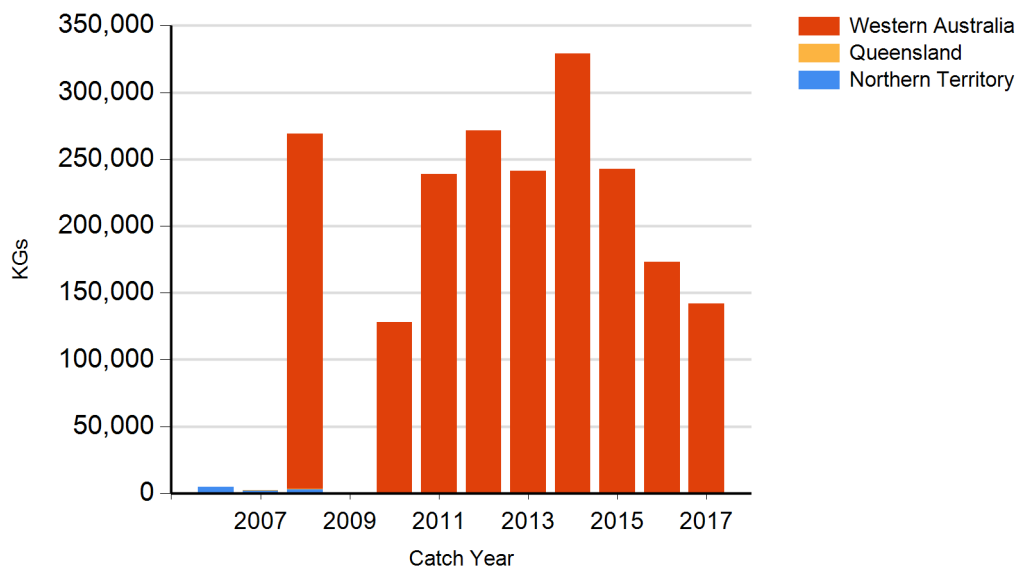
POMF Pearl Oyster Managed Fishery(WA)

Catch	Northern Territory	Queensland	Western Australia
Commercial		0t in ECPF,	142.035t in POMF,
Indigenous	Unknown	Unknown	Unknown
Recreational	Unknown	Unknown	No Catch

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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.

CATCH CHART



Commercial catch of Silverlip Pearl Oyster - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Silverlip Pearl Oyster

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