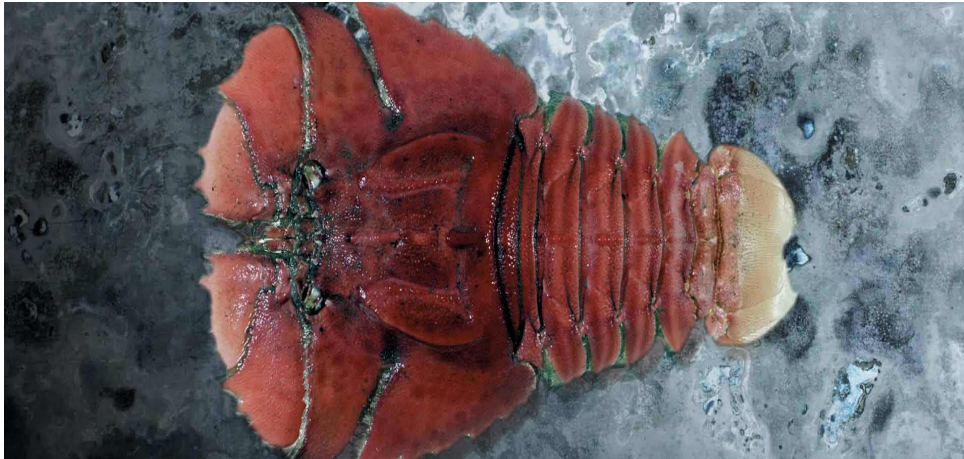


BALMAIN BUGS (2018)

Ibacus peronii, *Ibacus brucei*, *Ibacus chacei*, *Ibacus alticrenatus*, *Ibacus spp.*



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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia	Western Australia	SWTMF	Negligible	
Queensland, New South Wales	East Coast	ECOTF, N/A, OTF	Sustainable	Catch rates, catch, effort, size structure, risk assessment
Victoria	Victoria	ITF	Undefined	Catch
South Australia	South Australia	GSVPF, SGPF, WCPF	Negligible	

N/A Not Applicable (NSW), OTF Ocean Trawl Fishery (NSW), ECOTF East Coast Otter Trawl Fishery (QLD), GSVPF Gulf St Vincent Prawn Fishery (SA), SGPF Spencer Gulf Prawn Fishery (SA), WCPF West Coast Prawn Fishery (SA), ITF Inshore Trawl Fishery (VIC), SWTMF South West Trawl Managed Fishery (WA)

STOCK STRUCTURE

The common name ‘Balmain Bug’ refers to four similar species of fan lobster: *Ibacus alticrenatus*, *I. brucei*, *I. chacei* and *I. peronii* [Haddy et al. 2007]. These species partially overlap in their distributions on the east coast of Australia and have evolved different life-history strategies, tending to occupy different depth ranges. However, here, they are assessed as a single species group because they are rarely distinguished by fishers or fish marketers.

The true Balmain Bug (*I. peronii*) is widely distributed around the southern half of the continent, from around the Queensland–New South Wales border (latitude 28°S) to central Western Australia (latitude 29°S), including the east coast of Tasmania and Bass Strait. The true Balmain Bug is mainly found close to shore, in waters less than 80 m deep. The Smooth Bug (*I. chacei*) is distributed between northern Queensland (latitude 17°S) and southern New South Wales (latitude 36°S), although it is rarely caught south of Sydney (latitude 34°S). It is most abundant on the mid-continental shelf in depths of 50–150 m. The Honey Bug (*I. brucei*) is distributed between central Queensland and northern New South Wales. It is most abundant on the outer continental shelf and upper slope in waters from 120–300 m deep. The Deepwater Bug (*I. alticrenatus*) is distributed throughout southern Australian and New Zealand waters. It is most abundant at depths of 200–400 m on the upper continental slope, and stock structure remains unknown [Haddy et al. 2007].

Given the prevailing influence of the East Australian Current along the east coast out to 150 m

depth, a protracted pelagic larval phase and a northerly migration of older stages, true Balmain Bugs, Smooth Bugs and Honey Bugs are thought to each constitute single biological stocks across Queensland and New South Wales [Haddy et al. 2007]. Stock status of the Balmain Bugs species group in these jurisdictions is therefore presented at the biological stock level—East Coast biological stock.

Landings in Victoria, South Australia and Western Australia are thought to be predominantly true Balmain Bugs (*I. peronii*). However, the stock relationship between Balmain Bugs caught in these jurisdictions and those caught off New South Wales and Queensland is unknown. Stock status in these jurisdictions is therefore presented at the jurisdictional level.

STOCK STATUS

East Coast In Queensland, fishers harvest Balmain Bugs as a byproduct of Eastern King Prawn fishing. Logbook data indicate that Balmain Bugs contribute only a very minor component of the Eastern King Prawn fishers' catch and landed value. Balmain Bugs fishing mortality is managed by a prohibition on landing of egg-bearing females; conservative minimum legal size (MLS), which were updated in 2009; and mandatory use of turtle excluder devices since the early 2000s, which have been shown to lower the incidental catch rates of scyllarid lobsters, including Balmain Bugs [Courtney et al. 2007, Courtney et al. 2008]. In addition, the spawning stock is partly protected from fishing during an annual seasonal closure. Landings in 2017 were 45 per cent below the 2000–16 average of 76 tonnes (t) per year. Nominal catch rates since 2011 continue to decline and the 2017 catch at 42 t was relatively low. This is considered to be a result of increased MLS for *I. chacei* and recently changed fishing practices and not declining abundance.

Risk assessment of the Queensland East Coast Otter Trawl Fishery found a low risk of recruitment overfishing the Queensland part of the East Coast Balmain Bug stock south of the Great Barrier Reef Marine Park (GBRMP) at the 2009 fishing effort level [Jacobsen et al. 2018], where about 83 per cent of the catch is taken. The average annual number of days when Eastern King Prawn was harvested in Queensland has increased slightly since 2009 by five per cent, not greatly raising the risk of overfishing the main part of the Queensland stock. The risk of recruitment overfishing within the GBRMP has also been assessed and found to be intermediate to high [Pears et al. 2012]. However, annual fishing effort in the GBRMP has declined by an average of 17 per cent since 2009, substantially reducing risk for this part of the stock.

The above evidence indicates that the biomass of the Queensland part of the stock is unlikely to be depleted, recruitment is unlikely to be impaired, and the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

In New South Wales, Balmain Bugs (primarily *I. peronii* and *I. chacei*) are trawl target species and have been assessed in terms of their commercial nominal catch rates and length compositions in landings. Median catch rates (kg per day in the ocean prawn trawl fishery) have fluctuated throughout the past 25 years but have shown no overall trends and the size compositions in landings have remained stable for both species [NSWDPI unpublished]. The above evidence indicates that the biomass of this part of the stock is unlikely to be depleted and that recruitment is unlikely to be impaired. Landings have declined slowly during the past 15 years, from an average of approximately 63 t per year during 2002–03 to 2006–07 to 26 t per year during 2012–13 to 2016–17. Current landings are at historically low levels (18 t in 2016–17) as a result of a large reduction in fishing effort, with the number of ocean prawn trawling days fished in 2016–17 being less than 30 per cent of those fished in 2000 [NSWDPI unpublished]. This reduction in fishing effort in combination with stable size compositions in landings indicates that fishing mortality is constrained in New South Wales waters to sustainable levels. The above evidence indicates that the current level

of fishing pressure is unlikely to cause this part of the stock to become recruitment impaired.

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

**South
Australia**

Stock status for the South Australian management unit is reported as Negligible due to low catches by this jurisdiction. In South Australia, the entire catch is taken as by-product of prawn trawling. The South Australian commercial catch averaged 5.4 t per annum in 2008–17. The stock has not been depleted in the past and the current level of fishing mortality is unlikely to cause the stock to become recruitment impaired.

Victoria

In Victoria Balmain Bugs are caught as a small part (by-product) of the commercial inshore trawl fishery, mainly off Gippsland in eastern Victoria. This fishery has produced > 99 per cent of the catch of Balmain Bugs since 2000. The Victorian jurisdictional Balmain Bug fishery is data limited as the species is rarely targeted by the fishery and annual catches have been consistently low (< 20 t per annum), averaging 13.78 t per annum (2000–17) [VFA Unpublished]. Recreational catch is unknown.

On the basis of the evidence provided above, Balmain Bugs in the Victorian jurisdiction is classified as an **undefined stock**.

**Western
Australia**

Stock status for the Western Australian jurisdictional stock is reported as Negligible due to historically low catches in this jurisdiction and because the stock has generally not been subject to targeted fishing. Western Australian commercial catch in 2008–17 averaged less than 200 kg per annum and Balmain Bug is not a major component of recreational landings. Fishing is unlikely to be having a negative impact on the stock.

BIOLOGY

Balmain Bugs biology [Haddy et al. 2005, Haddy et al. 2007, Stewart 1999, Stewart et al. 1997, Stewart and Kennelly 2000]

Species	Longevity / Maximum Size	Maturity (50 per cent)
BALMAIN BUGS	Balmain Bug: 15 years, 86 mm CL Smooth Bug: 5–7 years, 80 mm CL Honey Bug: longevity largely unknown, maximum CL in Queensland samples is 72 mm for females and 66 mm for males. Deepwater Bug: longevity largely unknown, maximum CL in Queensland samples is 55 mm for both females and males. Balmain Bug: 2 years, 50 mm CL Smooth Bug: 2 years, 55 mm CL Honey Bug: 47 mm CL Deepwater Bug: 45 mm CL	Balmain Bug: 2 years, 50 mm CL Smooth Bug: 2 years, 55 mm CL Honey Bug: 47 mm CL Deepwater Bug: 45 mm CL

DISTRIBUTION



Distribution of reported commercial catch of BALMAIN BUGS

TABLES

Commercial Catch Methods	New South Wales	Queensland	South Australia	Victoria	Western Australia
N/A	✓		✓		✓
Otter Trawl	✓	✓		✓	

Fishing methods	New South Wales	Queensland	Victoria
Commercial			
Otter Trawl	✓	✓	✓
Indigenous			
Diving	✓		
Recreational			
Diving	✓		

Management Methods	New South Wales	Queensland	Victoria
Commercial			
Bag limits			✓
Gear restrictions			✓
Limited entry	✓	✓	✓
Retention of females with eggs prohibited		✓	
Size limit	✓	✓	✓

Spatial closures	✓		✓
Vessel restrictions	✓	✓	
Indigenous			
Bag limits	✓		
Customary fishing permits			✓
Native Title	✓		
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓		
Recreational			
Bag limits	✓		✓
Gear restrictions			✓
Licence	✓		✓
Marine park closures	✓		
Possession limit	✓		
Size limit	✓		
Spatial closures	✓		✓

Active Vessels	New South Wales	Queensland	South Australia	Victoria	Western Australia
	83 Fishing Business in OTF,	148 in ECOTF,	52 Licences in GSVPF SGPF WCPF,	10 Licence Holders in ITF,	<3 in SWTMF,

OTF Ocean Trawl Fishery(NSW)

ECOTF East Coast Otter Trawl Fishery(QLD)

ITF Inshore Trawl Fishery(VIC)

SWTMF South West Trawl Managed Fishery(WA)

GSVPF || SGPF || WCPF Gulf St Vincent Prawn Fishery, Spencer Gulf Prawn Fishery, West Coast Prawn Fishery(SA)

Catch	New South Wales	Queensland	South Australia	Victoria	Western Australia
Commercial	0.111t in N/A, 19.854t in OTF,	42.159t in ECOTF,		8.0257t in ITF,	
Indigenous	Unknown			Unknown (No catch under permit)	
Recreational	Unknown			Unknown	

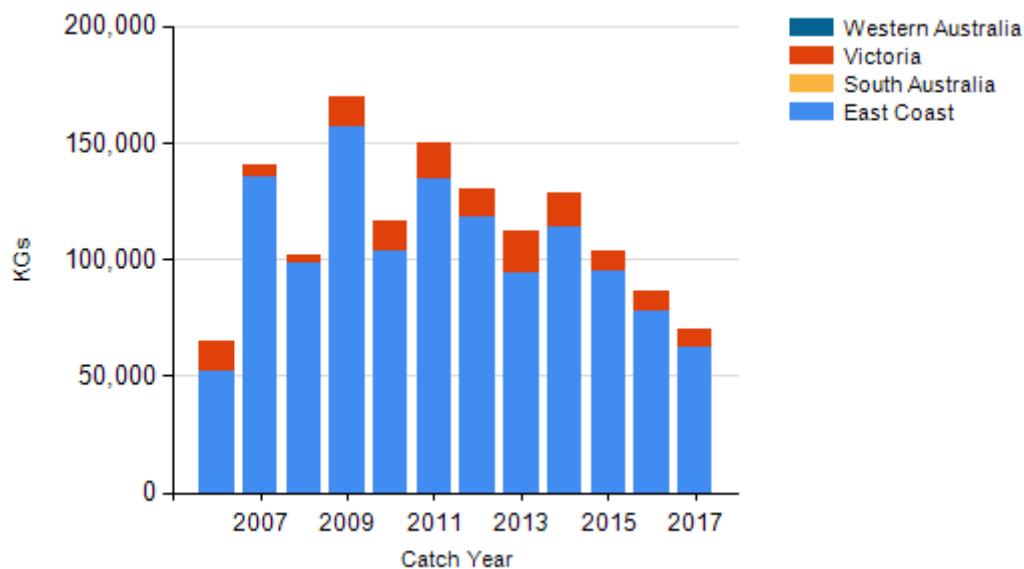
N/A Not Applicable (NSW), OTF Ocean Trawl Fishery (NSW), ECOTF East Coast Otter Trawl Fishery (QLD), GSVPF Gulf St Vincent Prawn Fishery (SA), SGPF Spencer Gulf Prawn Fishery (SA), WCPF West Coast Prawn Fishery (SA), ITF Inshore Trawl Fishery (VIC), SWTMF South West Trawl Managed Fishery (WA),

Queensland – Indigenous (management methods) In Queensland, under the *Fisheries Act 1994*, Indigenous fishers can 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 can be obtained through permits.

New South Wales – Indigenous (management methods) (a) Bag limits - The 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 themselves; (b) Section 37 (1d)(3)(9), Aboriginal cultural fishing authority - 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; and (c) Native Title - 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.

Victoria – Indigenous (management methods) In Victoria, regulations for managing recreational fishing may not apply to fishing activities by Indigenous people. Victorian traditional owners may have rights under the *Commonwealth's Native Title Act 1993* to hunt, fish, gather and conduct other cultural activities for their personal, domestic or non-commercial communal needs without the need to obtain a licence. Traditional Owners that have agreements under the *Traditional Owner Settlement Act 2010* (Vic) may also be authorised to fish without the requirement to hold a recreational fishing licence. Outside of these arrangements, Indigenous Victorians can apply for permits under the *Fisheries Act 1995* (Vic) that authorise fishing for specific Indigenous cultural ceremonies or events (for example, different catch and size limits or equipment). There were no Indigenous permits granted in 2017 and hence no Indigenous catch recorded.

CATCH CHART



Commercial catch of BALMAIN BUGS - note confidential catch not shown

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on BALMAIN BUGS

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