Australian Herring (2018)

Arripis georgianus

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STOCK STATUS OVERVIEW

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Western Australia, New South Wales, Victoria, South Australia	Southern Australia	CIF, CSFNMF, CSFNMF || FBLC93 || SCEMF || SWCBNF || WCEMF || WL (NC, GC, WC) || WL (SC), EGF, FBLC93, GLF, MISC, MSF || NZRLF || SZRLF || MISC, NZRLF, OF, PPBWPF, SCEMF, SWCBNF, SZRLF, WCEMF, WL (NC || GC || WC), WL (SC)	Sustainable	Catch, age and length composition

EGF Estuary General Fishery (NSW), NZRLF Northern Zone Rock Lobster Fishery (SA), SZRLF Southern Zone Rock Lobster Fishery (SA), CIF Corner Inlet Fishery (VIC), GLF Gippsland Lakes Fishery (VIC), OF Ocean Fishery (VIC), PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC), CSFNMF Cockburn Sound (Fish Net) Managed Fishery (WA), SCEMF South Coast Estuarine Managed Fishery (WA), SWCBNF South West Coast Beach Net Fishery (Order) (WA), WCEMF West Coast Estuarine Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA), MISC Various Fisheries combined due to 3 boat rule (SA), FBLC93 Fishing Boat Licence Conditions (WA), WL (NC || GC || WC) Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions (WA), MSF || NZRLF || SZRLF || MISC Marine Scale Fishery (including Northern & Southern Zone Rock Lobster Fishery and Misc Fishery) (SA), CSFNMF || FBLC93 || SCEMF || SWCBNF || WCEMF || WL (NC, GC, WC) || WL (SC) Various Fisheries combined due to 3 boat rule (WA)

STOCK STRUCTURE

Australian Herring occurs around southern Australia from Shark Bay (Western Australia) to Forster (New South Wales), although is uncommon east of Bass Strait. It constitutes a single biological stock across this range [Ayvazian et al. 2004, Smith and Brown 2014]. Spawning occurs in late May/early June in the south-west of Western Australia, with eggs and larvae being dispersed southwards and eastwards by the Leeuwin Current [Smith et al. 2013]. Fish

grow and mature in each jurisdiction before migrating back to the spawning area where they remain as adults. There are no records of spawning by this species along the east coast.

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

STOCK STATUS

Southern Australia

The most recent stock assessment is based on indicators derived from catch, age composition and length composition [Molony and Wise 2018]. Fishery catch rates (CPUE) are regarded as unreliable indicators of abundance for this stock [Molony and Wise 2018, Smith et al. 2013].

In Western Australia, commercial and recreational catches in the two management areas (West Coast and South Coast Bioregions) followed a similar trend, declining from about 1 500 tonnes (t) in 1990 to < 400 t in 2010, then declining at a slower rate to reach about 150 t in 2017. The commercial catch was 87 t in 2017. The recreational catch is not precisely known due to the lack of recent surveys of shore-based fishers who are believed to capture the majority of recreational landings. Declines in commercial catch are at least partly due to reduced targeting (due to low market demand, fishery closures), but may also reflect reduced availability due to stock reduction. Recreational catch trends are not readily attributable to changes in effort and are considered to primarily reflect changes in fish availability. The current recreational catch is believed to be similar in magnitude to the commercial catch. In 2015, the commercial Herring G-trap net fishery was closed, and the recreational daily bag limit was reduced. These changes, combined with reduced commercial targeting since 1990, are intended to allow the stock biomass to increase.

Catch-MSY analyses based on total national catches estimated that catches exceeded MSY in the 1980s and 1990s [Molony and Wise 2018]. Simulations showed increasing biomass since the mid-2000s, with more than 50 per cent of trajectories exceeding 30 per cent unfished biomass since 2016. The biomass is predicted to continue to increase under current catch levels, although there is high uncertainty associated with low information catch-MSY analysis results. Estimates of spawning potential ratio (SPR) derived from length and age composition data indicate a current stock level between 30 per cent and 40 per cent, although also with wide confidence intervals. Age composition trends since 1980 suggest that some truncation of the age distribution occurred in the past [Molony and Wise 2018, Smith et al. 2013]. Strong recruitment is evident in more recent samples, which is consistent with increased recent productivity and stock recovery.

The current assessment for Western Australia indicates that the spawning biomass is above the limit reference level (20 per cent of the unfished level). The stock is not considered to be recruitment impaired. The current level of fishing mortality of Australian Herring in Western Australia is unlikely to cause the stock to become recruitment impaired.

The New South Wales commercial catch in 2012–17 averaged approximately 2 t per annum, and Australian Herring is not a major component of recreational landings [West et al. 2015]. The current level of fishing mortality of Australian Herring in New South Wales is unlikely to cause the stock to become recruitment impaired.

In Victoria, Australian Herring are mostly harvested by netting methods, with most of the harvest historically being from Port Phillip Bay using purse seine. Total commercial harvests of Australian Herring in Victoria peaked at approximately 32 t in 2002 [VFA, unpublished data]. Since then annual catches have been lower at between < 1 to 18.6 t per year. In 2017 the commercial harvest dropped to 190 kg, with none of this catch taken from the historical main fishery of Port Phillip Bay. This is a direct result of changes to management

arrangements for the Port Phillip Bay commercial fishery, particularly the phasing out of commercial netting, and does not indicate changes in stock availability. Since 2016, 34 of the 43 licences have been bought out by the Victorian government. Commercial net fishing in Port Phillip Bay will cease by 2022 and has already ceased in Corio Bay. Catches of Australian Herring are expected to be low and incidental in the future. Recreational take of Australian Herring is unknown in Victoria, but thought to be low, as it is not a popular target species. The current level of fishing mortality of Australian Herring in Victoria is unlikely to cause the stock to become recruitment impaired.

In South Australia, the levels of fishing effort and catch of Australian Herring have declined substantially over the past 33 years, particularly following the implementation of a series of netting closures in 2005 [Steer et al. 2018]. Total catch of Australian Herring in 2017 was 61.2 t, the lowest on record, reflecting low effort levels. Catch rates within the hauling net sector have been highly variable with no clear trend. This is most likely due to this species being infrequently targeted by the commercial multispecies, multi-gear and multi-sectoral Marine Scalefish Fishery, as a result of Australian Herring having a low market value. The species is a popular target in the state's recreational fishing sector harvesting an estimated 157.23 t in 2014/15 [Giri and Hall 2015]. The current level of fishing mortality of Australian Herring in South Australia is unlikely to cause the stock to become recruitment impaired.

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

BIOLOGY

Australian Herring biology [Smith and Brown 2014]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Australian Herring	12 years, 410 mm TL	180–200 mm TL, 2 years

DISTRIBUTION

Distribution of reported commercial catch of Australian Herring

TABLES

Commercial Catch Methods	New South Wales	South Australia	Victoria	Western Australia
Beach Seine				✓
Gillnet	✓			✓
Hand Line, Hand Reel or Powered Reels				✓
Handline (hand operated)		✓		
Haul Seine	✓			✓
Hook and Line			✓	
Mesh Net		✓		
Net			✓	✓
Purse Seine				✓
Seine Nets		✓		
Trolling				✓
Unspecified		✓		✓

Fishing methods				
	New South Wales	South Australia	Victoria	Western Australia
Commercial				
Beach Seine				✓
Gillnet	✓			✓
Hand Line, Hand Reel or Powered Reels				✓
Handline (hand operated)		✓		
Haul Seine	✓			✓
Mesh Net		✓		
Net			✓	
Purse Seine				✓
Seine Nets		✓		
Trolling				✓
Unspecified		✓		✓
Indigenous				
Handline	✓	✓		
Recreational				
Handline	✓	✓	✓	✓

Management Methods				
	New South Wales	South Australia	Victoria	Western Australia

Charter				
Gear restrictions	✓			
Licence	✓			
Spatial closures	✓			
Commercial				
Effort limits		✓		
Gear restrictions		✓	✓	✓
Limited entry	✓	✓	✓	✓
Spatial closures	✓	✓	✓	✓
Temporal closures		✓		
Indigenous				
Bag limits	✓	✓		
Customary fishing permits			✓	
Native Title	✓			
Section 37 (1d)(3)(9), Aboriginal cultural fishing authority	✓			
Recreational				
Bag limits		✓	✓	✓
Gear restrictions	✓		✓	
Licence	✓		✓	
Licence (Recreational Fishing from Boat License)				✓
Possession limit				✓
Spatial closures	✓		✓	

Active Vessels			
	South Australia	**Victoria**	**Western Australia**
	1 Licences in MSF || MISC, 70 Licences in MSF, 1 Licences in NZRLF, 1 Licences in SZRLF.	6 Licence Holders in CIF, 1 Licence Holders in GLF, 1 Licence Holders in OF, 4 Licence Holders	<3 in CSFNMF, 20 in SCEMF, 9 in SWCBNF, 9 in WCEMF, 25 in WL (SC), 6 in Charter, <3

		in PPBWPF,	in FBLC93, 6 in WL (NC || GC || WC),

MSF Marine Scalefish Fishery(SA)

NZRLF Northern Zone Rock Lobster Fishery(SA)

SZRLF Southern Zone Rock Lobster Fishery(SA)

CIF Corner Inlet Fishery(VIC)

GLF Gippsland Lakes Fishery(VIC)

OF Ocean Fishery(VIC)

PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC)

CSFNMF Cockburn Sound (Fish Net) Managed Fishery(WA)

SCEMF South Coast Estuarine Managed Fishery(WA)

SWCBNF South West Coast Beach Net Fishery (Order)(WA)

WCEMF West Coast Estuarine Managed Fishery(WA)

WL (SC) Open Access in the South Coast(WA)

Charter Tour Operator(WA)

FBLC93 Fishing Boat Licence Conditions(WA)

WL (NC || GC || WC) Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions(WA)

MSF || MISC Marine Scale Fishery (including Misc Fishery)(SA)

Catch				
	New South Wales	**South Australia**	**Victoria**	**Western Australia**
Commercial		61.1535t in MSF || NZRLF || SZRLF || MISC,	0.1898t in CIF,	87.187t in CSFNMF || FBLC93 || SCEMF || SWCBNF || WCEMF || WL (NC, GC, WC) || WL (SC),
Indigenous	Unknown	Unknown	Unknown (No catch under permit)	Unknown
Recreational	Unknown	157.23 t (in 2013/14)	Unknown	0.03 t in Charter

EGF Estuary General Fishery (NSW), NZRLF Northern Zone Rock Lobster Fishery (SA), SZRLF Southern Zone Rock Lobster Fishery (SA), CIF Corner Inlet Fishery (VIC), GLF Gippsland Lakes Fishery (VIC), OF Ocean Fishery (VIC), PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC), CSFNMF Cockburn Sound (Fish Net) Managed Fishery (WA), SCEMF South Coast Estuarine Managed Fishery (WA), SWCBNF South West Coast Beach Net Fishery (Order) (WA), WCEMF West Coast Estuarine Managed Fishery (WA), WL (SC) Open Access in the South Coast (WA), MISC Various Fisheries combined due to 3 boat rule (SA), FBLC93 Fishing Boat Licence Conditions (WA), WL (NC || GC || WC) Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions (WA), MSF || NZRLF || SZRLF || MISC Marine Scale Fishery (including Northern & Southern Zone Rock Lobster Fishery and Misc Fishery) (SA), CSFNMF || FBLC93 || SCEMF || SWCBNF || WCEMF || WL (NC, GC, WC) || WL (SC) Various Fisheries combined due to 3 boat rule (WA),

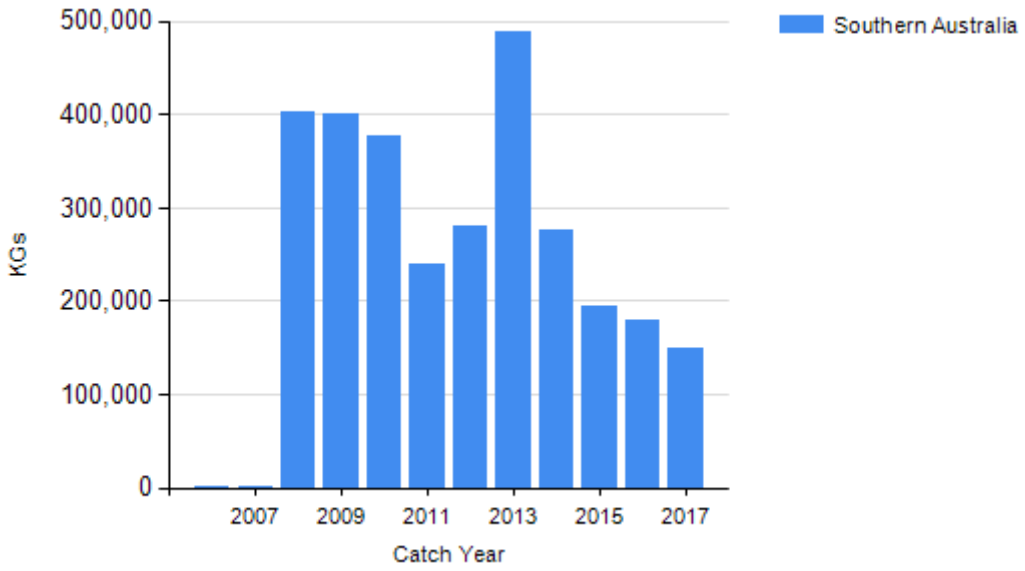
Western Australia - Recreational catch estimated in 2015/16, for boat-based fishing only [Ryan et al. 2017]. Current shore-based catch is unknown.

New South Wales – Indigenous (management method) (a) Aboriginal fishing interim compliance policy (increased bag limits) - 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; (b) 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; and (c) 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 method) 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 Australia Herring - note confidential catch not shown.

EFFECTS OF FISHING ON THE MARINE ENVIRONMENT

ENVIRONMENTAL EFFECTS on Australian Herring

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