

# Western Australian Salmon (2023)

*Arripis truttaceus*



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## STOCK STATUS OVERVIEW

Jurisdiction	Stock	Stock status	Indicators
Western Australia, Victoria, South Australia	Western Australia	Sustainable	Catch, CPUE, length and age composition, fishing mortality, spawning stock biomass

## STOCK STRUCTURE

The Western Australian Salmon biological stock is distributed from Kalbarri in Western Australia southwards to South Australia, Victoria and the west coast of Tasmania. The species spawns in Western Australia and eggs and larvae are dispersed by the Leeuwin Current. The fish then grow and mature in eastern waters before moving back towards their spawning areas in the west.

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

## STOCK STATUS

### Western Australia

This cross-jurisdictional biological stock has components in Western Australia, South Australia and Victoria. The status presented here for the entire biological stock has been established using evidence from all jurisdictions. However, the breeding component of this stock resides exclusively in Western Australia, with only immature/nonbreeding fish occurring in South Australia and Victoria [Cappo et al. 2000].

The most recent assessment for the Western Australian Salmon was completed in 2023 and followed the Western Australian Department of Primary Industries and Regional Development (DPIRD) risk-based Weight of Evidence approach

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[Duffy et al. 2023]. The assessment considered data on annual catches, effort, catch distributions, nominal catch per unit effort (CPUE), and length and age composition data. Analyses applied for this assessment included vulnerability and susceptibility to fishing (PSA) analysis, catch-MSY analysis, catch curve analysis and per recruit analysis. Stock status was determined primarily based on estimates of fishing mortality, female spawning potential ratio (SPR), and relative female spawning biomass ( $B_{rel}$ ).

Historically, the majority of commercial landings of this species were taken in Western Australia. In Western Australia, the commercial catch from the 1940s until the mid-2000s followed a stable trend, averaging approximately 2,000 tonnes (t) per year (range 1,000–4,000 t per year). In the late 2000s, catch and effort declined sharply due to weak market demand and low wholesale prices. Annual commercial catches in Western Australia since 2010 have been at historically low levels of less than 400 t per year, reflecting ongoing low levels of targeting by commercial fishers. Recreational catches in recent years are likely to have been lower than commercial catches, although there is considerable uncertainty regarding recreational catches due to lack of information about shore-based recreational fishing.

The marked reduction in fishing effort in recent years has coincided with decreases in length and age-based estimates of fishing mortality (F) and increases in female SPR and  $B_{rel}$  to above the target level of 0.4, for the past two assessments. The most recent estimates of F were, however, higher than expected given the very low levels of fishing catch since 2000, which may be associated with difficulties obtaining representative samples for this lightly fished species. Female  $B_{rel}$  is considered to be a more informative indicator of stock status than F as estimates of  $B_{rel}$  account for a broader range of information on species biology (e.g., growth, reproductive parameters and stock-recruitment dynamics) and fishing characteristics (e.g., gear selectivity and fish retention). Overall, the lines of evidence indicate the stock is not experiencing overfishing and is not overfished, therefore risk assessment indicates that minor stock depletion is considered likely.

In South Australia, the commercial fishery has predominantly used hauling nets with a small number of specialist Salmon fishers using purse seine nets [Smart et al. 2023]. From 1983–84 to 2002–03, annual commercial catches were between 500–600 t, with most of the catch taken by specialised purse seine fishers. Catches have been low in most of the last 20 years as several key purse seiners exited the fishery in the early 2000s, while those that remained have been relatively inactive due to weak market demand and targeting in the haul net sector has been low. Catch increased during the mid-2010s as purse seine activity was reactivated, and subsequent higher economic value of the fishery suggested emerging markets for this species. However, it then progressively declined to 90 t in 2020–21 before increasing to 323 t in 2021–22 [Smart et al. 2023]. Catch rates for both major gear types have been characteristically variable, with those of the purse seiners operating in southern gulf waters considerably higher than those of the haul netters operating in gulf waters. Western Australian Salmon is an iconic recreational fishery species in South Australia. The recreational survey in 2021–22 estimated that 154,614 (SE  $\pm$  50,843) Salmon were captured, of which approximately 45% were released [Beckmann et al. 2023]. The retained fish contributed to an estimated total recreational harvest weight of 82 t (SE  $\pm$  16).

In Victoria, Western Australian Salmon are subject to very low exploitation by recreational and commercial fisheries. The species is not a common target in the major Victorian bay and inlet fisheries; for example, "Salmon" were listed as the

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primary target species by only 0.38% of recreational fishers interviewed in creel surveys in Port Phillip Bay [Bell et al. 2023]. Western Australian Salmon are targeted in small-scale recreational fisheries elsewhere (e.g., in estuaries and along the coast), however these catches are likely small within the context of the species' wide-ranging behaviour and ability to use a diverse range of habitats [Bell et al. 2023].

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

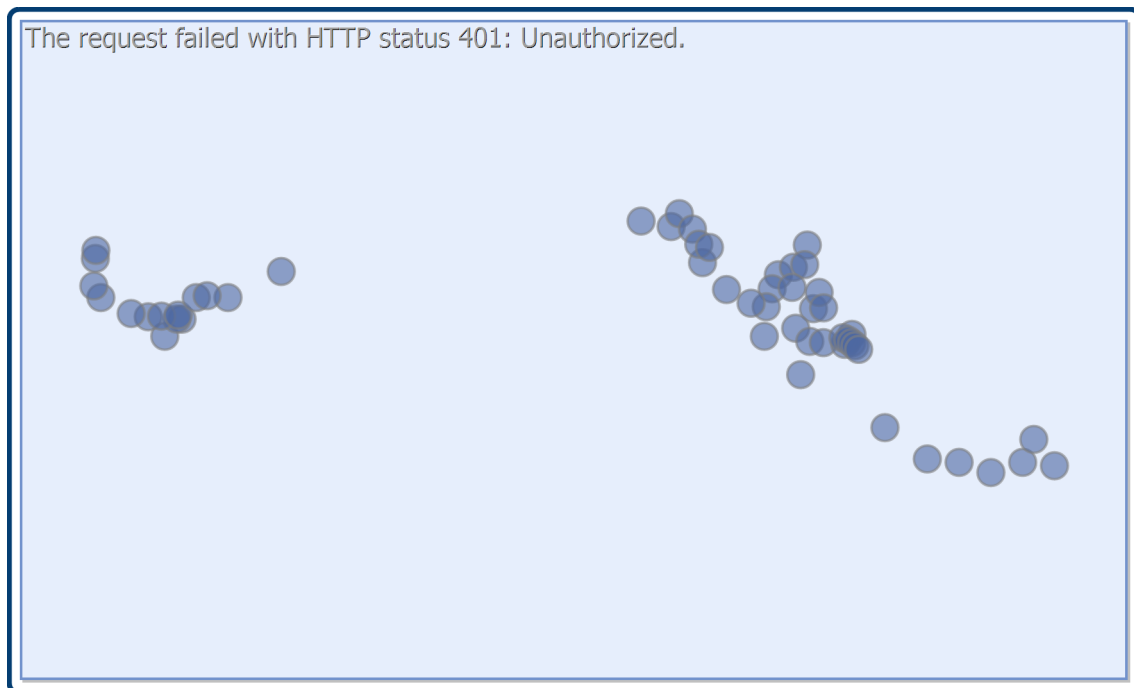
On the basis of the evidence provided above, the entire Western Australia biological stock is classified as a **sustainable stock**.

## BIOLOGY

[Duffy et al 2023; Hutchins and Swainston 1986]

Species	Longevity / Maximum Size	Maturity (50 per cent)
Western Australian Salmon	12 years, 961mm TL	Females: 3.41 years, 536 mm FL Males: 1.95 years, 369mm FL

## DISTRIBUTION



## TABLES

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<b>Fishing methods</b>			
	<b>South Australia</b>	<b>Victoria</b>	<b>Western Australia</b>
<b>Charter</b>			
Rod and reel	✓	✓	✓
<b>Commercial</b>			
Beach Seine			✓
Gillnet	✓		✓
Haul Seine			✓
Hook and Line		✓	
Net		✓	
Purse Seine	✓		
Seine Nets	✓		
Traps and Pots		✓	
Trolling			✓
Unspecified	✓		
<b>Recreational</b>			
Hook and Line		✓	
Rod and reel	✓		✓

<b>Management Methods</b>			
	<b>South Australia</b>	<b>Victoria</b>	<b>Western Australia</b>
<b>Commercial</b>			
Area restrictions		✓	
Catch limits	✓		
Gear restrictions	✓	✓	✓
Limited entry	✓	✓	✓
Size limit	✓		
Spatial zoning			✓
<b>Recreational</b>			
Bag limits	✓	✓	✓
Gear restrictions	✓	✓	

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<b>Licence (Recreational Fishing from Boat License)</b>			✓
<b>Possession limit</b>			✓
<b>Size limit</b>	✓	✓	✓

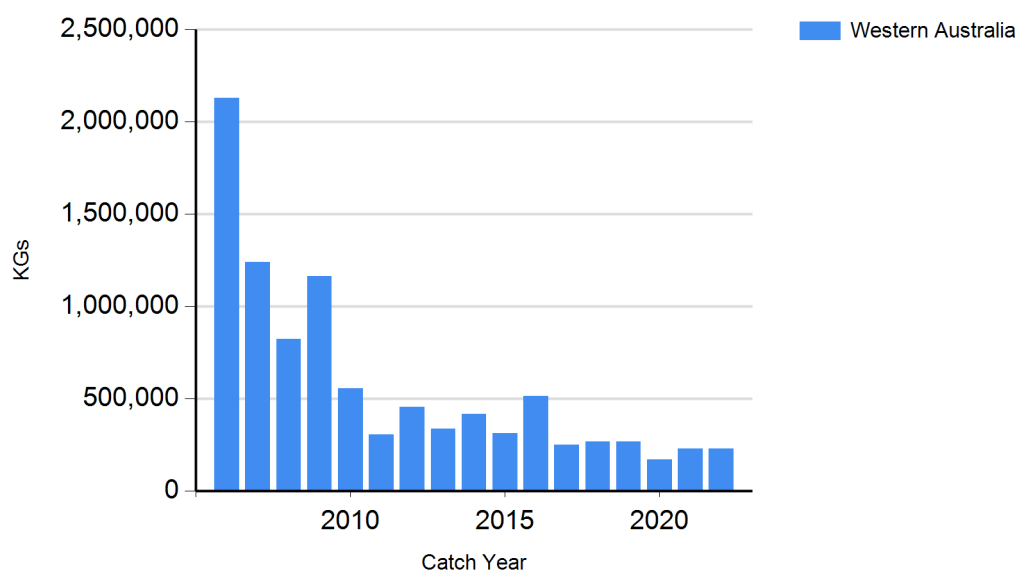
<b>Catch</b>	<b>South Australia</b>	<b>Victoria</b>	<b>Western Australia</b>
<b>Charter</b>	Unknown	Unknown	0.063 t
<b>Commercial</b>	90.5136 t	0 t	137.414 t
<b>Indigenous</b>	Unknown		
<b>Recreational</b>	82 t (in 2021–22)	Unknown	5.3 t (2020–21) Boat-based only

LCF Lakes and Coorong Fishery (SA), MSF Marine Scalefish Fishery (SA), OF Ocean Fishery (VIC), PPBWPF Port Phillip Bay and Western Port Bay Fishery (VIC), SCEMF South Coast Estuarine Managed Fishery (WA), SCSMF South Coast Salmon Managed Fishery (WA), SWCBNF South West Coast Beach Net Fishery (Order) (WA), SWCSMF South West Coast Salmon Managed Fishery (WA), WCEMF West Coast Estuarine Managed Fishery (WA), WL (NC, GC, WC) Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions (WA), WL (SC) Open Access in the South Coast Bioregion (WA), SCEMF || SCSMF || SWCBNF || SWCSMF || WCEMF || WL (NC, GC, WC) || WL (SC) Various Fisheries combined due to 3 boat rule (WA).

**Victoria – Indigenous (Management Methods)** A person who identifies as Aboriginal or Torres Strait Islander is exempt from the need to obtain a Victorian recreational fishing licence, provided they comply with all other rules that apply to recreational fishers, including rules on equipment, catch limits, size limits and restricted areas. Traditional (non-commercial) fishing activities that are carried out by members of a traditional owner group entity under an agreement pursuant to Victoria’s *Traditional Owner Settlement Act 2010* are also exempt from the need to hold a recreational fishing licence, subject to any conditions outlined in the agreement. Native title holders are also exempt from the need to obtain a recreational fishing licence under the provisions of the Commonwealth’s *Native Title Act 1993*.

## CATCH CHART

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References	
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Cappo et al 2000	Cappo, M, Walters, CJ and Lenanton RJ 2000, Estimation of rates of migration, exploitation and survival using tag recovery data for western Australian "salmon" ( <i>Arripis truttaceus</i> : Arripidae: Percoidae). Fisheries Research, 44: 207–217.
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Hutchins & Swainston 1986	Hutchins, B and Swainston, R 1986, Sea fishes of southern Australia: complete field guide for anglers and divers. Swainston Publishing, Perth.