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Supplementary Material

Historical changes in mean trophic level of southern Australian fisheries

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Table S1. Taxonomic groups used for calculating mean trophic level, including historical common names, misapplied or no longer used species synonyms, trophic levels (TL) and standard error of the TL (s.e.), and explanations of any assumptions or derivations for the TLs used

Functional group or species	Common name	Previously used misapplied names	Trophic level (TL)	Assumptions and comments
Haliotis rubra and *Haliotis laevigata*	Abalone		2.0	TL for *Haliotis rubra* available through Sea Around Us Project.
Thunnus alalunga	Albacore tuna		4.31 ± 0.73	
Arripis georgianus	Australian herring	Tommy Rough, Ruff	4.31 ± 0.76	
Arripis truttacea	Australian salmon	Salmon, *Arripis truttaceus, Arripis trutta*	4.20 ± 0.70	
Centroberyx affinis	Bight redfish	Red snapper	3.81 ± 0.59	
Acanthopagrus butcheri	Black bream		3.47 ± 0.53	
Portunus armatus	Blue Crab	*Portunus pelagicus*	2.60	TL for Brachyura available through Sea Around Us Project.
Scomber australasicus	Blue mackerel		4.2 ± 0.74	

Nemadactylus douglasii	Blue morwong		3.46 ± 0.49	
Multiple unknown Nemipteridae spp.	Bream, including tarwhine		3.72	TL for Nemipteridae available through Sea Around Us Project.
Katelysia spp.	Cockles (mud)		2.0	Basic TL for Molluscs available through Sea Around Us Project.
Pseudaphritis urvillii	Congolli		3.27 ± 0.47	
Multiple unknown Brachyura spp.	Crabs		2.60	TL for Brachyura available through Sea Around Us Project.
Sepia apama	Cuttlefish		3.60	TL for Sepiidae available through Sea Around Us Project.
Multiple *Platycephalus*, *Leviprora* and *Thysanophrys* spp.	Flathead		3.95 ± 0.64	TL of known species of Platycephalidae in South Australia averaged (n = 7 spp.).
Multiple *Lophonectes*, *Ammotretis* and *Rhombosolea* spp.	Flounder		3.13 ± 0.24	TL of known species of Plueronectiformes in South Australia averaged (n = 5 spp.).
Hyporhamphus melanochir	Garfish	*Hyporhamphus intermedius*	2.65 ± 0.27	
Trachurus declivis	Jack mackerel		3.93 ± 0.61	
Seriola lalandi	Kingfish	Yellowtail, *Seriola grandis*	4.07 ± 0.34	
Pseudocarcinus gigas	King crab		3.0	Basic TL for Crustacea, available through Sea Around Us Project.
Sillaginodes punctatus	King George whiting	Whiting, Spotted whiting	3.28 ± 0.42	Although two species *Sillaginodes punctatus* (King George whiting) (TL 3.28 s.e. 0.42) and *S. bassensis* (silver whiting) (TL 3.31 s.e. 0.47) are referred to in papers on 1936–46 data the greatest portion of catch is known to be King George whiting. For consistency TL for King George whiting used for all 'whiting' references.
Multiple Monacanthidae spp. (coastal and ocean)	Leatherjacket		2.96 ± 0.37	Generic 'leatherjackets' of the Monacanthidae family are listed in recent Production Statistics, TL of known coastal and ocean Monacanthidae in South Australia is averaged (n = 5 spp.).
Scomber australasicus and *Trachurus declivis*	Mackerel		4.07 ± 0.68	A species for 'mackerel' is not listed in 1936–46 data and could be either *Scomber australasicus* (blue mackerel) (TL 4.2 s.e. 0.74) or *Trachurus declivis* (jack mackerel) (TL 3.93

				s.e. 0.61). Although *S. australasicus* is reported in small quantities in recent Production Statistics the TL of both possible species is averaged for all references to 'mackerel' for consistency.
Dactylophora nigricans and *Nemadactylus douglasii*	Morwong		3.18 ± 0.44	'Morwong' is listed in recent Production Statistics with two species names provided *Dactylophora nigricans* (dusky morwong) (TL 2.89 s.e. 0.38) and *Nemadactylus douglasii* (blue morwong) (TL 3.46 s.e. 0.49). There is no determination of which species contributes what component of a catch and the TL of both species is averaged.
Aldrichetta forsteri, *Liza argentea*, *Upeneichthys vlamingii* and *Mugil cephalus*	Mullet	*Upeneichthys porosus* and *Upeneichthys lineatus*	2.75 ± 0.33	Three species of mullet are listed in 1936–46 data and 'mullet' may also refer to *Aldrichetta forsteri* (yellow-eye mullet), this species has therefore been included, TL of all four species averaged for historical references to 'mullet'.
Argyrosomus japonicus	Mulloway	Butterfish, *Sciaena antarctica*	4.48 ± 0.72	
	Mussels		2.0	Basic TL for Molluscs available through Sea Around Us Project.
Octopus spp.	Octopus		3.58	TL for Octopoda available through Sea Around Us Project.
Multiple Labridae spp.	Parrotfish		3.46 ± 0.50	Generic 'parrotfish' of the Labridae family are listed in the recent Production Statistics. The TL of known coastal and ocean Labridae spp. in South Australia is averaged (N = 10 spp.)
Donax deltoides	Pipi		2.0	Basic TL for Molluscs available through Sea Around Us Project.
Multiple unknown Rajiforme spp.	Rays & skates		3.61	TL for Rajiformes available through Sea Around Us Project.
Pinna bicolor	Razor fish		2.0	Basic TL for Molluscs available through Sea Around Us Project.
Upeneichthys vlamingii	Red mullet		3.46 ± 0.54	
Jasus edwardsii	Rock lobster	Crayfish, *Jasus lalandii*	3.50	TL for *Jasus novaehollandiae* only available through Sea Around Us Project, TL of *J. novaehollandiae* applied as surrogate TL for *J. edwardsii.*
Ovalipes australiensis	Sand crabs		2.60	TL for Brachyura available through Sea Around Us Project.
Sardinops sagax	Sardine	Pilchard, *Sardinia*	2.43 ± 0.12	

		neopilchards		
Pectinidae spp.	Scallops		2.0	TL for Pectinidae spp. available through Sea Around Us Project.
Multiple species	Shark		4.31 ± 0.53	Species of shark are not listed in 1936–46 data. 'Sweet william' (gummy shark) and 'shark' are reported against, but never in the same year. It is therefore assumed that in the years reporting under 'shark' a majority of the catch was in fact sweet william, although it is likely that large quantities of other species were also marketed. For consistency across time, without knowing all species caught, the TL for sweet william (TL 4.31 s.e. 0.53) is applied to all references of 'shark'. This has negligible impact on overall TL as 4.31 s.e. 0.53 is a relative median for other shark species, e.g. *Carcharhinus* spp. (bronze whaler) (TL 4.49 s.e. 0.76) and *Galeorhinus galeus* school shark (TL 4.21 s.e. 0.65).
Katsuwonus pelamis	Skipjack Tuna		3.75 ± 0.61	
Chrysophrys auratus	Snapper	*Pagrus auratus*	3.32 ± 0.47	
Sphyraena novaehollandiae	Snook		4.50 ± 0.80	
Thunnus maccoyii	Southern bluefin tuna		3.93 ± 0.53	Although three species of tuna *Thunnus maccoyii* (Southern Bluefin Tuna) (TL 3.93 s.e. 0.53), *Thunnus alalunga* (Albacore) (TL 4.31 s.e. 0.73), and *Katsuwonus pelamis* (Skipjack tuna) (TL 3.75 s.e. 0.61) are referred to in papers on 1936–46 data the statistics more often list 'bluefin' or 'southern bluefin' quantities. For consistency TL for southern bluefin tuna used for all 'tuna' references.
Sepioteuthis australis	Southern calamary	Squid	4.13	TL for Teuthida available through Sea Around Us Project.
Octopus spp. and *Sepia apama*	Squid, octopus & cuttlefish		3.77	Aggregate of three TLs.
Pelates octolineatus	Striped perch		2.59 ± 0.14	
Multiple *Scorpis* spp.	Sweep		3.32 ± 0.41	*Scorpis georgianus* is listed in 1936–38 data; however, generic sweep of the Scorpididae family are listed in recent Production Statistics. For consistency TL of known *Scorpis* spp. in South Australia is averaged (n = 3 spp.).
Mustelus antarcticus	Sweet William		4.31 ± 0.53	Gummy shark
Pseudocaranx georgianus	Trevally		3.64 ± 0.58	Trevally is the common name for *Pseudocaranx georgianus*

and *Pseudocaranx wrighti*				(silver, or white trevally) (TL 3.92 s.e. 0.68) and *Pseudocaranx wrighti* (skipjack trevally) (TL 3.35 s.e. 0.48). There is no determination of which species contributes what component of catch, TL of both species is averaged.
Achoerodus gouldii	Western blue groper	Groper, Blue groper	3.78 ± 0.59	
Penaeus (Melicertus) latisulcatus	Western king prawn	Prawn	2.70	TL for *Penaeus* spp. available through Sea Around Us Project.
Aldrichetta forsteri	Yellow-eye mullet		2.51 ± 0.26	
Sillago schomburgkii	Yellow fin whiting	Western sand whiting	3.21 ± 0.38	