

The following supplement accompanies the article

Contributions of body size, habitat and taxonomy to predictions of temperate Australian fish diets

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SUPPLEMENT 4

Table S1 Prey type percentage of proportions correct and mean number of fish used in the model for different cut-offs for the whole dataset. Proportions correct were estimated as the overlap between the predicted and observed data for each prey type.

Cut-off	Mean proportion correct	Mean number of fish
0.01	75.8	1.1
0.02	75.3	1.3
0.03	74.6	1.5
0.04	74.0	1.8
0.05	73.7	2.0
0.1	71.8	3.2
0.2	48.9	14.6
0.3	28.8	46.9
0.4	24.1	107.8
0.5	22.9	199.4
0.6	22.4	311.0
0.7	22.3	414.2
0.8	22.2	508.5
0.9	22.2	596.3
1	22.3	680.2

Table S2. Percentage correct of the prey type for a random selection of individuals per species. Shown are the number of species and number of fish used in the model to estimate the percentage of the prey type correct. The percentage correct was estimated as the overlap between the percentage of each prey type and the observed prey. The optimum number of fish per species was 12 with an average of 77% correct predicted prey types.

No. of fish per species	No. of species	No. of fish	% correct
2	62	124	69
5	51	255	76
10	43	430	76
12	42	504	77
15	41	615	76
20	37	740	75
All animals	79	2974	75

Table S3. ANOVA results for the predictors for mean prey size for the full dataset. Asterisks denote statistically significant differences (***) = $p < 0.001$). WW = \log_e wet weight of consumer fish.

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Species	78	6154.3	78.9	266	< 2.20E-16	***
WW	1	544.7	544.7	1837	< 2.20E-16	***
Prey type	9	327.8	36.42	123	< 2.20E-16	***
Habitat	2	0.6	0.32	1.09	0.34	
Site	5	20.8	4.16	14	< 1.28E-13	***
Month	3	33.1	11.02	37	< 2.20E-16	***
Residuals	4195	1243.9	0.3			

Table S4. ANOVA results for the predictors for mean prey size for the subset of 12 individuals per species. Asterisks denote statistically significant differences (**= $p < 0.01$; *** = $p < 0.001$). WW = \log_e wet weight of consumer fish.

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Species	41	1159.6	28.3	121.9	< 2.2E-16	***
WW	1	138	138	594.6	< 2.2E-16	***
Prey type	8	53.9	6.7	29	< 2.2E-16	***
Habitat	2	0.2	0.1	0.4	0.66	
Site	5	4.9	1	4.3	<0.001	***
Month	3	3.5	1.1	5	0.002	**
Residuals	644	149.5	0.2			

Table S5. Number of fish surveyed with gut contents in Western Port. Average wet weight (WW) in grams, maximum WW and minimum WW are shown for each species. The average percentage consumed of each prey type by each fish species is shown. Prey abbreviations are: a=algae, oe=other epifauna, ce=crustacean epifauna, ci=crustaceans infauna, s=sponges, me=mollusc epifauna, pi=polychaetes infauna, pe=polychaetes epifauna, f=fish, and mi=mollusc infauna.

Family	Species	Number of fish	Average WW	Max. WW	Min. WW	m										
						a	ce	ci	f	e	mi	oe	oi	s	pe	pi
Apogonidae	<i>Siphamia cephalotes</i>	27	0.83	1.72	0.002	0	99	0	0	1	0	0	0	0	0	0
	<i>Vincentia conspersa</i>	8	1.90	10.85	0.33	0	98	0	0	0	0	0	0	0	2	0
Arripidae	<i>Arripis trutta</i>	43	283.11	416.00	18.68	2	2	0	94	1	0	0	0	0	0	0
	<i>Arripis truttaceous</i>	51	284.17	423.80	87.70	0	0	0	94	6	0	0	0	0	0	0
Atherinidae	<i>Atherinasoma microstoma</i>	3	0.35	0.95	0.04	0	100	0	0	0	0	0	0	0	0	0
	Atherinid sp.	36	0.02	0.13	0.002	0	96	0	0	4	0	0	0	0	0	0
	<i>Kestratherina brevirostris</i>	24	1.04	2.40	0.42	0	93	0	0	0	0	3	0	0	4	0
	<i>Kestratherina esox</i>	22	1.38	5.58	0.25	0	100	0	0	0	0	0	0	0	0	0
Callorhynchidae	<i>Callorhynchus milii</i>	62	647.47	3100.00	36.70	0	10	3	0	5	75	0	0	0	6	0
	<i>Pseudocaranx georgianus</i>	67	222.59	601.00	17.57	2	71	2	0	1	1	0	0	0	22	0
Carangidae	<i>Trachurus declivis</i>	2	349.50	360.00	339.00	0	0	0	100	0	0	0	0	0	0	0
	<i>Dactylophora nigricans</i>	2	148.70	158.80	138.60	0	3	0	0	0	0	0	0	0	48	50
Clinidae	<i>Cristiceps australis</i>	22	5.77	49.20	0.05	0	67	0	32	1	0	0	0	0	0	0
	<i>Heteroclinus adelaidei</i>	16	4.18	7.90	0.03	0	88	0	2	1	0	0	0	0	10	0
	<i>Heteroclinus forsteri</i>	3	0.75	1.08	0.36	0	96	0	0	0	0	0	0	0	4	0
	<i>Heteroclinus perspicillata</i>	133	2.81	24.80	0.014	3	75	0	0	1	0	0	0	0	17	3
Clupeidae	<i>Hyperlophus vittatus</i>	59	0.50	4.50	0.006	0	95	0	0	5	0	0	0	0	0	0
	<i>Sardinops neopilchardus</i>	19	1.04	2.30	0.22	0	98	0	0	2	0	0	0	0	0	0
Diodontidae	<i>Diodon nichthemerus</i>	58	174.05	841.70	0.007	1	75	0	0	5	13	2	0	0	4	0

Family	Species	Number of fish	Average WW	Max. WW	Min. WW	a	ce	ci	f	m e	mi	oe	oi	s	pe	pi	
Engraulidae	<i>Engraulis australis</i>	20	0.89	5.19	0.010	0	84	0	0	15	0	0	0	0	0	0	
Enoplosidae	<i>Enoplosus armatus</i>	3	0.27	0.44	0.18	0	100	0	0	0	0	0	0	0	0	0	
Gempylidae	<i>Thyrsites atun</i>	3	471.47	797.30	116.20	0	0	0	67	33	0	0	0	0	0	0	
Gobiesocidae	<i>Parvicrepis sp.1</i>	20	0.06	0.21	0.007	0	86	5	0	1	0	8	0	0	0	0	
Gobiidae	<i>Arenigobius bifrenatus</i>	69	0.31	3.33	0.002	29	60	6	0	2	0	0	1	0	2	0	
	<i>Arenigobius frenatus</i>	159	0.82	8.10	0.003	35	44	7	0	2	1	0	1	0	9	2	
	<i>Callogobius depressus</i>	1	1.94	1.94	1.94	0	0	0	0	0	0	0	0	0	100	0	
	<i>Favonigobius lateralis</i>	17	0.81	1.50	0.012	17	54	6	0	7	0	0	0	0	16	0	
	<i>Favonigobius tamarensis</i>	124	0.27	1.78	0.003	7	79	4	0	2	0	0	0	0	7	2	
	<i>Gobiopterus semivestitus</i>	14	0.04	0.09	0.003	0	94	6	0	0	0	0	0	0	0	0	0
	<i>Nesogobius hindsbyi</i>	3	0.23	0.34	0.14	0	67	33	0	0	0	0	0	0	0	0	0
	<i>Nesogobius maccullochi</i>	9	0.46	1.54	0.03	0	56	23	0	9	0	0	0	0	12	0	
	<i>Nesogobius pulchellus</i>	22	0.61	1.83	0.012	0	70	6	0	14	0	0	0	0	5	5	
	<i>Pseudogobius olorum</i>	85	0.15	0.37	0.003	60	36	3	0	1	0	0	0	0	0	0	
	<i>Tasmanogobius lasti</i>	7	0.02	0.03	0.012	0	75	25	0	0	0	0	0	0	0	0	
	<i>Hyporhamphus melanochir</i>	25	12.00	76.43	0.44	41	15	0	0	0	0	40	0	0	4	0	
	Monacanthidae	<i>Acanthaluteres spilomelanurus</i>	52	0.67	4.31	0.06	55	22	5	0	8	0	0	0	9	1	0
		<i>Brachaluteres jacksonianus</i>	11	0.31	1.58	0.04	0	65	1	0	22	0	0	0	0	11	0
<i>Eubalichthys gunnii</i>		2	3.35	4.82	1.88	1	16	0	0	73	0	0	0	8	2	0	
<i>Meuschenia freycineti</i>		52	64.11	406.00	0.02	18	11	1	0	39	0	2	0	21	7	0	
<i>Scobinichthys granulatus</i>		2	4.63	8.39	0.88	35	65	0	0	0	0	0	0	0	0	0	
Moridae	<i>Pseudophycis bachus</i>	64	233.49	873.40	123.30	0	60	13	20	5	0	0	0	0	1	0	
Mugilidae	<i>Aldrichetta forsteri</i>	325	281.07	640.00	0.013	49	24	3	0	17	3	0	0	0	2	1	

Family	Species	Number of fish	Average WW	Max. WW	Min. WW	a	ce	ci	f	m e	mi	oe	oi	s	pe	pi
Myliobatidae	<i>Myliobatis australis</i>	2	3465.00	4310.00	2620.00	0	90	0	0	0	0	0	10	0	0	0
Odacidae	<i>Haletta semifaciata</i>	30	78.12	294.30	1.63	1	35	0	3	47	2	0	0	0	8	4
	<i>Muraenichthys</i>															
Ophichthidae	<i>breviceps</i>	6	18.24	35.16	8.20	6	51	9	24	0	0	0	0	0	10	0
Ophidiidae	<i>Genypterus tigerinus</i>	2	280.45	322.30	238.60	0	78	0	22	0	0	0	0	0	0	0
Ostraciidae	<i>Aracana ornata</i>	1	15.96	15.96	15.96	0	52	0	0	0	0	0	0	0	48	0
	<i>Parascyllium</i>															
Parascylliidae	<i>ferrugineum</i>	4	675.55	1018.10	512.80	0	0	0	0	21	0	0	0	0	46	33
	<i>Acanthopegasus</i>															
Pegasidae	<i>lancifer</i>	1	0.65	0.65	0.65	0	79	21	0	0	0	0	0	0	0	0
	<i>Pentaceropsis</i>															
Pentacerotidae	<i>recurvirostris</i>	1	1093.00	1093.00	1093.00	0	0	0	0	0	0	100	0	0	0	0
	<i>Platycephalus</i>															
Platycephalidae	<i>bassensis</i>	71	179.96	2274.00	0.11	1	68	1	19	7	0	0	0	0	4	0
	<i>Platycephalus</i>															
	<i>laevigatus</i>	93	525.07	1850.00	0.03	1	61	0	35	3	0	0	0	0	0	1
Pleuronectidae	<i>Ammotretis rostratus</i>	8	12.60	34.03	0.88	0	72	5	0	0	0	0	0	0	23	0
	<i>Rhombosolea tapirina</i>	33	110.80	470.50	0.003	0	56	4	4	2	7	0	0	0	19	8
Pomatomidae	<i>Pomatomus saltator</i>	19	276.85	404.00	208.85	0	0	0	95	5	0	0	0	0	0	0
Rajidae	<i>Raja lemprieri</i>	2	373.20	542.30	204.10	0	86	11	0	3	0	0	0	0	0	0
	<i>Trygonorrhina</i>															
Rhinobatidae	<i>guanerius</i>	3	4741.68	7300.00	103.70	0	83	0	0	0	0	0	0	0	16	0
	<i>Neosebastes</i>															
Scorpaenidae	<i>scorpaenoides</i>	3	5.73	12.50	2.07	0	37	0	0	14	0	0	0	0	49	0
Scyliorhinidae	<i>Juncrus vincenti</i>	1	406.00	406.00	406.00	0	20	0	0	80	0	0	0	0	0	0
Sillaginidae	<i>Sillaginodes punctatus</i>	52	40.31	310.60	0.007	6	70	6	0	0	0	0	0	0	17	2
	<i>Sillago bassensis</i>	1	84.60	84.60	84.60	0	0	0	0	93	0	0	0	0	7	0
	<i>Sphyaena</i>															
Sphyaenidae	<i>novaehollandiae</i>	2	1252.00	1288.00	1216.00	0	0	0	100	0	0	0	0	0	0	0
Syngnathidae	<i>Hippocampus</i>	1	0.19	0.19	0.19	0	100	0	0	0	0	0	0	0	0	0

Family	Species	Number of fish	Average WW	Max. WW	Min. WW	a	ce	ci	f	m	e	mi	oe	oi	s	pe	pi
	<i>abdominalis</i>																
	<i>Mitotichthys</i>																
	<i>semistriatus</i>	87	0.56	2.65	0.07	0	99	1	0	0	0	0	0	0	0	0	0
	<i>Stigmatopora argus</i>	61	0.32	1.03	0.010	0	98	0	0	2	0	0	0	0	0	0	0
	<i>Stigmatopora nigra</i>	194	0.14	1.55	0.002	0	100	0	0	0	0	0	0	0	0	0	0
	<i>Stipecampus cristatus</i>	1	3.49	3.49	3.49	5	0	27	0	0	0	0	0	0	0	68	0
	<i>Urocampus</i>																
	<i>carinirostris</i>	143	0.16	1.17	0.005	1	92	6	0	1	0	0	0	0	0	0	0
	<i>Vanacampus phillipi</i>	102	0.37	1.25	0.005	0	95	2	0	0	0	0	0	0	0	3	0
Tetraodontidae	<i>Contusus brevicaudus</i>	8	147.57	508.40	1.63	0	39	0	0	13	48	0	0	0	0	0	0
	<i>Contusus richiei</i>	1	0.02	0.02	0.02	0	100	0	0	0	0	0	0	0	0	0	0
	<i>Tetractenos glaber</i>	134	25.96	66.50	1.95	2	71	2	0	7	4	0	0	0	1	9	3
	<i>Gymnapistes</i>																
Tetrarogidae	<i>marmoratus</i>	57	18.09	54.30	0.008	0	85	2	1	1	0	0	0	0	0	11	0
Triakidae	<i>Galeorhinus australis</i>	8	311.93	426.20	224.10	0	0	0	81	19	0	0	0	0	0	0	0
	<i>Mustelus antarcticus</i>	81	1841.61	6200.00	186.40	1	88	0	3	0	0	0	0	0	0	4	4
Urolophidae	<i>Urolophus cruciatis</i>	8	97.88	308.30	45.10	0	45	2	0	0	0	0	4	0	48	1	
	<i>Urolophus</i>																
	<i>paucimaculatus</i>	5	153.44	398.60	23.70	0	54	5	0	19	0	0	0	0	0	22	0
	<i>Urolophus viridis</i>	2	20.80	27.70	13.90	0	82	15	0	0	0	0	0	0	0	3	0