Supporting Information

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Table S1. Total mercury values (mean ± SD) of prey taxa from Hawaiian waters measured in this study

Taxonomic group	*n*	Size, mm	Depth category	Ref(s).	Day-time depth range, m	THg, μg/kg
Mixed Zooplankton	5	1–2	epi	1	0–200	2.26 ± 3.23
Invertebrates						
Phylum Ctenophora						
Ctenophores (unidentified)	3	20–30 TL	other	2	0–600	0.00 ± 0.00
Phylum Chordata, Subphylum Tunicata						
Class Thaliacea						
Pyrosomes (unidentified)	2 (8)	14–36 TL	upmeso.dvm	2, 3	400–600+	3.49 ± 4.94
Salps (unidentified)	3 (7)	200–400 TL	upmeso.dvm	2, 4	400–600+	0.00 ± 0.00
Phylum Arthropoda						
Subphylum Crustacea						
Order Amphipoda						
Phronima sp.	2 (6)	17–23 TL	lomeso.dvm	5, 6	400–975	0.00 ± 0.00
Order Decapoda						
Crab Megalopae (unidentified)	3 (14)	3–14 CL	epi	7, 8	0–200	0.94 ± 1.63
Janicella spinacauda	7 (10)	7–16 CL	upmeso.dvm	9	500–600	30.39 ± 23.82
Lobster Phyllosoma (unidentified)	5	42–67 CL	upmeso.dvm	10	80–400	18.54 ± 13.61
Oplophorus gracilirostris	5	9–20 CL	upmeso.dvm	9, 11	500–650	90.23 ± 103.20
Sergestes sp.	5	8–25 CL	upmeso.dvm	12, 13	200–600	45.61 ± 51.29
Sergia sp.	5	6–10 CL	upmeso.dvm	12, 13	300–600	0.45 ± 1.01
Systellapsis sp.	5	5–44 CL	lomeso.dvm	9, 12	600–1100	22.63 ± 38.18
Order Euphausiacea						
Euphausiids (unidentified)	2 (7)	5–7 CL	upmeso.dvm	14, 15	400–600	7.72 ± 10.92
Order Isopoda						
Anuropus sp.	1	16.6 TL	upmeso.perm	16, 17	200–800	52.83
Order Lophogastrida						
Lophogaster sp.	4	7–11 CL	epi	2	0–200	1.11 ± 1.70
Order Stomatopoda						
Stomatopods (J) (unidentified)	5 (13)	6–26 CL	epi	18	0–150	0.00 ± 0.00
Phylum Mollusca						
Class Cephalopoda						
Abralia trigonura	4	27–33 ML	upmeso.dvm	19, 20	450–650	22.82 ± 6.17
Abraliopsis pacificus	2	30–33 ML	upmeso.dvm	19, 21	500–600	12.96 ± 4.91
Abraliopsis sp. A	5	17–35 ML	upmeso.dvm	19, 21	500–700	12.39 ± 10.54
Hyaloteuthis pelagicus	9	22–56 ML	epi	22, 23	0–200	1.39 ± 2.44
Onychoteuthis sp.	5	20–29 ML	lomeso.dvm	20	400–1000	20.73 ± 37.30
Sthenoteuthis oualaniensis	3	194–210 ML	lomeso.dvm	20, 22	500–1000	50.13 ± 20.35
Class Gastropoda						
Thecosome pteropods (unidentified)	1 (9)	6–10 TL	upmeso.dvm	24	300+	57.45
Heteropods (unidentified)	4 (12)	10–20 TL	epi	25, 26	0–140	12.64 ± 14.66
Fishes						
Class Actinopterygii, Infraclass Teleostei						
Family Alepisauridae - *Alepisaurus ferox*	2	375–465 SL	upmeso.perm	27, 28	0–1000+	30.45 ± 38.09
Family Berycidae - *Beryx splendens*	5	169–225 SL	upmeso.perm	29, 30	200–800+	223.00 ± 74.62
Family Bramidae (J)	3	18–40 SL	epi	31, 32	0–50	0.90 ± 1.56
Family Bregamacerotidae - *Bregmaceros* sp.	3	65–70 SL	lomeso.dvm	33	600–800	32.07 ± 13.14
Family Carangidae (J)	5	30–61 SL	epi	31, 32	0–50	0.29 ± 0.45
Family Chaetodonidae - *Chaetodon* sp. (J)	5 (9)	15–26 SL	epi	31, 32	0–50	24.94 ± 28.53
Family Chiasmodontidae	4	40–69 SL	lomeso.perm	2	600+	22.95 ± 10.46
Family Congridae - Leptocephalus larvae	1 (5)	56–66 TL	epi	34, 35	80–200	0.00
Family Engraulidae - *Encrasicholina purpurea*	4 (12)	50–63 SL	epi	36	0–100	7.15 ± 1.52
Family Exocoetidae - *Exocoetus* sp.	3	53–65 SL	epi	37	0–50	28.90 ± 19.82
Family Gempylidae - *Gempylus serpens*	2	49–186 TL	epi	33, 38	0–200	1.46 ± 2.07
Nealotus tripes	6	29–71 SL	epi	33, 38	50–250	0.00 ± 0.00
Family Gonostamidae - *Cyclothone* sp.	4 (12)	35–50 TL	upmeso.perm	15, 39	400–600	34.85 ± 12.46
Sigmops ebelingi	5	107–121 TL	lomeso.dvm	39	520–700	21.15 ± 10.16
Family Hemiramphidae -*Euleptorhamphus viridis*	3 (4)	129–230 SL	epi	37	0–50	27.56 ± 3.64
Family Howellidae - *Howella brodiei brodiei*	4	19–51 SL	upmeso.perm	2	400–600+	5.00 ± 5.89
Family Molidae - *Ranzania laevis* (J)	1	122 SL	epi	34, 40	0–200	14.07
Family Myctophidae - *Bolinichthys distofax*	2	87–88 SL	lomeso.perm	41	500–700	195.85 ± 31.08
Bolinichthys longipes	5	32–42 SL	lomeso.dvm	41, 42	525–725	21.27 ± 13.85
Ceratoscopelus warmingii	6	53–78 SL	lomeso.dvm	41	600–1000	7.05 ± 13.34

Taxonomic group	*n*	Size, mm	Depth category	Ref(s).	Day-time depth range, m	THg, μg/kg
Diaphus perspicillatus	5	48–55 SL	lomeso.dvm	41	300–1000	80.36 ± 34.72
Lampanyctus niger	5	51–77 SL	lomeso.dvm	41, 42	640–900	31.37 ± 33.66
Lampanyctus nobilis	5	41–77 SL	lomeso.dvm	41, 42	590–1200	9.39 ± 4.36
Family Opisthoproctidae - *Opisthoproctus* sp.	3	63–69 SL	upmeso.perm	33	400–725	46.00 ± 10.21
Family Paralepididae - *Lestidium* sp.	5	60–141 SL	epi	43	0–200	3.82 ± 4.07
Family Phosichthyidae - *Vinciguerria* sp.	5 (10)	26–31 SL	upmeso.dvm	44	400–600	4.04 ± 2.66
Family Scombrolabracidae - *Scombrolabrax heterolepsis*	1	69 SL	lomeso.dvm	33, 37	750–1000	44.22
Family Serrivomeridae - *Serrivomer* sp.	5	24–45 JL	lomeso.dvm	2, 37	500–1000	37.81 ± 15.41
Family Sternoptychidae - *Argyropelacus* sp.	5	41–59 SL	upmeso.perm	42, 45	200–600	23.37 ± 8.74
Sternoptyx sp.	6	19–33 SL	lomeso.perm	42, 45	500–1000	9.40 ± 10.18
Family Stomiidae - Idiacanthinae	5	225–300 TL	lomeso.dvm	44	600–800	29.98 ± 18.52
Malacosteus niger	5	53–83 SL	lomeso.dvm	44	500–900	34.17 ± 9.11
Family Tetraodontidae (J)	3	5–10 SL	epi	31, 32	0–50	6.27 ± 10.86

(J) indicates that the juvenile form of the organism was sampled. Also included are sample size (where numbers in parentheses indicate total pooled individuals), organism size (where TL is total length, CL is carapace length, ML is mantle length, SL is standard length, and JL is jaw length), and assigned ecological depth category (where epi is epipelagic, upmeso.dvm is upper mesopelagic migrant, upmeso.perm is upper mesopelagic nonmigrant, lomeso.dvm is lower mesopelagic migrant, lomeso.perm is lower mesopelagic nonmigrant—see *Results and Discussion* section of text for details) with referenced literature. Referenced day-time depths of occurrence (m) are also included.

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