Table S1. Capture locations, dates, sexes, masses and lengths of white sharks used in this study. TL = total length, FL = fork length, PCL = precaudal length. Shark mass excludes the weight of stomach contents. For some individuals (denoted with *), mass was not available and was therefore estimated from PCL (mass (kg) = 1×10^{-8}PCL(mm)$^{3.30394}$, n = 41, r^2 = 0.92). This relationship was obtained from the sharks for which mass was measured directly.

Region	Beach Name	Date	Sex	Mass (kg)	TL (mm)	FL (mm)	PCL (mm)	Prey Present?
North Coast	Evans Head	27/05/2017	M	291.5	2670	2430	2150	No
Hunter	Stockton	20/10/2017	M	41.3	1674	1498	1328	No
Central Coast	Avoca	27/11/2016	M	47.5	1886	1725	1550	No
Central Coast	North Avoca	14/11/2014	M	30.6	1710	1510	1400	No
Sydney	Maroubra	20/11/2015	M	NA	1786	1584	1404	No
North Coast	Sharpes	20/01/2017	F	NA	2900	2630	2350	No
North Coast	Ballina South Wall	20/04/2017	F	NA	3200	NA	NA	No
Hunter	Merewether	15/09/2017	F	80.7	2258	1946	1734	No
Sydney	Coogee	26/10/2018	F	91.6	2400	2100	1870	No
Illawarra	Austinmer	11/01/2016	F	66.4	1950	1720	1520	No
Illawarra	Wattamolla	25/11/2016	F	78.6	2195	1988	1770	No
Jervis Bay	Washerwoman’s Beach	23/06/2018	F	36.2	1620	1490	1320	No
Mid North Coast	Bluey's Beach	21/06/2017	M	134.6	2644	2365	2144	Yes
Hunter	Redhead	7/09/2017	M	187.3	2802	2456	2196	Yes
Hunter	Stockton	13/11/2015	M	94.4	2210	1930	1734	Yes
Hunter	Stockton	25/10/2016	M	130.0	2460	2220	1970	Yes
Central Coast	Catherine Hill Bay	7/09/2015	M	NA	NA	NA	NA	Yes
Central Coast	Caves	1/12/2015	M	87.3	2140	1950	1728	Yes
Central Coast	Lakes	25/09/2014	M	30.5	1720	1510	1390	Yes
Central Coast	Lakes	15/10/2015	M	41.5*	1850	1644	1460	Yes
Central Coast	Kilcare	11/10/2017	M	145.8	2560	2300	2010	Yes
Central Coast	Kilcare	18/01/2018	M	209.6	2910	2600	2330	Yes
Central Coast	MacMasters	13/10/2017	M	185.1	2870	2530	2250	Yes
Central Coast	North Avoca	27/11/2016	M	45.4	1942	1670	1530	Yes
Central Coast	Terrigal	8/12/2014	M	80.2	2190	1910	1700	Yes
Central Coast	Umina	27/10/2017	M	70.8	2160	1896	1670	Yes
Sydney	North Steyne	9/02/2015	M	102.8	2460	2240	2010	Yes
Sydney	Bondi	19/11/2014	M	105.6	2460	2130	1970	Yes
Illawarra	Wattamolla	23/09/2015	M	269.6	3140	2760	2460	Yes
Illawarra	Wattamolla	30/04/2018	M	65.9*	2350	2100	1700	Yes
Illawarra	Austinmer	24/04/2017	M	63.4	1901	1730	1530	Yes
North Coast	Sharpes	24/05/2017	F	291.5	3370	3001	2700	Yes
Hunter	Bar	16/11/2015	F	63.1	1940	1690	1520	Yes
Hunter	Redhead	6/01/2015	F	128.9	2530	2270	2020	Yes
Hunter	Stockton	7/09/2016	F	55.9*	2060	1830	1611	Yes
Hunter	Stockton	25/10/2016	F	195.4	2810	2520	2285	Yes
Hunter	Stockton	25/10/2016	F	53.6	1900	1690	1495	Yes
Hunter	Stockton	1/11/2016	F	150.1	2800	2459	2234	Yes
Hunter	Stockton	15/09/2017	F	139.1	2620	2310	2070	Yes
Central Coast	Blacksmiths	21/01/2016	F	107.9*	2420	1810	2000	Yes
Central Coast	Blacksmiths	14/09/2018	F	59.5	1850	1662	1460	Yes
Central Coast	Blacksmiths	4/10/2018	F	94.8	2080	1800	1640	Yes

Central Coast	Catherine Hill Bay	22/03/2019	F	34.2	1620	1380	1238	Yes
Central Coast	Lakes	25/09/2014	F	45.7	1930	1680	1510	Yes
Central Coast	Lakes	9/09/2015	F	38.1*	1830	1590	1420	Yes
Sydney	North Steyne	27/10/2014	F	44.7	1850	1620	1460	Yes
Sydney	Bondi	27/11/2008	F	81.8*	2300	1992	1825	Yes
Sydney	Bondi	16/11/2012	F	71.0	2105	1860	1710	Yes
Sydney	Maroubra	19/11/2018	F	905.5	4650	4170	3690	Yes
Illawarra	Wattamolla	2/05/2016	F	112.6	2900	2550	2310	Yes
Illawarra	Austinmer	3/01/2014	F	52.7	1750	1550	1410	Yes
Hunter	Stockton	4/09/2015	NA	NA	NA	NA	NA	Yes

Table S2. Length-length and length-weight relationships used to calculate reconstructed masses of prey items from white shark stomachs. All lengths and weights are in millimeters and grams, respectively, unless otherwise noted. Measurement abbreviation definitions are in the table footnotes.

Prey Taxon	**Species Used For Reconstruction**	**Relationship**	**n**	**x range**	**R^2**	**Reference**
Length-length relationships:						
Ophisurus serpens	Same	TL = -314.03+471.16*OD	8	OD = 1.05-4.07 mm	0.988	Data extracted from figures in Smale et al., 1995 and AFORO Web Otolith Database (Lombarte et al., 2006)
Mugil cephalus	Same	Ln(FL) = 2.9577+1.3165*ln(OD)	36	OD = 1.69-13.00 mm	0.978	Smale et al., 1995
Arripis trutta	Same	FL (cm) = $204.98 \cdot OM^{0.625}$	2219	OM = 0.0021-1.89 g	0.970	Hughes, 2012
Arripis trutta	Same	FL = $9.600739 \cdot LD1^{1.038067}$	143	-	-	Leach et al., 1996
Achoerodus viridis	*Achoerodus* sp.	TL = 292.49*OH-381.52	6	OH = 2.21-4.07 mm	0.951	Data extracted from figures in Gillanders, 1995 and Coulson, 2008
Sillago ciliata	Same	FL = 373.75*OM+204.27	14	OM = 0.14995-0.40303 g	0.816	Grainger, R. unpublished data
Uranoscopidae	Combined *Ichthyscopus* sp. and *Uranoscopus* sp.	TL = 19.015*OD+36.544	14	OD = 4.06-25.0 mm	0.879	Data extracted from figures in Furlani et al., 2007, Rivaton and Bourret, 1999 and AFORO Web Otolith Database (Lombarte et al., 2006)
Platycephalidae	*Platycephalus bassensis*	TL = $27.32 \cdot OD^{1.03}$	36	OD = 2.35-18.4 mm	0.980	Furlani et al., 2007
Aetobatus ocellatus	*Aetobatus narutobiei*	DW = LJPW/0.042	18	-	-	White et al., 2013
Myliobatis sp.	*Myliobatis hayameli*	DW = LJPW/0.050	12	-	-	White et al., 2015
Urolophidae	*Urolophus* sp.	TL = 4.2824*SCT-11.753	10	SCT = 36.3-88.5 mm	0.981	Grainger, R. unpublished data
Sepia rozella	Same	ML = 1.0246*CBL-0.878	20	CBL = 53.77-131.22 mm	0.994	Grainger, R. unpublished data
Sepia apama	Same	ML = -6.79+8.47*LCL	32	-	0.990	Lu and Ickeringill, 2002
Sepioteuthis australis	Same	ML = -20.78+67.89*LRL	36	-	0.930	Lu and Ickeringill, 2002
Length-weight relationships:						
Ophisurus serpens	Same	M = $0.0006 \cdot TL(cm)^{2.99}$	47	-	-	Froese and Pauly, 2019
Mugil cephalus	Same	Ln(M) = -2.245 + 3.8509*ln(OD)	28	OD = 1.69-13.00 mm	0.976	Smale et al., 1995
Arripis trutta	Same	M = $0.0236 \cdot FL(cm)^{2.890}$	-	FL = 5-60 cm	-	Hartill and Davey, 2015
Pseudocaranx georgianus	*Pseudocaranx dentex*	M = $0.0486 \cdot FL(cm)^{2.7398}$	211	FL = 7-53 cm	0.989	Graham, 1999
Trachurus novaezelandiae	Same	M = $0.00004782 \cdot FL^{2.77}$	3068	FL = 130-400 mm	-	Horn, 1991
Achoerodus viridis	*Achoerodus gouldii*	Ln(M)= 3.041*Ln(TL)-11.017	756	-	0.997	Coulson et al., 2009
Sillago ciliata	Same	M = 2.7171*FL-522.05	15	FL = 258-363 mm	0.948	Grainger, R. unpublished data
Uranoscopidae	*Kathetostoma laeve*	M = $0.000009531 \cdot TL^{3.149}$	18	TL = 172-599 mm	0.969	Furlani et al., 2007
Pleuronectiformes	*Pseudorhombus arsius*	log(M) = -2.676 + 3.535*log(TL(cm))	16	TL = 11.4-23.6 cm	0.975	Hussain et al., 2007
Platycephalidae	*Platycephalus bassensis*	M = $1.31 \cdot 10^{-6} \cdot TL^{3.286}$	63	TL = 63-537 mm	0.998	Furlani et al., 2007
Aetobatus ocellatus	*Aetobatis narinari*	M(kg) = $2.76 \cdot 10^{-5} \cdot DW(cm)^{2.87}$	393	DW = 41.4-203.0 cm	0.950	Bassos-Hull et al., 2014

Table S2 continued.

Prey Taxon	Species Used For Reconstruction	Relationship	n	x range	R^2	Reference
Myliobatis sp.	*Myliobatis tenuicaudatus*	$M = 0.0023*DW(cm)^{3.4812}$	152	DW = 32-96 cm	0.992	Graham, 1999
Urolophidae	*Urolophus paucimaculatus*	$M = 1.13791*10^{-5}*TL^{2.972}$	957	TL = ?-500 mm	0.967	Trinnie et al., 2014
Hypnos monopterygius	Same	$M = 0.0006*DW^{2.7059}$	6	DW = 140-330 mm	0.964	Grainger, R. unpublished data
Tursiops aduncus	Same	$M(kg) = 0.00002*TBL(cm)^{2.9011}$	607	TBL = 100-262 cm	0.938	Plön et al., 2012
Sepia rozella	Same	$M = 0.0008*ML^{2.6207}$	21	ML = 53.0-132.5 mm	0.983	Grainger, R. unpublished data
Sepia apama	Same	$\ln(M) = -7.05 + 4.11*\ln(LCL)$	7	-	0.940	Lu and Ickeringill, 2002
Sepioteuthis australis	Same	$\ln(M) = 1.71 + 3.34*\ln(LRL)$	7	-	0.910	Lu and Ickeringill, 2002

TL, total length; FL, fork length; OD, otolith diameter; OH, otolith height (measured in line with primordium); OM, otolith mass; LD1, left dentary length (see description in Leach et al., 1996); DW, disc width; LJPW, lower jaw plate width; SCT, spine to caudal tip length – distance from anterior (base) of spine to tip of caudal fin; ML, mantle length; CBL, cuttlebone length (excluding spine); LCL, lower crest length; LRL, lower rostral length; TBL, total body length; M, total body mass.

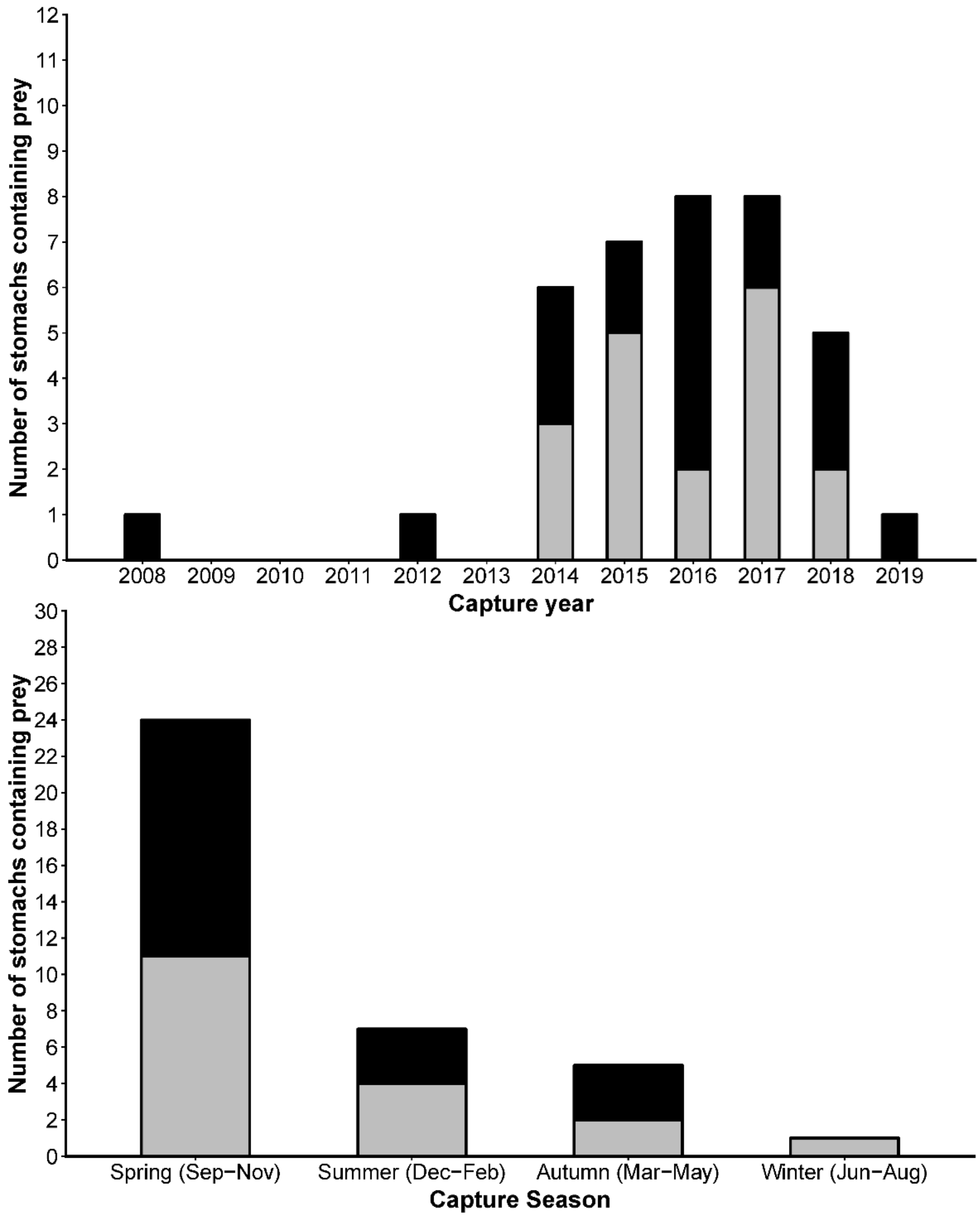

Figure S1. Stacked histograms showing the numbers of female (black) and male (grey) white sharks sampled by year (top) and season (bottom) which contained prey (empty stomachs excluded). Histograms only include the sharks (n = 18 males, 19 females) that were used in generalised linear (prey functional group comparisons) and linear modelling (diet nutritional comparisons). One female containing unidentified prey, one male where length was unavailable and one shark with no sex or length information are excluded (all of these were caught in September 2015).

Table S3. Small sample size corrected Akaike Information Criterion (AIC_c) ranking of binomial generalised linear models (GLM) predicting the probability of occurrence of functional prey groups in the stomachs of white sharks by precaudal length (PCL) and sex.

Response Variable (GLM family and link function)	**Model**	**AIC_c**	**ΔAIC_c**
Pelagic Teleosts	**~Null**	**47.15**	**0.00**
(Binomial GLM, logit link)	~PCL	48.93	1.78
	~Sex	49.32	2.17
	~Sex + PCL	51.24	4.09
Reef-associated Teleosts	**~ Null**	**34.91**	**0.00**
(Binomial GLM, logit link)	~ PCL	36.45	1.54
	~ Sex	37.15	2.24
	~ Sex + PCL	38.81	3.90
Demersal Teleosts	**~ Null**	**48.74**	**0.00**
(Binomial GLM, logit link)	~ Sex	49.29	0.55
	~ PCL	49.99	1.25
	~ Sex + PCL	50.75	2.01
Sharks	**~ Sex + PCL**	**18.31**	**0.00**
(Binomial GLM, clog-log link)	~ PCL	18.54	0.23
	~ Null	22.94	4.63
	~ Sex	24.75	6.44
Batoids	**~ Sex**	**45.88**	**0.00**
(Binomial GLM, logit link)	~ Sex + PCL	46.13	0.25
	~ Null	48.74	2.86
	~ PCL	49.38	3.50
Mammals	**~ PCL**	**19.88**	**0.00**
(Binomial GLM, clog-log link)	~ Sex + PCL	20.34	0.46
	~ Null	22.94	3.06
	~ Sex	24.75	4.87
Cephalopods	**~ Null**	**31.42**	**0.00**
(Binomial GLM, logit link)	~ PCL	33.43	2.01
	~ Sex	33.49	2.07
	~ Sex + PCL	35.66	4.24

Table S4. Estimates and significance (bold p values) of binomial generalised linear models favoured by small sample size corrected Akaike Information Criterion predicting the frequency of occurrence of prey groups in the stomachs of white sharks. Note a false discovery rate adjusted critical level of $p<0.0375$ is used (Benjamini and Hochberg, 1995).

Response Variable (link function)	**Coefficient**	**Estimate**	**SE**	**z-value**	**Pr(>|z|)**
Pelagic Teleosts (logit link)	Intercept	-0.8602	0.3597	-2.392	0.0168
Reef-associated Teleosts (logit link)	Intercept	-1.6420	0.4460	-3.682	0.0002
Demersal teleosts (logit link)	Intercept	-0.7340	0.3512	-2.090	0.0366
Sharks (clog-log link)	Intercept	-13.3971	6.5735	-2.038	0.0415
	SexMale	3.1607	2.7707	1.141	0.2540
	PCL	0.0039	0.0018	2.091	**0.0365**
Batoids (logit link)	Intercept	-1.6740	0.6291	-2.661	0.0078
	SexMale	1.6740	0.7862	2.129	**0.0332**
Mammals (clog-log link)	Intercept	-7.1896	2.2221	-3.235	0.0012
	PCL	0.0022	0.0008	2.526	**0.0115**
Cephalopods (logit link)	Intercept	-1.8563	0.4809	-3.860	0.0001

Table S5. Small sample size corrected Akaike Information Criterion (AIC_c) ranking of Poisson and negative binomial generalised linear models (GLM) predicting the numerical abundance of functional prey groups in the stomachs of white sharks by precaudal length (PCL) and sex.

Response Variable (GLM family)	**Model**	**AIC_c**	**ΔAIC_c**
Pelagic Teleosts (Negative binomial GLM)	**~ Null**	**93.67**	**0.00**
	~ Sex	94.66	0.99
	~ PCL	95.21	1.54
	~ Sex + PCL	96.53	2.86
Reef-associated Teleosts (Poisson GLM)	**~ Null**	**35.94**	**0.00**
	~ PCL	37.58	1.64
	~ Sex	38.18	2.24
	~ Sex + PCL	39.94	4.00
Demersal Teleosts (Negative Binomial GLM)	**~ Sex**	**75.74**	**0.00**
	~ Null	77.40	1.66
	~ Sex + PCL	77.43	1.69
	~ PCL	78.78	3.04
Sharks (Poisson GLM)	**~ Sex + PCL**	**20.36**	**0.00**
	~ PCL	20.70	0.34
	~ Null	23.19	2.83
	~ Sex	25.03	4.67
Batoids (Poisson GLM)	**~ Sex**	**69.25**	**0.00**
	~ Sex + PCL	71.40	2.15
	~ Null	76.40	7.15
	~ PCL	78.42	9.17
Mammals (Poisson GLM)	**~ PCL**	**21.62**	**0.00**
	~ Sex + PCL	22.02	0.40
	~ Null	23.19	1.57
	~ Sex	25.03	3.41
Cephalopods (Poisson GLM)	**~ Null**	**32.13**	**0.00**
	~ PCL	34.18	2.05
	~ Sex	34.22	2.09
	~ Sex + PCL	36.42	4.29

Table S6. Estimates and significance (bold p values) of Poisson and negative binomial generalised linear models (GLM; log link) favoured by small sample size corrected Akaike Information Criterion predicting the numerical abundance of prey groups in the stomachs of white sharks by precaudal length (PCL) and sex. Note a false discovery rate adjusted critical value of p<0.01 is used (Benjamini and Hochberg, 1995).

Response Variable (GLM family)	**Coefficient**	**Estimate**	**SE**	**z-value**	**Pr(>|z|)**
Pelagic Teleosts (Negative binomial GLM)	Intercept	0.0526	0.4187	0.126	0.9000
Reef-associated Teleosts (Poisson GLM)	Intercept	-1.8192	0.4082	-4.456	<0.0001
Demersal teleosts (Negative binomial GLM)	Intercept	-0.1719	0.3601	-0.477	0.6332
	SexMale	-1.3322	0.6712	-1.985	0.0472
Sharks (Poisson GLM)	Intercept	-12.7707	7.2297	-1.776	0.0773
	SexMale	3.5687	3.0853	1.157	0.2474
	PCL	0.0034	0.0019	1.730	0.0837
Batoids (Poisson GLM)	Intercept	-1.8458	0.5774	-3.197	0.0013
	SexMale	1.6635	0.6325	2.630	**0.0085**
Mammals (Poisson GLM)	Intercept	-5.9519	1.8988	-3.135	0.0017
	PCL	0.0015	0.0007	2.252	0.0243
Cephalopods (Poisson GLM)	Intercept	-2.0015	0.4472	-4.475	<0.0001

Table S7. Proximate compositions of prey species of white sharks in eastern Australia, extracted from the literature. Compositions are expressed as the wet mass percentage of water, protein and lipid which are the main nutritional components of marine prey.

Prey Species	Common Name	Taxon Used for Composition	Study Area	% Water	% Protein	% Lipid	Reference
Ophisurus serpens	Serpent Eel	Ophichthidae	-	76.34	18.20	5.46	Sidwell, 1981
Mugil cephalus	Sea Mullet	Same	New Zealand	68.08	20.61	11.31	Vlieg, 1988
Arripis trutta	Eastern Australian Salmon	Same	New Zealand	67.84	20.12	12.03	Vlieg, 1988
Pseudocaranx georgianus	Silver Trevally	Same	New Zealand	75.16	20.17	4.68	Vlieg, 1988
Trachurus novaezelandiae	Yellowtail Scad	*Trachurus declivis*	New Zealand	74.45	19.40	6.15	Vlieg, 1988
Labridae	Wrasse	Labridae	-	79.12	18.84	2.04	Sidwell, 1981
Sillago ciliata	Sand Whiting	Same	-	77.16	21.62	1.22	Sidwell, 1981
Uranoscopidae	Stargazer	*Kathetostoma giganteum*	New Zealand	80.21	16.56	3.23	Vlieg, 1988
Pleuronectiformes	Flatfish	Pleuronectiformes[A]	New Zealand	78.13	18.88	2.99	Vlieg, 1988
Platycephalidae	Flathead	*Platycephalus indicus*	Bangladesh	80.84	18.86	0.30	Bogard et al., 2015
Lamnidae	Mackerel Shark	Lamnidae[B]	New Zealand, Australia	76.39	22.65	0.96	Vlieg et al., 1993, Pethybridge et al., 2014
Sphyrna zygaena	Smooth Hammerhead	*Sphyrna lewini*	Hawaii	75.32	22.61	2.07	Lowe, 2002
Carcharhinus sp.	Whaler Shark	*Carcharhinus* sp.[C]	-	76.83	21.83	1.33	Sidwell, 1981
Aetobatus ocellatus	Whitespotted Eagle Ray	*Aetobatus narinari*	India	77.43	21.96	0.61	Devadoss, 1984
Myliobatis sp.	Eagle Ray	*Myliobatis peruvianus*	-	77.54	21.54	0.92	Sidwell, 1981
Rhinoptera neglecta	Australian Cownose Ray	*Rhinoptera* sp.[D]	USA	78.83	20.49	0.68	Sidwell 1981, Licciardello and Ravesi, 1987
Urolophidae	Stingaree	*Dasyatis* sp.[E]	-	80.45	19.03	0.51	Sidwell, 1981
Hypnos monopterygius	Coffin Ray	Torpedinidae[F]	Argentina	85.39	13.34	1.27	Sidwell, 1981, Eder and Lewis, 2005

Tursiops aduncus	Bottlenose Dolphin	*Tursiops truncatus*[G]	USA, China	55.26	18.29	26.45	Dunkin et al., 2005, Hao et al., 2008, Mallette et al., 2016
Sepia rozella	Rosecone Cuttlefish	*Sepia* sp.[H]	Bay of Biscay, Australia	83.76	15.08	1.16	Spitz et al., 2010, Battam et al., 2010
Sepia apama	Giant Cuttlefish	Same	Australia	85.76	13.21	1.03	Battam et al., 2010
Sepioteuthis australis	Southern Calamari	Same	New Zealand	79.88	17.89	2.24	Vlieg, 1988

[A]Average for *Rhombosolea plebeia, R. leporina, Pelotretis flavilatus* and *Peltorhamphus novaezeelandiae*; [B]Average for *Carcharodon carcharias* and *Isurus oxyrhinchus*; [C]Average for *Carcharhinus limbatus*, *C. brachyurus*, *C. falciformis*; [D]Average for *Rhinoptera jayakari*, *R. bonasus*; [E]Average for *Dasyatis pastinaca, D. kuhlii, D. uarnak, D. akajei*; [F]Average for *Torpedo torpedo*, *Discopyge tschudii;* [G]Whole body composition estimated using the proximate composition of blubber and muscle (Dunkin et al., 2005, Hao et al., 2008), weighted by the contribution of each tissue to total body mass (Mallette et al., 2016); [H]Average for *Sepia apama, S. officinalis.*

Table S8. Proximate compositions of prey species of white sharks from South Africa, extracted from the literature. Compositions are expressed as the wet mass percentage of water, protein and lipid which are the main nutritional components of marine prey. Common names taken from Hussey et al. (2012).

Prey Species	Common Name	Taxon Used for Composition	Study Area	% Water	% Protein	% Lipid	Reference
Anguilliformes	Eel	Anguilliformes[A]	-	74.17	18.88	6.95	Sidwell, 1981
Sardinops sagax	South African Pilchard	Same	Australia	68.10	21.88	10.02	Bunce, 1991
Pomadasys commersonii	Spotted Grunter	Same	South Africa	74.26	20.23	5.51	Marais, 1990
Argyrosomus hololepidotus	Kob	Same	South Africa	78.02	19.84	2.14	Marais, 1990
Atractoscion aequidens	Geelbek	Same	-	77.29	20.20	2.51	Sidwell, 1981
Scomber japonicus	Chub Mackerel	Same	Argentinia	74.09	17.26	8.65	Eder and Lewis, 2005
Epinephelus rivulatus	Halfmoon Rockcod	*Epinephelus* sp.[B]	-	79.83	19.14	1.03	Sidwell, 1981
Pagellus natalensis	Red tjor-tjor	Same	-	79.86	19.63	0.51	Sidwell, 1981
Sarpa salpa	Karenteen	Same	-	76.80	20.31	2.89	Sidwell, 1981
Sparidae[C]	Other Sparids	Same	-	78.30	18.47	3.23	Sidwell, 1981
Ariidae	Sea Catfish	*Galeichthys feliceps*	South Africa	74.96	18.93	6.11	Marais and Venter, 1991
Squalus sp.	Dogfish	*Squalus acanthias*	New Zealand	72.90	17.59	9.51	Vlieg, 1988
Rhincodon typus	Whale Shark	Same	India	87.53	10.29	2.18	Devadoss, 1984
Carcharhinus obscurus	Dusky Whaler	*Carcharhinus* sp.[D]	-	80.63	19.06	0.31	Gooch et al., 1987, Sidwell, 1981
Carcharhinus plumbeus	Sandbar Shark	Same	-	81.26	18.24	0.50	Gooch et al. 1987
Carcharhinus brachyurus	Copper Shark	Same	-	79.96	19.94	0.11	Sidwell, 1981
Rhizoprionodon acutus	Milk Shark	Same	Oman	74.08	25.34	0.58	Ali et al., 2013
Sphyrna sp.	Hammerhead Shark	*Sphyrna lewini*	Hawaii	75.32	22.61	2.07	Lowe, 2002
Alopiidae	Thresher Shark	*Alopias vulpinus*	-	78.48	20.22	1.30	Sidwell, 1981
Carcharias taurus	Spotted Ragged Tooth Shark	Same	Nigeria	73.59	25.54	0.87	Emokpae, 1983
Rhinobatidae	Guitarfish	*Rhinobatos hynnicephalus*	-	77.13	16.40	6.48	Sidwell, 1981
Dasyatidae	Stingray	Dasyatidae[E]	-	80.45	19.03	0.51	Sidwell, 1981
Aetobatus narinari	Spotted Eagle Ray	Same	India	77.43	21.96	0.61	Devadoss, 1984

Aetomylaeus bovinus	Bull Ray	Myliobatidae[F]	India	77.48	21.75	0.77	Devadoss, 1984, Sidwell, 1981
Mobula birostris	Manta Ray	No Data	-	-	-	-	-
Pinnipedia	Seal	*Arctocephalus gazella*[G]	South Georgia	66.11	21.13	12.76	Arnould et al., 1999
Tursiops aduncus	Dolphin	*Tursiops truncatus*[H]	USA, China	54.47	18.61	26.92	Dunkin et al., 2005, Hao et al., 2008, Mallette et al., 2016
Mysticeti	Whale (Blubber)	*Balaenoptera physalus*	North Atlantic	42.61	12.36	45.03	Lockyer et al., 1985
Octopodiformes	Octopus	*Octopus vulgaris*	-	83.88	15.29	0.83	Sidwell, 1981
Loligo sp.	Loligo Squid	*Loligo vulgaris*	Bay of Biscay	78.88	19.57	1.55	Spitz et al., 2010
Chiroteuthidae	Chiroteuthid Squid	*Chiroteuthis calyx*	Bering Sea	88.19	6.72	5.09	Sinclair et al., 2015
Sepiida	Cuttlefish	*Sepia officianalis*	Bay of Biscay	81.68	17.03	1.29	Spitz et al., 2010

[A]Average for Muraenidae, Congridae, Ophichthidae; [B]Average for *Epinephelus aeneus, E. goreensis, E. morio, E. corallicola, E. marginatus*; [C]Used as the value for *Cheimerius nufar, Chrysoblephus anglicus, Sparodon durbanesis, Chrysoblephus puniceus* and *Pachymetopon grande* since nutritional data for these Sparids were not available; [D]Average of *Carcharhinus plumbeus*, *C. brachyurus*; [E]Average for family Dasyatidae in Sidwell, 1981; [F]Average for *Aetobatus narinari*, *Myliobatis peruvianus*; [G]*Arctocephalus gazella* used as it is the only fur seal species where whole-body proximate composition has been measured directly (on homogonised individuals); [H]Whole body composition estimated using the proximate composition of blubber and muscle (Dunkin et al., 2005, Hao et al., 2008), weighted by the contribution of each of these tissues to total body mass (Mallette et al., 2016). This value was used for all dolphins since nutritional compositions were not available for other species (e.g. *Delphinus delphis*).

Table S9. Small sample size corrected Akaike Information Criterion (AIC_c) rankings of linear models predicting the nutritional compositions of diets of white sharks by sex and precaudal length (PCL).

Response Variable	**Model**	**AIC_c**	**ΔAIC_c**
Logit(%Water)	**~ Null**	**21.28**	**0.00**
	~ PCL	21.94	0.66
	~ Sex	23.04	1.76
	~ Sex + PCL	23.76	2.48
Logit(%Protein)	**~ Sex**	**-40.93**	**0.00**
	~ Null	-39.91	1.02
	~ Sex + PCL	-38.47	2.46
	~ PCL	-37.62	3.31
Logit(%Lipid)	**~ PCL**	**109.45**	**0.00**
	~ Null	109.60	0.15
	~ Sex	111.87	2.42
	~ Sex + PCL	111.89	2.44
Ln(P:L)	**~ PCL**	**104.37**	**0.00**
	~ Null	104.65	0.28
	~ Sex + PCL	106.60	2.23
	~ Sex	106.71	2.34
Stomach content energy density ($E_{density}$; kJ g^{-1} stomach content mass)	**~ PCL**	**159.14**	**0.00**
	~ Null	159.36	0.22
	~ Sex + PCL	161.42	2.28
	~ Sex	161.55	2.41
Mass-specific energy intake (E_{shark}; kJ kg^{-1} shark mass)	**~ Null**	**526.66**	**0.00**
	~ Sex	526.69	0.03
	~ PCL	528.84	2.18
	~ Sex + PCL	528.96	2.30

Table S10. Estimates and significance of small sample corrected Akaike Information Criterion favoured linear models predicting the nutritional composition of the diet of white sharks by sex and precaudal length (PCL).

Response Variable	**Coefficient**	**Estimate**	**SE**	**t-value**	**Pr(>|t|)**
Logit(%Water)	Intercept	1.1209	0.0507	22.11	<0.0001
Logit(%Protein)	Intercept	-1.4805	0.0300	-49.392	<0.0001
	SexMale	0.0789	0.0430	1.836	0.0749
Logit(%Lipid)	Intercept	-4.2556	0.6963	-6.112	<0.0001
	PCL	0.0006	0.0004	1.574	0.1250
Ln(P:L)	Intercept	2.6166	0.6501	4.025	0.0003
	PCL	-0.0005	0.0003	-1.615	0.1153
Stomach content energy density ($E_{density}$; kJ g^{-1} stomach content mass)	Intercept	3.2966	1.3628	2.419	0.0209
	PCL	0.0011	0.0007	1.595	0.1196
Mass-specific energy intake (E_{shark}; kJ kg^{-1} shark mass)	Intercept	210.08	46.88	4.482	<0.0001

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