

Foraging ecology of loggerhead sea turtles *Caretta caretta* in the central Mediterranean Sea: evidence for a relaxed life history model

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Appendix 1. *Caretta caretta*. Taxa identified in gut and fecal samples of 79 loggerhead turtles. Habitat: pelagic (P) or benthic (B). Catch mode: T: Trawl; L: Longline; O: Other (see 'Materials and methods' in the main text). N: number of turtles in which the taxon was found. *New record in loggerhead prey species. Notes: (a) size range of the sponge; (b) diameter of the polyp; (c) mean adult size; (d) adult size range; (e) adult size range (tube length); (f) colony size range; (g) adult size range (spines excluded); (h) egg case size range; (i) frond length range; (j) leaf length range; na: not applicable.

Phylum, Kingdom, Class	(Subclass) Order	(Suborder) Family	Species	Habitat	Catch mode	N	Frequency of prey (%)	Common name	Size (cm) (notes)
ANIMALIA									
Porifera									
Demospongiae	Hadromerida	Chondrosiidae	<i>Chondrosia reniformis</i>	B	O	1	1.3	Sponges	na
Demospongiae	Hadromerida	Suberitidae	<i>Suberites domuncula</i> *	B	T	7	8.9	Kidney sponge	na
Demospongiae	Halichondrida	Axinellidae	<i>Axinella</i> sp.	B	L, T	2	2.5	Hermit crab sponge	5–20 (a)
Demospongiae	Dictyoceratida	Spongiidae	<i>Spongia officinalis</i> *	B	L	1	1.3	Sponges	na
Demospongiae	Dictyoceratida	Spongiidae	<i>Spongia officinalis</i> *	B	L	1	1.3	Bath sponge	10–40 (a)
Cnidaria									
Anthozoa	Madreporaria	Dendrophyllidae	<i>Astroides calycularis</i> *	B	T	1	1.3	Orange coral	1–2 (b)
Anthozoa	Madreporaria	Favidae	<i>Cladocora cespitosa</i>	B	T	1	1.3	Stony coral	0.5–1 (b)
Anthozoa	Actinaria	Hormathiidae	<i>Calliactis parasitica</i> *	B	T	2	2.5	Hermit crab anemone	2–5 (b)
Anthozoa	Actinaria	Actiniidae	<i>Anemonia</i> sp.	B	T	1	1.3	Sea anemone	5–20 (b)
Scyphozoa				P	O	1	1.3	Jellyfishes	na
Platyhelminthes									
Turbellaria	Polycladida			B	O	1	1.3	Flatworms	na
Sipunculida									
				B	T	1	1.3	Peanut worms	na
Mollusca									
Bivalvia				B	T, O	28	35.4	Bivalves	na
Bivalvia	Pterioida	Anomiodae	<i>Anomia</i> sp.	B	T	7	8.9	Saddle oyster	3–6 (c)
Bivalvia	Pterioida	Pectinidae	<i>Aequipecten commutatus</i> *	B	L	1	1.3	Scallop	1.5–3 (c)
Gastropoda				B	L, T, O	36	45.6	Gastropods	na
Gastropoda	Thecosomata	Cavoliniidae	<i>Styliola subula</i> *		T, O	11	13.9	Flapping snails	0.5–1.3 (d)
Gastropoda	Thecosomata	Cavoliniidae	<i>Cavolinia tridentata</i>		L	2	2.5	Flapping snails	0.5–2 (d)
Gastropoda	Heterostropha	Pyramidellidae	<i>Turbonilla</i> sp.	B	T	1	1.3	Pyramid shells	0.5–1 (d)
Gastropoda	Archaeogastropoda	Trochidae	<i>Jujubinus</i> cf. <i>montagui</i> *	B	T	4	5.1	Top snails	0.5–1 (d)
Gastropoda	Archaeogastropoda	Trochidae	<i>Gibbula</i> sp.	B	T, O	15	19.0	Top snails	na
Gastropoda	Archaeogastropoda	Trochidae	<i>Gibbula magus</i>	B	T, O	8	10.1	Top snails	1.5–3 (d)

Appendix 1 (continued)

Phylum, Kingdom, Class	(Subclass) Order	(Suborder) Family	Species	Habitat	Catch mode	N	Frequency of prey (%)	Common name	Size (cm) (notes)
Gastropoda	Archaeogastropoda	Trochidae	<i>Gibbula philberti</i> *	B	T	2	2.5	Top snails	0.7–1 (d)
Gastropoda	Archaeogastropoda	Trochidae	<i>Gibbula fanulum</i> *	B	L	1	1.3	Top snails	0.7–1 (d)
Gastropoda	Archaeogastropoda	Calliostomatidae	<i>Calliostoma conulum</i> *	B	T	2	2.5	Top snails	1–3.5 (d)
Gastropoda	Archaeogastropoda	Turbinidae	<i>Bolma rugosa</i>	B	T	1	1.3	Turban snail	2.5–5 (d)
Gastropoda	Archaeogastropoda	Phasianellidae	<i>Tricolia pullus</i> *	B	T	2	2.5	Pheasant snail	0.6–0.8 (c)
Gastropoda	Apogastropoda	Cerithiidae	<i>Cerithium</i> sp.	B	T	3	3.8	Cerith snail	na
Gastropoda	Apogastropoda	Cerithiidae	<i>Cerithium vulgatum</i>	B	T, L	2	2.5	Cerith snail	4–7.5 (d)
Gastropoda	Apogastropoda	Cerithiidae	<i>Bittium</i> sp.	B	T, O	12	15.2	Slender cerith	0.8–1.2 (d)
Gastropoda	Apogastropoda	Turritellidae	<i>Turritella communis</i> *	B	T	1	1.3	Horny auger	3–4.5 (d)
Gastropoda	Apogastropoda	Turritellidae	<i>Turritella mediterranea</i> *	B	L, T, O	13	16.5	Muddy auger	3.5–5.3 (d)
Gastropoda	Apogastropoda	Rissoidae	<i>Rissoa</i> sp.	B	T	3	3.8	Risso's snail	0.5–0.8 (d)
Gastropoda	Apogastropoda	Aporrhaidae	<i>Aporrhais pespelecani</i> *	B	T, O	2	2.5	Common pelican's foot	3–5 (d)
Gastropoda	Apogastropoda	Calyptraeidae	<i>Crepidula unguiformis</i> *	B	L, T, O	17	21.5	Slipper-limpet	1–2.5 (d)
Gastropoda	Apogastropoda	Naticidae	<i>Natica</i> sp.	B	T, O	16	20.3	Moon shell	na
Gastropoda	Apogastropoda	Naticidae	<i>Natica hebraea</i> *	B	T, O	12	15.2	Moon shell	2.5–4 (d)
Gastropoda	Apogastropoda	Naticidae	<i>Natica stercusmuscarum</i>	B	T, O	4	5.1	Moon shell	2.5–4 (d)
Gastropoda	Apogastropoda	Naticidae	<i>Natica dillwynii</i> *	B	L	1	1.3	Moon shell	1–2.5 (d)
Gastropoda	Apogastropoda	Naticidae	<i>Euspira macilenta</i> *	B	L, T	3	3.8	Moon shell	0.7–1.5 (d)
Gastropoda	Apogastropoda	Naticidae	<i>Euspira nitida</i> *	B	L, T	4	5.1	Moon shell	0.7–1.5 (d)
Gastropoda	Apogastropoda	Naticidae	<i>Tectonatica filosa</i> *	B	L	1	1.3	Moon shell	0.7–1.5 (d)
Gastropoda	Apogastropoda	Tonnidae	<i>Phalium</i> sp.	B	T	6	7.6	Bonnet shell	na
Gastropoda	Apogastropoda	Tonnidae	<i>Phalium undulatum</i>	B	T, L	6	7.6	Bonnet shell	7–10.5 (d)
Gastropoda	Apogastropoda	Tonnidae	<i>Cassidaria</i> sp.	B	T	1	1.3	Helmet shell	na
Gastropoda	Apogastropoda	Tonnidae	<i>Cassidaria echinophora</i>	B	L	1	1.3	Helmet shell	7–10.5 (d)
Gastropoda	Apogastropoda	Muricidae		B	T	2	2.5	Murex	na
Gastropoda	Apogastropoda	Muricidae	<i>Hexaplex trunculus</i>	B	T	3	3.8	Banded murex	6–9.5 (d)
Gastropoda	Apogastropoda	Muricidae	<i>Bolinus brandaris</i>	B	T	6	7.6	Purple dye murex;	7–10.5 (d)
Gastropoda	Apogastropoda	Muricidae	<i>Dermomurex scalaroides</i> *	B	T	1	1.3	Murex	1–1.8 (d)
Gastropoda	Apogastropoda	Muricidae	<i>Hadriana craticuloides</i> *	B	T, O	11	13.9	Murex	2–4.5 (d)
Gastropoda	Apogastropoda	Muricidae	<i>Coralliophila meyendorffii</i> *	B	T	2	2.5	Coral whelks	0.6–3.5 (d)
Gastropoda	Apogastropoda	Muricidae	<i>Coralliophila squamosa</i> *	B	T	1	1.3	Coral whelks	1–4.5 (d)
Gastropoda	Apogastropoda	Marginellidae		B	T	1	1.3	Margin shells	na
Gastropoda	Apogastropoda	Marginellidae	<i>Volvarina mitrella</i> *	B	T	3	3.8	Margin shells	0.6–0.9 (d)
Gastropoda	Apogastropoda	Cystiscidae	<i>Gibberula</i> sp.	B	T	1	1.3	Margin shells	0.4–0.5 (d)
Gastropoda	Apogastropoda	Costellariidae	<i>Vexillum savignyi</i> *	B	T	4	5.1	Mitre shell	0.5–0.7 (d)
Gastropoda	Apogastropoda	Costellariidae	<i>Vexillum ebenus</i> *	B	T	1	1.3	Mitre shell	2–3.5 (d)
Gastropoda	Apogastropoda	Buccinidae	<i>Euthria cornea</i>	B	L, T, O	9	11.4	Whelk	6.5–6.4 (d)
Gastropoda	Apogastropoda	Fasciariidae	<i>Fusinus rostratus</i>	B	L, T	7	8.9	Spindle shell	3–5.5 (d)
Gastropoda	Apogastropoda	Nassariidae	<i>Nassarius</i> sp.	B	T, O	2	2.5	Dog whelks	na
Gastropoda	Apogastropoda	Nassariidae	<i>Nassarius mutabilis</i> *	B	T	4	5.1	dog whelks	2.2–3 (d)
Gastropoda	Apogastropoda	Nassariidae	<i>Nassarius pygmaeus</i> *	B	T	1	1.3	dog whelks	0.6–0.8 (d)
Gastropoda	Apogastropoda	Nassariidae	<i>Nassarius reticulatus</i>	B	T	1	1.3	dog whelks	2–3 (d)
Gastropoda	Apogastropoda	Cancellariidae	<i>Narona coronata</i> *	B	O	1	1.3	Nutmeg shells	0.7–1.5 (d)
Gastropoda	Apogastropoda	Cancellariidae	<i>Cancellaria cancellata</i> *	B	T	1	1.3	Nutmeg shells	2–3.5 (d)
Gastropoda	Apogastropoda	Conidae	<i>Conus ventricosus</i>	B	T	6	7.6	Cone shell	2.5–5 (d)
Gastropoda	Apogastropoda	Conidae	<i>Comarmodia gracilis</i> *	B	T	3	3.8	Turrid shell	1.5–2.5 (d)

Phylum, Kingdom, Class	(Subclass) Order	(Suborder) Family	Species	Habitat	Catch mode	N	Frequency of prey (%)	Common name	Size (cm) (notes)
Gastropoda	Apogastropoda	Conidae	<i>Mitromorpha crenipicta</i> *	B	T	2	2.5	Turrid shell	0.5–0.8 (d)
Gastropoda	Apogastropoda	Conidae	<i>Mangelia</i> sp.	B	T	3	3.8	Turrid shell	na
Cephalopoda	Sepioidea	Sepiidae	<i>Sepia</i> sp.	B	L, T, O	5	6.3	Cuttlefish	na
Cephalopoda	Sepioidea	Sepiidae	<i>Sepia officinalis</i>	B	T	4	5.1	Common cuttlefish	15–35 (d)
Cephalopoda	Sepioidea	Sepiidae	<i>Sepia elegans</i> *	B	L	1	1.3	Elegant cuttlefish	4–9.5 (d)
Cephalopoda	Teuthoidea	Loliginidae	<i>Alloteuthis media</i>	B	L	1	1.3	Midsized squid	3–14.5 (d)
Cephalopoda	Teuthoidea	Loliginidae	<i>Loligo vulgaris</i>		O	1	1.3	European squid	15–40 (d)
Cephalopoda	Teuthoidea	Onychoteuthidae	<i>Onychoteuthis banksi</i>		T	1	1.3	Squid	20–30 (d)
Cephalopoda	Teuthoidea	Ommastrephidae	<i>Illex coindetii</i> *		O	1	1.3	Broadtail squid	15–22 (d)
Cephalopoda	Octopoda	Octopodidae	<i>Octopus</i> sp.	B	O	1	1.3	Octopus	na
Cephalopoda	Octopoda	Octopodidae	<i>Octopus vulgaris</i> *	B	T, O	2	2.5	Common octopus	20–80 (d)
Cephalopoda	Octopoda	Octopodidae	<i>Octopus salutii</i> *	B	L, O	2	2.5	Spider octopus	12–15.5 (d)
Cephalopoda	Octopoda	Octopodidae	<i>Octopus unicolor</i> *	B	T, O	2	2.5	Unihorned octopus	12–15.5 (d)
Annelida									
Polychaeta				B	T,L,O	16	20.3	Sea worm	na
Polychaeta	Errantia	Syllidae		B	T	1	1.3	Sea worm	na
Polychaeta	Sedentaria	Serpulidae		B	T	2	2.5	Sea worm	na
Polychaeta	Sedentaria	Serpulidae	<i>Pomatoceros triqueter</i>	B	T	1	1.3	Tube worm	10–15 (20–50) (e)
Polychaeta	Sedentaria	Serpulidae	<i>Serpula vermicularis</i> *	B	T	1	1.3	Tube worm	5–7 (8–12) (e)
Arthropoda									
Malacostraca	Decapoda				T, L	2	2.5	Dedapods	na
Malacostraca	Decapoda	(Anomura)		B	T, L, O	5	6.3	Hermit crabs	na
Malacostraca	Decapoda	Diogenidae	<i>Paguristes oculatus</i>	B	T, L, O	15	19.0	Left-handed hermit crab	2–3.5 (d)
Malacostraca	Decapoda	Diogenidae	<i>Dardanus arrossor</i>	B	T	4	5.1	Left-handed hermit crab	2–5.5 (d)
Malacostraca	Decapoda	Paguridae		B	T, L, O	20	25.3	Hermit crabs	na
Malacostraca	Decapoda	Paguridae	<i>Pagurus prideauxi</i>	B	T, L, O	23	29.1	Right-handed hermit crab	2–3.5 (d)
Malacostraca	Decapoda	Paguridae	<i>Pagurus cuanensis</i>	B	T	1	1.3	Right-handed hermit crab	1.5–2.5 (d)
Malacostraca	Decapoda	(Brachyura)		B	T	1	1.3	True crabs	na
Malacostraca	Decapoda	Dromiidae	<i>Dromia vulgaris</i>	B	L	1	1.3	Sponge crab	7–9.5 (d)
Malacostraca	Decapoda	Calappidae	<i>Calappa granulata</i> *	B	T	1	1.3	Box crab	7–10.5 (d)
Malacostraca	Decapoda	Majidae	<i>Maja</i> sp.	B	T	1	1.3	Spider crab	na
Malacostraca	Decapoda	Xanthidae	<i>Pilumnus hirtellus</i>	B	T	1	1.3	Stone crab	3–4.5 (d)
Malacostraca	Tanaidacea	Paratanaididae		B	T	1	1.3	Tanaids	na
Malacostraca	Isopoda	Idoteidae	<i>Idotea metallica</i>	P	O	1	1.3	Isopods	1.5–3.2 (d)
Malacostraca	Anfipoda			B	T	1	1.3	Amphipods	na
Tentaculata									
Bryozoa	Cheilostomata	Sertellidae	<i>Sertella beaniana</i> *	B	T	4	5.1	Bryozoans or Sea mats	10–15 (f)
Bryozoa	Cheilostomata	Celleporidae	<i>Cellepora pumicosa</i> *	B	T	2	2.5	Bryozoans or Sea mats	9–11 (f)
Bryozoa	Cheilostomata	Idmoneidae	<i>Idmonea serpens</i> *	B	L, T	2	2.5	Bryozoans or Sea mats	na
Bryozoa	Cheilostomata	Smittinidae	<i>Pentapora foliacea</i> *	B	T	1	1.3	Bryozoans or Sea mats	5–30 (f)
Bryozoa	Cheilostomata	Flustridae	<i>Carbasa papyrea</i> *	B	T	1	1.3	Bryozoans or Sea mats	na
Bryozoa	Cheilostomata	Microporidae	<i>Micropora coriacea</i> *	B	T	1	1.3	Bryozoans or Sea mats	na
Bryozoa	Ctenostomata	Vesicularidae	<i>Amathia semiconvoluta</i> *	B	T	1	1.3	Bryozoans or Sea mats	na
Bryozoa	Cyclostomata	Frondiporidae	<i>Frondipora verrucosa</i> *	B	T	1	1.3	Bryozoans or Sea mats	na

Appendix 1 (continued)

Phylum, Kingdom, Class	(Subclass) Order	(Suborder) Family	Species	Habitat	Catch mode	N	Frequency of prey (%)	Common name	Size (cm) (notes)
Echinodermata									
Echinoidea				B	L, T, O	15	19.0	Sea urchins	na
Echinoidea	(Regularia)			B	T	1	1.3	Sea urchins	na
Echinoidea	Cidaroida	Cidaridae	<i>Cidaris cidaris</i> *	B	T	6	7.6	Sea urchins	3–5 (g)
Echinoidea	Diadematoidea	Diadematidae	<i>Centrostephanus longispinus</i> *	B	T	2	2.5	Sea urchins	4–6 (g)
Echinoidea	Diadematoidea	Arbaciidae	<i>Arbacia lixula</i> *	B	T	1	1.3	Black sea urchin	4–6 (g)
Echinoidea	Diadematoidea	Toxopneustidae	<i>Sphaerechinus</i> sp.	B	T	1	1.3	Sea urchins	na
Echinoidea	Diadematoidea	Toxopneustidae	<i>Sphaerechinus granularis</i> *	B	L, T	3	3.8	Violet sea urchin	9–13 (g)
Echinoidea	(Irregularia)			B	L	2	2.5	Sea urchins	na
Echinoidea	Cassiduloidea	Fibulariidae	<i>Echinocyamus pusillus</i> *	B	T	2	2.5	Sea urchins	0.5–1 (d)
Echinoidea	Spatangoida			B	T	3	3.8	Sea urchins	na
Echinoidea	Spatangoida	Spatangidae	<i>Spatangus</i> sp.	B	T	1	1.3	Heart sea urchin	na
Echinoidea	Spatangoida	Spatangidae	<i>Spatangus purpureus</i> *	B	L, T	22	27.8	Heart sea urchin	8–12 (d)
Echinoidea	Spatangoida	Loveniidae	<i>Echinocardium cordatum</i> *	B	T	1	1.3	Heart sea urchin	4–6 (d)
Holothuroidea	Aspidochirota	Holothuridae	<i>Holothuria forskali</i> *	B	T	1	1.3	Cotton spinner	15–45 (d)
Ophiuroidea	Ophiurae	Amphiuridae	<i>Amphiura</i> sp.	B	T	1	1.3	Brittle star	na
Chordata									
Ascidiacea	Phlebobranchiata	Ascidiidae		B	L, O	2	2.5	Sea squirt	na
Ascidiacea	Phlebobranchiata	Ascidiidae	<i>Ascidia involuta</i> *	B	T	6	7.6	Sea squirt	8–11
Ascidiacea	Phlebobranchiata	Ascidiidae	<i>Ascidia aspersa</i> *	B	T	3	3.8	Sea squirt	10–13 (d)
Ascidiacea	Phlebobranchiata	Ascidiidae	<i>Phallusia mammilata</i> *	B	T	1	1.3	Sea squirt	9–15 (d)
Ascidiacea	Stolidobranchiata	Pyuridae	<i>Halocynthia papillosa</i> *	B	T	2	2.5	Sea squirt	6–10 (d)
Chondrichthyes	Selachioidei	Scyliorhinidae	<i>Scyliorhinus</i> sp. (eggs)	B	L	1	1.3	Catshark (eggs)	4–6 (h)
Osteichthyes					L, T, O	39	49.4	Fish	na
Osteichthyes	Perciformes	Maenidae	<i>Spicara smaris</i>	B	O	1	1.3	Deep-body pickarel	8–20 (d)
PLANTAE									
Phycophyta									
Rhodophyceae				B	L, T, O	33	41.8	Seaweeds	na
Rhodophyceae				B	L	1	1.3	Red seaweeds	na
Rhodophyceae	Cryptonemiales	Corallinaceae		B	L, T, O	38	48.1	Red seaweed	na
Rhodophyceae	Cryptonemiales	Corallinaceae	<i>Lithophyllum racemosus</i> *	B	L	1	1.3	Red seaweed	na
Rhodophyceae	Ceramiales	Rhodomelaceae	<i>Osmundaria volubilis</i> *	B	T	14	17.7	Red seaweed	na
Rhodophyceae	Ceramiales	Delesseriaceae	<i>Hypoglossum</i> sp.	B	T	3	3.8	Red seaweed	na
Rhodophyceae	Gigartinales	Gracilariaceae	<i>Gracilaria</i> sp.	B	L, T	7	8.9	Red seaweed	na
Rhodophyceae	Gigartinales	Gigartinaceae	<i>Gigartina teedii</i> *	B	T	1	1.3	Hackle weed;	10–15 (i)
Phaeophyceae	Fucales	Sargassaceae	<i>Sargassum</i> sp.	P	T, L, O	18	22.8	Sargassum	na
Phaeophyceae	Laminariales	Phyllariaceae	<i>Phyllariopsis</i> sp.	B	T	2	2.5	Brown seaweed	na
Phaeophyceae	Dictyotales	Dictyotaceae	<i>Dictyota</i> sp.	B	T	1	1.3	Brown seaweed	na
Chlorophyceae	Caulerpales	Codiaceae	<i>Flabellia petiolata</i>	B	T	2	2.5	Green seaweed	3–5 (i)
Chlorophyceae	Caulerpales	Caulerpaeae	<i>Caulerpa prolifera</i>	B	T	1	1.3	Leafy caulerpa	15–25 (i)
Spermatophyta									
Monocotyledoneae	Helobiae	Potamogetonaceae	<i>Posidonia oceanica</i>	B	L, T, O	15	19.0	Neptunegrass	40–120 (j)
Monocotyledoneae	Helobiae	Potamogetonaceae	<i>Cymodocea nodosa</i>	B	L, T, O	5	6.3	Sea grass	10–30 (j)