

2021-06-04

# Marine artificial light at night: An empirical and technical guide

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<http://hdl.handle.net/10026.1/17085>

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10.1111/2041-210X.13653

Methods in Ecology and Evolution

Wiley

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**Table S3 Quantified spectral sensitivity of marine organisms. Given are phylum, scientific and common species names (currently accepted based on WoRMS database, in brackets are names as cited in reference), life stage, peak spectral sensitivity (as  $\lambda$ -max in nm) and method of quantification. The list is non-exhaustive. Dedicated reviews exists for instance for coral reef teleost (Cortesi et al., 2020), deep-sea teleost (de Busserolles et al., 2020), lampreys (Fain, 2020) and sharks and rays (Hart, 2020). Schweikert et al. (2018) consolidated a list of variation in rod spectral sensitivity of > 400 Actinopterygii with habitat and depth.**

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Annelida	<i>Platynereis dumerilii</i>	-	Larvae	410, 490	Behavioural test	Jékely et al., 2008
Arthropoda	<i>Afruca tangeri</i> ( <i>Uca tangeri</i> )	West African fiddler crab	Adult	430, 500-540	Microspectro-photometry	Horch et al., 2002; Jordão et al., 2007
	<i>Alima pacifica</i>	-	Adult	479	Microspectro-photometry	Feller & Cronin, 2016
	<i>Alima pacifica</i>	-	Larvae	467	Microspectro-photometry	Feller & Cronin, 2016
	<i>Anomalocera ornata</i>	-	Adult	500, 520	Behavioural test	Cohen & Forward, 2002
	<i>Bythograea thermydron</i>	-	Adult	489	Microspectro-photometry	Jinks et al., 2002
	<i>Bythograea thermydron</i>	-	Larvae	447, 479	Microspectro-photometry	Jinks et al., 2002
	<i>Calanopia americana</i>	-	Adult	480; 520	Behavioural test	Cohen & Forward, 2002

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Arthropoda	<i>Calanus finmarchicus</i>	-	Adult	455, 525, 550, 640	Behavioural test	Båtnes et al., 2015; Buskey & Swift, 1985
	<i>Calanus finmarchicus</i>	-	Larvae	455, 525, 550, 640	Behavioural test	Båtnes et al., 2015
	<i>Calanus glacialis</i>	-	Adult	455, 525, 550, 640	Behavioural test	Båtnes et al., 2015
	<i>Calanus glacialis</i>	-	Larvae	455, 525, 550, 640	Behavioural test	Båtnes et al., 2015
	<i>Callinectes sapidus</i>	Chesapeake blue crab	Adult	504	Microspectro- photometry	Cronin & Jinks, 2001
	<i>Callinectes sapidus</i>	Chesapeake blue crab	Larvae	504	Microspectro- photometry	Cronin & Jinks, 2001
	<i>Centropages typicus</i>	-	Adult	500, 520	Behavioural test	Cohen & Forward, 2002
	<i>Gelasimus vomeris (Uca vomeris)</i>	Southern calling fiddler crab	Adult	508	Microspectro- photometry	Jordão et al., 2007
	<i>Gonodactylaceus falcatus</i>	-	Larvae	499-504	Microspectro- photometry	Cronin et al., 1993
	<i>Gonodactylaceus falcatus (Gonodactylus falcatus)</i>	-	Adult	400, 442, 443, 473, 510, 513, 518, 525, 531, 551	Microspectro- photometry	Cronin et al., 1995
	<i>Gonodactylellus affinis</i>	-	Larvae	445	Microspectro- photometry	Feller & Cronin, 2016

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Arthropoda	<i>Gonodactylellus affinis</i> ( <i>Gonodactylus affinis</i> )	-	Adult	400, 424, 454, 474, 496, 500, 509, 521, 541, 546	Microspectro- photometry	Jutte et al., 1998
	<i>Hemigrapsus sanguineus</i>	Japanese shore crab	Adult	480	Estimated from opsin sequence	Sakamoto et al., 1996
	<i>Labidocera aestiva</i>	-	Adult	360, 400, 440-540, 600	Behavioural test	Cohen & Forward, 2002
	<i>Leptuca pugilator</i> ( <i>Uca pugilator</i> )	Atlantic sand fiddler	Adult	525	Microspectro- photometry	Jordão et al., 2007
	<i>Ligia</i> ( <i>Megaligia</i> ) <i>exotica</i>	Sea roach	Adult	383, 520	Electrophysiological methods	Hariyama et al., 1986
	<i>Limulus Polyphemus</i>	Atlantic horseshoe crab	Adult	360-380, 525-545	Estimated from electron microscopy	Lall, 1970; Samie et al., 1995
	<i>Lysiosquillina maculata</i>	Zebra mantis shrimp	Adult	397, 416, 434, 461, 492, 499, 500, 501, 516, 517	Microspectro- photometry	Cronin et al., 1993
	<i>Lysiosquillina maculate</i>	Zebra mantis shrimp	Larvae	501	Microspectro- photometry	Feller & Cronin, 2016
	<i>Metridia longa</i>	-	Adult	450	Behavioural test	Buskey & Swift, 1985
	<i>Minuca pugnax</i> ( <i>Uca pugnax</i> )	Atlantic marsh fiddler crab	Adult	521	Microspectro- photometry	Jordão et al., 2007

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Arthropoda	<i>Odonatodactylus sp.</i>	-	Adult	315, 330, 340, 380	Electrophysiological methods	Marshall & Oberwinkler, 1999
	<i>Odontodactylus cultrifer</i>	-	Larvae	439	Microspectrophotometry	Feller & Cronin, 2016
	<i>Paraphronima gracilis</i>	-	Adult	516	Microspectrophotometry	Baldwin Fergus et al., 2015
	<i>Pullosquilla litoralis</i>	-	Adult	404, 425, 446, 455, 469, 478, 492, 509, 527, 540	Microspectrophotometry	Jutte et al., 1998
	<i>Pullosquilla litoralis</i>	-	Larvae	461	Microspectrophotometry	Feller & Cronin, 2016
	<i>Pullosquilla thomassini</i>	-	Adult	405, 445, 452, 456, 467, 481, 483, 489, 509	Microspectrophotometry	Jutte et al., 1998
	<i>Pullosquilla thomassini</i>	-	Larvae	405, 445, 489, 509, 456, 452, 481, 483, 483, 467	Microspectrophotometry	Jutte et al., 1998
	<i>Squilla empusa</i>	-	Adult	507	Microspectrophotometry	Cronin, 1985
	<i>Squilla empusa</i>	-	Larvae	509	Microspectrophotometry	Cronin & Jinks, 2001

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Systellaspis debilis</i>	-	Adult	410, 498	Microspectro- photometry	Cronin & Frank, 1996
	<i>Albula vulpes</i>	Bonefish	Adult	500	Microspectro- photometry	Taylor et al., 2015
	<i>Alepocephalus bairdii</i>	Baird's slickhead	Adult	476	Estimated from opsin sequence/ Microspectro- photometry	Douglas et al., 2003
	<i>Anguilla anguilla</i>	European eel	Adult	482	Microspectro- photometry	Hope et al., 1998
	<i>Anoplogaster cornuta</i>	Common fangtooth	Adult	487	Microspectro- photometry	Partridge et al., 1988
	<i>Aptychotrema rostrata</i>	Eastern shovelnose ray	Adult	459, 492, 553	Microspectro- photometry	Hart et al., 2004
	<i>Arctocephalus australis</i>	South American fur seal	Adult	475	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Argentina silus</i>	Greater argentine	Adult	483	Microspectro- photometry	Fritsches et al., 2000

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Argyrolepecus aculeatus</i>	Lovely hatchetfish	Adult	475	Microspectro- photometry	Partridge et al., 1988
	<i>Argyrolepecus hemigymnus</i>	Half-naked hatchetfish	Adult	478	Microspectro- photometry	Denton & Warren, 1957
	<i>Bassozetus compressus</i> ( <i>Bassozetus compressis</i> )	Abyssal assfish	Adult	476	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Bathysaurus ferox</i>	Deep sea lizardfish	Adult	478	Microspectro- photometry	Douglas et al., 1995
	<i>Bathysaurus mollis</i>	Highfin lizardfish	Adult	479	Estimated from opsin sequence/ Microspectro- photometry	Douglas et al., 2003
	<i>Bathytroctes macrolepis</i> ( <i>Bellocia koefoedi</i> )	Koefoed's smooth- head	Adult	477	Microspectro- photometry	Douglas et al., 1995
	<i>Belone belone</i>	Garfish	Adult	509	Microspectro- photometry	Reckel et al., 2002
	<i>Benthoosema suborbitale</i>	Smallfin lantern fish	Adult	529	Microspectro- photometry	Douglas & Partridge, 1997
	<i>Benthoosema suborbitale</i>	Smallfin lantern fish	Adult	487	Microspectro- photometry/ fitting	Douglas & Partridge, 1997

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
					existing rhodopsin template	
Chordata	<i>Bolinichthys indicus</i>	Lantern fish	Adult	495, 506	Microspectro- photometry	Losey et al., 2003
	<i>Bolinichthys indicus</i>	Lantern fish	Adult	489	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Cataetyx laticeps</i>	-	Adult	468	Estimated from opsin sequence/ Microspectro- photometry	Douglas et al., 2003
	<i>Ceratoscopelus warmingii</i>	Warming's lantern fish	Adult	488	Microspectro- photometry	Fernandez, 1979
	<i>Chaetodon kleinii</i>	Sunburst butterflyfish	Adult	496	Microspectro- photometry	Losey et al., 2003
	<i>Chauliodus danae</i>	Dana viperfish	Adult	484	Microspectro- photometry	Denton & Warren, 1957
	<i>Chauliodus sloani</i>	Sloane's viperfish	Adult	485	Microspectro- photometry	Fernandez, 1979
	<i>Chelonia mydas</i>	Green sea turtle	Adult	440, 502, 562	Electrophysiological methods	Granda & O'Shea, 1972



Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Chimaera monstrosa</i>	Rabbitfish	Adult	485	Microspectro- photometry	Douglas et al., 1995
	<i>Chirostomias pliopterus</i>	Scaleless dragonfish	Adult	487	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Chlorophthalmus sp.</i>	-	Adult	483	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Cirrhilabrus solorensis</i>	Red-eye wrasse	Adult	492, 498, 514, 532	Behavioural test	Gerlach et al., 2014
	<i>Clupea harengus</i>	Atlantic herring	Adult	503	Microspectro- photometry	Jokela-Määttä et al., 2007
	<i>Conocara salmoneum</i> ( <i>Conocara salmonea</i> )	Salmon smooth-head	Adult	480	Estimated from opsin sequence/ Microspectro- photometry	Douglas et al., 2003
	<i>Coryphaenoides</i> <i>guentheri</i>	Günther's grenadier	Adult	479	Estimated from opsin sequence/ Microspectro- photometry	Douglas et al., 2003
	<i>Cyttopsis rosea</i> ( <i>Cyttopsis</i> <i>roseus</i> )	Rosy dory	Adult	478	Microspectro- photometry/ fitting	Douglas & Partridge, 1997

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
					existing rhodopsin template	
Chordata	<i>Diaphus dumerilii</i>	-	Adult	485	Microspectrophotometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Diaphus holti</i>	Small lantern fish	Adult	489	Microspectrophotometry	Fernandez, 1979
	<i>Diaphus rafinesquii</i> ( <i>Diaphus rafinesquei</i> )	White-spotted lantern fish	Adult	490	Microspectrophotometry	Partridge et al., 1988
	<i>Dicentrarchus labrax</i>	European seabass	Adult	389, 512, 611	Electrophysiological methods	Brill et al., 2019
	<i>Dicrolene introniger</i>	Digitate cusk eel	Adult	479	Microspectrophotometry	Partridge et al., 1989
	<i>Echinomacrurus mollis</i>	-	Adult	478	Microspectrophotometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Enhydra lutris</i>	Sea otter	Adult	545	Estimated from opsin sequence	Levenson et al., 2006
	<i>Erignathus barbatus</i>	Bearded seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Etmopterus spinax</i>	Velvet belly lantern shark	Adult	488	Microspectrophotometry	Claes et al., 2014
	<i>Etmopterus splendidus</i>	Splendid lantern shark	Adult	485	Microspectrophotometry	Claes et al., 2014
	<i>Eubalaena glacialis</i>	North Atlantic right whale	Adult	499, 524	Estimated from opsin sequence	Fasick et al., 2011
	<i>Eustomias obscurus</i>	-	Adult	485	Microspectrophotometry	Partridge et al., 1989
	<i>Evermannella balbo</i>	Balbo sabretooth	Adult	480	Microspectrophotometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Glaucostegus typus</i> ( <i>Rhinobatos typus</i> )	Common shovelnose ray	Adult	477, 502, 561	Microspectrophotometry	Hart et al., 2004
	<i>Gobiusculus flavescens</i>	Two-spotted goby	Adult	508	Microspectrophotometry	Utne-Palm & Bowmaker, 2006
	<i>Gonostoma atlanticum</i>	Atlantic fangjaw	Adult	484	Microspectrophotometry	Partridge et al., 1992
	<i>Halosaurus macrochir</i>	Abyssal halosaur	Adult	481	Microspectrophotometry	Douglas et al., 1995
	<i>Hippocampus barbouri</i>	Barbour's seahorse	Adult	499	Microspectrophotometry	Mosk et al., 2007

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Hoplostethus mediterraneus</i>	Silver roughy	Adult	479	Estimated from opsin sequence/ Microspectro- photometry	Douglas et al., 2003
	<i>Hydrophis curtus</i> ( <i>Lapemis curtus</i> )	Shaw's sea snake	Adult	428–430, 496, 555– 559	Microspectro- photometry	Hart et al., 2012
	<i>Hydrophis peronii</i> ( <i>Acalyptophis peronii</i> )	Spiny-headed sea snake	Adult	428–430, 496, 555– 559	Microspectro- photometry	Hart et al., 2012
	<i>Hydrurga leptonyx</i>	Leopard seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006
	<i>Ichthyococcus ovatus</i>	Lightfish	Adult	489	Microspectro- photometry	Partridge et al., 1992
	<i>Idiacanthus fasciola</i>	Ribbon sawtail fish	Adult	485	Microspectro- photometry	Partridge et al., 1989
	<i>Istiophorus platypterus</i>	Indo-Pacific sailfish	Adult	484	Microspectro- photometry	Fritsches et al., 2000
	<i>Kali macrodon</i>	-	Adult	484	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Lampadena speculigera</i>	Mirror lantern fish	Adult	488	Microspectro- photometry/ fitting	Douglas & Partridge, 1997

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
					existing rhodopsin template	
Chordata	<i>Lampanyctus alatus</i>	Winged lantern fish	Adult	485	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Lampanyctus crocodilus</i>	Jewel lantern fish	Adult	487	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Leptonychotes weddellii</i>	Weddell seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006
	<i>Lipophrys pholis</i>	Shanny	Adult	515	Microspectro- photometry	Loew & Lythgoe, 1978
	<i>Lobianchia gemellarii</i>	Cocco's lantern fish	Adult	485	Microspectro- photometry	Partridge et al., 1988
	<i>Loligo forbesii</i>	Long finned squid	Adult	494	Estimated from opsin sequence	Bellingham et al., 1998
	<i>Malacosteus niger</i>	Stoplight loosejaw	Adult	515, 542, 670	Microspectro- photometry	Douglas et al., 1998; Douglas et al., 2003
	<i>Margrethia obtusirostra</i>	Bighead portholefish	Adult	474	Microspectro- photometry/ fitting	Douglas & Partridge, 1997

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
					existing rhodopsin template	
Chordata	<i>Melamphaes suborbitalis</i>	Shoulderspine bigscale	Adult	482	Microspectrophotometry	Partridge et al., 1989
	<i>Melanonus zugmayeri</i>	Arrowtail	Adult	489	Microspectrophotometry	Partridge et al., 1992
	<i>Microstoma microstoma</i>	Slender argentine	Larvae	479	Microspectrophotometry	Partridge et al., 1988
	<i>Mirounga angustirostris</i>	Northern elephant seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006
	<i>Nannobranchium atrum</i> ( <i>Lampanyctus ater</i> )	Dusky lantern fish	Adult	485	Microspectrophotometry	Denton & Warren, 1957
	<i>Nemichthys scolopaceus</i>	Slender snipe eel	Adult	490	Microspectrophotometry	Partridge et al., 1992
	<i>Notoscopelus resplendens</i>	Patchwork lampfish	Adult	390, 470	Microspectrophotometry	Douglas et al., 1998
	<i>Notoscopelus resplendens</i>	Patchwork lampfish	Adult	486	Microspectrophotometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Odobenus rosmarus</i>	Walrus	Adult	560	Estimated from opsin sequence	Levenson et al., 2006

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Pagophilus groenlandicus</i>	Harp seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006
	<i>Phoca vitulina</i>	Harbour seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006
	<i>Photostomias braueri</i>	-	Adult	483	Microspectro-photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Photostylus sp.</i>	-	Adult	474	Microspectro-photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Phycis blennoides</i>	Greater forkbeard	Adult	494	Estimated from opsin sequence/ Microspectro-photometry	Douglas et al., 2003
	<i>Platichthys flesus</i>	European flounder	Adult	510	Microspectro-photometry	Jokela-Määttä et al., 2007
	<i>Platyberyx opalescens</i>	-	Adult	474	Microspectro-photometry	Partridge et al., 1992
	<i>Pollachius pollachius</i>	Pollack	Adult	498	Microspectro-photometry	Shand et al., 1988

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Pollachius pollachius</i>	Pollack	Juvenile	458, 498, 521	Microspectro- photometry	Shand et al., 1988
	<i>Pollachius pollachius</i>	Pollack	Larvae	420, 498, 521	Microspectro- photometry	Shand et al., 1988
	<i>Polyipnus polli</i>	Round hatchetfish	Adult	483	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Porogadus sp.</i>	-	Adult	474	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Pseudopleuronectes americanus (Pleuronectes americanus)</i>	Winter flounder	Juvenile	457, 531, 547, 506	Microspectro- photometry	Evans et al., 1993
	<i>Pseudopleuronectes americanus (Pleuronectes americanus)</i>	Winter flounder	Larvae	519	Microspectro- photometry	Evans et al., 1993
	<i>Puffinus pacificus</i>	Wedge-tailed shearwater	Adult	502, 450, 406, 503, 566	Microspectro- photometry	Hart, 2004
	<i>Pusa hispida</i>	Ringed seal	Adult	552	Estimated from opsin sequence	Levenson et al., 2006



Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Radiicephalus elongatus</i>	Tapertail	Adult	481	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Rhadinesthes decimus</i>	Slender snaggletooth	Adult	480	Microspectro- photometry	Partridge et al., 1989
	<i>Rinoctes nasutus</i>	Abyssal smooth-head	Adult	489	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Scopelogadus beanii</i>	Beans bigscale	Adult	488	Microspectro- photometry	Partridge et al., 1989
	<i>Searsia koefoedi</i>	Koefoed's searsid	Adult	478	Microspectro- photometry/ fitting existing rhodopsin template	Lythgoe, 1972
	<i>Serrivomer lanceolatooides</i>	Short-tooth sawpalate	Adult	483	Microspectro- photometry/ fitting existing rhodopsin template	Douglas & Partridge, 1997
	<i>Sigmops elongatus</i> ( <i>Gonostoma elongatum</i> )	Elongated bristlemouth	Adult	483	Microspectro- photometry	Denton & Warren, 1957

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Spheniscus humboldti</i>	Humboldt penguin	Adult	403, 450, 543	Microspectro- photometry	Bowmaker & Martin, 1985
	<i>Spinachia spinachia</i>	Fifteen-spine stickleback	Adult	510	Microspectro- photometry	Loew & Lythgoe, 1978
	<i>Squaliolus aliae</i>	Small-eye pygmy shark	Adult	491	Microspectro- photometry	Claes et al., 2014
	<i>Stomias boa boa</i> ( <i>Stomias boa</i> )	Scaly dragonfish	Adult	489	Microspectro- photometry	Denton & Warren, 1956
	<i>Stylephorus chordatus</i>	Tube-eye	Adult	470	Microspectro- photometry	Partridge et al., 1992
	<i>Sufflamen bursa</i>	Boomerang triggerfish	Adult	487	Microspectro- photometry	Losey et al., 2003
	<i>Taaningichthys bathyphilus</i>	Deepwater lantern fish	Adult	487	Microspectro- photometry	Partridge et al., 1989
	<i>Thunnus albacares</i>	Yellowfin tuna	Adult	483	Microspectro- photometry	Loew et al., 2002
	<i>Upeneus tragula</i>	Freckled goatfish	Juvenile	400, 498, 530	Microspectro- photometry	Shand, 1994
	<i>Upeneus tragula</i>	Freckled goatfish	Larvae	400, 498, 580	Microspectro- photometry	Shand, 1993

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Chordata	<i>Ursus maritimus</i>	Polar bear	Adult	553	Estimated from opsin sequence	Levenson et al., 2006
	<i>Vinciguerria nimbaria</i>	Oceanic lightfish	Adult	477	Microspectro-photometry	Fernandez, 1979
	<i>Xenodermichthys copei</i>	Bluntnout smooth-head	Adult	479	Microspectro-photometry	Lythgoe, 1972
	<i>Zalophus californianus</i>	California sea lion	Adult	560	Estimated from opsin sequence	Levenson et al., 2006
Cnidaria	<i>Polyorchis penicillatus</i>	-	Adult	530	Behavioural test	Arkett, 1985
	<i>Sarsia tubulosa</i>	-	Adult	540	Electrophysiological methods	Weber, 1982
Echinodermata	<i>Linckia laevigata</i>	Blue sea star	Adult	452	Electrophysiological methods	Garm & Nilsson, 2014
Mollusca	<i>Alloteuthis subulata</i>	European common squid	Adult	499	Estimated from opsin sequence	Bellingham et al., 1998
	<i>Amphioctopus fangsiao</i> ( <i>Octopus ocellatus</i> )	Webfoot octopus	Adult	480	Microspectro-photometry	Seidou et al., 1990
	<i>Berryteuthis magister</i>	Magister armhook squid	Adult	484	Microspectro-photometry	Seidou et al., 1990
	<i>Callistoctopus dierythraeus</i>	Red-Spot night octopus	Adult	487	Microspectro-photometry	Chung & Marshall, 2016

Phylum	Species (Taxon)	Common name	Life stage	Spectral sensitivity (as $\lambda$ -max in nm)	Method	Reference
Mollusca	<i>Doryteuthis (Amerigo) pealeii (Loligo pealeii)</i>	Longfin inshore squid	Adult	493	Microspectro- photometry	Seidou et al., 1990
	<i>Eledone moschata</i>	Musky octopus	Adult	470	Microspectro- photometry	Muntz & Johnson, 1978
	<i>Octopus vulgaris</i>	Common octopus	Adult	475, 390, 503, 369, 433	Estimated from opsin sequence	Brown & Brown, 1958B
	<i>Sepia officinalis</i>	Common cuttlefish	Adult	493	Behavioural test	Mäthger et al., 2006
	<i>Tridacna sp.</i>	-	Adult	360, 490, 540	Electrophysiological methods	Wilkens, 1984

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