

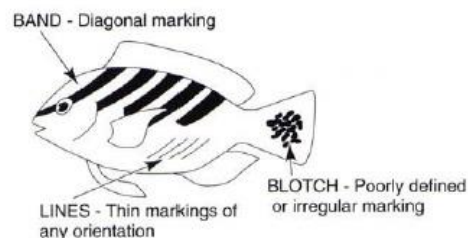
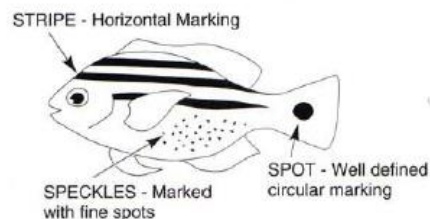
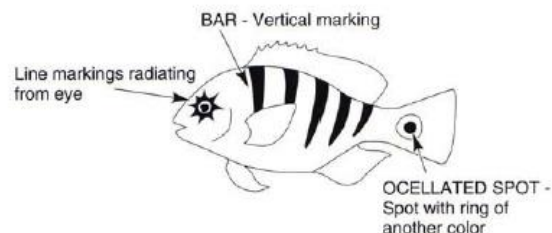
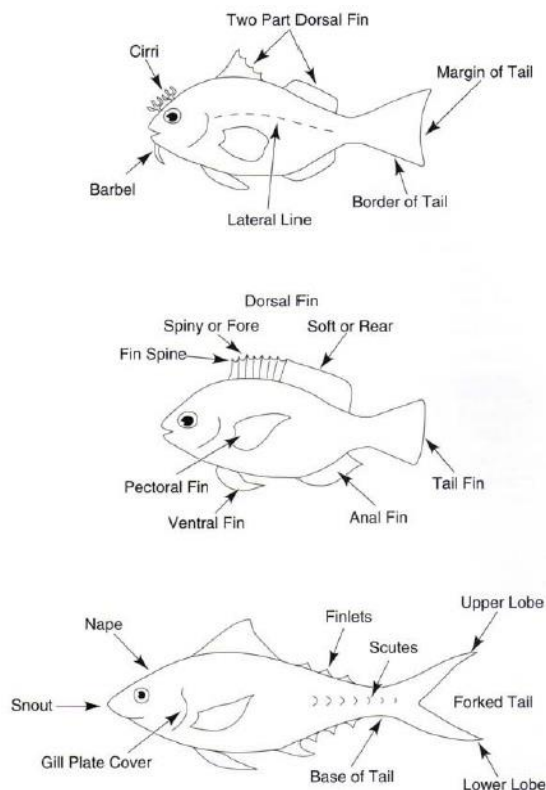
Perhentian ID Guide.

The following guide is the product of one two week trip to the Perhentian Islands, Malaysia by an underwater photographer and a marine biologist, made as part of the pre-trip preparation for the University of Hull undergraduate Tropical Marine Biology field trip. All photographs were taken using Canon G16 cameras. During this trip we encourage students to develop their knowledge of tropical taxonomy and ecosystems by making them dive on coral reefs, twice a day in water that is 30 degrees centigrade and has visibility of up to 20 m. We put them through this ordeal for their own good in order to help them towards their European Scientific Diver Qualification. This first draft has been put together in the space of a few months and we are certain that there are spelling mistakes and mis-identifications. Any corrections should be sent to m.johnson@hull.ac.uk.



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FISH



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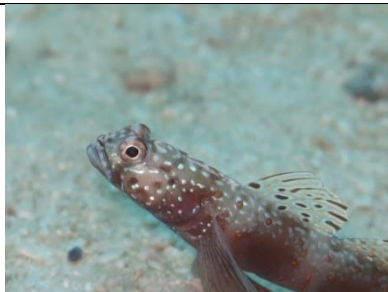
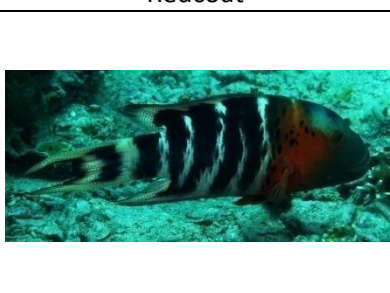
Scorpoaeidae
Serranidae
Siganidae

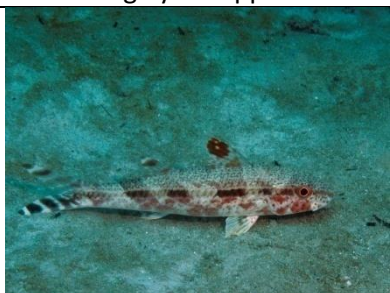
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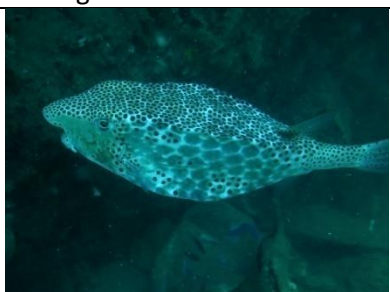
Sphyrinae
Syngnathinae
Synodontidae
Tetraodontidae
Zanclidae

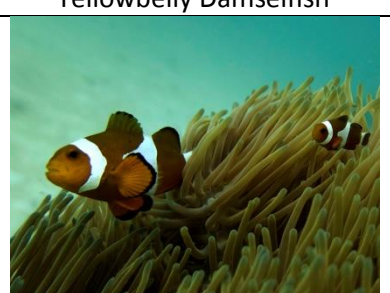
		
Acanthuridae <i>Naso Lituratus</i> Orangespine Surgeonfish	Apogonidae <i>Cheilodipterus alleni</i>	Apogonidae <i>Apogon aureus</i> Ring-tailed Cardinalfish
		
Apogonidae <i>Apogon Compressus</i> - (Juvenile) Split Banded Cardinalfish	Apogonidae <i>Archamia furcata</i> Orangelined Cardinalfish	Apogonidae <i>Archamia goni</i>
		
Balistidae <i>Balistoides viridescens</i> Titan Triggerfish	Balistidae <i>Pseudobalistes flavimarginatus</i> Yellowmargin triggerfish s	Belonidae <i>Tylosurus crocodilus</i> Hound needlefish
		
Blenniidae <i>Meiacanthus grammistes</i> Striped poison-fang blenny	Blenniidae <i>Ecsenius bicolor</i> Bicolor Blenny	Caesionidae <i>Caesio cuning</i> Redbelly yellowtail fusilier

		
Caesionidae <i>Pterocaesio chrysozona</i> Blue and gold fusilier	Carangidae <i>Carangoides bajad</i> Orange spotted trevally	Carangidae <i>Gnathanodon speciosus</i> Golden trevally
		
Carcharhinidae <i>Carcharhinus melanopterus</i> Blacktip reef shark	Chaetodontidae <i>Chaetodon octofasciatus</i> Eight banded butterflyfish	Chaetodontidae <i>Chelmon rostratus</i>
		
Chaetodontidae <i>Coradion chrysozonus</i> Orange banded coralfish	Chaetodontidae <i>Heniochus acuminatus</i> Longfin bannerfish	Dasyatidae <i>Taeniura lymma</i> Blue spotted ribbontail ray
		
Ephippidae <i>Platax teira</i> Longfin spadefish	Gobiesocinae <i>Diademichthys lineatus</i> Long-snout clingfish	Gobiidae <i>Cryptocentrus cinctus</i>

		
Gobiidae <i>Cryptocentrus</i> sp.	Gobiidae <i>Amblygobius</i>	Gobiidae <i>Cryptocentrus caeruleomaculatus</i>
		
Gobiinae <i>Ctenogobiops aurocingulus</i> Gold-streaked shrimpgoby	Haemulidae <i>Plectorhinchus pictus</i> Trout sweetlips	Holocentridae <i>Myripristis</i> sp Soldierfish
		
Holocentridae <i>Sargocentron rubrum</i> Redcoat	Kyphosidae <i>Kyphosus cinerascens</i> Blue sea chub	Labridae <i>Halichoeres</i>
		
Labridae <i>Cheilinus fasciatus</i> Red breasted wrasse	Labridae <i>Diptoctacanthus xanthurus</i>	Labridae <i>Hemigymnus melapterus</i> Blackeye thicklip wrasse

		
Labridae <i>Labroides dimidiatus</i> Bluestreak cleaner wrasse	Labridae <i>Stethojulis trilineata</i> Three-lined rainbowfish	Labridae <i>Thalassoma lunare</i> Moon Wrasse
		
Lethrinidae <i>Lethrinus erythropterus</i>	Lethrininae <i>Lethrinus atkinsoni</i> Yellow tail emperor	Lutjaninae <i>Lutjanus ehrenbergii</i> Blackspot snapper s
		
Lutjaninae <i>Lutjanus lutjanus</i> Big eye snapper	Lutjaninae <i>Lutjanus vitta</i> Brown stripe snapper	Mugilidae <i>Valamugil seheli</i> Bluespot mullet
		
Mullidae <i>Upeneus tragula</i> Freckled goatfish	Muraeninae <i>Gymnothorax herrei</i> Palechin moray	Muraeninae <i>Siderea thysoidea</i> White eyed moray

		
Naucratinae <i>Elagatis bipinnulatus</i> Rainbow runner juvenile?	Nemipteridae <i>Pentapodus caninus</i> Small toothed whiptail	Nemipteridae <i>Scolopsis affinis</i> Peter's monocle bream
		
Nemipteridae <i>Scolopsis ciliatus</i> Whitestreak monocle bream	Nemipteridae <i>Scolopsis margaritifera</i> Pearly monocle bream	Nemipteridae <i>Scolopsis monogramma</i> Monogrammed monocle bream
		
Nemipteridae <i>Scolopsis vosmeri</i> Whitecheek monocle bream	Ostraciidae <i>Ostracion</i> sp. Boxfish	Ostraciidae <i>Rhynostracion nasus</i>
		
Pempheridae <i>Pempheris oualensis</i> Copper Sweeper s	Pinguipedidae <i>Parapercis clathrata</i> Latticed sand perch female s	Platycephalidae <i>Cymbacephalus beauforti</i> Crocodile flathead s

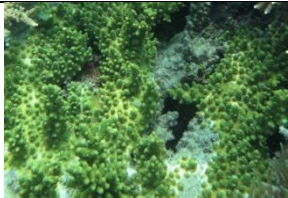
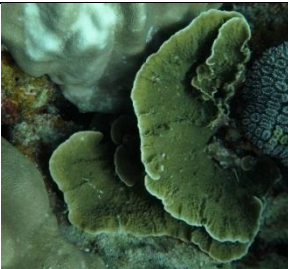
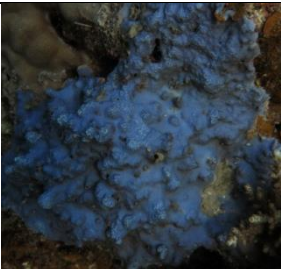
		
Pomacanthidae <i>Pomacanthus sexstriatus</i> Six banded angelfish s	Pomacanthidae <i>Caetodontoplus mesoleucus</i> Vermiculated angelfish	Pomacanthidae <i>Pomacanthus annularis</i> Blue ringed angelfish s
		
Pomacentridae <i>Dischistodus perspicillatus</i> White damsel	Pomacentridae <i>Abudefduf bengalensis</i> Bengal sergeant	Pomacentridae <i>Abudefduf sexfasciatus</i> Scissortail sergeant
		
Pomacentridae <i>Abudefduf viagiensis</i> Sergeant major	Pomacentridae <i>Amblyglyphidodon leucogaster</i> Yellowbelly damsel	Pomacentridae <i>Amblyglyphidodon leucogaster</i> Yellowbelly Damsel
		
Pomacentridae <i>Amblyglyphidodon aureus</i> Golden Damsel	Pomacentridae <i>Amphiprion clarkii</i> Clarke's Anemonefish	Pomacentridae <i>Amphiprion ocellaris</i> False Clown Fish

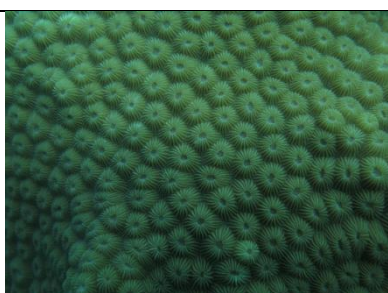
		
Pomacentridae <i>Amphiprion peridarian</i>	Pomacentridae <i>Amphiprion polymnus</i>	Pomacentridae <i>Dascyllus flavicaudus</i>
		
Pomacentridae <i>Dischistodus chrysopoecilus</i>	Pomacentridae <i>Hemiglyphidodon plagiometopon</i> Lagoon damselfish	Pomacentridae <i>Neoglyphidodon nigroris</i> (adult) Black-and-gold chromis
		
Pomacentridae <i>Neoglyphidodon nigroris</i> (juv) Black-and-gold chromis	Pomacentridae <i>Pomacentrus alexanderae</i> Alexander's damsel	Pomacentridae <i>Pomacentrus moluccensis</i> Lemon Damselfish
		
Scaridae <i>Bolbometopon muricatum</i> Bumphead Parrotfish	Scaridae <i>Scarus ghobban</i> Blue barred parrotfish	Scaridae <i>Scarus oviceps</i> Dark capped parrotfish

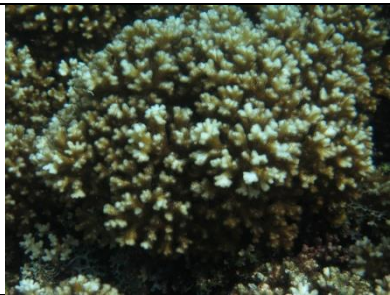
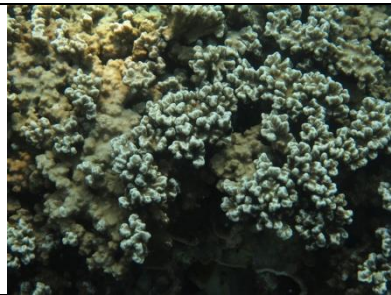
		
Scaridae <i>Scarus tricolor</i> Tricolour parrotfish	Scorpaeniformes <i>Inimicus didactylus</i> Spiny devilfish	Scorpaeniformes <i>Inimicus didactylus</i> Spiny devilfish
		
Scorpaenidae <i>Pterois volitans</i> Red lionfish	Scorpaeninae <i>Parascorpaena picta</i> Painted scorpionfish	Scorpaeninae <i>Scorpaenopsis venosa</i> Raggy Scorpionfish
		
Serranidae <i>Epinephelus fasciatus</i> Blacktip grouper	Serranidae <i>Cephalopholis formosa</i> Bluelined grouper	Serranidae <i>Ephinephelus merra</i> Honeycomb grouper
		
Siganidae <i>Siganus virgatus</i> Barhead spinefoot	Siganidae <i>Siganus javus</i> Streaked spinefoot	Siganidae <i>Siganus corralinus</i> Blue spotted spinefoot

		
Sigianidae <i>Siganus guttatus</i> Goldenline spinefoot	Sphyraenidae <i>Sphyraena flavicauda</i> Yellowtail barracuda	Syngnathinae <i>Corythoichthys amplexus</i> Brown banded pipefish
		
Synodontidae <i>Synodus variegatus</i> Reef lizardfish	Tetradontidae <i>Arothron stellatus</i> Stellate puffer	Tetraodontidae <i>Arothron mappa</i> Map puffer
		
Tetraodontiformes <i>Chilomycterus reticulatus</i> Spotfin burrfish	Tetraodontiformes <i>Diodon holocanthus</i> Longspined porcupinefish	Zaclidae <i>Zanclus cornutus</i> Moorish Idol

Coral

		
Acroporidae <i>Acropora danai</i>	Acroporidae <i>Acropora formosa</i>	Acroporidae <i>Acropora hyacinthus</i>
		
Acroporidae <i>Montipora delicatula</i>	Acroporidae <i>Montipora turgescens</i>	Agariciidae <i>Pavona cactus</i>
		
Acroporidae <i>Acropora hyacinthus</i>	Acroporiidae <i>Acropora hoeksemai</i>	Agariciidae <i>Pavona frondifera</i>
		
Agariciidae <i>Leptoderis</i>	Agariciidae <i>Pachyseris speciosa</i>	Dendrophylliidae <i>Turbinaria peltata</i>

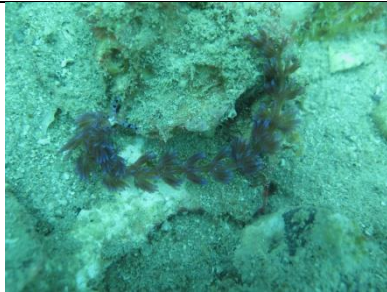
		
Faviidae <i>Echinopora horrida</i>	Faviidae <i>Favia fava</i>	Faviidae <i>Favia maritima</i>
		
Faviidae <i>Favia speciosa</i>	Faviidae <i>Favia vietnamensis</i>	Faviidae <i>Goniastrea retiformis</i>
		
Fungiidae <i>Herpolitha limax</i>	Fungiidae <i>Polyphyllia talpina</i>	Fungiidae <i>Ctenactis crassa</i>
		
Fungiidae <i>Cycloseris cyclolites</i>	Fungiidae <i>Fungia fralinae</i>	Merulinidae <i>Hydnophora microconus</i>

		
Merulinidae <i>Hydnophora exesa</i>	Milleporidae <i>Millepora platyphyllia</i>	Oculinidae <i>Galaxea fascicularis</i>
		
Pocilloporidae <i>Pocillopora damicornis</i>	Pocilloporidae <i>Pocillopora danae</i>	Poritidae <i>Goniopora columna</i>
		
Poritidae <i>Goniopora columna</i>	Poritidae <i>Goniopora lobata</i>	Poritidae <i>Porites mayeri</i>

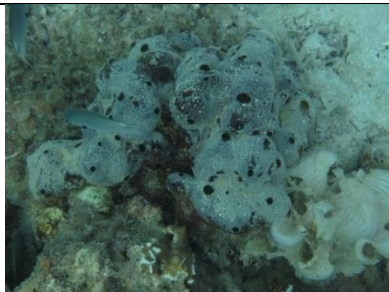
Other Cnidarians

		
Alcyoniidae <i>Sarcophyton trocheliophorum</i>	Alcyoniidae <i>Sinularia gibberosa</i>	Alcyoniidae <i>Sarcophyton trocheliophorum</i>
		
Stichodactylidae <i>Heteractis magnifica</i>	Stichodactylidae <i>Heteractis magnifica</i>	Stichodactylidae <i>Stichodactyla mertensii</i>

Invertebrates

		
Decapoda <i>Alpheus djibutensis</i>	Decapoda <i>Alpheus</i>	Decapoda <i>Dasycaris zanzibarica</i>
		
Decapoda <i>Rhyncocinetes</i>	Decapoda <i>Periclimenes</i>	Decapoda <i>Periclimenes</i>
		
Mollusca <i>Jorunna funebris</i>	Mollusca <i>Phyllidia varicosa</i>	Mollusca <i>Pteraeolidia ianthina</i>
		
Asteroidea <i>Acanthaster planci</i>	Asteroidea <i>Culcita novaeguineae</i>	Asteroidea <i>Linkia multiflora</i>

		
Cerianthidae <i>Cerianthus filiformis</i>	Echinodermata <i>Crinoidea</i>	Ellisellidae <i>Ctenocella pectinata</i>
		
Echinodermata <i>Diadema</i>	Echinodermata <i>Echinocardium</i>	Echinodermata <i>Maretia</i>
		
Holothiria <i>Holothuria edulis</i>	Holothuroidea <i>Holothuria atra</i>	Holothuroidea <i>Pearsonothuria graeffi</i>
		
Holothuroidea <i>Stichopus chloronotus</i>	Holothuroidea <i>Stichopus variegatus</i>	Holothuroidea <i>Stichopus vastus</i>

		
Holothuroidea <i>Thelotrema anax</i>	Porifera <i>Amphimedon</i>	Porifera <i>Biemna</i>
		
Porifera <i>Ircinia</i>	Porifera <i>Oceanapia sagittaria</i>	Porifera <i>Sigmadocia ambionensis</i>
		
Porifera <i>Xestospongia exigua</i>	Porifera <i>Xestospongia muta</i>	Bivalvia <i>Ostreidae Lopha</i>
		
Bivalvia <i>Tridacna squamosa</i>	Mollusca <i>Cypraea arabica</i>	Mollusca <i>Cypraea arabica</i>

		
Mollusca <i>Cyprea tigris</i>	Mollusca <i>Cyprea tigris</i>	Mollusca <i>Lambis lambis</i>
		
Mollusca <i>Pedum spondyloideum</i>	Annelida <i>Polycheata Sabellastarte</i>	Annelida <i>Sabellidae giganteus</i>
		
Annelida <i>Sabellidae indica</i>	Ascidian <i>Botryllus schlosseri</i>	Ascidian <i>Didemnum molle</i>
		
Crustacea <i>Cirrepedia</i>	Chelonidae <i>Eretmochelys imbricate</i> Hawksbill turtle	Chelonidae <i>Chelonia mydas</i> Green turtle



The Authors

Will Brown is a PADI instructor, underwater photographer, videographer and fixer. He has spent many years travelling the world and has worked in a variety of fields, including managing humanitarian projects in Haiti, building dive shops and teaching diving. Currently he is running Sci-Dive, a scientific dive company specialising in running university dive research and training trips.

Magnus Johnson is a PADI instructor and senior lecturer in the School of Biological, Biomedical and Environmental Sciences at the University of Hull, England. He has worked all over the world as a scientific diver and general marine researcher. He has been leading undergraduates on field trips to various destinations every year since 2000. For many it is a once in a lifetime experience that galvanises their desire to try and protect the planet. <http://www.marine-biology.org.uk> or <http://www.hull.ac.uk>

Twitter: @marine_bio_hull

Anti Gravity Divers are (we think) the best dive shop on Perhentian. They have a focus on offering an excellent service to all of their customers. As well as running PADI Open Water, Advanced Open Water, Rescue Diver and Divemaster Training, they are an Instructor Development Centre with many years of experience. <http://www.scubadivingperhentian.com/>

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