

Notes on the naming of living organisms

The system of binomial nomenclature used for the naming of organisms was first used by Carolus Linnaeus in the middle of the 18th century.

According to the binomial system the lowest level of identification is the *species* (plural: *species*). The most commonly used definition of a species is a group of organisms that can interbreed and produce fertile offspring.

In the case of animals the name of a species is referred to as its *specific name*. Closely related species are placed in the same *genus* (plural : *genera*). The name of the genus is referred to as the *generic name* of an animal.

The generic name and the specific names together form the unique binomial name of an animal. The generic name is always capitalized and both names are written in italics when printed and underlined if written by hand. e.g. *Pomacanthus imperator*

The naming of plants follows a similar pattern.

The system of binomial nomenclature is used throughout the world irrespective of the native language of the writer. Extinct organisms and fossils are also identified using the system.

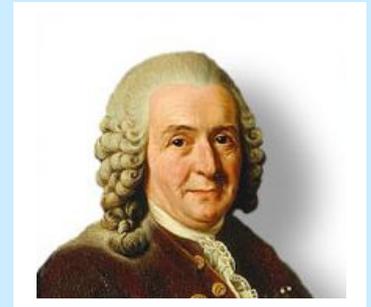
If the species of an organism is not known the abbreviation 'sp.' (plural: 'spp.') is placed after the generic name e.g. *Torpedo sp.*

If several species of the same genus are being discussed the generic name is usually not repeated but abbreviated e.g. snappers of the genus *Lutjanus* would be referred to as *L. bengalensis*, *L. rivulatus* etc.

The naming of animal species is regulated by the International Code of Zoological Nomenclature. The right to name a new species is accorded to the person or persons who first describe it. The scientific describer is not necessarily the first person who has recognized the organism as a new species.

The name becomes valid when the scientific description is published.

The name of the describer/s and the date of publication are usually appended to the name of the organism. e.g. *Centricus scutatus*, Linnaeus, 1758. (Photo right)



A type specimen called a *holotype* is deposited in a museum or other scientific institution for every new species. The holotype serves as a physical reference for future identifications.

Animals are sometimes given a new name long after they were first described. This can be because of duplication when the same animal had been given two different names in different parts of the world or because the juvenile form was not recognized as the same as the adult form. It sometimes happens that closer inspection and genetic analysis of members of a species dictate that some members should be reassigned to a different genus. The genus *Eleotris* is a notable example of this latter case. In the 19th and early 20th centuries there were 176 species in the genus; today there are 30. All the others have been reassigned to different genera. For example, among Oman fishes *Eleotris periophthalmus* Bleeker, 1853 is now *Amblyeleotris periophthalma* (Bleeker, 1853). The brackets around the name of the author and the date signify that there has been a name change.

In rare instances a species can be divided into subspecies. Subspecies are distinct subgroups within a species which have developed usually as a result of geographical isolation. The Two-spot wrasse, *Macropharyngodon*

bipartitus has two subspecies *Macropharyngodon bipartitus marisrubri* from the Red Sea and *Macropharyngodon bipartitus bipartitus* found in the Western Indian Ocean.

Related genera are classified together in a family. The names of animal families always end with 'idae' and are capitalized. Members of the same family share many physical and behavioural characteristics. e.g. Mullidae (Goatfishes) all have sensory barbels under their mouths.



Generic and specific names use Latin grammatical forms even if the stems of the names are not Latin. The gender (i.e. masculine, feminine or neuter) of the two names must be in agreement. This is the reason for some specific names being *maculatus*, others *maculata* or *maculatum* or *lineatus*, *lineata* or *lineatum*.

Generic names are usually descriptive of some physical characteristic. The name of a genus of surgeonfish, *Acanthurus*, is derived from the Greek word for thorn (acanth) referring to the sharp spine in front of its tail.



Specific names are sometimes descriptive but can also be derived from the name of a person connected with the discovery, the place where the species is found, a local common name or even something whimsical. Below is a list of common Latin and Greek root words as well as some other words associated with the names of fishes identified in Reef Fishes of Oman.

Some commonly used Latin and Greek word stems

acanth (Gr)	thorn	<i>Acanthurus</i> – surgeonfish (caudal spines)
acumin (L)	taper-pointed	<i>Heniochus acuminatus</i> – Longfin butterflyfish
aetos (Gr)	eagle	<i>Aetobatus narinari</i> –Eagle ray
argentum (L)	silver	<i>Monodactylus argenteus</i> – Silver moony
axilla (L)	armpit	<i>Chromis flavaxilla</i> – Arabian chromis (yellow pectoral base)
cauda (L)	tail	<i>Sphyræna flavicauda</i> – Yellowtail barracuda
chaet (L)	bristle	<i>Chaetodon</i> – butterflyfish (bristle-like teeth)
chrysos (Gr)	gold	<i>Pterocaesio chrysozona</i> – Goldband fusilier
dimidiatus (L)	halved	<i>Labroides dimidiatus</i> – Cleaner wrasse (half blue, half black)
fascia (L)	band	<i>Acanthopagrus bifasciatus</i> – Two-bar sea bream
ferruginus (L)	rusty coloured	<i>Scarus ferrugineus</i> – Rusty parrotfish

fuscus (L)	brown, dusky	<i>Scarus fuscopurpureus</i> - Purplebrown parrotfish
flavus (L)	yellow	<i>Sphyaena flavicauda</i> - Yellowtail barracuda
fuco (L)	to paint	<i>Archamia fucata</i> - Orangelined cardinalfish
gibbus (L)	humped	<i>Lutjanus gibbus</i> - Humpback red snapper
gramma (Gr)	mark, line	<i>Diagramma pictum</i> - Painted sweetlips
leptos (Gr)	slender	<i>Pomacentrus leptus</i> - Slender damselfish
lineatus (L)	with lines	<i>Plotosus lineatus</i> - Lined eel catfish <i>Cheilodipterus quinqelineatus</i> - Fivelined cardinalfish
lunatus (L)	crescent shaped	<i>Thalassoma lunare</i> - Moon wrasse
macros (Gr)	large	<i>Cheilodipterus macrodon</i> -argetoothed cardinalfish
macula (L)	spot or mark	<i>Parapercis maculata</i> - Harlequin sandperch (spotted) <i>Chrysiptera unimaculata</i> - Onespot damselfish <i>Coris caudimacula</i> -Tailspot wrasse
marga (Gr)	pearl	<i>Parupeneus margaritatus</i> - Pearly goatfish
margo (L)	edge	<i>Gymnothorax flavimarginatus</i> - Yellowedged moray
mitra (Gr)	head dress	<i>Petroscirtes mitratus</i> - Floral blenny
mugilis (L)	sea fish, mullet	Mugilidae - mullets
niger (L)	dark, black	<i>Odonus niger</i> - Redtooth triggerfish (dark teeth)
notatus (L)	marked	<i>Epinephelus multinotatus</i> - Whiteblotched grouper
odontos (Gr)	tooth	<i>Cheilodipterus macrodon</i> -argetooth cardinalfish
para (Gr)	related to	<i>Paracheilinus</i> - closely related to genus <i>Cheilinus</i>
pinnula (L)	small plume	<i>Cirrhitus pinnulatus</i> -Stocky hawkfish (plumed fin spines)
pleura (Gr)	ribs, sides	<i>Leptojulius cyanopleura</i> - Shoulderspot wrasse (blue spots on sides)
pter (Gr)	wing, fin	<i>Pterois</i> - scorpionfish (wing-like pectoral rays)
punctatus (L)	spotted	<i>Chaetodon nigropunctatus</i> - Blackspotted butterflyfish
purpur (L)	purple	<i>Scarus fuscopurpureus</i> - Purplebrown parrotfish
rubescens (L)	becoming red	<i>Parupeneus rubescens</i> - Rosy goatfish
scaros (Gr)	parrotfish	Scaridae - parrotfish
sinus (L)	a curve	<i>Torpedo sinuspersici</i> - Marbled electric ray (curved marking on back)
sordidus (L)	dirty	<i>Abudefduf sordidus</i> - Blackspot damselfish (dull marking)
stigma (Gr)	point, mark	<i>Lutjanus monostigma</i> - Onespot snapper
striatus (L)	striped	<i>Ctenochaetus striatus</i> - Striated surgeonfish (many longitudinal lines)
taeniatus (L)	striped	<i>Scolopsis taeniatus</i> - Blackstreaked bream
thalassa (Gr)	sea, marine	<i>Thalassoma lunare</i> - Moon wrasse
torpedius (L)	to make numb	Torpedinidae - electric rays
xanthos (Gr)	yellow	<i>Chromis xanthopterygia</i> - Yellowfin chromis

Names derived from names of individuals

There are very few genera named after individuals. One recently created genus of goby *Larsonella* has been named after Helen Larson, an Australian biologist who is a leading authority on gobies.

Examples of species named after individuals are *Trimma winterbottomi* and *Chromis fieldi*

Names derived from local names

Carangoides bajad - bajad is an Arabic name for Jack

Abudefduf - a genus of damselfish; abu is Arabic for father; the meaning of the rest of the name is unclear

Pinjalo pinjalo - pinjalo is the Malay word for fish

Names derived from a geographical location

Pseudochromis omanensis - Oman dottyback is endemic to central and southern Oman

Pseudochromis persicus - Persian dottyback

Names from other sources

Amblyeleotris sungami - Magnus' prawn-goby is named after Professor Magnus with the name spelled backwards.

Ecsenius pulcher (pulcher L. beautiful) is indeed a pretty little blenny. (Photo below)

