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# Marine gastropod identification guide pdf

## Marine gastropod list. Identification types of snail. What is a marine gastropod.

Gastropod meaning can be explained as the group under the phylum of Mollusca. They are also considered the largest group under this phylum. Gastropods include snails and slugs. Gastropods are more commonly known as slug and snails. Gastropoda belong to invertebrates in the taxonomic classification; they are found in a wide array of habitats. They can flourish in aquatic as well as terrestrial habitats. The gastropods that are found in the aquatic system can reside in both lake, ponds, river, and ocean water bodies, that is they can reside in both the marine system and freshwater system. This article focuses on developing the basic understanding of the Gastropod meaning, gastropods examples, and gastropods characteristics like the morphological feature and organ system of the group. Reproduction and life cycle, habitats, are also discussed in the article. Gastropoda Classification Gastropoda belongs to the kingdom Animalia, under the taxonomic classification they belong to the class of invertebrate. Invertebrate refers to the group of organism that lacks a skeletal system, especially the vertebral column which is more commonly known as the spinal cord. They belong to the phylum Mollusca, this phylum is among the largest phylum of the kingdom. The most common example of this phylum includes octopuses.



Another important group classified under this phylum is known as the gastropod, the common gastropods examples include various species of snails and slugs. There Some Subclasses of the Mollusca These Include the Following, Caenogastropoda Heterobranchia Neomphaliones Neritimorpha Patellogastropoda Vetigastropoda Habitat of Gastropods Gastropoda is among the few class of organisms that can flourish in all three types of habitat, the three habitats are terrestrial region, marine water system, and freshwater ecosystem. There are about 65000 species of gastropod living on the planet. Among them, about thirty thousand are found in the terrestrial region. The majority of the species of the class Gastropoda are found in the marine ecosystem, the least number of species that are about 5,000 are found in the freshwater system.



The gastropods that reside in the ocean (marine water ecosystem) have the highest recorded species diversity. The most common example is a shelled gastropod, the other gastropod examples include the species like abalone, conches, periwinkles, whelks, and various sea snails. In oceanic ecosystems gastropods are generally found in oceanic coral reefs, the coral reefs can contain several hundred species of the gastropods thus contributing to the species diversity. Gastropods are found in the near the Arctic and Antarctica zones of the topic. It is important to note that the species diversity near the Arctic and Antarctic is comparatively lower compared to the coral reef habitat. In the freshwater system, the gastropods are mainly likely to be found on the ponds and lake ecosystem. The number of species found in the freshwater ecosystem is very low compared to the marine and terrestrial ecosystems. The gastropod residing in the freshwater generally feeds on the algae that grow on the tree debris and rotten trees. The Common Examples of the Gastropoda Freshwater Habitat Include the Following, Lake Baikal in Siberia, Lake Titicaca in South America, Lake Ohrid on the North Macedonia of Albania border, Mekong basin in Southeast Asia, and The African Rift lakes. The land gastropods or the inhabitants of the terrestrial system are found over a variety of landscapes, they are found in countries like India, New Zealand, Australia, Jamaica and, North America. This group has classic Gastropoda characteristics, they are seen to hibernate during the winters, they are also believed to be nocturnal. The terrestrial gastropods have to prevent water loss, the main reason for the water loss is because of the continuous secretion of water during locomotion. To restore the water, gastropods usually coils back into their shell and come out once when the environmental conditions are favourable. Gastropods Examples The gastropods examples include various species as they are among the most widespread class of the phylum Mollusca. As discussed earlier the group can flourish in all three types of habitats, some of the gastropods examples of the specific species residing in the particular habitat are mentioned below. Gastropods Examples Living in the Oceanic Habitat The Examples of the Species Living in the Oceanic Habitats Include the Following, Whelks, Cowries, Abalone, Conchs, Limpets, Sea Hares and Nudibranchs. Gastropods Examples Living in the Terrestrial Ecosystem The Examples of Species Living in the Terrestrial Ecosystem Include the Following, Corsican snail, whose scientific name is *Tyrrhenaria ceratina*, Lapidary snail, whose scientific name is *Helicogona lapicida*. Doer snails, whose scientific name is *Clausilidae*, *Opisthobranchia*, *Stylommatophora*, which is also known as stalk eye snails, *Euglandina rosea*, which is more commonly known as rosy wolf snail, *Pomatias elegans*, which is more commonly known as a round mouthed snail. Gastropods Examples Living in the Freshwater Ecosystem The Common Examples of the Gastropods Living in the Ecosystem are as Follows, *Bithynia tentaculata*, *Pomacea insularum*, *Planorbella trivittata*, *Anentome helena*, *Valvata piscinalis*. Diet of Gastropods Gastropods are classified as both herbivores and carnivores. Some of the gastropods are also classified as the detritivore that is they feed on the debris and rotten material of organic substance. Herbivore gastropods feed on the algae and debris of plant leaves and barks. An important point about the gastropods is that some species of gastropods are parasitic that is they derive nutrition from the body of the host. They act as both intracellular and extracellular parasites on the different invertebrates. The carnivore group feeds on volutes, bonnets, helmets, olive shells, harp shells, and whelks as their food source. Anatomy of Gastropods There are some Gastropoda characteristics that can help in defining the gastropod meaning. According to gastropod meaning the group can have shells or can lack shells. The basic understanding of the anatomy that is common to all the species of this class helps in understanding the basic concept. In this section, the general Gastropoda characteristics are reviewed. The Shell - The shell is the outermost covering of the body secreted by the mantle. Typically the shell of the gastropods has a spiral pattern these are generally calcareous shells. It is important to note that shells that are developed during the early stages of development are generally smaller than the shell developed in the later stages. The outer layer of the shell is known as the periostracum, this is made up of different types of proteins. An example of one such protein is the conchin. The inner layer of the shell is made up of calcium carbonate. The calcium carbonate is found to be in association with the conchin protein.



There is also some other mineral crystal that is found in the inner shell of the gastropods. Among marine gastropods, the inner shell of the organism contains calcium carbonate in the form of calcite crystals. Similarly in the terrestrial gastropods, the inner shell contains the crystals of the aragonite. Another modification of the shell of the groups includes the example of the limpet. Limpet is nonspiral shells that generally cup-shaped. This modification is generally found in the freshwater species of Gastropoda such as Ancyliidae, Acmaeidae, Patelidae, Fissurellidae, and Calyptraeidae. The Body - The body of gastropods can be divided into four main parts these include, the visceral hump, mantle, head, and foot. The head and the foot of the body can be shrunk into the shell. But it is important to note that all the species do not have shells for example the slugs contain n internal shell or vestigial shell. Visceral Hump - It is an important Gastropoda characteristic, the visceral hump can be defined as the visceral mass contained in the shell of the gastropods, they generally contain the respiratory system, digestive system, and reproductive system. This is the clump of the tissue that performs all the major metabolic process of the organism, the visceral hump is surrounded by the mantle cavity. Mantle - The mantle can be defined as the lining of the visceral hump, it surrounds the organisms from in the interior sections. The mantle is responsible for the secretion of the shell of the gastropod. It can also be defined as the fleshy lining of the inner shell. The mantle is involved in respiration and digestion. Some of the gastropods have highly vascularized mantle these are presumed to help in retaining the water balance of the body. Among the marine species of the gastropods, there is the ciliated modification of the mantle is found. The ciliated modification of the mantle is used to produce water currents. These water currents pass through the gills or ctenidium, and the osphradium. These organs are believed to act as the sensory receptor, these receptors have the ability to detect any chemical change in the environment, thus providing a better chance of survival. Head - Gastropod meaning can be well understood by having a clear understanding of the unique characteristics of the head. The head is the uppermost part of the body, the head is a bilaterally symmetrical organ. The top part of the head contains an appendage named tentacles, these appendages are more common in the terrestrial species.



At the base of the tentacle, there is the presence of an eye-like structure. It is important to note that gastropods have cephalization and the presence of the nervous system. Some of the land snails, which are also known as stylommatophoran have invaginable tentacles. An invaginable tentacle or antenna is referred to the appendage that can roll back into a small coil, invaginable appendages have eyes attached to the top of the structure. In some of the snails that are generally classified as carnivore snails, the lateral lips of the mouth are generally defined as the labial palps. Labial palps are the organs responsible for capturing prey from the environment. The mouth can sometimes extend into the



proboscis which extends to the tentacle region of the head.

This modification is also commonly prominent in the carnivore group of the gastropods. Life Cycle of Gastropods:The gastropod meaning can be further explained by the understanding of the life cycle of the organism. It is important Gastropoda characteristics that are noteworthy that the organism performs the fertilization through the external fertilization method. External fertilization refers to the fusion of male and female gamete outside the body of the female or male. In this particular case, fertilization occurs in the water. The fertilization leads to the formation of the zygote which upon development leads to the formation of the complete individual. The zygote undergoes an indirect development pathway. The indirect development can be explained as the process of the development in which the zygote develops transient morphologically distinct phase, that is they generally undergo the larval stage during their life cycle. Just after fertilization, the first larval stage of the gastropods is also known as the trochophore larva. After the development of cilia and ciliated lobes known as Velva, the trochophore larva is known as the veliger, the veliger undergoes torsion which is an important part of the development unique to gastropods. The veliger stage of development can last from weeks to months depending upon the species.The veliger gastropod after undergoing further development process metamorphose into the snail stage. It is important to note that during metamorphosis the body of the gastropods contains a special cell known as the excretory cell, whose function as the name suggests is to get involved in the excretion process. The juvenile snail reaches a stage of rapid growth until sexual maturity is achieved. Once the organism is sexually mature they focus the energy mainly on reproduction. It is very important to note that the pathway of development that is indirect development is common to all the gastropods but gastropods can undergo both external and internal fertilization. The gastropod species that are habitat of the land majority undergo internal fertilization, whereas external fertilization is primarily seen in the marine and freshwater habitats of the gastropods. The females of the species generally lay eggs. Some of the species have shown ovoviviparity where the eggs are present in the female pouch where they are provided with parental care until they are hatched.Gastropod FossilThe study of gastropod fossil provides the answer to the question of what is a gastropod. Fossils are naturally preserved remains of the organism. Sometimes only a small part of the organism is preserved as a fossil and sometimes the complete individual is preserved as the fossil. An important feature of the gastropod fossil identification is the unique torsion angle of the body that allows the major system such as respiratory, reproductive, and digestive system to directed outward. The major site where gastropods fossil is found includes Krabi in Thailand, Chicago in the USA, and Japan. Gastropoda CharacteristicsThere are Some Major Characteristics of the Gastropoda, Some of Which is Listed BelowThey are asymmetrical, asymmetrical nature of the body can be attributed to the unique torsion rotation seen in the early developmental stage of the organismThey undergo an indirect development process.They possess a ganglionated nervous systemReproduction can be both internal or externalSome species of the Gastropoda are hermaphrodites that are they have both male and female reproductive organs.The body can be mainly categorized into the head, mantle, visceral hump and, foot.The unique characteristic organ is the presence of the radula. Conclusion The article answers the question about what is a gastropod.



The gastropods are the groups classified under the phylum Mollusca, these contain a wide variety of snail and slugs. The gastropods can inhabit the land as well as water. Gastropods can act as carnivores, herbivores, and detritivores depending on the species. The greatest species diversity is seen among the marine inhabitants of the gastropods. The gastropods have the characteristic anatomy of the Mollusca, one characteristic organ found in the gastropods is the radula. They do have a nervous system but the nervous system not as developed as the members of vertebrates, the nervous system of gastropods is known as the ganglionated nervous system. They follow a larval sage during development with both external and internal fertilization.

An average life span of a gastropod can range from 20 to 50 years. Introduction to gastropods The mollusc class Gastropoda is composed of snails with a shell and slugs without a shell, or with a reduced, ±internal shell. Traditionally gastropods were subdivided into 3 sub-classes, Prosobranchia, Opisthobranchia and Pulmonata, but phylogenetic analyses, both based on morphological characters and molecular data have instigated a reorganization of the classification of higher taxa (sub-classes, orders, and in some cases even families and superfamilies). Unfortunately this means that there is currently a lot of name-changes, and both old and new names are in use by different scientists.

The most up-to-date introduction to gastropod classification available on the internet is Newworldencyclopedia. Newer changes can be found in Bouchet and Rocroi (2005). The key will help you to identify the following gastropods: Crepidula fornicata Potamopyrgus antipodarum Rapana Venosa Literature Bouchet, F. and Rocroi, J.-P. 2005. Classification and nomenclator of gastropod families. Malacologia 47(1-2). ConchBooks, Hackenheim, Germany, 397pp. Gastropods with limpet-like shell Most of the snails with a limpet-like (=patelliform) shell are, in fact, true limpets (Patellogastropoda and some Vetigastropoda, both formerly in the Prosobranchia, Archaeogastropoda). For some British and North Sea species descriptions are available on-line. Native species in Nordic waters are: Subclass: Patellogastropoda Family: Lottiidae (=Acmaeidae) Erginus rubellus (O. Fabricius, 1780) (=Acmaea r.), only in northern Norway, Iceland and Greenland (WORMS) Testudinalia testudinalis (O.F. Müller, 1776) (=Acmaea L.; =Tectura t.) - Tortoiseshell limpet, see: and Tectura virginea (O.F. Müller, 1776) (=Acmaea v.) - White tortoiseshell limpet, see: and Family: Patellidae Ansatles pellucida (=Helcion p.; Patina p.) (Linnaeus, 1758) - Blue-rayed limpet, see: and Patella ulyssiponensis Gmelin, 1791(=Patella aspera Lamarck, 1819) - China limpet, see: and Patella vulgata Linnaeus, 1758

- Common limpet, see: Subclass: Vetigastropoda Family: Fissurellidae Emarginula crassa (J. Sowerby, 1813) - Large slit-limpet, see: Emarginula fissura (Linnaeus, 1758) - Common slit-limpet, see: Fissurisepta granulosa Jeffreys, 1883 (=F. papillosa auct., non Seguenza, 1863), S and W Norway Puncturella noachina (Linnaeus, 1771) - Punctured limpet, see: Family: Lepetidae Iothia fulva (=Lepeta fulva) (O.F. Müller, 1776) - Fulvous tortoiseshell limpet, see: ♣and Lepeta caeca (O.F. Müller, 1776) - Blind limpet, see: Propilidium exiguum (Thompson, 1844) - Curled limpet, see: and Family: Lepetellidae Lepetella laterocompressa (de Rayneval & Ponz, 1854) (=L. tubicola Jeffreys, 1882), NW Sweden, Norway Other native gastropods with limpet-like shell Capulus ungaricus (Linnaeus, 1758) (Family: Capulidae), see: Some species in the family Velutinae, e.g., Lamellaria perspicua (Linnaeus, 1758) and Velutina plicatilis (O.F. Müller, 1776), may also superficially seem limpet-like. However, a flat spire is usually visible on the shell. See: In freshwater a couple of limpet-like snails occur: Acroloxus lacustris (Linnaeus, 1758) and Ancylos fluvialis O.F. Müller, 1774. These are pulmonate snails. However, there is little chance of confusing these with the marine introduced species. A few other members of the Calyptraeidae (same family as the slipper limpet, Crepidula fornicata occur to the south of Nordic waters, and can be expected to expand northwards if temperatures increase. Crepipatella dilatata (Lamarck, 1822), a native to South America, has just been found in Spain (Collin et al., 2009), and Calyptraea chinensis (Linnaeus, 1758) occurs naturally from NW Africa and the Mediterranean to southern England and western Scotland, has been introduced to Ireland in 1962 (Minchin, 2007), and has recently extended its distribution to Belgium (Kerckhof et al., 2007). Calyptraea chinensis see: Literature Collin, R., Farrell, P. and Cragg, S. 2009. Confirmation of the identification and establishment of the South American slipper limpet Crepipatella dilatata (Lamarck 1822)

(Caenogastropoda: Calyptraeidae) in Northern Spain. Aquatic Invasions 4(2): 377-380. Kerckhof, F., Haelters, J. and Golasch, S. 2007. Alien species in the marine and brackisch ecosystem: the situation in Belgian waters. Aquatic Invasions 2(3): 243-257.

Minchin, D. 2007. A checklist of alien and cryptogenic aquatic species in Ireland. Aquatic Invasions 2(4): 341-366. Introduction to neogastropods Neogastropods are highly derived snails, characterized by a distinct siphonal canal at the anterior shell margin. Presently they are considered a sub-order of Caenogastropoda; previously they were one of 3 orders of Prosobranchia.

The snails have a long siphon, which can be waved about to detect the smell of food, enemies or partners. This siphon extends through the siphonal canal. They have specialized radular teeth and often have special diets as well as feeding methods, e.g. the harpoon-like teeth of the venomous cone-shells (Conus spp.). Many species are predatory and some are known to drill holes in the shells of other molluscs, such as oysters, and hence can be pests to oyster culture. Their association with cultured oysters or other bivalves also means that they are often accidentally introduced with oysters to new areas. Neogastropods are highly susceptible to anti-fouling agents, such as TBT. They develop imposex, which eventually sterilizes or even kills the snails. The ban of TBT may enhance the chances of successful transfer of these snails with aquaculture organisms (Faasse & Lighthart, 2007). No introduced neogastropods are known from Nordic waters at the present time. However, a few are moving steadily closer, and one species, Rapana venosa (Valenciennes, 1846), has now reached the southern North Sea (Kerckhof et al., 2006). With the occurrence of dense beds of the invasive oyster, Crassostrea gigas, it is likely that R. venosa will be able to spread further north. Two other alien neogastropods, both known as oyster drills, the American Urosalpinx cinerea and the Japanese Ocinebrellus inornatus have recently been found in the Netherlands (Faasse & Lighthart, 2009). Also, Ocenebra erinaceus (Linnaeus, 1758), which is a native of the UK, seems to be extending its range northwards. Thus, it now occurs and breeds in the Limfjord, Denmark (Jensen & Hoffmann, 2007). It probably has migrated through its own means. For more information on Ocinebrellus inornatus see the Marine Species Identification Portal.

For more information on Ocinebrellus inornatus (Récluz, 1851)(synonyms: Ceratostoma inornatum; Ocenebra japonica (Dunker, 1860); Pteropurpura (Ocinebrellus) inornatus) see USGS and the Global Invasive Species Database. Literature Faasse, M. and Lighthart, M.

2007. The American oyster drill, Urosalpinx cinerea (Say, 1822), introduced to the Netherlands - increased risks after ban on TBT? Aquatic Invasions 2(4): 402-406. Faasse, M. and Lighthart, M. 2009. American (Urosalpinx cinerea) and Japanese oyster drill (Ocinebrellus inornatus) (Gastropoda: Muricidae) flourish near shellfish culture plots in the Netherlands. Aquatic Invasions 4(2): 321-326.

Jensen, K.R. and Hoffmann, E. 2007. Ny rovsnegl i Limfjorden. Dyr i Natur og Museum 2007, nr. 1: 7-9. (in Danish) [New predatory gastropod in the Limfjord] Kerckhof, F., Vink, R.J., Nieweg, D.C. and Post, J.N.J. 2006. The veined whelk Rapana venosa has reached the North Sea. Aquatic Invasions 1: 35-37.