

## Marine Invertebrates Biological Characteristics

Phylum	Class(es)	Common Name	Organization	Symmetry	Skeletal System	Locomotion	Feeding	Defense	Sensory Systems	Reproduction	Larvae
PORIFERA		sponge	sub-organism	none	spicules	sessile	filter - particulate	spicules	none	broadcast + budding	ciliated, solid or hollow
CNIDARIA	Anthozoa Scyphozoa Hydrozoa	coral, anemone jellyfish colonial hydrozoan	tissue tissue colonial+solitary	radial radial none	hydrostatic or corallite hydrostatic hydrostatic	sessile cilia & pulsing bell cilia & wind	filter, sm. animals; zooxanthella sm. animals sm. animals	nematocysts nematocysts nematocysts	nerve "net", statocysts nerve "net" + higher nerve "net"	synchronized external, & budding ext. fert. -> larva -> polyp budding; some external fert.	planula planula planula
ECHINODERMATA	Asteroidea & Ophiuroidea Echinoidea Holothuroidea	sea stars & brittle stars urchins & sand dollars sea cucumbers	organ organ organ	pentamerous pentamerous +/- bilateral	Ca mesoderm skeleton Ca mesoderm skeleton cuticle w/ collagen	tube feet, arms tube feet tube feet + crawling	evert stomach - inverts Aristotle's lantern - grazing filter (tentacles) or detritivores	stony skin spines + venom evert intestine	radial nervous system, eyespots nervous system, statocysts	external fert.; also budding external; egg brooding external; separate sexes	<i>* varies by taxa</i> brachiolaria & pluteus pluteus auricularia
MOLLUSCA	Gastropoda Bivalvia Cephalopoda Polyplacophora	snails & slugs clam, mussel, oyster, etc. squid, octopus chiton	organ organ organ organ	bilateral & spirals bilateral bilateral bilateral	CaCO <sub>3</sub> shell CaCO <sub>3</sub> shell CaCO <sub>3</sub> "pen" - squid CaCO <sub>3</sub> shell	muscular foot muscular foot arms; jet propulsion muscular foot	radula (grazer); some predation filter w/ gills beak - predatory radula - grazer	shells, toxins shells, burrowing ink, venom, camouflage shell	primitive nervous system; eyes primitive nervous system; eyes nerves & "brain"; focusing eye "eyes" w/ clear CaCO <sub>3</sub> lens	sexual sexual spermatophores, manual transfer sexual	trochophore -> veliger trochophore -> veliger ovum -> embryo trochophore -> veliger
ARTHROPODA	Crustacea (SubPhylum)	lobster, crab, shrimp, etc.	organ	bilateral	chitin exoskeleton	legs walk & swim	claws - scavenge + predation	exoskeleton	brain + nerve syst., focusing eyes	spermatophores, manual transfer	nauplius
PLATYHELMINTHES	Turbellaria	flatworms	tissue	bilateral	cuticle w/ collagen	cilia & creeping	particulate	some are toxic	primitive nervous system; ocelli	internal fertilization, hermaphrodite	most non-swimming
ANNELIDA	Polychaeta	marine worm	organ	bilateral	cuticle w/ collagen	parapodia w/ bristles	filter (fan), deposit (tentacle), predator (eversible pharynx)	tubes; toxins	bilobed brain, peripheral nerves	sexual	trochophore