

SEGMENTED WORMS

DOMAIN	Eucarya
KINGDOM	Animalia
PHYLUM	Annelida
CLASSES	3
SPECIES	About 15,000

SEGMENTED WORMS include two familiar, predominantly land-based and freshwater groups, the earthworms and the leeches. In the oceans, a third group, the bristleworms or polychaetes, are numerous and diverse. These include burrowing lugworms,

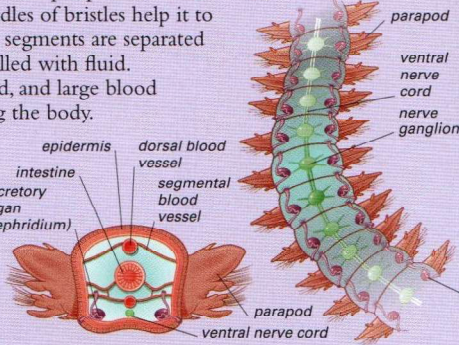
free-living predatory ragworms, and tube-dwelling worms. All segmented worms share one main characteristic—the long, soft body is divided into a series of almost identical, linked segments.

ANATOMY

Each body segment is called a metamere and, except for the head and tail tip, all are virtually indistinguishable from each other. In bristleworms, flattened lobes (parapods) project from the sides of each segment, and are reinforced by strong rods made of chitin. The worm uses parapods for locomotion, and projecting bundles of bristles help it to grip. Internally, the segments are separated by partitions and filled with fluid. The gut, nerve cord, and large blood vessels run all along the body.

BODY SECTIONS

Most segments contain their own organs, including excretory and reproductive organs, and branches from the main blood vessels and ventral nerve cord.



JAWS OF A PREDATOR

This bobbit worm seizes prey using a proboscis tipped with sharp mandibles, which it shoots out from the mouth.

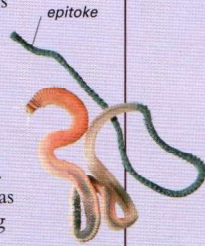
REPRODUCTION

In most polychaete worms, the sexes are separate and the eggs and sperm are shed into the water. Spawning is usually seasonal, especially at temperate latitudes. In many species, the fertilized egg develops into a larva (trochophore) that resembles a tiny spinning top. It floats and swims in the plankton, propelled by the beating of hairlike cilia around its middle. Eventually, the larva elongates and constricts into segments as it turns into an adult. Some species brood their eggs until the larvae are well developed. Many polychaete worms change shape as they become sexually mature, becoming little more than swimming bags of eggs or sperm.

Known as epitokes, they burst open to release the eggs or sperm, then die.

READY TO BURST

The egg- or sperm-laden epitoke of a palolo worm separates from the front segments, and bursts open.



CLASS POLYCHAETA

Lugworm

Arenicola marina



LENGTH	Up to 8 in (20 cm)
DEPTH	Shore and just below
HABITAT	Muddy sand

DISTRIBUTION Temperate shores of northeastern Atlantic, Mediterranean, and western Baltic

One of the most familiar sights on western European beaches is the neat, coiled casts of undigested sand deposited by lugworms. The worm itself is rarely seen, remaining hidden in its U-shaped tube beneath the surface of the sand. The entrance to the tube is marked by a shallow, saucer-shaped depression in the sand. The worm may be pink, red, brown, black, or green. The first six segments of its front section are thick with bristles, while the next thirteen segments have red, feathery gills. The rear third of the body is thin, with no gills or bristles.

Lugworms feed by eating sand, extracting organic matter from it, and expelling the waste. These fleshy worms are a favorite food of many wading birds and are also used by fishermen as bait. They are most abundant at mid-shore level in sediments containing reasonable amounts of organic matter.



CLASS POLYCHAETA

Green Paddle Worm

Eulalia viridis



LENGTH	Up to 6 in (15 cm)
DEPTH	Shore and shallows
HABITAT	Rocky areas under stones, in crevices

DISTRIBUTION Temperate coastal waters of northeastern Atlantic

Although this beautiful green worm is usually found crawling over rocks, it can also swim well. The name paddle worm comes from the large, leaf-shaped appendages called parapodia that are attached to the side of each

body segment and aid in swimming. The head has two pairs of stout tentacles on each side, a single tentacle on top, and four short, forward-pointing tentacles at the front. These tentacles and two simple black eyes help the worm in its hunt for food. The green paddle worm is attracted to dead animals, especially mussels and barnacles, but will also hunt for live prey. However, unlike the king ragworm (opposite), it does not have jaws to tackle large prey. Instead, carrion and debris sticks to its proboscis and is wiped off inside the mouth.

During spring, the green paddle worm lays gelatinous green egg masses about the size of a marble on the shore and in shallow water, attaching them to seaweeds and rocks.

CLASS POLYCHAETA

Sea Mouse

Aphrodita aculeata



LENGTH	Up to 8 in (20 cm)
DEPTH	Shallow to moderate
HABITAT	Sand, muddy sand

DISTRIBUTION Temperate coastal waters of northeastern Atlantic and Mediterranean



The segmented structure of this pretty worm can be seen only if it is turned over, because its back is disguised by a thick felt of hairs that mask its segments. Running along each side of its body are numerous stiff, black bristles and a fringe of beautiful, iridescent hairs that glow green, blue, or yellow. The bristles can cause severe irritation if they puncture their skin.

The sea mouse is so called because it looks like a bedraggled mouse when washed up dead on the seashore.

CLASS POLYCHAETA

King Ragworm

Neanthes virens



LENGTH
Up to 20 in (50 cm)

DEPTH
Shore and shallows

HABITAT
Muddy sand

DISTRIBUTION Temperate coastal waters of northeastern and northwestern Atlantic

This large worm has strong jaws that are easily capable of delivering a painful bite to a human. The jaws are pushed out on an eversible proboscis and are used for pulling food into its mouth as well as for defending itself. The king ragworm lives in a mucus-lined burrow in the sand, and waits for the tide to come in before coming out to feed. It swims well by bending its long body into a series of S-shaped curves. Fishermen collect it for bait.



crown of spines in three concentric rings

fingerlike gills on each body segment

CLASS POLYCHAETA

Honeycomb Worm

Sabellaria alveolata



LENGTH Up to 1½ in (4 cm)

DEPTH Shore and shallows

HABITAT Mixed rock and sand areas

DISTRIBUTION Intertidal areas of northeastern Atlantic and Mediterranean

Although honeycomb worms are tiny, the sand tubes they build may cover many yards of rock in rounded hummocks up to 20 in (50 cm) thick. The worms build their tubes close together, and the tube openings give the colony a honeycomb appearance. This worm's head is crowned by spines and it has numerous feathery feeding tentacles around the mouth, which it uses to trap plankton. The body ends in a thin, tubelike tail with no appendages.



CLASS POLYCHAETA

Magnificent Feather Duster

Sabellastarte magnifica



LENGTH
Up to 6 in (15 cm)

DEPTH
3–65 ft (1–20 m)

HABITAT
Coral reefs

DISTRIBUTION Shallow waters of the western Atlantic and Caribbean

The only part of this worm that is normally visible is a beautiful fan of feathery tentacles. The worm's segmented body is hidden inside a soft, flexible tube that it builds tucked beneath rocks or in a coral crevice or buried in sand. The tentacles are in two whorls and are usually banded brown and white. They are normally extended into the water to filter out plankton, but at the slightest vibration or disturbance, such as the exhalation of a scuba diver, the worm instantly retracts the tentacles down into the safety of the tube.



WORM REEFS

Honeycomb worms build their tubes by gluing together sand grains stirred up by waves. The glue is a mucus secreted by the worm, which uses a lobed lip around its mouth to fashion the tube. As new worms settle out from the plankton to build their own tubes, a reef develops and expands sideways and upward, provided there is a good supply of sand. These structures provide a home to many other species.

LIVE REEF

Live reefs will survive for many years provided new larvae settle and grow to replace wave-damaged areas and dead worms.



CLASS POLYCHAETA

Pompeii Worm

Alvinella pompejana



LENGTH Up to 4 in (10 cm)

DEPTH 6,500–10,000 ft (2,000–3,000 m)

HABITAT Hydrothermal vent chimneys

DISTRIBUTION Eastern Pacific



This extraordinary worm lives in thin tubes massed together on the sides of chimneys of deep-sea hydrothermal vents. The tubes are close to the chimneys' openings, where water from deep inside Earth pours out at temperatures of up to 660°F (350°C). The temperature within the worm tubes reaches 160°F (70°C). At its head end, the Pompeii Worm has a group of large gills and a mouth surrounded by tentacles. Each of the worm's body segments has appendages on the side called parapodia. The posterior parapodia have many hairlike outgrowths that carry a mass of chemosynthetic bacteria. The bacteria manufacture food that the worm absorbs, and the worm also eats some of the bacteria.

CLASS POLYCHAETA

Christmas Tree Worm

Spirobranchus giganteus



LENGTH Up to 1½ in (3 cm)

DEPTH 0–100 ft (0–30 m) or more

HABITAT Living coral heads

DISTRIBUTION Shallow reef waters throughout the tropics

Many large coral heads in tropical waters are decorated with Christmas tree worms, which occur in a huge variety of colors. The worm lives in a calcareous tube buried in the coral and extends neat, twin spirals of feeding tentacles above the coral surface. If disturbed, the worm pulls back into its tube in a fraction of a second. For added safety, the worm can also plug its tube with a small plate called an operculum.

