

# CRUSTACEANS

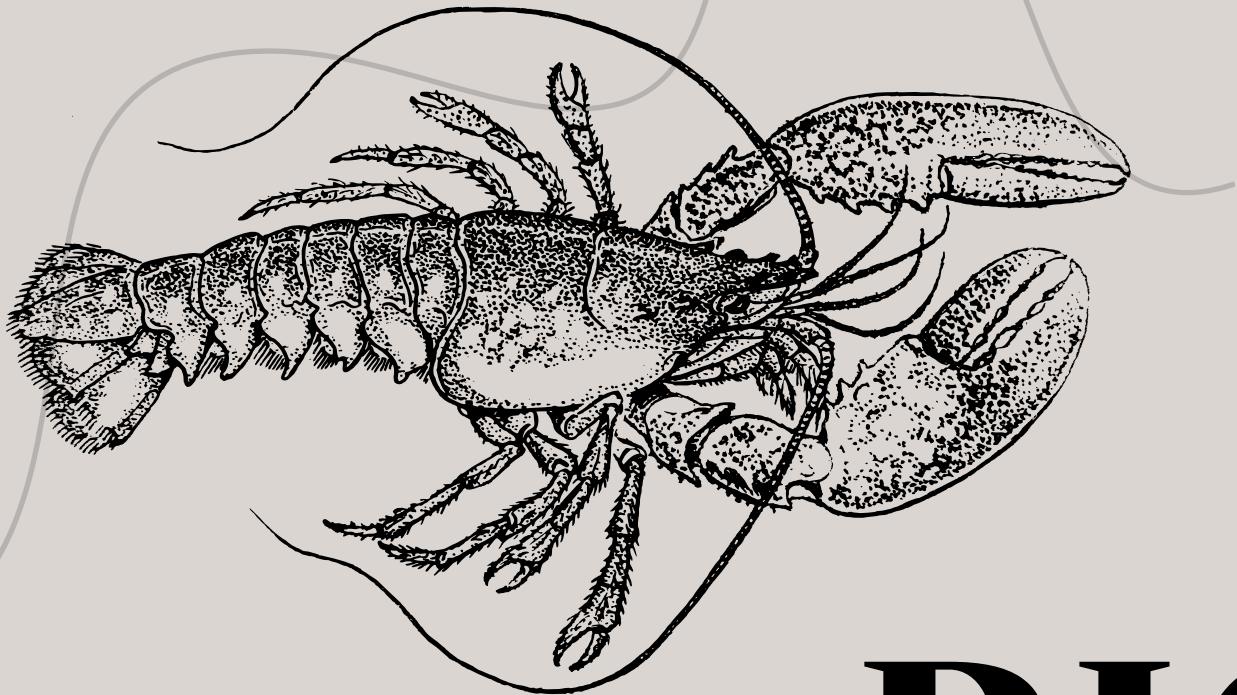


Presented by Moises Sapin

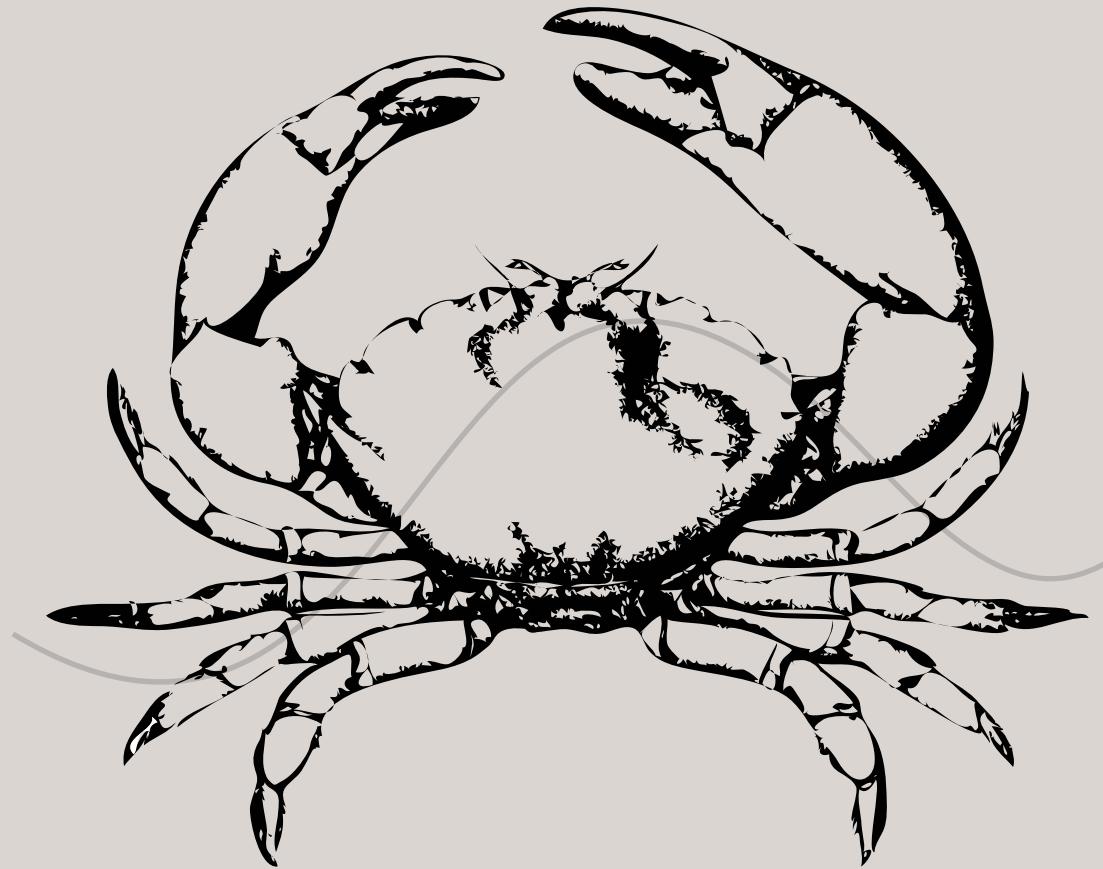
# Crustaceans

Crustaceans are a diverse group of arthropods that play a significant role in aquatic ecosystems. They are characterized by their hard exoskeletons, segmented bodies, and jointed limbs. Found in marine, freshwater, and terrestrial environments, crustaceans include familiar animals such as crabs, lobsters, shrimps, and barnacles.





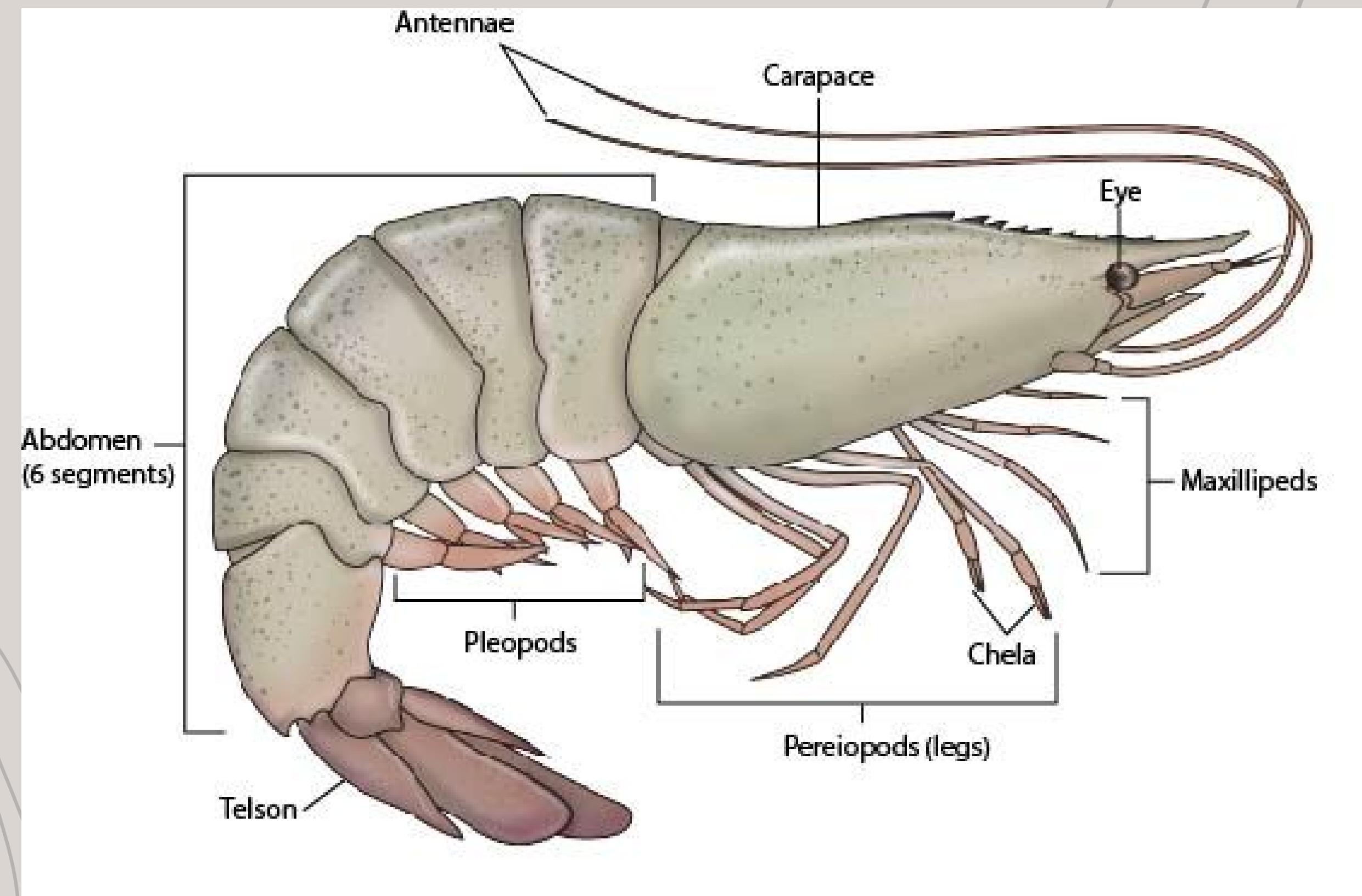
# BIOLOGY OF CRUSTACEANS



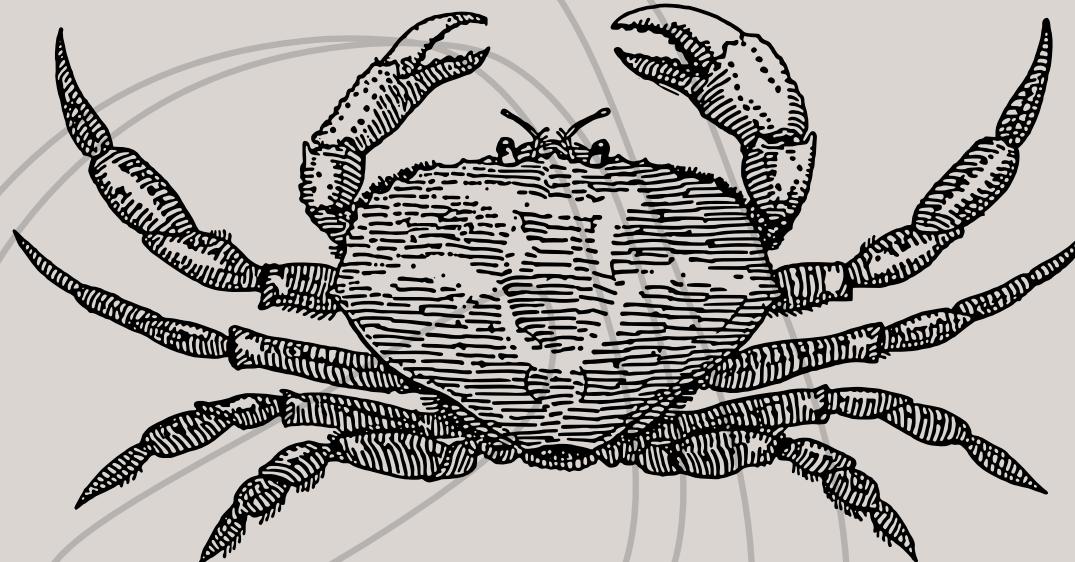
# The biology of crustaceans is complex and highly adapted to their environments.

- **Body Structure:** Crustaceans typically have a three-part body plan consisting of the head, thorax, and abdomen. In many species, the head and thorax are fused into a cephalothorax.
- **Exoskeleton:** Made of chitin and often reinforced with calcium carbonate, the exoskeleton provides protection and support. It is periodically shed through molting to allow for growth.
- **Circulatory System:** Crustaceans have an open circulatory system where blood (hemolymph) is pumped into the body cavity.
- **Respiration:** Most aquatic crustaceans breathe through gills, while some terrestrial forms use modified structures for gas exchange.
- **Nervous System:** They possess a ventral nerve cord and a dorsal brain, coordinating movement and sensory function.
- **Reproduction:** Crustaceans exhibit a range of reproductive strategies, from external fertilization in many marine species to brood care in some freshwater and terrestrial species.

# EXTERNAL PARTS OF SHRIMP



# MAJOR CLASSES OF CRUSTACEANS



## MALACOSTRACA

The largest and most diverse class, including crabs, lobsters, shrimps, and krill.



## BRANCHIOPODA

Small, freshwater crustaceans that often play a role in planktonic food webs. Characterized by flattened, leaf-like appendages used for swimming and feeding.



# MAXILLOPODA

A diverse class  
including barnacles  
and copepods.

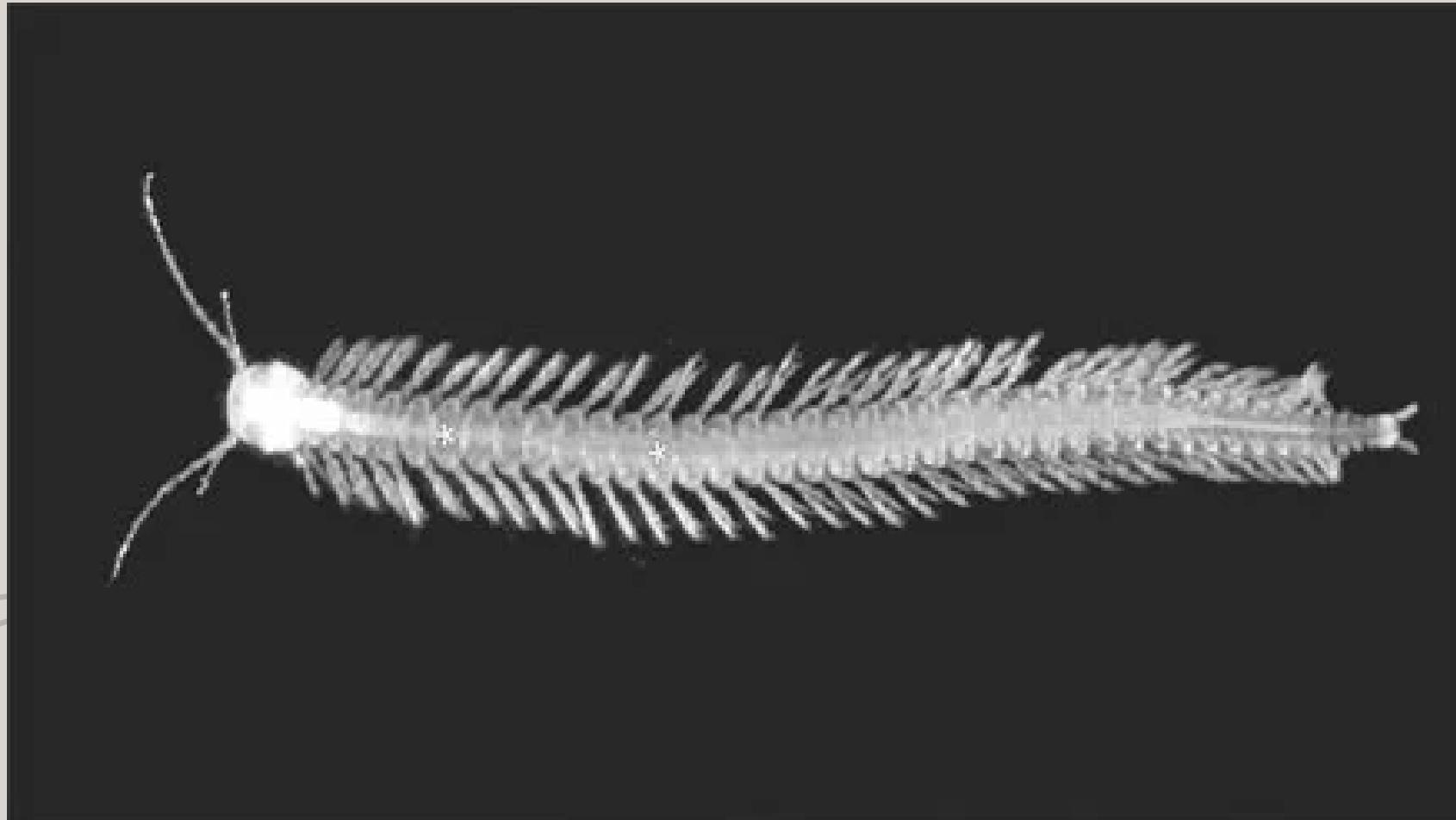


# OSTRACODA

Small, bivalve-shelled  
crustaceans found in  
marine and freshwater  
habitats.

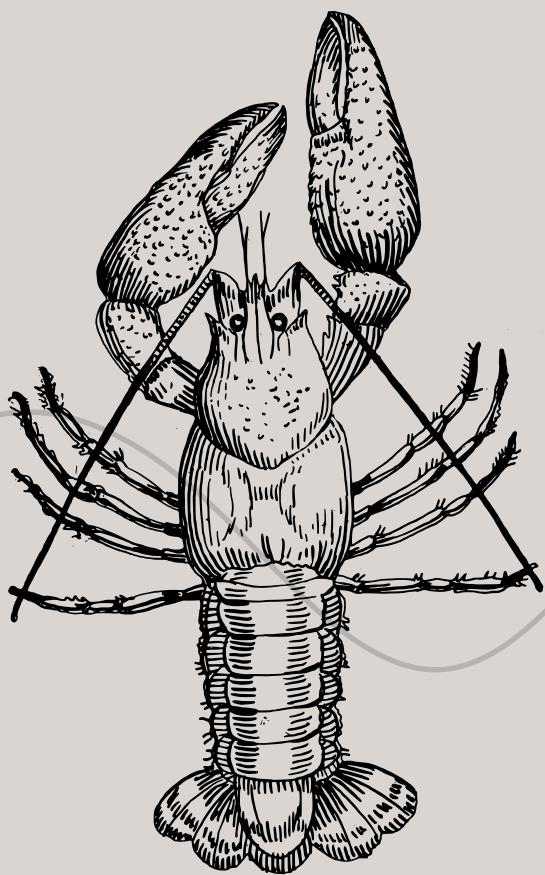


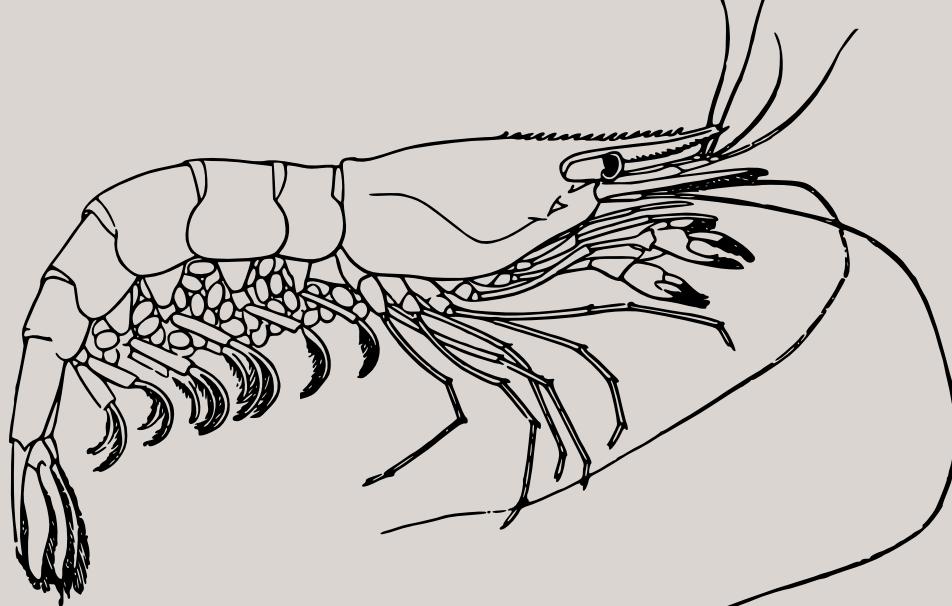
# REMIPIEDIA



Primitive, cave-dwelling  
crustaceans with a  
simple, elongated body.  
Found exclusively in  
marine cave systems.

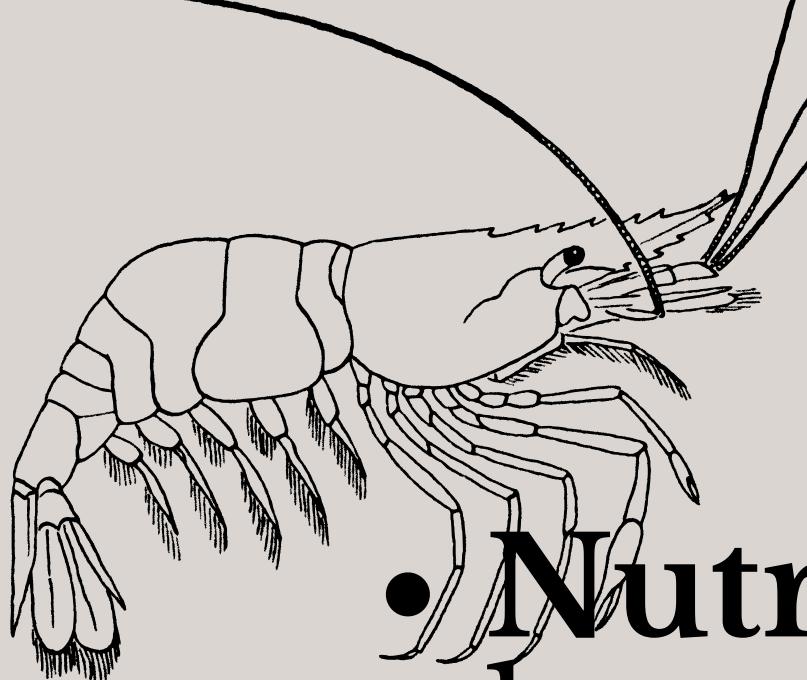
# ECONOMIC IMPORTANCE OF CRUSTACEANS





# FISHERIES AND AQUACULTURE

- **Seafood Industry:** Crustaceans are a major component of global seafood markets. Important species include shrimp, crabs, lobsters, and crayfish. Shrimp farming is a multi-billion-dollar industry, with countries like China, Thailand, and Indonesia being major producers.
- **Harvesting:** Crabs and lobsters are among the most valuable seafood, contributing significantly to coastal economies, especially in North America and Europe.

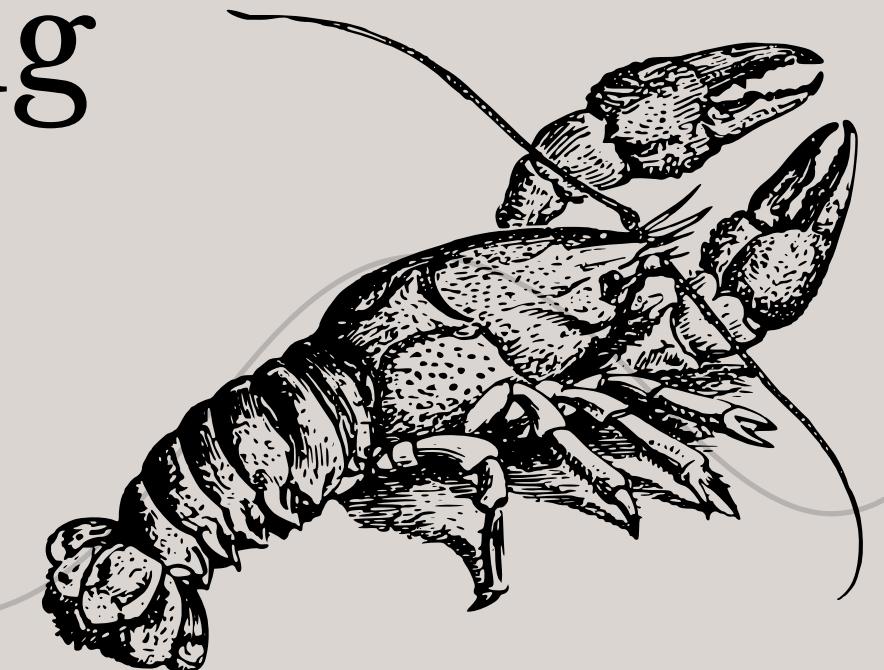


# ECOLOGICAL ROLES

- **Nutrient Cycling:** Crustaceans play a key role in the marine food web, both as prey and predators. Detritivorous species help recycle organic material, maintaining healthy ecosystems.
- **Planktonic Importance:** Copepods and krill form the base of many marine food chains, supporting fish, whales, and seabirds.

# MEDICAL AND INDUSTRIAL APPLICATIONS

- Chitin and Chitosan: Extracted from crustacean shells, these compounds are used in medicine, agriculture, water purification, and biodegradable materials. Research is ongoing into their use in wound healing, drug delivery systems, and tissue engineering.



# TOURISM AND CULTURAL SIGNIFICANCE



- **Seafood Tourism:** Regions known for crustacean cuisine (such as New England for lobster or Louisiana for crawfish) attract tourists and support local economies.
- **Cultural Symbolism:** Crustaceans, particularly crabs and lobsters, feature in art, mythology, and culinary traditions worldwide.



# CHALLENGES AND CONSERVATION

- **Overfishing:** Unsustainable harvesting can deplete stocks and disrupt ecosystems. Fisheries management, including catch limits and aquaculture expansion, is essential.
- **Climate Change:** Ocean acidification affects shell formation, posing a threat to crustacean populations. Rising sea temperatures also impact breeding cycles and habitat ranges.
- **Habitat Loss:** Coastal development and pollution threaten the habitats of many crustacean species.

# Conclusion

Crustaceans are biologically diverse and economically vital animals with global significance. Their roles in food webs, nutrient cycling, and commerce underscore the need for sustainable management and conservation efforts. By balancing economic gains with environmental responsibility, humanity can ensure the long-term health of crustacean populations and the ecosystems they support.

**Thank  
You**