

Pioneering Marine Biology: Firsts, Inventions, and Discoveries

Marine Biology · Answer Key · 15 Questions

1. What was the first scientific expedition to systematically explore the deep ocean and its inhabitants, often credited with inaugurating modern oceanography?

- A) The Challenger Expedition (1872-1876)**
- B) The Beagle Voyage (1831-1836)
- C) The Meteor Expedition (1925-1927)
- D) The Albatross Expedition (1888)

2. Who is credited with inventing the first practical, self-contained underwater breathing apparatus (SCUBA) in 1943, revolutionizing underwater exploration?

- A) Jacques Cousteau and Émile Gagnan**
- B) Hans Hass
- C) Robert Ballast
- D) Auguste Piccard

3. The discovery of hydrothermal vents in 1977 at the Galapagos Rift was a groundbreaking moment. What unique ecosystem did this discovery reveal?

- A) Chemosynthetic communities based on sulfur compounds**
- B) Bioluminescent deep-sea organisms
- C) A previously unknown phylum of invertebrates
- D) Giant squids with exceptional intelligence

4. What invention, first successfully used in the mid-20th century, allowed scientists to collect sediment samples from great depths, providing crucial data on past ocean conditions?

- A) The Piston Corer**
- B) The Bathyscaphe
- C) The Submersible
- D) The Sonar System

5. Which scientist, often called the 'father of marine biology,' was the first to systematically classify marine organisms and extensively study their habitats in the 19th century?

- A) Sir John Murray
- B) Alexander von Humboldt
- C) Edward Forbes**
- D) Charles Darwin

6. The development of what technology in the early 20th century enabled the first accurate mapping of the ocean floor, revealing its topography in unprecedented detail?

A) Echo Sounding (Sonar)

- B) ROVs (Remotely Operated Vehicles)
- C) Deep-Sea Cameras
- D) Trawling nets

7. What was the first significant discovery of a marine mammal's ability to echolocate for navigation and hunting, a phenomenon widely studied since the mid-20th century?

A) Dolphins

- B) Whales
- C) Seals
- D) Sea Otters

8. The discovery of the 'living fossil' coelacanth in 1938 was a major paleontological and biological find. In what ocean region was it first found?

A) Off the coast of South Africa

- B) In the Mariana Trench
- C) Near the Galapagos Islands
- D) In the Arctic Ocean

9. What early invention, dating back to the late 19th century, was crucial for collecting specimens from various depths and understanding the vertical distribution of marine life?

A) The Dredge

- B) The Plankton Net
- C) The Submersible
- D) The Gyrocompass

10. The first successful observation of marine life from a manned submersible in the deep ocean occurred in the 1930s. What was the name of this pioneering submersible?

A) Bathysphere

- B) Alvin
- C) Nautilus
- D) Triton

11. What discovery in the 1950s demonstrated that the ocean floor was not static, but was actively spreading from mid-ocean ridges, a cornerstone of plate tectonics?

A) Seafloor Spreading

- B) Abyssal Plains
- C) Ocean Trenches
- D) Continental Shelves

12. The identification of bioluminescence as a widespread phenomenon in marine organisms, particularly in the deep sea, was significantly advanced by studies beginning in the late 19th and early 20th centuries. Which of these is NOT a primary function of bioluminescence in marine life?

- A) Predator deterrence
- B) Communication and mating
- C) Camouflage (counter-illumination)

D) Generating heat for survival

13. What was the first fully submersible research vessel capable of prolonged dives to great depths, launched in the 1960s, which greatly expanded direct observation capabilities?

A) Alvin

- B) Bathyscaphe Trieste
- C) Deepsea Challenger
- D) Joides Resolution

14. The understanding of coral bleaching as a stress response to environmental changes, particularly rising sea temperatures, gained significant scientific attention starting in the late 20th century. What is the primary cause of coral bleaching?

A) Expulsion of symbiotic algae (zooxanthellae)

- B) Bacterial infection
- C) Increased salinity
- D) Pollution from microplastics

15. What groundbreaking invention by Willard Bascom in the mid-20th century allowed for more efficient and safe study of coastal processes and marine life by establishing a fixed observation platform in the surf zone?

A) The Stepping Stone

- B) The Floating Laboratory
- C) The Underwater Observatory
- D) The Wave Rider Buoy