

Pioneering Aquaculture: Inventions and Discoveries

Aquaculture · Answer Key · 8 Questions

1. What ancient civilization is credited with the earliest documented systematic cultivation of fish, laying foundational principles for modern aquaculture?

- A) Ancient Romans, with their fish ponds (piscinae)
- B) Ancient Greeks, through selective breeding of oysters
- C) Ancient Chinese, with extensive carp farming**
- D) Ancient Egyptians, utilizing Nile River floodplains for tilapia

2. The development of controlled breeding techniques for commercially important species, a cornerstone of modern aquaculture, owes much to early experimental work. Which of the following species was among the first to be successfully induced to spawn artificially in controlled settings, paving the way for wider application?

- A) Atlantic Salmon (*Salmo salar*)
- B) Channel Catfish (*Ictalurus punctatus*)
- C) Rainbow Trout (*Oncorhynchus mykiss*)**
- D) Pacific Oyster (*Crassostrea gigas*)

3. Which invention revolutionized artificial propagation of marine species by providing a consistent and controlled environment for larval rearing, significantly reducing mortality rates in early stages?

- A) The invention of the trawler net
- B) The development of the plankton wheel
- C) The creation of the astroturf substrate for spawning**
- D) The design of the large-scale recirculating aquaculture system (RAS)

4. The first successful large-scale commercial production of Penaeid shrimp in controlled hatcheries, a major breakthrough in crustacean aquaculture, primarily utilized which specific technological innovation?

- A) Automated feeding systems
- B) Closed-system water recirculation
- C) Controlled temperature and salinity incubation tanks**
- D) Artificial insemination techniques

5. What significant advancement in disease management for aquaculture, first widely implemented in the late 20th century, involves the prophylactic administration of live beneficial bacteria to improve gut health and disease resistance in farmed fish?

- A) Vaccination programs
- B) Antibiotic treatments
- C) Probiotic application**
- D) UV sterilization of water

6. The development of synthetic diets, moving away from reliance on natural feeds for larval fish and shrimp, was a critical step in scaling up aquaculture. Which of the following was one of the earliest components to be successfully incorporated and mass-produced for these diets?

- A) Marine worm meal
- B) Soybean meal
- C) Algal meal rich in essential fatty acids**
- D) Krill meal

7. The first commercially viable method for offshore aquaculture, allowing for larger scale and more sustainable operations away from coastal constraints, largely depended on the development of what type of infrastructure?

- A) Floating cages with advanced mooring systems**
- B) Submerged net pens
- C) Seafloor farming enclosures
- D) Artificial reefs for habitat enhancement

8. The groundbreaking discovery that oysters could be induced to spawn reliably in captivity, a pivotal moment for shell-fish aquaculture, was achieved through the manipulation of what environmental factor?

- A) Water pressure
- B) Dissolved oxygen levels
- C) Water temperature**
- D) Light intensity