

Aquaculture Innovations and History

Aquaculture · Answer Key · 25 Questions

1. Which ancient civilization is credited with the earliest written record of aquaculture, specifically the 'Fish Culture Classic' by Fan Li?

- A) Ancient Egypt
- B) Ancient China**
- C) Ancient Rome
- D) Ancient Mesopotamia

2. In 1853, what significant technological breakthrough in trout artificial fertilization was documented by Joseph Remy and Antoine Gehin in France?

- A) Recirculating Aquaculture Systems
- B) Artificial propagation of salmonids**
- C) Offshore cage netting
- D) Automated fish feeders

3. Who is credited with the first successful artificial fertilization of Atlantic salmon eggs in 1763, laying the foundation for modern hatcheries?

- A) Stephen Ludwig Jacobi**
- B) Spencer Fullerton Baird
- C) John G. North
- D) Frank Buckland

4. The first commercial successful breeding of which marine species in Japan during the 1930s revolutionized the global molluscan aquaculture industry?

- A) Pacific Oyster
- B) Pearl Oyster**
- C) Scallop
- D) Abalone

5. What type of aquaculture system was first pioneered at the Sunndalsøra Research Station in Norway in the 1970s?

- A) Integrated Multi-Trophic Aquaculture
- B) Modern industrial salmon farming**
- C) Floating closed-containment systems
- D) Vertical land-based shrimp farming

6. Which US state was the site of the first successful commercial catfish farming operation in the early 1960s, utilizing converted rice paddies?

- A) Mississippi
- B) Florida
- C) Louisiana
- D) Arkansas**

7. The first successful mass culture of the brine shrimp Artemia, essential for larval nutrition, was perfected in what decade?

- A) 1930s**
- B) 1950s
- C) 1970s
- D) 1990s

8. Which entity developed the first patent for a 'Recirculating Aquaculture System' (RAS) using biological filtration in the 1970s?

- A) The World Bank
- B) The Conservation Fund**
- C) The Japanese Fisheries Agency
- D) The Norwegian Institute of Marine Research

9. The discovery of the hormonal induced breeding technique (hypophysation) for carp was first achieved in 1934 by researchers in which country?

- A) Brazil**
- B) India
- C) Vietnam
- D) China

10. What is the name of the first genetically modified animal approved for human consumption, a fast-growing salmon variety approved by the FDA in 2015?

- A) AquAdvantage Salmon**
- B) Super-Atlantic Salmon
- C) Gen-Trout
- D) Ocean-Plus Salmon

11. In the 1950s, what breakthrough in nutrition allowed for the expansion of trout farming by replacing expensive natural feeds?

- A) Algae-based pellets
- B) Dry compounded pelleted feeds**
- C) In-situ plankton fertilization
- D) Synthetic nutrient injections

12. The development of the first successful 'net-pen' system for salmon was pioneered by the brothers Vik and Kjell in which year?

- A) 1958
- B) 1969**
- C) 1974
- D) 1981

13. Which country led the first large-scale development of 'Integrated Multi-Trophic Aquaculture' (IMTA) in a commercial maritime setting?

- A) Canada**
- B) Chile
- C) Japan
- D) Norway

14. The first successful large-scale commercial production of sea bass (*Dicentrarchus labrax*) occurred in which country during the late 1960s?

- A) Greece
- B) Italy**
- C) France
- D) Spain

15. Which invention allowed for the first real-time monitoring of oxygen levels in aquaculture ponds, significantly reducing mass mortality events?

- A) Polarographic oxygen sensor
- B) Fluorescence-based dissolved oxygen meter
- C) Clark-type electrode**
- D) Winkler titration kit

16. What was the first commercially significant species to be farmed using 'raceway' technology in the United States?

- A) Rainbow trout**
- B) Striped bass
- C) Tilapia
- D) Channel catfish

17. The first reported use of synthetic 'pituitary extract' for spawning fish was documented by Bernardo Houssay in which year?

- A) 1910
- B) 1930**
- C) 1950
- D) 1970

18. In the history of shellfish farming, when was the 'long-line' method for mussel cultivation first patented in Spain?

- A) 1940s**
- B) 1950s
- C) 1960s
- D) 1970s

19. Which pioneering research center released the first comprehensive mapping of the Atlantic Salmon genome in 2016?

- A) University of Bergen**
- B) University of Washington
- C) Genome Canada
- D) CSIRO Australia

20. The 'Ebeling' filter, an early innovation in water treatment for aquaculture, was introduced in the early 20th century to solve what problem?

- A) Ammonia toxicity**
- B) High turbidity
- C) Temperature fluctuation
- D) Oxygen depletion

21. What is considered the first 'open ocean' aquaculture site, established in Hawaii in the late 1990s?

- A) Kona Blue**
- B) Oceanic Institute
- C) Pacific Marine
- D) Deep Water Farms

22. The first commercial successful breeding of the 'giant freshwater prawn' (*Macrobrachium rosenbergii*) was achieved by Takuji Fujimura in the 1960s in:

- A) Thailand
- B) Hawaii**
- C) Indonesia
- D) Malaysia

23. Which technology, first applied to aquaculture in the 1980s, uses DNA sequencing to monitor stock health and genetic diversity?

- A) Microsatellite markers**
- B) CRISPR editing
- C) Mass spectrometry
- D) Isotope labeling

24. The 'Vaki' biomass counter, a revolutionary tool for estimating fish weight without handling, was first introduced in what year?

A) 1986

B) 1992

C) 1998

D) 2005

25. Which discovery in 1991 led to the commercial viability of farming the 'Pacific threadfin' (Moi)?

A) Larval dietary requirements

B) Disease-resistant vaccine

C) Photoperiod control for spawning

D) RAS water sterilization