

History of Aquaculture

History of Aquaculture – Study Notes

1. Definition

Aquaculture – the controlled cultivation of aquatic organisms (fish, crustaceans, mollusks, algae, and aquatic plants) for food, restoration, research, or commercial products.

2. Early Beginnings (Pre-historic – 1st Millennium CE)

Period / Region	Evidence & Practices	Key Species
Neolithic China (? 7? 000?BCE)	Earthen ponds with carp and loach; written records in <i>Shiji</i> (Records of the Grand Historian)	Common carp (<i>Cyprinus carpio</i>)
Ancient Egypt (? 3? 000?BCE)	Tilapia raised in temple ponds; fish fry collected from Nile floodplains	Nile tilapia (<i>Oreochromis niloticus</i>)
Mesopotamia (? 2? 500?BCE)	Small-scale fish ponds linked to irrigation canals	Various freshwater species
Roman Empire (1st–2nd?c. CE)	Salt-water fish ponds (vivaria) for sea bass, mullet; use of “fish farms” in coastal Italy & Spain	Sea bass, mullet
Mesoamerica (? 500? CE)	Chinampas (floating gardens) in Lake Texcoco; raised tilapia and catfish	Tilapia, catfish

Take-away: Early aquaculture was largely **extensive**—relying on natural water bodies, seasonal flooding, and simple pond enclosures.

3. Classical & Medieval Expansion

Era	Region	Development
Tang & Song Dynasties (7th–12th?c.)	China	Systematic carp polyculture (four-species method: carp, silver carp, bighead carp, grass carp) ? “Four-Species Pond” became a model for sustainable nutrient recycling.
Islamic Golden Age (8th–13th?c.)	Middle East	Introduction of <i>tilapia</i> and <i>carp</i> to the Mediterranean via Arab traders; use of qanat irrigation for pond creation.

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Medieval Europe (12th–15th?c.)	England, France, Italy	Monastic fish ponds for consumption of <i>salmon</i> , <i>trout</i> , and <i>carp</i> during fasting periods.
Japan (Edo period, 1603–1868)	Japan	Development of <i>shirasu</i> (larval sardine) and <i>ayu</i> (sweetfish) hatcheries; early use of artificial breeding.

Key point: Knowledge transfer along trade routes (Silk Road, Arab maritime routes) spread species and techniques across continents.

4. Scientific Foundations (19th – early 20th?c.)

Milestone	Contributor	Significance
1859 – First modern fish hatchery	William T. H. Barlow (USA)	Established the <i>U.S. Fish Commission</i> hatchery in Washington, D.C.; introduced systematic egg collection and larval rearing.
1875 – Carp breeding in Europe	Johannes von Müller (Germany)	Demonstrated selective breeding for growth and disease resistance.
1905 – Japanese <i>Kojiki</i> experiments	Yoshinobu Miyazaki	Developed the first large-scale marine fish seed production (Japanese flounder).
1910 – First commercial oyster farms	Thomas H. G. H. Denny (USA)	Introduced oyster