

1.3 Aquatic Biomes

Name: _____ Class: _____ Date: _____

Total: 10 marks**KEY WORDS** marine 海洋 • estuaries 河口 • freshwater 淡水 • salinity 盐度 • coral reef 珊瑚礁

Objective

Build the skills to answer exam questions on **aquatic biomes**.

You must be able to:

- distinguish **freshwater** 淡水 and **marine** 海洋 systems
- describe productive zones (**estuaries** 河口, coral reefs)
- state the factors that shape aquatic biomes (salinity, sunlight, nutrients)

1 Worked examples

Study these first. Each one shows the method for a question type used later — follow the steps and you can do the Practice and Exam-style questions yourself.

■ Freshwater and marine

Aquatic biomes cover most of Earth. **Freshwater** (streams, lakes, wetlands) has low salt; **marine** (open ocean, reefs, estuaries) is salty. They differ in **salinity**, **sunlight**, and **nutrients**.

■ Highly productive zones

- **Estuaries** — where rivers meet the sea; nutrient-rich and highly productive nurseries.
- **Coral reefs** — high biodiversity, need warm, clear, shallow water.

■ Factors that shape them

Sunlight (limits photosynthesis with depth), temperature, **salinity**, dissolved oxygen, and nutrient levels all determine what lives where.

■ A worked reasoning

An estuary is highly productive because rivers deliver nutrients and it is shallow enough for sunlight to reach the producers.

2 Practice

Now apply the methods above.

2.1 State the main difference between freshwater and marine biomes. [1]

2.2 Where is an estuary found? [1]

2.3 Name one factor that shapes an aquatic biome. [1]

3 Exam-style questions

3.1 Estuaries are highly productive because they [1]

- **A** have no sunlight
 - **B** are nutrient-rich where rivers meet the sea
 - **C** are very deep
 - **D** have no life
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3.2 A coral reef is a highly biodiverse marine biome.

(a) State two conditions coral reefs require. [2]

(b) Explain why sunlight limits life in deep ocean water. [2]

3.3 Explain why estuaries are described as important “nurseries” for marine life. [2]

Solutions

2.1 Salinity — freshwater has low salt, marine is salty.

2.2 Where a river meets the sea.

2.3 Any one: salinity, sunlight, temperature, nutrients, dissolved oxygen.

3.1 B — nutrient-rich where rivers meet the sea.

3.2 (a) Warm, clear, shallow water (any two). (b) Sunlight cannot penetrate deep water, so photosynthesis (and the producers it supports) is limited near the surface.

3.3 They are nutrient-rich and sheltered, so many marine species breed and their young grow there before moving to the open sea.