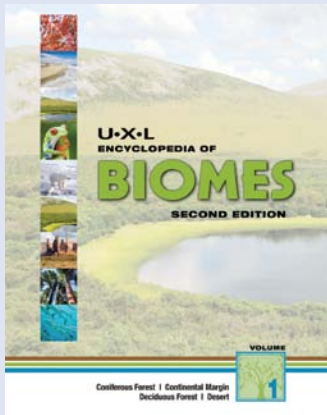



U·X·L® Encyclopedia of Biomes

Introducing students to Earth's 12 major biomes and component ecosystems



U·X·L Encyclopedia of Biomes

2nd Ed. 2008.
786 pages in three volumes.

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NEW TITLE



What's the difference between a biome and an ecosystem? Why are krill so important to ocean creatures? How do pesticides end up in the tissue of fish-eating birds? Why are marshes so important to wildlife? For answers to questions like these, students need to understand the cycles and systems that regulate biomes.

U·X·L Encyclopedia of Biomes offers detailed comparative essays on Earth's 12 major biomes and their component ecosystems:

- Coniferous Forest
- Continental Margin
- Deciduous Forest
- Desert
- Grassland
- Lake and Pond

- Ocean
- Rain Forest
- River and Stream
- Seashore
- Tundra
- Wetland

Entries range from 35 to 45 pages and cover an overview and description, climate, elevation, soil, water bodies, vegetation, animal life, food web, plant and animal adaptations, endangered species, human effects on the biome and the effects of the environment on humans' culture and economy.

This fully updated eBook edition features full-color illustrations and page design, available as PDFs.

CONTINENTAL MARGIN

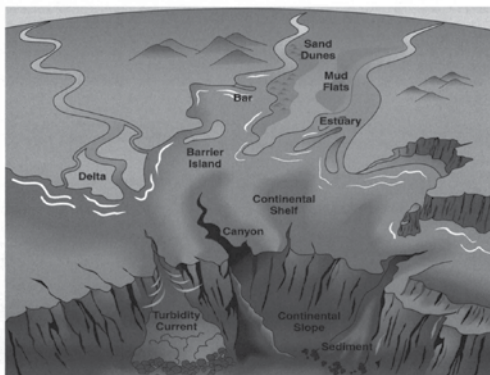
HOW THE CONTINENTAL MARGINS WERE FORMED

The World Ocean, which is all the oceans taken together, covers a total of 139,782,000 square miles (363,433,200 square kilometers)—about 70.8 percent of the Earth's surface. Over 200,000,000 years ago, the World Ocean was one body of water that surrounded one large continent. As time passed, this land mass began to pull apart. As a result, the continents and islands were formed.

The breakup of that one large continent was caused by heat forces welling up from deep within the Earth. As earthquakes split the ocean floor, molten rock from below the Earth's crust flowed into the fracture and became solid. For millions of years this process was repeated until the upper parts of the Earth's crust, on which the continents sit, were pushed even farther apart. About 50,000,000 years ago, the continents took their present shapes and positions.

An illustration showing a cross-section of the continental margin, including the continental shelf and continental slope.

About 20,000,000 years ago, when the sea level was at its lowest, the area which now makes up the continental shelves was above water. Forests



may have grown there, and it may have been home to many animals. Over millions of years, rain, wind, and wave action eroded (wore away) the shelf surface, and rivers and glaciers flowed across it. Gradually, sediments from the shelves were washed into the water. Later, as the glaciers melted, the sea level rose and covered the shelves so that the entire continental margin was under water.

CONTINENTAL MARGIN

THE WATER COLUMN

All of the waters of the ocean, exclusive of the sea bed or other landforms, is referred to as the water column. (For a more complete discussion of the water column, see the chapter titled "Ocean.")

Every element known on Earth can be found in ocean water. It is 3.5 percent dissolved salts by weight. The percentage of these salts determines the ocean's salinity (level of salts). These salts also make seawater heavier than fresh water. The ocean water closest to the surface is usually less salty because of rainfall and fresh water flowing in from rivers.

The temperature of the oceans varies. In general, however, temperature changes are greatest near the surface where the heat of the Sun can be absorbed. In the warmest regions of the world, this heat absorption occurs to depths of 500 to 1,000 feet (150 to 305 meters).

ZONES IN THE OCEAN

Different parts of the ocean have different features, and different kinds of creatures live in them. These different parts are called zones. Some zones are determined by the amount of light that reaches them.

Over the continental shelves, the ocean receives enough light to support photosynthesis, the process by which plants use the energy from sunlight to change water and carbon dioxide into the sugars and starches they use for food. These surface waters, called the sunlit zone, reach down as far as 650 feet (198 meters) below the surface. The sunlit zone supports more plant and animal life than any other zone.

Below the sunlit zone and extending about halfway down the continental slope is the twilight zone, which ranges from 650 to 3,300 feet (198 to 1,006 meters) in depth. Only blue light can filter down to this level. It is too dark for plant life here, but animals can live at this depth.

Beginning about halfway down the continental slope and extending into the deepest region of the oceans is the dark zone. Like the twilight zone,

SEA-GOING DINOSAURS

About 65,000,000 years ago, a number of dinosaur species lived in the oceans. The *Tylosaurus* was 25 feet (7.6 meters) long and resembled a chubby crocodile with flippers rather than feet. *Plesiosaurs*, which could have been as long as 50 feet (15 meters), had flippers and long, giraffe-like necks. Flying reptiles, called *Pteranodons*, glided through the air over the ocean on leathery wings looking for fish. They returned to land only to lay their eggs.

▲ Illustrations and photographs bring information to life for middle and high school students.

ALIGNS WITH NATIONAL AND STATE SCIENCE STANDARDS

Student achievement in science is becoming increasingly important in the United States. *U•X•L Encyclopedia of Biomes* aligns with national science standards and middle school science curriculums and is relevant in a variety of subject areas, such as biology, geography, anthropology and current events.

STANDARDIZED CHAPTER FORMAT

Each of the 12 chapters on Earth's major biomes contains standardized rubrics allowing for easy access to information and comparative analysis across biomes:

- Overview
- How biomes are formed
- Climate and elevation
- Growing season
- Plants, animals and endangered species
- Food webs and human culture
- Economy

Students are drawn into the information with these chapter highlights:

- Sidebars with interesting insights
- A "Words to Know" section defining difficult scientific terms
- A "For Further Research" section — books, periodicals, Web sites and environmental organizations where students can go for additional study
- More than 190 full-color maps, photographs and illustrations
- Spotlight on specific geographic areas — a few pages of information on a specific geographical area (Alaskan Coastal Rainforest, for example) related to the biome being discussed (Coniferous Forest)



A CROSS-SEARCHABLE eBook

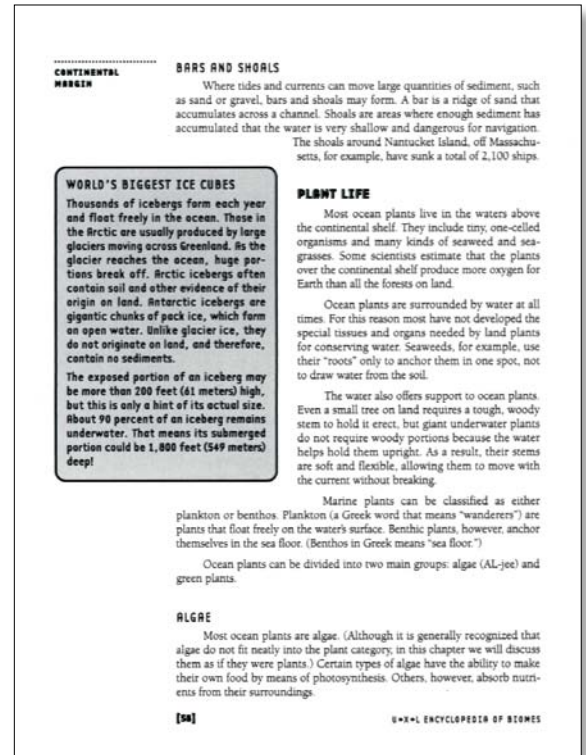
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▲ Sidebars offer intriguing insights into biomes and ecosystems.

