The Continental Shelf and Slope

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The term **continental shelf** refers to the edges of the continental crust that are currently under water (but were not at one time). The **continental slope** refers to the point at which the continent abruptly drops off to the much deeper continental rise and abyssal plain.
Depth

The width and depth of the continental shelf varies greatly by location, but averages at roughly 60 meters in depth. Submarine canyons cutting into the shelf may be as deep as 1,200 or more meters. The shelf break (where the slope begins) almost always occurs at around 130 m.
Temperature

This factor varies too greatly to generalize, since the temperature in the shelf/slope in each ocean reflects the regional climate. For example, the temperature in the continental shelf off of India is going to be very different than the continental shelf off of Antarctica.
Dissolved Oxygen

The shallowest part of the continental margin, the shelf region receives much sunlight (and thus, photosynthesis occurs), as well as direct surface-to-air contact, yielding the highest levels of dissolved oxygen.
The water in the slope, though colder, (and thus able to contain higher levels of dissolved O2), also receives far less sunlight. Without photosynthesis and direct absorption, its oxygen content will be much lower than in the shelf region.
Light

The shallowness of the water depth over the continental shelf allows sunlight to penetrate the water, allowing the organisms to thrive.

Sunlight penetrates the water over the continental slope up until about 200m. (660ft)
Currents

In the summer, currents over the continental shelf flow southeastward. This causes the cooler water to flow to the shelf. In the winter, currents flow Northeastward causing sediment to move. Currents over the continental slope usually northward year round.
Abiotic Factors

Since the water over the shelf is shallow, density, and salinity is affected by the water movements (tides, currents, turbulence.) When there are a lot of turbulence, the water is mixed and stratification is avoided. If stratification does not occur, then the salinity of the water at the bottom only slightly varies from the water on top.
Abiotic Factors cont.

The continental shelf and slope are full of nutrients from the sediment and water brought in from the rivers. The majority of the sediment on the shelf is lithogenous, while the rest of the sediment is biogenous.
Abiotic Factors cont.

The continental shelf has different substrates. The most common are soft bottoms and hard and rock bottoms. The soft-bottom is the most common.
Biotic Factors

Plankton: The Basic food chain on the Continental Shelf starts with phytoplankton.

Lobster, Dungeness Crab, Tuna, Cod, Halibut, Sole and Mackerel make their homes in the shallow water of the shelf.
Biotic Factors Cont.

Contains vertebrae, like sharks and other fish, contains plants and corals. Invertebrate also such as sea slugs and snails, crabs, lobster.
Plant Life

Copious amounts of kelp and other seaweed exist on the shelf either floating or anchored in the deeper areas about 100 feet down.