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|  | Fore Reef | Reef Core | Back Reef |
| Water Characteristics:Temperature,OxygenSalinity | Temperature stable and normal marineOxygen stable and normal marineSalinity stable and normal marineThis environment borders the open ocean, and so gets constant influx of new normal marine water. | Temperature somewhat variable, usually normal marine due to water washing in from open ocean.Salinity variable depending on rainfall and evaporation.Oxygen more stable and high due to breaking waves | Temerature variable due to shallow water, could be high to lowSalinity variable depending on evaporation, rain and run-off, could be very high to very low.Oxygen depends on plant productivity (high) and amount of organic decay (low). |
| What is the substrate like? | Sandy from broken up reef debris (packstone, grainstone) | Hardground, broken fragments, so boundstone and grainstone | Can be muddy (mudstone, wackestone) or sandy (packstone, grainstone) |
| What are the advantages of living in this zone? | Stable conditions, lower wave energy, lots of food particles falling from reef | Abundant oxygen, shallow water means high plant production and high zooxanthellae production for framework organisms | Well-lit, quiet water, so good for plant production and delicate organisms. Protection from predators of open ocen |
| What are the challenges of living in this zone? | Few – mostly unstable blocks falling from reef and sand flows down the slope – better for mobile or weedy species | High wave energy means organisms need to be robust, encrusters, or able to cling on; or else live in the little cryptoenvironments in crevices | Chemically challenging with swings in oxygen and salinity, physically challenging with swings in temperature. Deeper lagoons are less challenging. |
| Paleozoic: who lived here? | Filter feeders: crinoids, bryozoans, brachiopods, bivalves, wormsPredators: cephalopods, trilobites, rugose coralsGrazers: gastropodsAlgae | Tabulate corals, sponges, ostracods, rugose corals, brachiopods, gastropods, bivalves | Bryozoans, brachiopods, gastropods, bivalves, cephalopods |
| Modern: who lives here? | Scleractinian corals, soft corals, echinoids, crustaceans, starfish, fish, worms, coralline algae, squid | Robust scleractinian corals, crustaceans, gastropods, coralline algae | Grass, mangroves, fish, turtles, algae, crustaceans, gastropods, bivlaves |