Reef Organisms

What are the organisms on reefs and sea rocks?

By Jeremy Gosnell

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Moorish idol by Tony Terceira.

Q. Why is there scum, mold and marine algae on reefs and sea rocks? I know Moorish idols and other fish eat it, but what are some other reasons?
Moorish Idol
FishChannel Forums

A. There are a variety of living organisms that are encrusted on reef rock, or what we aquarists commonly refer to as live rock. Live rock isn't actually alive but is called live rock because of the many living organisms that make it home. Some of these creatures are miniature invertebrates and crustaceans like copepods and amphipods, while others are larger animals like small porcelain crabs, and shrimp. The "scum" you refer to is likely the biological slime that compiles as bacteria colonies form over the rock.

Bacteria can form an encrusting slime (they even form this slime on aquarium gravel and glass in freshwater aquariums). It is this "bioslime" that helps filter our aquarium water and natural reef water. These bacteria are responsible for the conversion of ammonia to nitrite and nitrite to nitrate so they play a very important role both in the aquarium and on the natural coral reef.

The "mold" you describe could be a variety of living things. It could be a clear or yellowish encrusting sponge that is not uncommon. Also, blue encrusting sponges can grow over coral reef rock and add a certain amount of flair or color. Macroalgae like Chaetomorpha could be growing on the rocks, though this would create long plantlike strands, though these really wouldn't appear to be mold. Nuisance hair algae are often found growing in the aquarium and on the reef and many times resemble (both in appearance and texture) human hair. These algae can be green, black or brown in color and are often difficult to eradicate.

Encrusting coralline algae are often found on reef rock and appear as bright pink spots or dark maroon red areas. Coralline algae, unlike other algae, utilize calcium in the water and absorb the light in the blue spectrum – not red and orange like many common algae species. Coralline algae are often found deep down in the reef drop off zone because red and orange spectrums of light are absorbed much quicker than blue. Also, coralline algae are common in shallow reef zones like the reef crest. In these areas low depth and high wave action make it impossible for corals to survive. Durable coralline algae can encrust there without any competition for space from corals. This alga acts like a sort of biological cement and helps protect the reef and corals from the destructive power of heavy wave action.

Turf algae are a common term for the collective species of algae that are found growing on live rock. If you look closely at any piece of live rock you will often see tiny strands of various sizes, shapes and colors growing off the rock. That would represent turf algae and what you are seeing may be a dozen or more individual algae species all competing for the same space.

Algae are a food source for many varieties of reef fish. Surgeonfish are perhaps the most infamous algae grazers and the Pacific convict tang Acanthurus triostegus is a highly vital species in maintaining areas of high algae growth on South Pacific reefs. In addition to surgeonfish, many species of blennies, gobies, damselfish, and as you mentioned, Moorish idols, feed upon algae. The dusky damselfish Stegastes dorsopunicans (common on Caribbean coral reefs) actually farms a small algae patch. Females select males that have the most abundant and productive algae patch. In the world of scientific diving we say the dusky damselfish impresses a female with an algae patch much like a human would an expensive sports car. Algae also work as a good food source for many invertebrates. Snails, sea urchins and many varieties of crabs all rely on algae for sustenance. Algae even make great nurseries for juvenile fish.

Algae, sponge, bioslime and coralline algae are all common organisms on basically any natural or captive piece of live rock. These species all form a unique and important part of the food chain or serve a purpose that often helps protect a coral reef and keeps things functioning normally. With the help of animals like surgeonfish and sea urchins algae growth is kept in check and coral reefs remain healthy. Years ago a rare virus wiped out 90 percent of all long spine sea urchins Diadema antillarum in the Caribbean Sea. Turf algae nearly decimated the entire reef eco-system, so you can quickly see

how each animal plays an important ecological role.