

Environmental Science Institute Hot Science – Cool Talks
Learning Module for “Brave New Ocean”

Coral Reef Decline into Slime?

The main causes of global coral reef decline are pollution, climate change (global warming), overfishing, and disease.¹ Yet, many marine scientists, including Dr. Jeremy Jackson of the Scripps Institute, agree that placing relevance on the cause is not the main issue. The challenge in decline reversal is recognizing how to manage and conserve these already degraded reefs through clear conservation goals. Historically, coral reef management has been too “small and piecemeal,” when it should encompass the entire coral reef ecosystem.

Some coral reefs, like around the Florida Keys, are already in such decline that they are over the halfway point to ecological extinction. Even Australia’s Great Barrier Reef, the world’s largest and best-managed reef to date, has shown ecological decline. Reefs around the world that have reached a point of severe degradation are nothing more than “rubble, seaweed, and slime” with “almost no large animals,” poor water quality, and weedy corals replacing the larger coral species.¹ Having clear global management plans has become a goal of many marine scientists. The Bahamas and Cuba have “committed to conserve more than 20% of their coral reef ecosystems,”¹ yet Florida and Hawaii, some of the most declining reefs, have taken much less action.

How should U.S. reefs reverse their reef decline? With an ecosystem management practice, which addresses all threats at the same time, “short-lived species, like lobster, conch, and aquarium fish will recover and generate income in just a few years, and benefits will continue to compound over time. Longer-lived species will recover, water quality will improve, and the ecosystem will be more resilient to unforeseen future threats.”¹

¹ J.M. Pandolphi, J. Jackson *et. al.*, Are U.S. Coral Reefs on the Slippery Slope to Slime?, *Science* **307**, 1725-1726 (2005).