

Reefs Show Signs of Rallying

Recent bad news for reefs isn't the end of the world, and we should take everything we hear about reef decline with a grain or two of salt.

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The Great Barrier Reef.

The Great Barrier Reef, the largest coral reef system in the world, has come under increasing threat over the last few years. That trend may be changing, however. The news about coral reefs has been decidedly negative of late. Just take a look at my past blog entry, "Coral Reef Acid Test." Make no mistake about it: Coral reefs all over the world are in trouble, with some estimates suggesting that as much as 45 percent of the world's reefs are already dead.

But, don't let this sour news get you down. Remember, life has a way of getting on. Two recent new reports suggest that there may be some life, and some hidden surprises, in the world's coral reefs yet.

East African Reefs

The Wildlife Conservation Society announced the findings of a recent study on April 27, 2009, stating that some East African coral reefs have shown resilience to the effects of climate change.

In fact, the study says that since a late 1990s bleaching event that killed around 45 percent of the corals on the reefs between northern Mozambique, northern Madagascar and southern Kenya, most of the corals have made a rapid recovery.

The researchers described the reefs as "super reefs" for their ability to withstand the effects of climate change. Who's to say these reefs are necessarily "super," though? Maybe scientists have just underestimated the ability of reefs to withstand the effects of climate change.

The Great Barrier Reef

Consider the recent news from researchers looking at coral decline in the Great Barrier Reef, located in the Coral Sea off the northeast coast of Australia. Around three years ago, significant numbers of corals near the Keppel Islands, in the southern part of the Great Barrier Reef, experienced a significant bleaching event, where corals expel their zooxanthellae algae and die off, turning white, or "bleaching," in the process.

On top of that, a species of seaweed ran amok the following year and further devastated the affected areas of coral. After the first year's bleaching event, and the suffocation of the reefs caused by the seaweed explosion, things were looking grim for corals in these areas last year.

However, things aren't as bad as they seemed to be a year ago. Researchers from the Australian Research Council's Centre of Excellence for Coral Reef Studies (CoECRS – headquartered at James Cook University, in Townsville, Australia) and the University of Queensland's Centre for Marine Studies have stated that corals in the affected areas have made a surprising recovery in only a year's time.

Corals near the Great Keppel Island have demonstrated a remarkable recovery since last year due to a big boost in coral reproduction rates through natural fragmentation.

When water temperatures get too warm, corals may expel their zooxanthellae, the symbiotic algae that live inside coral and enable them to gather energy from photosynthesis. The white corals in this image are likely suffering from this "coral bleaching."

Coral bleaching is a huge problem. This beautiful purple-colored coral was reduced to a dead, white mass after a coral bleaching event. They attribute the turnaround to a variety of factors. For one, the culprit seaweed experienced a seasonal die-off. Also, certain coral species proved to be highly competitive, outgrowing the seaweed causing the problems. Most important, however, was the realization that corals were able to recover rapidly through regrowth of "coral fragments."

Unexpected Results

That's right: It looks like natural coral frags helped to save the day in parts of the Great Barrier Reef, according to this

study.

The study, “Doom and Boom on a Resilient Reef: Climate Change, Algal Growth and Coral Recovery” published in the online journal PLoS One (plosone.org), indicates that the researchers were quite surprised by the importance of coral fragmentation as very important coral reproductive strategy in Great Barrier Reef corals.

In speaking of the reversal in coral reef decline in the article abstract, the authors of the study wrote: “Unexpectedly, this rapid reversal did not involve reestablishment of corals by recruitment of coral larvae, as often assumed, but depended on several ecological mechanisms previously underestimated. These mechanisms of ecological recovery included rapid regeneration rates of remnant coral tissue.”

In the “Results and Discussion” section of the study, the researchers note: “Coral recovery involved a rapid regeneration and regrowth of remnant coral tissue after bleaching mortality, with branches of *Acropora* emerging from the algal mat to reestablish high cover much faster than could occur from growth of new recruits.”

It seems the hobby’s intuition and common experience are ahead of mainstream science in our practical understanding of the importance of fragmentation in coral growth and reproduction strategies, at least in our tanks. Something we’ve known to be true for a while in our reef aquariums – that it’s easier for corals to reproduce asexually than through sexual reproduction in most cases, and that corals can reproduce very rapidly using this method of reproduction – is apparently shocking to scientists studying the surprising resurgence of corals in these specific areas of the Great Barrier Reef.

Give Credit Where It’s Due

Now, give these researchers credit. As scientists, they have a much higher standard of proof than we do as hobbyists. And they’ve done a huge service to those interested in preventing coral reef decline by illuminating how coral reefs may be able to recover from future climate change and other traumas.

Still, I think the hobby had a good idea of the importance of this aspect of coral reproduction before scientists did. This makes me think that we have to be very careful about what scientific reports we listen to when we hear that coral reefs are doomed. Also, we have to keep working with our corals. Who knows: The next major revolution in thinking about coral reefs might just come from a dedicated reef hobbyist somewhere.

It’s plain to see that science hasn’t figured it all out yet. If some researchers were surprised that coral reefs would be highly dependent on fragmentation to survive in the wild, I’m betting our world’s coral reefs still have several tricks up their sleeves that will greatly aid in their survival.

It isn’t as if our planet’s climate hasn’t changed in the past. Life went on then, just as it will go on now. If we stay ahead of the curve, encouraging and practicing conservation, and I’m willing to bet we’ll be able to do something about the problem of coral reef decline.

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