

Putting the acid on the Great Barrier Reef doomsayers

By Patrick Moore, The Australian, 13 April 2015

There is nothing more symbolic of the natural beauty of Australia than the Great Barrier Reef.

This makes it a powerful emotional tool to strike fear into the hearts of citizens. The “ocean acidification” hypothesis, that corals and shellfish will die due to higher levels of carbon dioxide dissolved in the sea, is often used to stoke those fears.

Here’s why I don’t believe there is a shred of evidence to support these claims.

When the slight global warming that occurred between 1970 and 2000 came to a virtual standstill, the doomsayers adopted “climate change”, which apparently means all extreme weather events are caused by human emissions of CO₂.

The pause in global warming became embarrassing

Cold, hot, wet, dry, wind, snow and large hailstones are attributed to humanity’s profligate use of fossil fuels. But the pause in global warming kept on and became embarrassing around 2005.

Something dire was needed to prop up the climate disruption narrative. “Ocean acidification” was invented to provide yet another apocalyptic scenario, only this one required no warming or severe weather, just more CO₂ in the atmosphere.

The story goes that as CO₂ increases in the atmosphere the oceans will absorb more of it and this will cause them to become acidic — well, not exactly, but at least to become less basic. This in turn is predicted to dissolve the coral reefs and kill the oysters, clams, mussels and algae that have calcareous shells. It was named “global warming’s evil twin”.

Seawater in the open ocean is typically at a pH of 8.0-8.5 on a scale of 0-14, where 0 is the most acidic, 14 is most basic and 7 is neutral. Ocean acidification from increased CO₂ is predicted to make the ocean less basic, perhaps to pH 7.5 under so-called worst-case projections.

Increased CO₂ will not kill the coral reefs

How do I know that increased CO₂ will not kill the coral reefs and shellfish? Let me count the ways.

First, contrary to popular belief, at 400 parts per million (0.04 per cent), CO₂ is lower now in the atmosphere than it has been during most of the 550 million years since modern life forms emerged during the Cambrian period. CO₂ was about 10 times higher then than it is today.

Corals and shellfish evolved early and have obviously managed to survive through eras of much higher CO₂ than present levels. This alone should negate the “predictions” of species extinction from CO₂ levels nowhere near the historical maximum.

Second, due to its high concentration of basic elements such as calcium and magnesium, seawater has a powerful buffering capacity to prevent large swings in pH due to the addition of CO₂.

This self-correcting capacity of seawater will ensure the pH will remain well within levels conducive to calcification, the process whereby shells and coral structures are formed. Marine shells are largely made of calcium carbonate, the carbon of which is derived from the CO₂ dissolved in the seawater. Third, and most interesting, there are freshwater species of clams and mussels that manage to produce calcareous shells at pH 4-5, well into the acidic range. They are able to do this because a mucous layer on their shell allows them to control the pH near the surface and to make calcification possible beneath the mucous layer.

The “ocean acidification” story is wrong

The “ocean acidification” story depends only on a chemical hypothesis whereas biological factors can overcome this and create conditions that allow calcification to continue. This is corroborated by the historical record of millions of years of success in much higher CO₂ environments.

Fourth, ocean acidification proponents invariably argue that increased CO₂ will also cause the oceans to warm due to a warming climate. Yet they conveniently ignore the fact that when water warms the gases dissolved in it tend to “outgas”.

It's the same phenomenon that happens in a glass of cold water taken from the fridge and placed on a counter at room temperature. The bubbles that form on the inside of the glass as it warms are the gases that were dissolved in the colder water. So in theory a warmer sea will have less CO₂ dissolved in it than a cooler one.

Finally, it is a fact that people who have saltwater aquariums sometimes add CO₂ to the water in order to increase coral growth and to increase plant growth. The truth is CO₂ is the most important food for all life on Earth, including marine life. It is the main food for photosynthetic plankton (algae), which in turn is the food for the entire food chain in the sea.

Proponents of CAGW ignore this fact

For some reason, the proponents of catastrophic global warming ignore this fact. They talk of “carbon pollution” as if CO₂ is a poison. If there were no CO₂ in the global atmosphere there would be no life on this planet. Surely, that should be enough to permit questioning the certainty of those who demonise this essential molecule.

Many climate activists are telling us ocean acidification is decimating coral reefs and shellfish. Have they read the story of remote Scott Reef off Western Australia? The ARC Centre of Excellence for Coral Reef Studies reports that in a brief 15 years this huge reef recovered completely from massive bleaching in 1998. Reefs go through cycles of death and recovery like all ecosystems.

We are told CO₂ is too high and we will suffer for it. Nothing could be further from the truth.

We should celebrate CO₂ as the giver of life it is.

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