

The Great Barrier Reef and the prophets of doom

By [Walter Starck](#) - posted Thursday, 8 May 2008

I would like to make the following points in response to Charlie Veron's [article](#) here in *On Line Opinon*.

Although Charlie Veron is a highly respected coral taxonomist many of the statements he made regarding climate change are at best doubtful. Like most biologists he appears to have accepted the "consensus" view of catastrophic climate change without being aware of a vast body of peer reviewed non-biological research that casts doubt on or directly refutes all of the major climatic claims he asserts as unqualified facts.

Here are some examples followed by my comments:

"... there have been several major episodes of mass bleaching on the Great Barrier Reef since this began in the late 1980s. Since then the frequency of bleaching events has increased ..."

Living, subfossil and fossil corals all indicate that bleaching associated with high temperatures is a common occurrence in reef corals. There is no evidence to indicate that either the frequency or severity of such events has increased.

"As the greenhouse effect from elevated carbon dioxide has increased, the oceans have absorbed more and more greenhouse heat."

Over the past several years global oceanic temperatures have in fact decreased.

"We are seeing abnormally heated water pulsed onto the Great Barrier Reef during El Niño cycles. When this happens, the ocean is further heated, to levels that corals have not experienced for millions of years."

Abundant uncontested evidence from numerous sediment studies indicates that the oceanic surface temperatures were higher than the present during the Medieval Warm Period about 1,000 years ago. There were even higher ones during the Holocene climate optimum 5,000-9,000 years ago and higher still during the last interglacial period about 125,000 years ago.

"Unfortunately, El Niño cycles appear to be becoming more frequent. This is because the oceans are reaching their upper temperature limit more and more frequently. In a couple of decades, every year will appear to be an El Niño year."

Five hundred years of historical records and several millennia of sediment records indicate that the recent frequency and intensity of El Niño events is well within past limits and some the strongest events occurred during the cooler period of the Little Ice Age.

"The frequency and severity of bleaching events will continue to increase. That is certain."

The severe global bleaching event of 1998 has not been repeated in a decade despite an ongoing increase in atmospheric carbon dioxide and oceanic surface temperatures have markedly decreased. Projections from highly dubious climate models are anything but certain.

"On present forecasts, the worst bleaching year we have had to date will be an average year by 2030. And it will be a good year by 2050."

This is an assertion based solely on an unqualified faith in the projections derived from unverified climate models which differ widely among themselves. These projections are also constantly changing with new "adjustments", are highly dependant on numerous uncertain assumptions and estimates, incorporate greatly simplified treatments of complex poorly understood phenomena and can be readily adjusted to produce a broad range of equally plausible projections. Most such models, in fact, predict little warming in the tropics but much greater increase at high latitudes.

"If we keep increasing greenhouse carbon dioxide, by 2050 at the very latest, the only corals left alive will be those hiding in refuges such as deep outer reef slopes. The rest of the Great Barrier Reef will be unrecognisable. Bacterial slime, largely devoid of life will be everywhere."

This isn't even supported by any model but might better be described as emotive dramatisation. Even the more extreme model projections only depict tropical oceanic warming still well within the limits that thriving reefs now tolerate in the Red Sea. Warmer water could also be expected to expand the geographic extent of reefs to higher latitudes.

"I cannot escape the conclusion that ocean acidification has played a major role in all five mass extinctions of the past."

"Cannot rule out the possibility ..." would be the strongest statement sound science could support. It is entirely unclear whether past acidification episodes caused the mass extinctions or were simply one of a number of disastrous accompaniments to massive volcanic or impact events which were the primary cause of the extinctions.

Three widespread studies of reef coral calcification rates in South-East Asia, on the Great Barrier Reef and in the Caribbean, all found substantially increased calcification rates during the past half century: however, the reef catastrophists have now come up with a much smaller scale study that found reduced average calcification during a 16-year period encompassing two bleaching events in a few specimens from inshore reefs on the Great Barrier Reef. Much has been made from this barely detectable trend in a very limited, highly varied, sample. Without the tenuous suggestion of a link to global warming it is doubtful the study would have even found publication in a peer-reviewed journal.

During the Cretaceous period when vast marine carbonate beds were deposited carbon dioxide levels were far higher than anything projected in connection with anthropogenic emissions.

"Corals speak unambiguously about climate change. They once survived in a world where carbon dioxide from volcanoes and methane was much higher than anything predicted today. But that was 50 million years ago. The accumulation of carbon dioxide then took millions of years, not just a few decades. Then there was time enough for oceans to equilibrate."

Many current reef coral genera survived this event. The idea that the increase in atmospheric carbon dioxide associated with massive volcanism or meteoritic impact events took millions of years is only a convenient but unlikely assumption.

"... the rate of carbon dioxide increase we are now experiencing has no precedent in all known geological history."

Again, an unlikely assumption unsupported by any evidence. Although there is credible evidence for past carbon dioxide levels greater than any increase we may experience before all fossil fuel is consumed there is no evidence to indicate that past such increases took place much slower than the present one or that slower or faster would make any real difference

"Reefs are the ocean's canaries."

The canary in the coal mine analogy has been so overused for so many different things it is almost embarrassing to see any literate person employ it, all the more so for something as vast, ancient and tenacious as coral reefs.

"Climate change is the greatest challenge humanity has ever faced."

Only in the event that it proves to be both real and as damaging as the prophets of doom proclaim. On the other hand, if it is indeed real but it prevents another ice age it could be the most fortunate event in human history.

"A brief look back at the staggering and accelerating technological advances of the past century is persuasive evidence that humans can find solutions if the political will is there to focus innovations in the right directions. We must buy ourselves time. Time for the innovators to do their job, to develop solutions and to create a future that is not dependent on fossil fuel. We, the citizens of the wealthy countries, are capable of achieving 50 per cent cuts in greenhouse emissions virtually immediately."

Australia's annual carbon dioxide emissions are about 1.5 per cent of the global total and barely equal to China's increase in six months. Estimates of natural uptake in our land and EEZ (Exclusive Economic Zone) area are greater than our emissions. As a nation we should be accumulating surplus carbon credits.

Without liquid hydrocarbon fuels for transportation and mobile machinery our existing economy cannot continue to function or to even feed the current population. It doesn't run on hypotheticals. At least several decades will be required for development and widespread implementation of alternative energy solutions. Premature attempts to adopt immature, unproven technology fostered by ill conceived subsidies and regulations entails a high risk of resulting in more harm than help. The emerging bio-fuels disaster is an example.

The biggest problem we face is not an unquantifiable risk of climate change at some unknown future time. It is keeping the economy functioning until energy alternatives are a functional reality. Inability of current fuel supplies to meet growing demand is confronting us now. Production of synfuel from coal is a proven technology that could fill the energy gap we face. The only obstacle to implementation is objections arising from the hypothetical danger of anthropogenic global warming.

The emerging choice is becoming more and more apparent. Do we adhere to the dogma of the climate change cult and endure consequent mass economic hardship including global hunger or risk a dubious prophesy to take a clear path to the future? Do we take the direct route down Easy Street or a detour through Jonestown?

The absence of ongoing global warming over the past decade and pronounced global cooling of the past year cannot credibly be dismissed as simple local variability in weather. It is clearly global and contrary to all predictions of carbon dioxide governed global warming.

The media are beginning to find news value in anthropogenic global warming doubts and the costs of ill-conceived countermeasures. Skeptical scientific opinions are increasingly being heard and conflicting new evidence appearing.

The alarmists have gone too far out on a very long limb for any retreat. A cooling trend in climate would be disastrous for the whole anthropogenic global warming ideology and result in a catastrophic loss of credibility for a large sector of the scientific community. The escalating fears they express appear to be based not so much on any important new evidence as on their own increasingly desperate hopes.

As for coral bleaching, the central fact never mentioned is that the high surface water temperatures associated with bleaching events are not the result of exceptionally high air temperatures. They result from extended periods of calm weather during which mixing from wave action ceases and surface layer becomes exceptionally warm. Such warming is especially marked in very shallow water such as on reef flats. At the same time the absence of waves also eliminates the wave driven currents that normally flush the reef top.

Bleaching conditions require at least a week or more of calm weather to develop and this may happen every few years, only once in a century, or never, depending on geographic location. On oceanic reefs it is less common due to ocean swell and currents even in calm weather. In coastal areas it is more common due to the absence of swell and reduced currents.

There is nothing to link extended periods of calm winds with global warming. In fact the climate models project increased winds.

Incidentally, I am a great admirer of Charlie Veron's outstanding work on coral systematics and have high regard for his knowledge of reefs but feel compelled to respectfully disagree with his pronouncements on climate change.

Comments

Looking at the "big picture" does indeed change the perspective. Most of the time over the past 2 million odd years the Great Barrier Reef didn't exist. During the two dozen or so glacial periods that prevailed during 90% of that time lower sea levels and colder climate turned most of what is now the reef into a coastal plain with any remaining coral reduced to a fringe along the shore of the northern portion. Unless global warming "saves" the reef by preventing the next glacial cycle the GBR will almost certainly be again reduced to a vestige. How soon this might happen is unclear. Most warm interglacial periods only appear to last about 10,000 years, which is now the age of the current one.

Posted by **Walter Starck**, Friday, 9 May 2008 2:52:47 PM