Don't settle for 2nd best

Film - No Filter No White Balance

Digital - No Filter Manual White Balance

Magic Filter Manual White Balance

Digital cameras have opened up new possibilities to underwater photographers. For available light photography manual white balance is an invaluable tool for restoring colours. But when you use it without a filter you are not making the most of the technique. You're doing all the hard work without reaping the full rewards. These three photos are all taken of the same wreck in the Red Sea. The left hand image was taken on slide film, which rendered the scene completely blue. The middle image is taken with a digital SLR without a filter, using manual white balance. The white balance has brought out some of the colour of the wreck, but it has also sucked all the blue out of the water behind the wreck, making it almost grey. The right hand image is taken with the same digital camera and lens, but this time using an original Magic Filter. The filter attenuates blue light meaning that the colours of the wreck are brought out and it stands out from the background water, which is recorded as an accurate blue.

www.magic-filters.com

Our World Underwater 2017 winners

The Our World Underwater international underwater photography and video competition has become known as the “Superbowl” of underwater imaging events. The competition celebrates and highlights both art of underwater photography as well as the beauty of the ocean.

This year the panel of judges went through thousands of images and videos taken by novice to professional photographers and videographers from around the world.

$55,000 in prizes were awarded to the winners. Congratulations to Yatwai So, who won Best of Show for his 1st place image from the Macro Unrestricted category.

Winners were announced live on stage during the Our World Underwater film festival in Chicago (February 24–26, 2017), and will be published by supporting media partners worldwide. You can enjoy the winning images and video below.

www.underwatercompetition.com

yatwai so
Best in Show &
Macro Unrestricted

Beau Pilgrim
Wide Angle Unrestricted

J.R. Sosky
Compact Cameras

Coral Bleaching on the GBR

By Bob Halstead

If you live on a dive boat for decades, as both film maker Ben Cropp and I have done, you get to see a lot of amazing things - such as the time when, cruising through the night, I suddenly found the boat surrounded by huge patches of pulsing lights. Or the evening thousands of flying fish decided to commit suicide on my deck. One unforgettable day I looked down to see what had been a glorious reef transformed into a glowing graveyard of white corals.

Late in 2015, Prof. Ove Heogh Guldberg, Director of the *Global Change Institute* at the University of Queensland, informed the *Cairns Post* that, because of the current strong El Nino, the Great Barrier Reef was likely to experience a major coral bleaching event early in 2016.

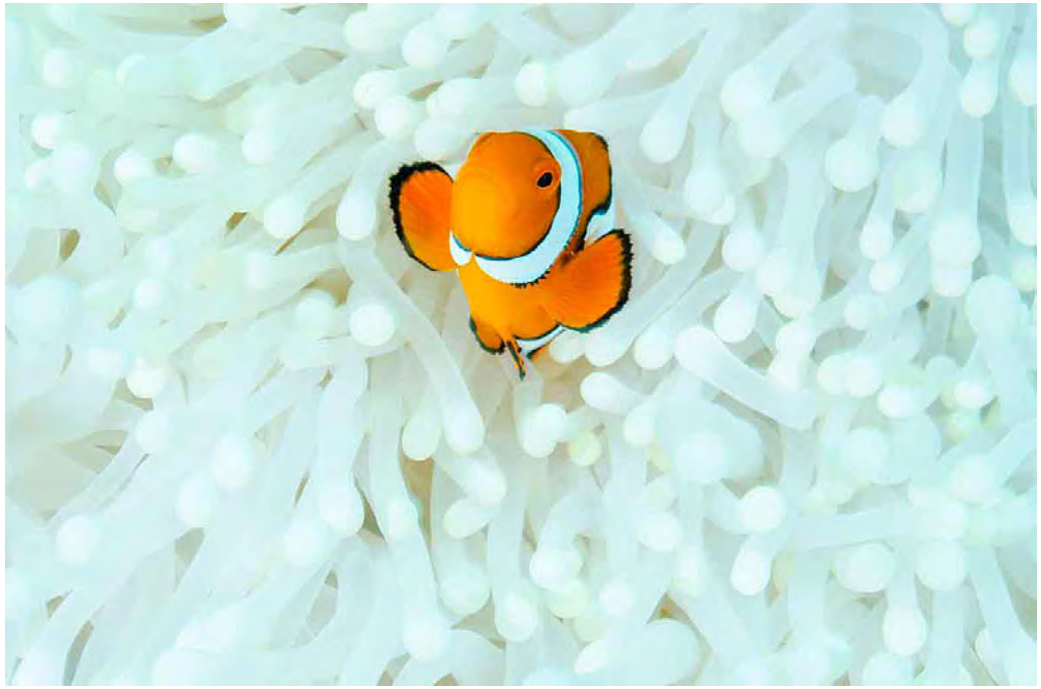
Ben and I independently replied to the *Cairns Post* saying, with hope, that bleaching was not certain, as that depended on many factors. Alas, at the end of February 2016 "paling" (slight loss of colour) of corals was noticed at Lizard Island. Heogh Guldburg was right, and the alarmists woke up. Suddenly El Nino became "Climate Change" and the reefs were "dying". I use "Climate Change" with capitals for "Catastrophic Anthropogenic Global Warming" so that you are not confused – everyone knows the climate changes).

Corals are fascinating creatures because they are both animal and plant. The symbiotic plant matter, *zooxanthellae*, are essential for corals' health. Through photosynthesis they use CO2 and sunlight to produce 90% of the food necessary for corals. But they are sensitive to stress caused by heat, sun's radiation, calm water, rain, and also cold and pollution. If the weather gets hot, and calm, and skies are cloudless then the stress is enough to start corals expelling their *zooxanthellae*. The first stage of coral bleaching shows when the tips of coral branches go white. In the second stage, called "paling", coral colours become fluorescent pastel shades, and so do some anemones. When full bleaching occurs the whole coral will turn white. At this time all the *zooxanthellae* have been expelled from the coral – however the coral is still not dead! The coral is now starving, and if the stress is not removed then within a few weeks the coral will die – and brown algae will start to grow on its surface

Bleached plate coral - surrounded by healthy corals 2017

2017 Reef supposedly "devastated by bleaching" in 2016

"Paled" corals 2016



2016 Fully bleached - but healthy anemone

The March edition of the *University of Queensland* news published an alarmist story on coral bleaching, quoting Heogh Guldberg, using a photo captioned "Coral Bleaching, Heron Island, February 2016". The *Sydney Morning Herald* of April 8th also published a story again quoting Heogh Guldberg and entitled "Is this the end of the Great Barrier Reef?" This story bizarrely showed images, by Eddie Jim, of healthy live coral labelled as bleached, and one image from *Catlin Seaview Survey* of fully bleached white coral and captioned "A diver checking out the bleaching at Heron Island in February 2016". This is very interesting because there was not any bleaching at Heron Island in 2016.

Some localised bleaching was reported from Heron Island 2006/7. But when I dived Heron Island in 2011 there were huge fields of stag horn corals, all in perfect health. The reef had recovered. I had already seen the rapid recovery of my PNG reef and biodiversity had actually increased after the bleaching.

Heogh Guldberg is also alarmed about Ocean Acidification where CO2 levels rise to such levels that the ocean becomes acidic (or at least less-alkaline) and corals fail to grow, then dissolve and die. It must be frustrating for him that over the past 30 – 50 years actual measurements of pH (acidity) on the open Great Barrier Reef have apparently only shown random or diurnal fluctuations, not trends.

A recent study (*Scripps Institution of Oceanography*), reveals that coral growth in many remote places, away from domestic and industrial pollution, but still subjected to "acidified" ocean, have thrived. I've seen it myself in PNG. Some of the coral reefs are in the most spectacularly splendid condition I have ever seen them – in 43 years! Other scientists (such as Dr. Shallin Busch, *NOAA*) claim that no reef in the world has ever been naturally damaged by "acidification", in fact alarmists have been using the same figure now for over a decade – they say pH has declined from 8.2 to 8.1 on a log scale, derived from measurements at Hawaii, but not replicated anywhere else. A more recent study shows no change in ocean pH since 1910 when records began! The Hawaii result is silly anyway considering the natural range is between 7.5 and 8.3. Also it turns out that CO2 in the ocean is not all turned into acid. Most remains dissolved – and as such

feeds coral polyps through photosynthesis utilising the *zooxanthellae*, in a similar way that increased CO2 in the atmosphere encourages terrestrial plant growth. This "greening" of the Earth was recently reported (*Nature Climate Change*) at 25 to 50% worldwide since 1982, with only 4% "browner".

In 2008, a report from *AIMS* (Australian Institute of Marine Science) described a 21% decline in coral growth rates, then speculated that this MAY be because of acidification – however no measurements of acidity pH were quoted, and the headline said "Global Warming WILL change the Great Barrier Reef as the ocean becomes increasingly acidic" (my caps.). It is just another case of speculation miraculously transformed to fact. "May" becomes "Will". It happens all the time in Climate Change "Science".

The ABC in its eagerness to proclaim the GBR dead through Climate Change fraudulently illustrated its story with historic pictures of coral bleaching from Samoa. The images originated with Greenpeace. The ABC had to apologise. The WWF in an emotive attempt to persuade us that "Nemos", living in bleached anemones, would soon die, all because of Climate Change, promoted a photo of a bleached (but otherwise healthy) anemone. A dive blog site showed dramatic photos of "bleached" corals - that were actually a couple of small corals that had been eaten by Crown Of Thorns Sea Stars. "Scientists" declared that the GBR was dying. Even those corals filmed last year by David Attenborough were "dying". I've already had overseas friends declare that they will not be diving the GBR as it is dying. But what is actually happening?

From aerial surveys and counting reefs, it was reported that 93% of coral reefs north of Cairns were "bleached" meaning if any reef showed even slight paling/bleaching seen from the air, it was counted. This was reported or misunderstood as 93% of (all) CORALS were bleached (and dying). Most were mostly just paled at that stage, and could (and did) easily recover.

2016 partly bleached anemone

Bleaching events on the GBR are not new. In 1998 there was severe bleaching due to El Nino. In 1929, before Climate Change, and in 2002, bleaching occurred, but predictions of annual bleaching due to climate change made after 1998, FAILED. In 2006 the southern part of the GBR was bleached possibly due to rainfall and cool water. Even so, according to the Great Barrier Reef Marine Park Authority, only 5% of the corals were listed as "Severely Damaged" (dead) after the events, the rest survived. The dead corals eventually regenerated. Indeed in 2012 when AIMS published its paper "The GBR has lost half of its coral in the last 27 years" (Oct 2012) they listed bleaching to be a minor (10%) contributor to the total loss. According to AIMS, coral cover in the storm area had increased by about 19% in the past three years.

Interestingly, anemones can stay bleached for a very long time; years even, without dying.

So with rumours flying, I joined a *Mike Ball Dive Expeditions* cruise from 10 – 17th March 2016, to see for myself. We cruised from Cairns to Bougainville and Osprey Reefs in the Coral Sea, re-joined the GBR at the Cod Hole near Lizard Island, and cruised back down to Cairns. The whole area showed minor paling in patches. I saw NO full bleaching, no dead corals from bleaching, and no dying anemones. See the photos! The reef was not devastated, and that late – mid March – it could be expected to fully recover if temperatures started declining. As I write this, in late April, temperatures have fallen 1.5 degC below the bleaching threshold, 2.5 degC in all.

Nevertheless the news from dive boats operating the same Cairns to Cod Hole itinerary is that paling is obvious in the northern section and more full bleaching and mortality have occurred. At the main dive sites, catastrophic bleaching has not taken place.

When I returned to Cairns *The Australian* newspaper interviewed me for a story titled "Reef spared the worst of coral bleaching wipe-out". There was no alarmism and *The Australian* acted responsibly. Others are not taking into account how irresponsible alarmism seriously impacts the livelihoods of so many.

Within days the *ABC* and the academics were into it: -

"Professor Terry Hughes, a coral reef expert based at James Cook University in Townsville who led the survey team, said the situation is now critical.

'This will change the Great Barrier Reef forever,' Professor Hughes told 7.30.

'We're seeing huge levels of bleaching in the northern thousand-kilometre stretch of the Great Barrier Reef.'

Of the 520 reefs he surveyed, only four showed no evidence of bleaching.

From Cairns to the Torres Strait, the once colourful ribbons of reef are a ghostly white."

And then this in the same report: -*"'We're seeing climate change play out across our reefs'*

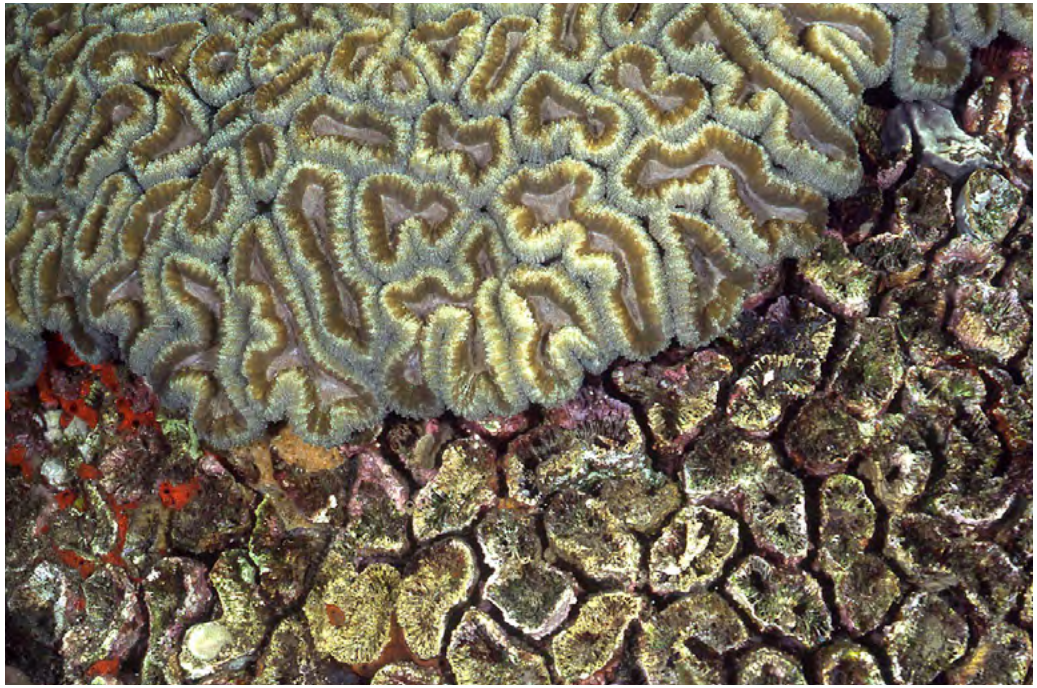
Professor Justin Marshall, a reef scientist from the University of Queensland, said the reason for these bleaching events was clear.

'What we're seeing now is unequivocally to do with climate change,' he told 7.30.

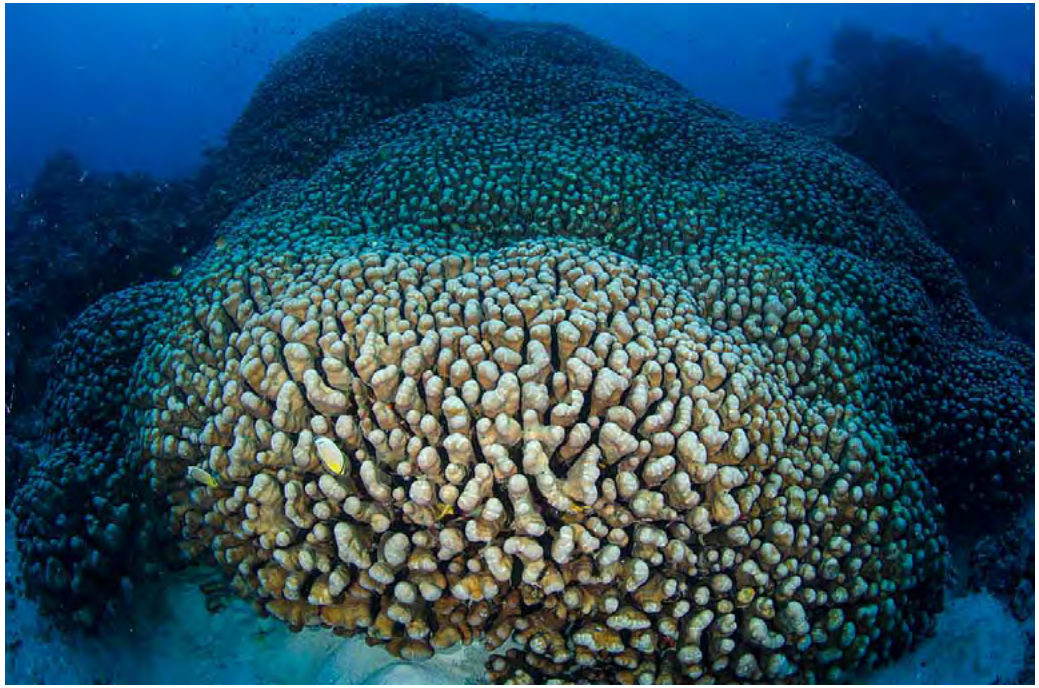
'The world has agreed, this is climate change, we're seeing climate change play out across our reefs.'"

Spoilsport dive boat on GBR 2015 before the bleaching

Notice the irrational appeal to consensus "The world has agreed"! Before the bleaching event it was predicted "because of El Nino", now that it has



Live coral rapidly resurfacing previously bleached coral



Huge healthy Pavona coral totally unaffected by bleaching 2017

actually happened, it is because of "Climate Change".

tReaders can view *NOAA* temperature plots for the time showing a strong El Nino at http://coralreefwatch.noaa.gov/satellite/vs/greatbarrierreef.php#LizardIsland_GBR

The temperature increase because of "Climate Change" is often quoted as 0.7 degC over the past 30 - 50 years, or 1 degC over 100 years, but an El Nino event can suddenly raise temperatures by up to 3 degC. We have just had, we are told, "the hottest years", yet there has been no regular bleaching. Take away the 2-3 degC from El Nino this year, and 1998, and the sea surface temperature drops below the bleaching threshold. In other words blaming the current bleaching on "Climate Change" just does not hold up. Activists are so desperate to get support for their failing "Climate Change" hypothesis that they take any opportunity to impress the gullible.

Prof. Will Steffen of the alarmist *Climate Council* sent out a passionate message blaming Climate Change and noting that the GBR supported 69,000 jobs that were now at risk because of the bleaching – well no actually, I think the jobs are more at risk because of the alarmism, eg. *"climate change is killing reefs, and killing them quickly"* and so on. I guess that would put me off if I were planning a visit? The point is that this alarmism is misguided. In the main tourist diving area only about 3% of corals are reported to have died. This number will rise however bleaching events NEVER produce as much coral destruction as cyclones. And I had better say it here – Australian cyclones are NOT increasing in frequency and magnitude, that is a popular myth from the "say it often enough and people will think it's true" basket. See here http://www.bom.gov.au/cyclone/climatology/trends.shtml

Temperatures in the Bismarck Sea, closer to the equator, are historically higher than the temperatures in the Coral Sea, and corals survive splendidly in the warmer waters (in the Red Sea, renowned for its corals, temperatures can reach 35 degC!) so it is not absolute temperatures that count. (Within reason; some areas of underwater volcanic vents do not support coral growth because the bottom is too hot – you cannot hold your hand in some of the vents. Nearby a vibrant coral reef thrives with volcanic CO2 bubbling through