

fall 2015

OCEAN ARTISTS SOCIETY

IMAGINATION AND ART FOR A HEALTHY PLANET



CLIMATE CHANGE

www.oceanartistsociety.org



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OUR COASTS AND CLIMATE: A Perspective of Two Hemispheres

This summer I had the rare opportunity to journey from the South Pacific to the Arctic to explore two very different worlds that are being affected by climate change. During the month of July, I traveled with my good friend and scientist Dr. Greg Stone to Kiribati, an island nation in the central Pacific Ocean, whose atolls and reef islands are under threat from rising sea levels. Kiribati is home to a 12,000 year old seafaring culture

of more than 100,000 people, many of whom face the very real possibility of having to relocate their homes, lives, and traditions in the very near future. It is a powerful example of the human cost of our changing climate. The following month



accelerating the overall rate of global warming. Much of the insights I gained on these journeys are incorporated into the Wyland Foundation’s National Art and Mural Challenge. This year’s theme, “Our Coasts and Climate,” is a national effort to broaden student understanding about human activities that contribute to climate change. It is part of our foundation’s effort to encourage students to explore the issues behind



climate change and work collaboratively to create artworks based on their findings. Like most of you, I have read the newspapers, the scientific reports, and the studies about the ways climate change is shaping our lives and the

lives of the animals who share our world. My efforts on these journeys, along with my friends and colleagues in the Ocean Artists Society, is to better understand these issues, and work with the best minds and the most creative people to find solutions to help ensure a sustainable future for all of us. In this issue of the OAS quarterly magazine, we feature these perspectives through the lens of our membership. There are many ways for artists to use their voice and I can think of few more important issues to speak out than on the impacts of our changing climate on our global marine ecosystems.

Wyland

WYLAND

— Wyland

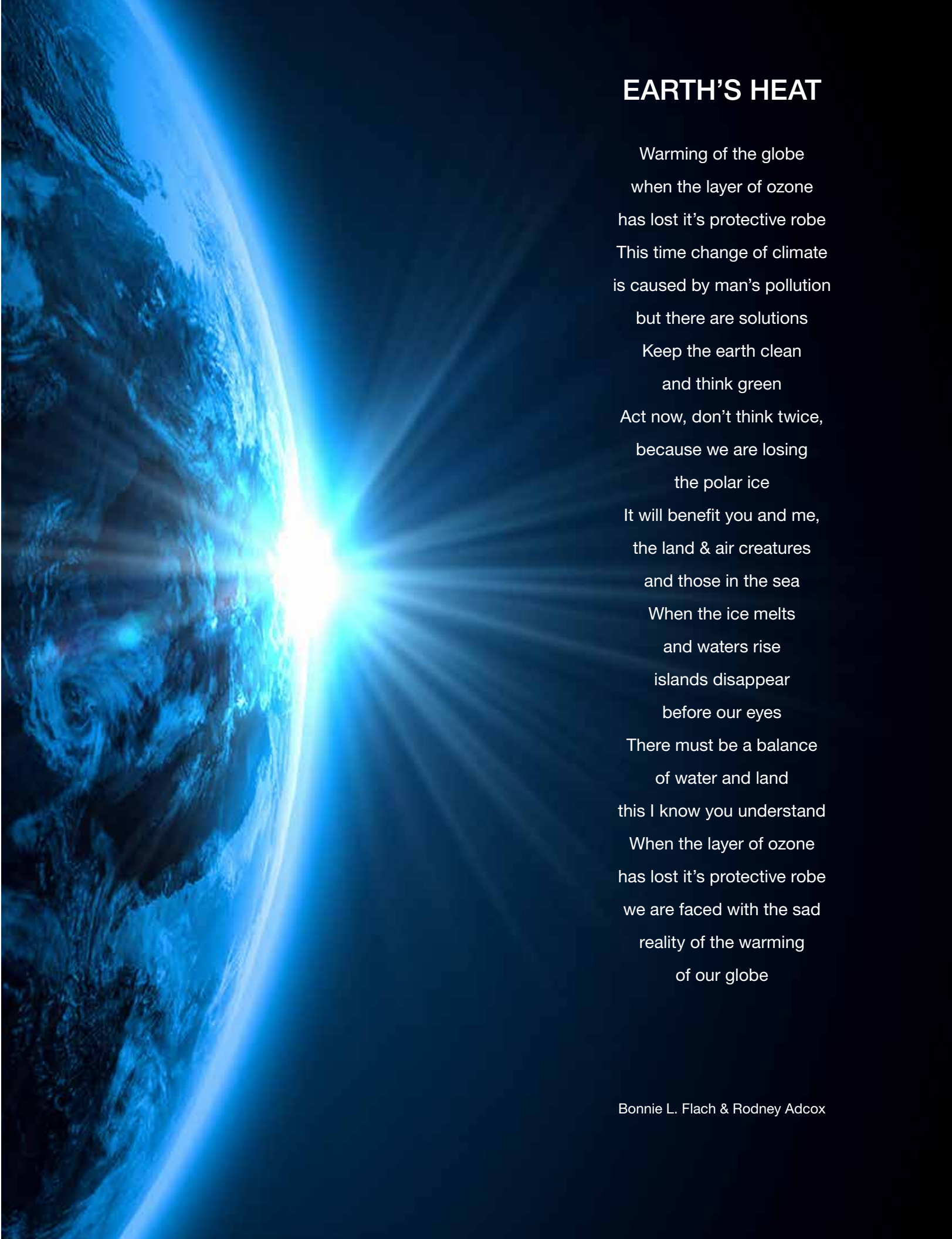
Co-Founder, Ocean Artist Society

Summer 2015

EARTH’S HEAT

Warming of the globe
when the layer of ozone
has lost its protective robe
This time change of climate
is caused by man’s pollution
but there are solutions
Keep the earth clean
and think green
Act now, don’t think twice,
because we are losing
the polar ice
It will benefit you and me,
the land & air creatures
and those in the sea
When the ice melts
and waters rise
islands disappear
before our eyes
There must be a balance
of water and land
this I know you understand
When the layer of ozone
has lost its protective robe
we are faced with the sad
reality of the warming
of our globe

Bonnie L. Flach & Rodney Adcox



AWARENESS VS CONCERN

Global survey: Where in the world is most and least aware of climate change?

ROBERT MCSWEENEY*

The new study, published in Nature Climate Change, uses the results of a Gallup World Poll in 2007-08, which collected responses in 119 countries. This is the largest survey ever conducted on climate change, the paper's authors tell Carbon Brief, representing more than 90% of the world's population.

The poll asked people: "How much do you know about global warming or climate change?" Those who were aware of the issue were then asked the follow-up question: "How serious a threat is global warming to you and your family?"

The results show that adults in developed countries were more likely to say they are aware of climate change. Awareness rates in much of North America and Europe were well over 90% of respondents. Japan comes top with 99% of the population aware of climate change, with the US (98%) and Finland (98%) following closely behind.

In contrast, awareness rates in developing countries were much lower. For example, 47% of respondents in Philippines said they were aware of climate change, while this was 35% for India and 25% for Egypt. The lowest levels of awareness were recorded for Liberia at just 21%. You can see these patterns in the upper map (a).

But though awareness seems to be lower in developing countries, when people said they were aware of climate change, they tended to be very concerned about it.

As you can see in the lower map b, respondents saying that climate change is a serious threat is very high in South America and in many African and Asian countries. The highest proportion of respondents concerned were found in Ecuador (99%), Bangladesh (98%) and Trinidad and Tobago (98%).

Concern in western countries such as the US (64%), Germany (65%) and the UK (71%) is much lower than their awareness, while the countries who least considered climate change a threat were China (36%), Iceland (37%) and Estonia (39%).

Based on these results, the researchers conclude that as people become more educated and begin to experience more unusual weather patterns, awareness and concern of climate change is likely to increase around the world.

Promoting education would help speed up this process, the paper says:

But finding that perception of the causes of climate change is a strong indicator of whether someone considers it a threat suggests other underlying causes.

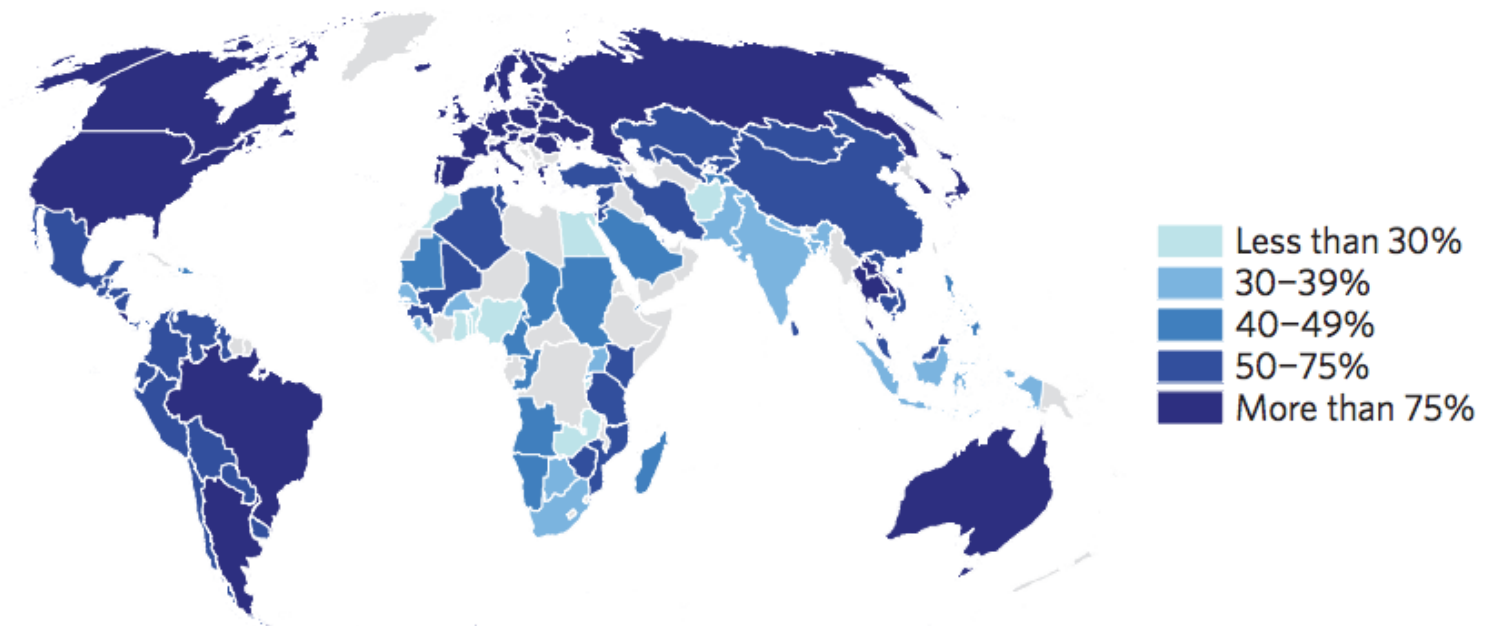
"It is reasonable to assume that it will be at least partly shaped by access to media, and the quality of media coverage in each respective country. If the news sources you pay attention to don't report the issue at all, or don't explain the causes, it's unlikely most people will get the information from other sources."

There may be other important factors that the poll didn't question people on, such as political leaning. Other studies have shown respondents' political views influence concern about climate change – particularly in the US, Canada, Australia and the UK. But as politics can be very different between countries, the researchers need data in order to find a link that is common around the world.

While no survey can cover every variable, the study assesses a remarkable number of factors, many of which have never been tested before in connection with climate change.

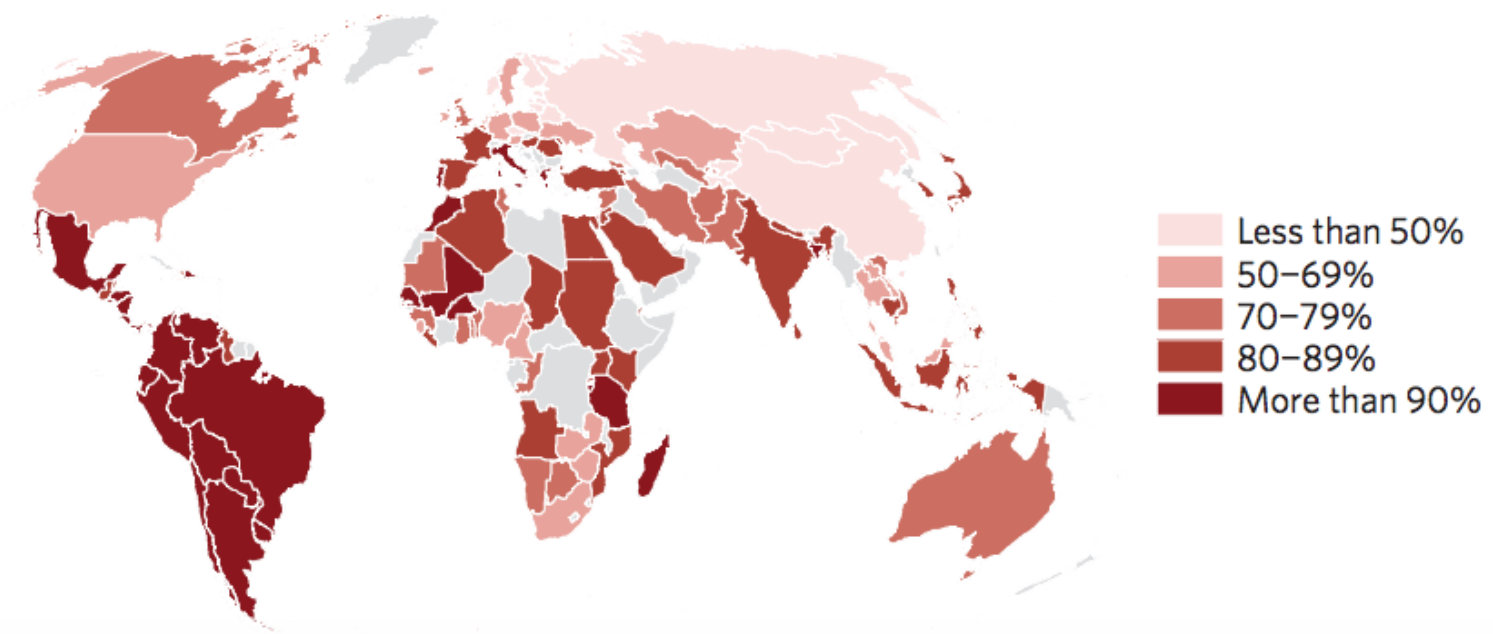
a

Aware of climate change



b

Of the 'Aware': climate change is a serious threat



CLIMATE CHANGE AND OUR CORAL REEFS

by Angela Smith

Across the world this year from the archipelago of the Hawaiian Islands to the Indian Ocean and the Coral Triangle, our world's coral reefs are experiencing bleaching events which could mean coral die-off on a scale we have not seen before.

Corals have a limited temperature range in which they can survive so when the water is too warm, too cold or other stressors occur, the coral expel their tiny mutualistic algae called zooxanthellae that live within the coral polyp and the coral turns white. The coral can live for a short amount of time in this bleached state but some corals die in a matter of weeks if the algae does not return, since they depend on the algae's photosynthesis process as a food source.

Once corals die, shoreline protection is degraded, fish and other marine animals lose habitat, fisheries collapse and species go extinct. This in turn negatively impacts humans in lost tourism revenue, loss of fisheries and lost livelihoods. Coral reefs create \$375 billion per year worldwide in revenue. Sadly if nothing is done, most of the world's coral reefs could be gone within our lifetime. Today many reefs have 40%-50% less coral than they did just 30 years ago.

Climate change also affects corals in other ways. In order for a coral reef to grow, it must produce calcium carbonate at a rate faster than the reef is being eroded from ocean acidification. The ocean absorbs one-third of the atmosphere's excess carbon and corals struggle to keep up the pace. Ocean acidification may also impact coral biodiversity which in turn affects entire ecosystems. Scientists know that we need to reduce atmospheric carbon dioxide to significantly below 350 parts per million if we are to save our reefs.

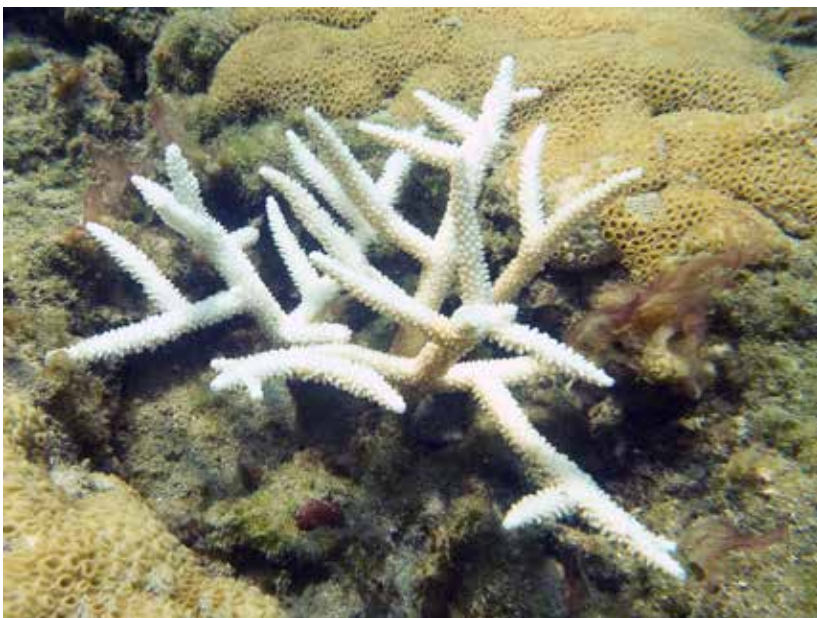
One of my conservation projects since 2013 has been working with government organizations and stakeholders to create a marine protected area along the Southeast Florida coral reef tract. Together, we are hoping to

save the remaining coral reef and its resources from Key Biscayne in the south to Martin County in the north. Florida reefs are being damaged by beach renourishment projects, sewage outfalls, overfishing and coastal construction. Couple that with climate change impacts leading to coral bleaching and you have a recipe for disaster.

In September I went diving on a shallow reef off the coast of south Florida to assess the summer coral bleaching effects. Upon descent, I noticed eerie patches of bright white along the reef and the fish were virtually missing! Much of the coral was covered in a brown algae slime which shocked me since I had been diving on this reef just a few weeks prior. It was vibrant in color with fish scurrying everywhere at that time.



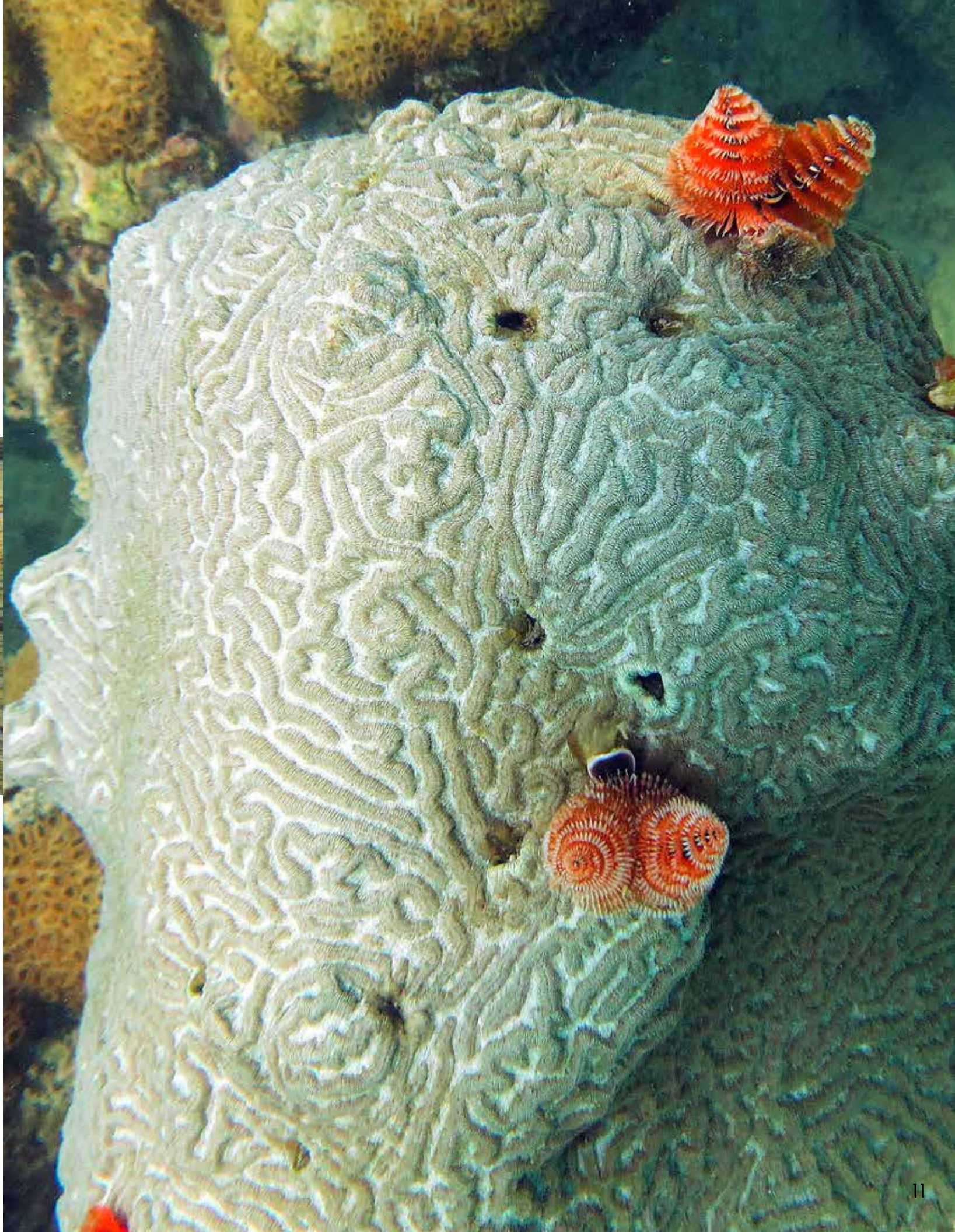
PHOTOS BY: ANGELA SMITH

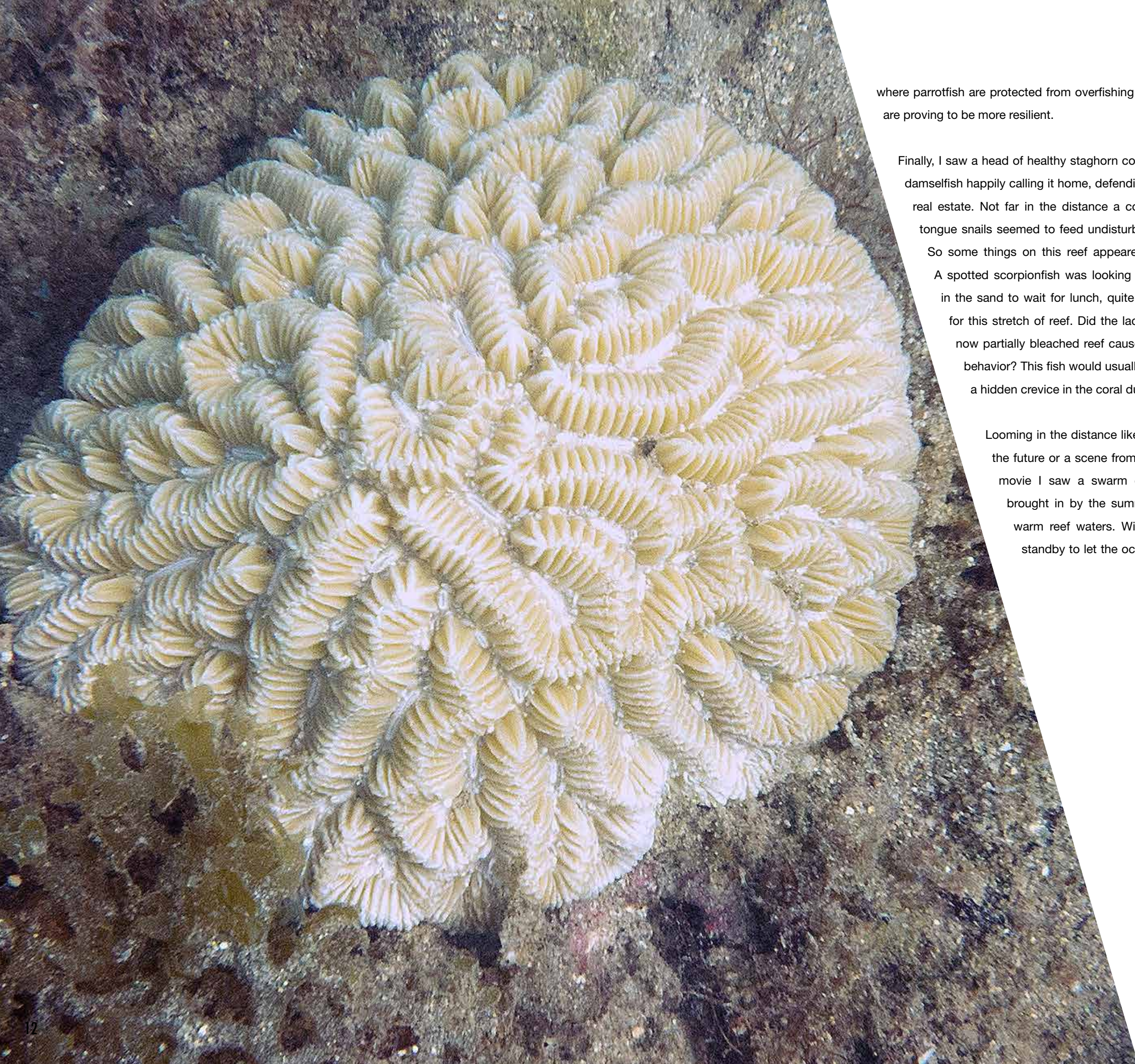


I swam past a bleached head of staghorn coral that brought to mind a Georgia O'Keeffe painting of a skull in the desert. The harsh reality is that this coral head may not survive. Next I passed some brain and maze coral, also bleached. Christmas tree worms survived burrowed into the stony skeleton on one of the heads, but the coral they were living on was completely white. When the worms selected this prime spot for their home, the coral would have definitely been healthy.

Next I saw a stoplight parrotfish eating algae off of coral which was a welcome sight and will be extremely important to the recovery of this reef. Parrotfish are voracious herbivores and help keep macroalgae from suffocating coral. Overfishing has led to less parrotfish and other grazers on reefs around the world and this worries scientists. Reefs in locations

PHOTO BY: ANGELA SMITH





where parrotfish are protected from overfishing are healthier and are proving to be more resilient.

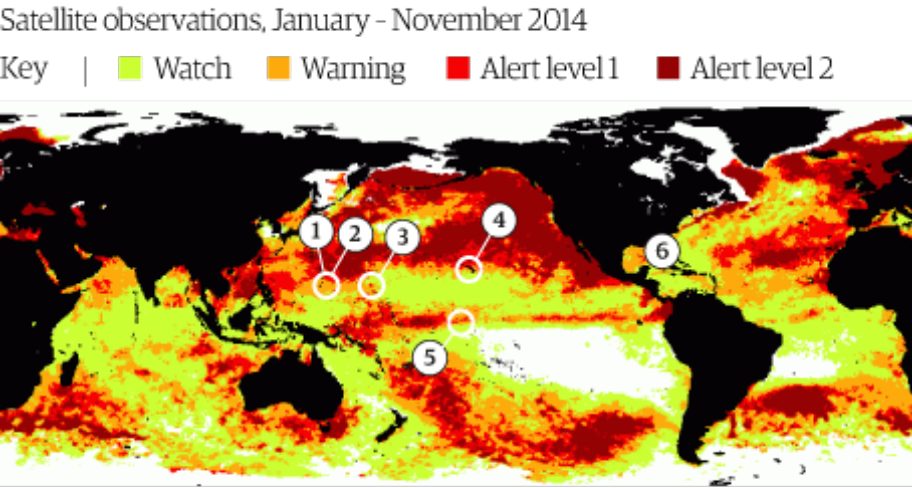
Finally, I saw a head of healthy staghorn coral with a juvenile damselfish happily calling it home, defending his bit of coral real estate. Not far in the distance a couple of flamingo tongue snails seemed to feed undisturbed on a sea fan. So some things on this reef appeared normal to me. A spotted scorpionfish was looking for a place to lie in the sand to wait for lunch, quite an unusual sight for this stretch of reef. Did the lack of prey on this now partially bleached reef cause a change in his behavior? This fish would usually be wedged into a hidden crevice in the coral during the day.

Looming in the distance like a reminder from the future or a scene from a science fiction movie I saw a swarm of moon jellyfish brought in by the summer weather and warm reef waters. Will we as humans standby to let the oceans reach a sort

of Armageddon where only jellyfish can survive in the polluted, acidic, overfished and warming ocean? The moon jellies looked hauntingly beautiful but what if every other creature under the sea was gone?

Humans are resilient by nature so it is hard for us to imagine a world so fragile that a few degrees temperature can cause such devastation. However as we learn more about climate change, and start demanding action from our country's leaders, we can help reverse what's being done. Some people think climate change is out of their control but it's actually the opposite. We can demand that carbon emissions be reduced, we can start decreasing our own carbon footprints and fight for marine protected areas. Marine protected areas will go a long way to save precious coral reef ecosystems. By curbing overfishing, better management of coastal development, reduction of land-based pollution, preserving mangroves, funding research and educating stakeholders, we can make a stand to save what is left of our precious coral reefs. It took 240 million years for stony corals to evolve. Let's not let them vanish in our lifetime!

Coral bleaching



Bleaching reported between July and December 2014:
1 Northern Marianas Islands, **2** Guam, **3** Marshall Islands, **4** Hawaii, **5** Kiribati and **6** Florida.

GUARDIAN GRAPHIC SOURCE: NOAA

CLIMATE CHANGE

By GLORIA CLIFFORD

According to recent scientific studies, coral reefs, especially those within tropical regions, will significantly be altered by climate change. Some studies predict that entire coral species will not only be depleted but may actually become extinct. The effects of global warming have already begun within the Caribbean.

In one report, I learned that bleaching outbreaks in Florida could be widespread by the year 2030. Scientists state that Florida's coral reef habitats are increasingly threatened not only by climate change, but also by human neglect. When combined with coastal runoff, over fishing and other human disturbances that affect the balance of coral reef systems, unless we alter human behavior, Florida reefs will continue to decline in health. I personally have seen how coral reefs have been impacted within the Florida Keys.

A recent collection of my newest paintings show coral reefs as they might have been within the past, color filled, healthy and teeming with life. As an ocean artist and advocate, I cannot help but to be greatly alarmed as each and every day, there are changes which are occurring beneath the sea.

Unless nations accept that climate change is indeed of great concern and are all willing to work together within the future, many ocean creatures will continue to be in peril, especially those within tropical regions. Recently, a public official tried to bar the words "global warming" and "climate change" from use within reports...this attitude and denial of what is actually happening, is like someone trying to hide the facts from the public. Scientists, and I might add, also artists within the past, have always been those who predict the world's future. By pretending that climate change is not happening will not pave the way to successful conservation measures of our planet's coral reef systems. Without coral reefs...life as we know it within the Earth's oceans will someday cease to exist. There may still be time if we as humans change our ways...but time is running short.



DEEP
DOWN
YOU
WANT
THE
BEST



SCUBAPRO



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