Zooxanthella

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"Zooxanthella" is a response to both the problem of coral bleaching, which is becoming increasingly relevant as global temperatures rise, and to the denial that people still hold in regards to its cause. It is a set of jewelry designed to appear as if its wearer is growing a coral reef from his or her skin. Miniature corals made of cast rubber compose the surface of the work, and are attached to copper, which forms the base of the jewelry. The work is comprised of a bracelet, and necklace, and a ring, all with tiny corals enveloping their surfaces.

When placed on the body, the jewelry becomes a part of its wearer, as it appears to grow from the skin, rather than rest on it. I am fascinated by the idea of the human body being the vessel for this kind of growth, and I imagine the coral reef forming and expanding on its human host. I want the wearer to feel connected with the environment I have created as an extension of his or herself. I use "Zooxanthella" as a means of uniting two species into a single being. My hope in doing this is that the wearer will feel this relationship with the reef, and gain a new respect for this environment. The jewelry illustrates an intrinsic connection between humans and our environment, and is meant to inspire environmental stewardship. "Zooxanthella" is meant to equate abuse of the environment to abuse of ones own body, emphasizing that we, as humans, should care for nature as we care for ourselves because it is inherently linked to us.

I have a taken a particular interest in coral reefs during my undergraduate studies because of their beauty. The varieties of species that depend upon each other in the reef ecosystem astound me, and they have become the subjects of my artwork on numerous occasions. Coral reefs are full of symbiotic relationships;

different creatures depend upon each other for survival. A dictionary definition of symbiosis is "Interaction between two different organisms living in close physical association, typically to the advantage of both." The coral reef thrives on these relationships. One commonly noted symbiotic relationship found in a coral reef is that of the clown fish and the anemone. The anemone provides a safe haven for the clownfish, which is unaffected by stings caused by anemone tentacles. In return, the clownfish protects the anemone by fighting off butterfly fish, which attack anemones despite their stinging tentacles [3]. An integral symbiotic relationship to the reef is that of the coral itself and algae in the surrounding water. The algae found close the surface of waters in coastal areas provides essential nutrients, which aid in the growth of the coral. This relationship is so important because it supports the entire reef system. It is the destruction of this relationship that is threatening the existence of coral reefs today [2].

Coral, and the algae that feeds it, are both highly sensitive to changes in their environment. When the ecosystem is shocked, the symbiotic relationship breaks down and the corals lose their color. This is known as coral bleaching, and it is an increasingly relevant threat to the earth's coral reefs. A few key stressors that have been introduced to their environment can cause the breakdown of the symbiotic relationship. Some stressors that cause coral bleaching are changes in water temperature or chemistry, bacterial infections, increased sedimentation, changes in water salinity, cyanide fishing, and increased ultraviolet radiation. Many of these stressors are caused by human activity, and result in coral bleaching in a confined area. However, mass bleaching events occur when global temperatures rise,

increasing the temperature of the ocean's surface. Therefore, the current threat of global warming caused by human activity is a likely culprit for an insurgence of bleaching events in the last thirty years.

Coral can only survive within a limited temperature range. A rise in temperature is an environmental stressor in the reef ecosystem. When stressors are introduced to the coral's environment, they react by digesting or expelling their zooxanthellae, a protozoon that lives in coral and provides it with energy. After a coral expels its zooxanthellae, the coral loses its color. This does not necessarily kill the coral, but surveys show about 80% or coral do not survive after bleaching occurs. This affects the entire structure of the reef ecosystem. Although coral reefs make up a very small part of the ocean, they host around 25% of all marine species, so when coral is destroyed by a bleaching event, the impact reaches many more organisms than just the coral itself.

It is somewhat odd to think about this, as I live in a very environmentally conscious community, but I come from a place where it is not uncommon to find people who still believe global warming is a hoax. Many people I know personally cling to this belief, fighting for it, even without having any evidence to back up the claim. Even in the presidential primaries this year, candidates such as Michele Bachmann and Rick Perry have shown their "skepticism" about the matter. Rick Perry said, "Global warming science is one contrived phony mess that is falling apart under its own weight"[5]. It is fairly consistent for members of the Republican Party to take such a stance on this issue, and increasingly dangerous to do otherwise. "This reflects a trend toward skepticism among voters too. Public opinion polls

show that Republicans are more unsure about climate change than ever. And last year's midterms also demonstrated that climate change advocates, like former South Carolina Republican Rep. Bob Inglis, who lost his seat, aren't so popular within the party anymore"[6].

Global warming skeptics cite blizzards as evidence that warming is not occurring, although scientists predict extreme weather, such as hurricanes, drought, and blizzards, to be a result of global warming. Detractors also argue that climate change is occurring, but is not caused by human activities, even though 97% of scientists agree that climate change is occurring and is caused by human carbon dioxide emissions. Perhaps the most chilling argument skeptics make is that regulating emissions cost too much money, and we should choose our own capitol gain over the condition of our environment [1].

When I first began to form the ideas for this piece, I was thinking of it as a purely aesthetic tribute to the beauty of the coral reef, but I discovered an artist who inspired me to think more deeply about what my work was really saying. Courtney Mattison is a graduate student who studied marine biology and combines her scientific and artistic work to try to inspire change. She creates clay sculptures of corals. Her graduate work is a large wall installation of these sculptures showing a progression from a healthy reef to a bleached reef. In an interview about her artwork she said "At first it started out as kind of a selfish way of better understanding marine organisms… and then recently I decided that the work I create might have the potential to inspire people to care more about coral reef conservation" [4]. This statement pushed me to think about the message behind my

own work. And I realized that inaction only perpetuates problems like coral bleaching. As bad as it is when people don't care, or refuse to admit there is a problem, I feel it is almost worse when people who do care do nothing. I resolved to use my work to draw attention to the problem of reef destruction rather than using it to benefit only myself.

Mattison was not my only artistic inspiration when developing "Zooxanthella." I also drew inspiration from sculptor, Jason Decaires Taylor. He creates life-sized sculptures, which he then submerges in the ocean in areas that can support reef growth. Over time, coral reefs form on his sculptures and become hosts for fish and other species. I was particularly interested in Taylor's piece entitled "The Silent Evolution," which is made of 400 life-sized human sculptures. This work resonated with me because its goals were very similar to my own. He takes a representation of the human and facilitates coral growth on the figure, where I put a representation of coral on the actual human form. For me, the most inspiring thing about his work is that he is taking literal steps to support reef growth. He is actively making a difference in his environment in a sustainable way. His work also contributed to my thoughts about the importance behind my own work.

After I determined to use my work to speak about coral bleaching, certain details about the pieces, particularly color, became very important. I used a blue patina to color the copper, which creates the illusion of the corals growing from the sea floor. I then chose a palette of turquoise, yellow, and red-orange tones for the coral pieces, all fading into white in areas of the composition. It was important to

me to use red-orange, and yellow to show colors common to healthy corals. I used turquoise because although bleached corals are white, the water of the ocean casts a haunting turquoise tone on their white surfaces.

My intention is for this piece to symbolize a symbiotic relationship between its wearer and the coral reef. The human benefits from the reefs beauty and the biodiversity it houses, but the reef needs to benefit from the human as well. By placing the reef on her body, the wearer is taking responsibility for its well being, just as I believe humans need to take responsibility for the well being of our actual reefs. The first step to this is to acknowledge that there is, in fact, a human caused problem that is afflicting the reefs. By wearing the reef, it becomes a part of you, which gives you the responsibility to care for it, as you would care for yourself.

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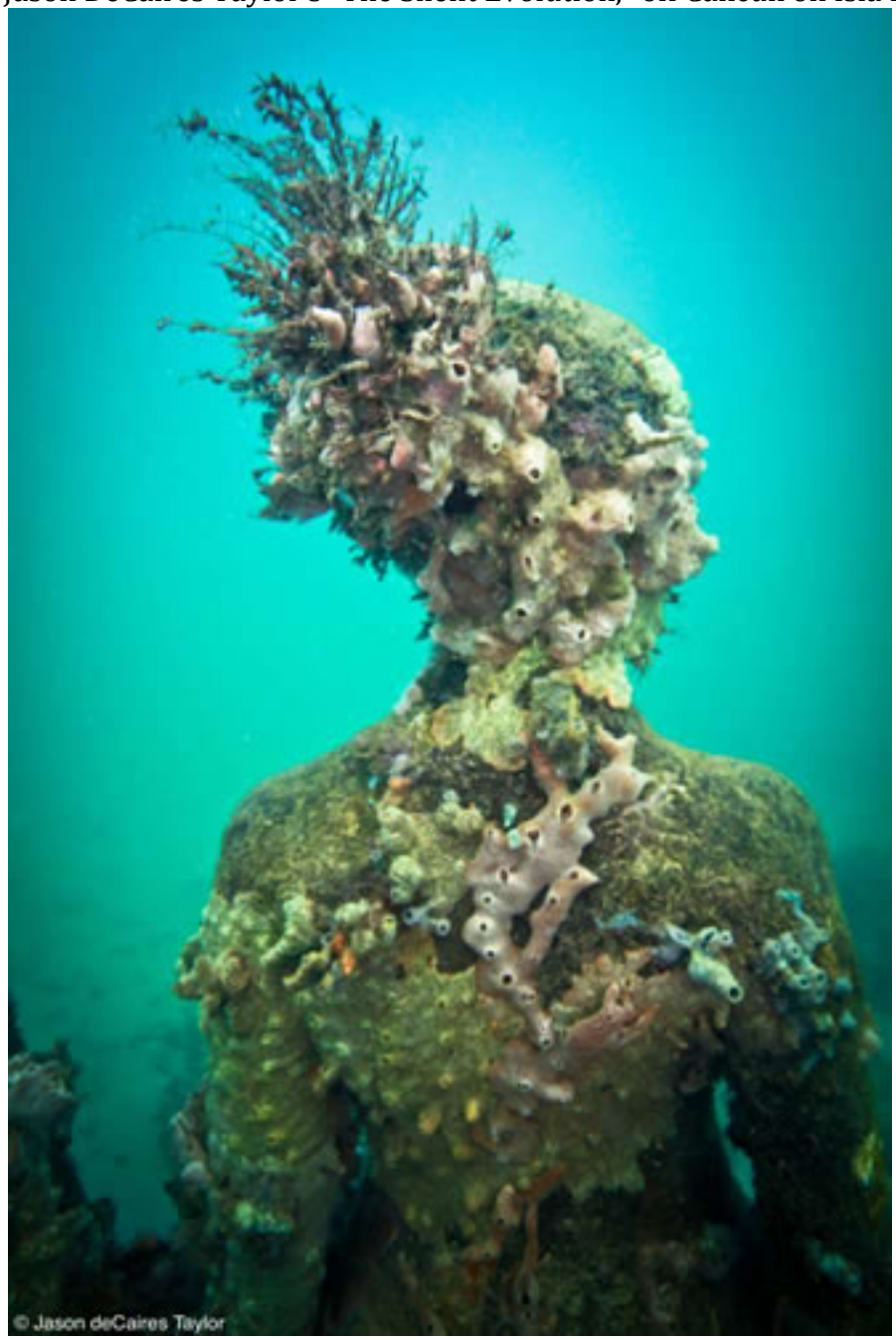

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“Zooxanthella”

Zooxanthella, Ann Arbor, Michigan. Personal photograph by author. 2012.