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XiaoYang.WANG: Working as a coral reef conservationist

A wilderness is an area of land that has been largely undisturbed by modern human development. Wilderness areas usually lack roads, buildings, and other artificial structures (National Geographic). They are an important part of our world. They provide a natural environment for plant and animal species, allow scientists to study healthy ecosystems, permit citizens to visit to relax and explore themselves, and function as a big machine to regulate climates. There are many different kinds of wilderness: the majestic mountains, peaceful valleys and its flowing creeks, endless prairies, wide deserts, deep oceans, frozen tundra and glaciers, and even the beautiful parks near your house. We could see from data that large amount of people flows into wilderness, especially in the vacation, for the sake of relaxing and exploring. And in China the number is still increasing rapidly since more people gradually fulfilled financial freedom. Wilderness is not only resources of earth, but also an inestimable treasure of our human beings.

Due to the destructions and damages that human cause to wilderness, people gradually come to understand the importance of protecting wilderness, nature conservation laws are gradually set up in countries, and nature reserves are gradually established. Thanks to the works of conservationists, outdoor explorers and environmentalists, most of the unique forms of wildernesses are well protected nowadays, for example, the Great Canyon in United States and Great Barrier Reef in Australia. However, there're still quite a lot wildernesses under threatened: More animals come to the edge of extinct, and more natural sceneries were destroyed and interfered by humans by quarrying, lumbering, fishing... As our economic developed, the places leave for wilderness will be less and less. The wilderness protection is still a burden task and has a long way to go.

Coral reef is also a kind of wilderness, it is an important part of ocean habitats and it's called "the rain forests of seas". Nearly 25% of marine species live in and around coral reefs (National Geographic). However, According to United Nations, 14% of coral reefs were lost between 2009 and 2018 (October, 2021), and some magazines even predict that coral reefs is going to extinct in 2100 (northrichlandhillsdentistry, March, 2022). It is of great urgent to protect coral reefs nowadays.

This time we invite a conservationist, diver, educator, Xiaoyang.Wang (Alex) who works in Dapeng Peninsula for the protection of coral reefs. Alex used to be a white-collar worker who worked in real estate agency in Shenzhen. However, after being a volunteer in an organization called dive4love for 9 months, he decided to take it as a full time job. In his work-time he is not only an educator who give lessons to our young generations about the current situation of coral reefs, but also a

coral reef conservationist who dive into the ocean to clean garbage, collect scientific data and cure coral reefs. In his spare times he also works as a dive coach. Compared to his life in the past, he said that although waves have decreased a lot, but devoting his life to what he loves is much better than being surrounded by consumerism. "Now the coral reefs are decaying worldwide, and Shenzhen has a wide range of coral reefs that worth protection." He said. What's his attitude towards coral reef protection? How did he protect coral reef? And what's his opinion about coral reef protection? With these questions, we took an interview with Alex. Here are the details of the interview.

Interview

01

As a diver, what's your job's responsibilities? what do you do after you dive into the water to protect coral reefs?

"Well, diver itself is not a job, diving is just a sport. It's a recreation of sports. you can be a diver for anything: it can about money, you can protect coral reefs. But we are coral reef conservationists, that's why we do coral reef conservation. So we dive into the water we will have basically **3 different tasks** protecting the coral reefs."

"**one is called the regrowth/nursing of coral reefs.** Coral they live in a 3D structures, they live like trees. So they're every easily get destroyed by strong waves, typhoons or even gales, so when they're tangled by gales or they are hit by waves they will crack, they will crack into different fragments, and many of the fragments, when they get separated from the body, the fragments will then sink into the sands. and sink into the seabed and then covered by sand or muds and then they will choke themselves and die, because corals need sunlight to live to make photosynthesis. if they cannot face sunlight directly, they will directly loss their source of food and die. so these coral fragments they are very critical points, if nobody saves them they will die gradually. So the first thing we do is to look coral fragments on the seabed and find those fragments that are still living and give a help. and when we find those fragments we put them on the nursery we had known, and the nursery itself is like a ICU for the coral fragments, the coral fragments can face sunlight directly and will not be hit by typhoons or will not be hit by waves again. and after few months, they will recover and started growing as a coral again and then we will move it out of the nursery and plant it on the rocks. That's the first things we do on coral reefs. we don't know how to call it in English, I think it is called coral fragments conservation. Anyway, that's the first task we do. "

"And the second thing we do is **cleaning garbage of this water**, the marine garbage. And this is very easy to understand, I mean, garbage is seriously influencing the growth of corals and they're one of the major reasons why coral reefs are decaying in Shenzhen, so we do marine clean ups."

"And the third task we do is we **do ecological surveys**. Because if you want to set up a plan for conservation and you want to set up some policies to protect the marine environment, you have to prove it by data, by statistics. And the data of the marine environments are very difficult to acquire rather than the data, say, of the forests or maybe a lake. Sorry, maybe a river or lake or anything. Because the ocean itself is under the surface of the water, so it is not easy to really actually access to watch it, unless you're a diver. So the things we do will help the scientists and the scientific institution to make some surveys, about the ecological studies of these areas, so we could provide some protrudes data for them to make further studies and maybe issues or papers about policies rejections...so we can push forward the agenda of coral conservation further. Yes, that's the three basic things that we do."

he do three basic things:

regrowth/nursing of coral reefs (heal)

garbage cleaning (prevent damage)

ecological surveys (push forward the agenda of conservation)

02

How did you decide to work as a coral reef conservationist? or when did you decided to do that?

"Oh, basically it was just a coincidence i would say... I didn't know I would do such a job whether it was diver...whether it was a conservationist, I have never dream about it, I never knew I would do it, but significantly I joined dive for love, it turns out that it is a very interesting job. being able to get in touch with marine personally, this experience itself is very very very interesting and touching itself and every time I dive, I can feel the power of nature, the power of live. They're surrounding you, they're breathing, they're vibrating, they're shaking, and... they're singing at the same time. So this feeling itself is basically not irreplaceable by any other job, so that's why I start doing it."

It seems that you're a person who is fond of nature.

"well, I'm not sure I'm very fond of nature...I would say that I really want...you know...to put myself into the nature and try to synchronize myself with it. synchronize myself with the beat of nature with the rhythm of nature."

it is a coincidence for him to be a coral reef conservationlist, but now he is fond of it, spending time with nature is quite exciting for him.

03

But actually a lot of people we love nature, and for example, our group members take this class mainly because we love nature and we would like to study it. But for most of the citizens in China, a lot of people and students, they actually don't know quite much about nature. So what do you think about the common attitudes of citizens to our coral reefs conservation nowadays?

"I think I'm actually the wrong person to asked. Everyone that has ever talked to me about coral reefs conservation they are either at least fond of nature or at least have some knowledge about coral reefs conservation. So if you are, let's say I'm just normal citizen I work in the office. You know, I live in the city live in town, I don't care about nature I don't care about our sea. Or maybe i do care about it a little bit, but i don't have any energy or time to actually put myself into the topic like this. They would not talk to me. So you see if you ask me this question, it's actually a survivorship bias (幸存者偏差). Everyone to talk to me are already found of nature. "

"So beyond, I think it's very good news to see that for the past three years, I knew I can feel that they are more and more people, normal citizens, care about the nature as they did two years before or maybe five years before. But after all it there's still a very small group of people who actually do pay attention to nature. I want to put themselves into conservation agenda."

Although he is unsure of the common attitude of citizens towards coral reef conservation due to survivor bias, he can sense a growing number of people willing to care or join in with action, which pleased him a lot

04

Okay, there are some other questions. Some people might think of coral reef as something precious in textbooks and documentaries, which are far from daily life. How do you think of this phenomenon? What is the key point for citizens in coastal areas to form emotional bonds with coral reef?

"Wow, that's a coastal citizen...I don't know. It's very strange because the coastal residents right now, the coastal residents, I would say, are the demographics of coastal systems are changing just very very fast. So the people who used to living in the coastal areas, no longer living coastal areas or their son, , their children do not live in the coastal areas anymore. And this is what we see for the past ten years in shenzhen. And these people even though they have nostalgic feelings on ocean, they actually...you know... have no daily feelings on coral reefs. because they and their children are no longer based on coral reefs. So that's what we see, a very very sad situation is that the coastal residents they process even weaker sentiments to many of the normal citizens. "

05

Do you think is your responsibility or our responsibility to let them reconnect with the coral reefs to rebuild the strong bonds with coral reefs again?

"Oh, yes, of course. It is very necessary because it's even though they are no longer fishermen, but there still someone who is geographically live very close to coral reefs so if they can have the sentiment they can rebuild sentiment or they can actually participate into coral reefs conservation. They are the ones can make a huge difference. "

Okay, so actually those citizens who lives near the coastal of areas do not put much efforts into protecting corals nowadays? "Yes."

Those who used to live on the coast, they and their descendants no longer live on the coast. This has weakened their emotional connection to the coral reefs. It is important that they re-establish their emotional connection to the reef and participate in its conservation.

06

In the process of protecting coral reefs, what do you think are the major obstacles that humans have brought to the conservation of coral reefs?

"Well, it's upset it is in water and ninety nine percent of the people who ever talked about coral reefs just never seen it. They don't have this personal connection with coral reefs that along they can do anything about it. "

So it is that the bonds between human is weakened and because of the pollution?

"No because you cannot, you cannot. The coral reefs are in water right? If you cannot see coral reefs on the water, you don't have this personal experience, personal feeling sentiments about coral reefs. That's for one thing. For second thing is if you want to do any protection for coral reefs apart from maybe the beach clean, don't throw any garbage to the ocean. There's not much you can do it if you're not a diver."

On the one hand, a large proportion of people lack a personal emotional connection to coral reefs because they do not have the experience of seeing them in the water. And on the other hand, the only thing people can do is to keep the beaches clean by not throwing rubbish into the sea.

What's your attitudes towards protection, for example, the wilderness protection.

"Well I will say ... wildness are two very different topic. wilderness is a very, very, very large topic and coral reefs is just a small topic. I would talk about coral reefs."

"Maybe I would say first you have to let all the coastal residents know about the urgency of protecting coral reefs. That's for one thing. Like their activities, their daily livelihood. They are very closely interacting with the growth of coral reefs. They are... if they keep throw garbages into the water. If they keep leaving those fish nets inside the coral reefs' area, the coral will die. And if the coral reefs decay, then their fish harvest...fish harvest will shrink as well. So that's very closely interaction by those people."

"And as for the general public, I would say...education propagation is very important for them to see the for them, to see the relationship between human and marine life, especially as a as a marine citizen, people as a marine citizen, they have to know it because the ocean is right in front of their eyes, right in front of their right, in front of the balconies of their homes. yeah, it is very important for them to know... the importance about protecting marine, the protection of oceans as a general. But as for the wilderness, I'm not sure...wilderness is a very large topic. I will not talk about it."

Coastal residents need to know the urgency of environmental protection while general public need to be well educated, knowing the relationship between human and wilderness.

Then it comes to education. What's your opinion towards wilderness education? How to utilize our education resources? Since lots of people are actually not care about coral reefs, should we just focus on few elites who are really interested in wilderness protection, to let them do some further studies, or just spend those money to all the citizens to let them get to know about ocean?

"I don't know, I would say that every body should learn some thing about nature. "

"Well the China's compulsory education system, when they talks about nature, they talks about how we can utilize their resources, and this is a very very outdated opinion and it is... I would say...it would not lead to wilderness protection or nature protection or conservation. well this kind of perspective will lead people to utilize nature even more, to use them to make economic developments. but we need to say... that we need everybody to understand the relationship between nature and human society, between individual with the nature..how it can benefits in the harmonious relationships with the nature, to love the nature to feel the nature. and if we can have this kind of education, maybe in the future there will be more and more people to put themselves into coral reefs education rather than sit there to watch or just sit there to throw garbages into the ocean. Or... even though they prompts some tourists right now using the trawling methods of fishing...as a recreation of fishing. as a recreation of thing to do... but that particular thing will actually destroy coral reefs very severely. So this is an example of people who did not understand their activities will cause destructions on coral reefs."

"I would say about first, the tasks about education is to make people to love about nature, and know more about nature, and know humans are part of nature rather than the master of nature, or to utilize its resources. So...yeah... whether we should put more resources into the elites who are probably studying about coral reefs or who are doing some conservation about coral reefs...I would say that it is the second thing we should do. it is not the first tasks we should do. The first thing is to always educate the general public. I don't think we should educated them into the detail of coral reefs conservation. I think we need to educate them to have a feeling about nature."

We should talk less about how to use resources of nature and pay more attention to its conservation, educate citizens to have a feeling about nature, let them feel human-being is actually part of nature.

09

I heard from Yuqing that you're a person who devoted a lot of time into coral reef conservation's education. How did you educate our young generation with respect to coral reef's protection? can you give us some examples about it?

"Well I'm not doing that in my spare time. That's my job. I was running diveforlove's education program. in my spare time I educated as a diver, i am a dive coach. but in my work time I'm running education program in diveforlove. We do this uh... we develop some lessons for them to participate, either the indoors or some outdoor activities, such as we may walk through the intertidal zone of the beach...for them to see the little creatures in the beach like some shells, algae... yeah, that's one example of what we do. we have indoor classes and outdoor classes. We use these classes to guide them to see the beauty of nature. and... in the main time they'll be the messenger of protecting coral reefs."

that's cool, when I was a teenager, we just sit in the class, and teachers will only put some slides on the blackboard, we don't have the opportunity to go outside to explore ourselves. Now it seems that things have changed a lot.

"Yeah, sometimes we will even take them...we will have a trip on boats and take them to coral reef areas and maybe giving them an experience of diving... so they can see the coral reefs by themselves, or we will use a underwater drone to maneuver the drone to the coral reef areas to let them see the images taken by the drones for let them see how the coral reefs are doing and how the nursery are doing., how the coral that grow on the nurseries are doing whether they are infected by various disease or they're growing very well or they're having a bleaching problems or anything... yeah so we're trying to make this indoors and outdoors activities together to give them a broader view or more comprehensive view of nature. "

Alex spends lots of time doing education program, spreading knowledges about coral reefs while cultivating sentiments to nature among young generations. Combining indoor classes and outdoor experiences will give kids a more comprehensive view about nature.

10

Could you tell me about a wilderness-related experience that makes you feel touched?

"Okay. there's one time I was diving in Philippines. and we're diving into a huge area of coral reefs and it was about 12 meters or something."

"Water was very, very clear. I can see. I think I can have a list of one hundred meters of visibility range. what we see is that... We saw a group of huge sea turtles, their sizes ,there are at least one meter long. and what we do is we secretly follow one of the sea turtles, it swims. and when we're swimming... you can image those sea turtles in your mind, right? It's very, very breathtaking. However, they're swimming in the water as if they're flying in the water... there is no weights they're very thin, they're very light...and the ways the swim is very... very elegant. they don't swim like humans, when humans swim,we use our hands,and arms,and legs... and we flip the water very hardly...no they don't, the turtles they push the water very gently and they swim very fast... they're very fast and we were almost lost track of it. and after 5 minutes he stopped. Once he stopped, there are a lot of fishes coming hastily, a lot, a lot of red and yellow fishes swim towards him and start to picking the barnacles out of his body. So basically he swims himself into bathroom, It's a bathroom for sea turtles, where other fishes and other marine creatures will come to the place and start to eat the creatures that are touching on his shells, so for him. It's

a process of cleaning himself. For other fishes, it's a feast, I guess I can see the fishes try to pick up the food on his body anywhere like he can pick the food from his legs, even from his mouths. this is very interesting because this is a scene of like creatures interdepending on other inside the ecosystem. "

"what's more curious is that a few minutes later, there are more, there are more a dozen of more sea turtles coming in, and what they do is they queue up. They queue up, they are not. They are not occupying the same area, but they queue up by each for every 5, 5 meters, the turtles who first arrived there after they left the following sea turtles will come up, and then the fish will group again and eat things on the next, the body of the next sea turtle. this process keep going on and going on, it's diverse. We want to see when I want to get closer is to have closer look at it, maybe take some pictures, all the sea turtle suddenly turn to me and give me a look. Basically the look out I was like:"Hey, queue out", so, I was like: "oh damn, it was a very interesting marine world." A world we have never seen, is like, in the city, the only time we can see marine creatures is in aquariums or... you're seeing them in a fish tank...maybe a seafood of restaurants. The fish is, they occupying a very small area and they 're always frightened. they don't know what to do, they're frightened when they 're sleeping, and for them it seems like a hell. So we cannot see these harmonious, beautiful scenes where everybody is doing their jobs, sometimes somebody is having a leisure or somebody is having a feasts. they have these kind of roles, this kind of marine society showing in front of you. that's the moment where, truly, when I truly thought: wow, this is a very very different world and I am fucking love it."

Nature is full of suprise. Just like what pro.Gao said: "A small experience in wilderness can sometimes make an entire change to one's life." I guess it must be an important event that influence Alex and made him to be a diver, to be a coral reef conservationist.

11

Diving in the oceans and sometimes you see those giant marine animals, will you sometimes feel dangerous?

"No, actually no. Basically diving is a very huge thing in the ocean. you're equipped with all the gears you have attained, you're a 2 meters long creatures yourself, so you're not afraid of them most of time. And even if you see the sharks, the sharks will not attack you, I mean, sharks are very gentle animals, they would not attack people unless you let them feel they're threatened. So if you don't threaten the sharks the sharks will just come to you and have a look at you and then swim away. So there's not so much thing to fear in the ocean. There are some creatures which are poisonous to humans and what you need to do is to know which one is poisonous and don't touch them. and you're safe, yeah."

12

What is your advice or message you want to like to deliver to other people?

"I think the only word I want to say is that you should spend more time in nature, I think that's the most important thing. I wouldn't say everybody would love coral reefs because there are a lot of other wildernesses that worth protecting such as forests. There are many ecological systems that are similar to coral reefs, they're also important, and they're decaying. And all this kind of wildernesses, as we could seen, is that human activities are interfering with them seriously. So the most important thing is to let humans, let the general public know their response, or grow a sentiment for the nature. And in order to achieve that, I think humans just need to spend more time in the nature, they either go camping, they either go swimming in the water, they either go diving, they go hiking. Anything would do... just spend more time in the nature. And the more time they spend, they would have a feeling of sentimental connections with the nature. and once they have it, they will truly start to advocate for nature conservation, they will truly think nature needs our effort to be conserved. Yeah, so spend more time with nature."

Conclusion

From Alex we see the new generations are trying to combine the pursuit of their personal interest with global / society's common interests. Those conservationists are of great passion, devoting their loves and making efforts to try to make the world a better place. Coral reefs conservation is a thing that is not actually cared by many residents. "99%percent people know it, but they don't even see it by themselves." The huge barrier is that coral reefs "hide" themselves in the seabed underwater, people have few access to it, thus there're few sentiments in most citizens, even the fishermen. According to Alex, sentiments are the key point for coral reef protection, and the key point for wilderness conservation.

Through the process of urbanization, many peoples gradually lost their "roots", "In particular, the ancestral culture has been broken and disappeared. People's rural complex and local attachment are becoming more and more indifferent." (Xiaojun Yang, 2019) in the coastal area, those coastal residents lose their heart with the ocean. "Because their sons, children are no longer fishermen, they flow into the cities to seek for jobs." That's what makes Alex feel disappointed, because of the decaying of the bonds and the connections, those coastal residents were no longer ocean protectors, and some even run into the opposite for their own economic interests. "It is our duty to help them reconnect with nature." Alex said.

Education is an important part to help push forward the agenda of coral reef conservation. However, Chinese compulsory education system is still advocate us to regard nature and wilderness as part of our resources, which is quite outdated. Thanks to Alex and his workmates, some new education methods and patterns come into practice. Through both indoor teaching and outdoor experiencing, our young generation will understand nature in a more comprehensive way.

As mentioned above, sentiments are the key point of conservation and protection. Just "go to the nature". no matter what kind of forms it is: Diving in the ocean, hiking in the mountain, walking in the rain forests... As long as you're in the nature. Once we know the power of it, and the beauty of it, we will come to realize that we're part of nature instead the master of it. Try to "synchronize yourself with the beat of nature", this is the time that we will truly start to respect wilderness and forms a sentiment to it. With this kind of belief, we will no longer throw garbage to the ocean and try to protect it.

Despite the fact that coral reefs are decaying globally, what makes Alex exciting is that through the efforts of him and his colleagues, more and more citizens start to really concern the issue of coral reef conservation. We do believe more people will queue up to join their list to protect coral reefs, to protect wilderness, and thus make our world a better place.

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Appendix

Some thoughts and ideas about coral reefs, nature, and human beings:

1. What're the local people's attitude towards the ocean? How local people understand the ocean based on many years of living? Could you find some books or articles who are related to this issue?

In coastal area, Shenzhen people hold a complex attitude towards the ocean. For example, in Nanyu(南渔) village, people used to visit Tianhou Palace(天后宫) to worship Mazu(妈祖). On the second day of every lunar year, people from the community would practice the grass dragon dancing and throw the dragon into the water. It is believed that by doing so they would be blessed a safe and fruitful sailing in the ocean. In another word, people's life is dependent on fishing, and they respect ocean. However, with the development of modern technologies and markets, fishing has become more of a tool of economic growth. Those who know much about the sea and the fishes wish to catch as many fishes as they could. According to Alex, it is the fishermen who care less about the environment.

by yuqing.Zhao.

My grandparents lived in a small village in Changde, Hunan province, which is quite near to Zhangjiajie. and there was a stream running through the front of our house. In the second half of 20th century it was quite beautiful, kids played in the stream and women washed clothes there. However, the stream was then destroyed by navvies, and now it seems like common river with some rubbishes, all the stones that lied in riverbed were taken out. it lost its beauty, Every time I come back to my hometown I would heard those elders talking and sighing about the river. I think the situation was the same to those coastal residents. They must have sentiments to the ocean. The polluted water, changing environments and growing population are what make them feel sad. But as more young people rush into cities to seek for jobs, this kind of connection was weakened. Just like I actually don't have such a strong sentiment to my hometown's river as my grandparents have. Coastal residents must want to protect the ocean, however, for some residents who are struggling for their lives, making a living is much more important than protecting the ocean...There seems to be a contradiction in it, sometimes the government asked too much for those fisherman, which increase the burdens of their living. So in textbooks fishermen always plays an negative role in ocean protection. I think it needs to take many years to change this situation, As for conservationists and governments, they need to help them find new jobs while reconnecting their bonds to the ocean.

by qijia.He.

2. Can we call ocean wilderness? How to define wilderness?

According to the reseachers' obversation, most of them say that the ocean is also considered as one of the wilderness's area. Because the term wilderness is so broad, it is the place or areas where are inhabited by humans which means there are only nature, plants and animals. If we refer to ocean, we have observed that the ocean is a nature, there are animals and plants in the ocean as well. Moreover, the oceans in the world is huge, sicientists still have not encountered the deepest ground of the oceans yet. As a result, since most parts of the oceans have not been discovered, especially, the ground water. And some parts of the oceans still remain anonymous to the world without the colinization of people, we can conclude that ocean is also called wilderness or we can call its well known term as "Marine wilderness".

by Nov BunnareakSathya.

3. How can you promote Coral Reef Conservation? Can you use the knowledge you have gained through this course to give some suggestions?

I am in the major of Statistics and Data Science, through the preparation of the interview, I find there're lots of data about wilderness open to the public abroad, but there're only few data and projects that could be found in Chinese website. In the past decades we lost huge amount of data, and if we could open the data we collected to the public, the awareness of wilderness protection will definitely reach to a new height. Some websites such as "Our World in Data" has already done a great job, our country need to have a website like that as well, but it seems there's still a long way to go, and it is our responsibility to make it do so.

by qijia.He.

4. Just as what Alex said, I have some comments on the wilderness education Chinese compulsory education system. We talked a lot about environments in Chinese and geography class. However, from my personal experience, For most students they just learned how to answer questions in examination paper. In real world I can't see many students actually start to love nature after taken those courses. They continue throwing garbage although in exams they wrote "wilderness is our treasures that it is our duty to protect them." Knowing principles and knowledges are not enough, because economic interests are more attractive than wilderness for most people. cultivating sentiments will be the key in wilderness protection, and to achieve that, we need to let students truly feel the existence of nature, the breathing of nature and the vibrating of nature. But that's what is lost in our compulsory education system.

by qijia.He.