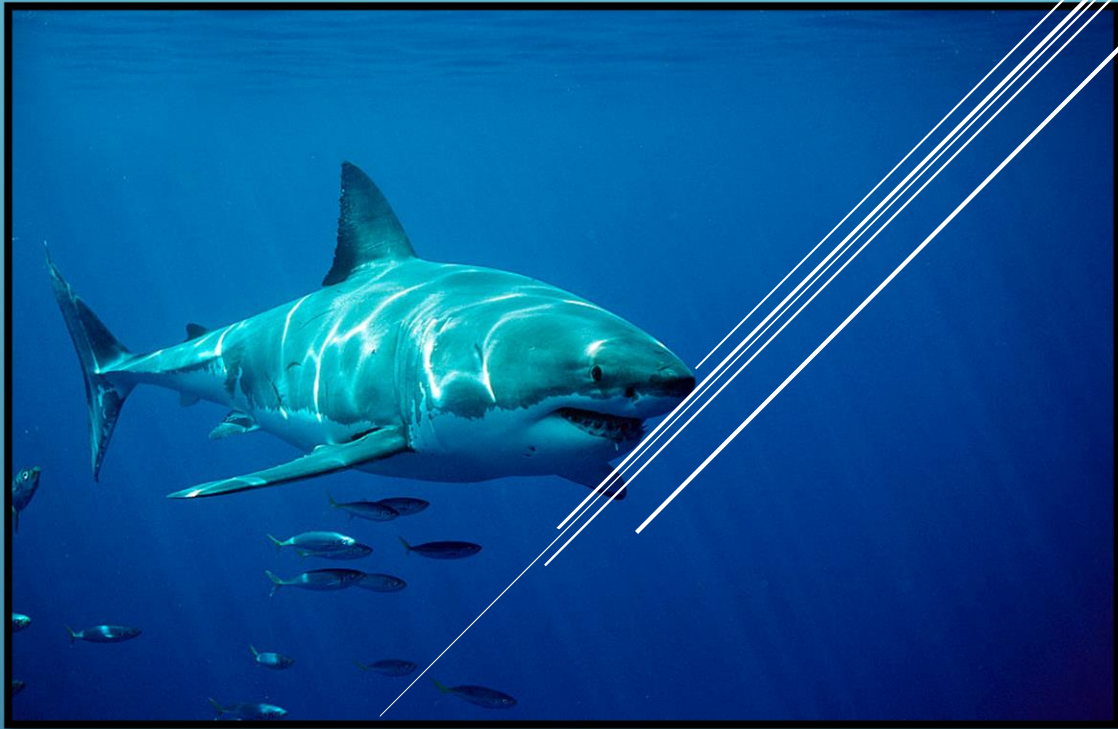


By James Raubenheimer, Chevalier Unite Penny and Max Molyneux



SAVING SHARKS ONE WAVE AT A TIME

THE NARRATIVE OF A GROUP OF BOYS TRYING
TO SAVE SHARKS BY RAISING AWARENESS, FOR
THE BIG IDEAS PROJECT.

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Introduction

We are a group of boys from Bishops Diocesan College consisting of three members, Chevalier Unite-Penny, James Raubenheimer and Max Molyneux. We are all from Cape Town, South Africa. We were tasked with choosing a Sustainable Development Goal ('SDG') that we liked and about which we felt passionate. Our group is called Shark Surf and we are trying to save and create awareness about the great white sharks. We are all from privileged backgrounds and are getting an exceptional education. We chose SDG 14 because we all feel a connection to the ocean and believe that it is essential to a sustainable future. (UN, 2015) We started this project around the beginning of September and have been researching, meeting with people and generally growing our knowledge on the subject since then. We have been undertaking all this during our Big Ideas sessions.

In this narrative we will be addressing some of the problems that affect SDG 14, which is defined as to 'Conserve and sustainably use the oceans, seas and marine resources for sustainable development.'

About the team

Hi, I'm James Raubenheimer, I am a Bishop's pupil in grade 9 and live in Constantia. I play cricket and hockey at school and golf, surfing and rugby out of school. I love playing sport and being outside and I take pride in my academics. I live in a wealthy area of Cape Town and am very privileged, and even though I am not in poverty I see many people who are. In south Africa I see lots of inequality, I see rich people who have no worries and have a plan in life, then I see poor people who struggle to provide food for their family, this is why I wanted to do the Big Ideas course. I chose SDG14, because I love the ocean, I grew up surfing at Fish Hoek, then Muizenberg, and now all over. I have been in the water many times when the shark alarm has gone off and everyone has rushed out the water, because they fear being attacked. I know how misunderstood these creatures are, and I'm not saying they are not dangerous, but they are not man killing creatures, so I want to help people learn about why they attack humans so that it can be avoided in the future.

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Hi, I'm Max Molyneux. I live in Rondebosch, Cape Town. I am a pupil in grade 9 at Bishops. I play cricket and hockey. I'm not great at these though. I am good at music. I won a scholarship to Bishops for music. I play trumpet and piano. I am doing a course called Big Ideas. I had to choose an SDG to focus on. I chose SDG 14 because I feel so bad for the state that our oceans are in.

Hi, I'm Chevalier Unite-Penny. I live near James Raubenheimer. For as long as I can remember, I have spent my weekends on the beach at Kommetjie. Over that time I have grown to love and respect the ocean. I have learnt how important and essential the oceans are to our existence. When I heard that Big Ideas was giving us the chance to research and save our oceans I jumped at the opportunity. I thought that it would be a good SDG to do because I feel like I have a connection to the ocean. When I am in the water, I feel free and I chose this SDG so that many others after me can experience what I experience. My favorite school sports are water polo and rugby, but my favorite hobbies are surfing and mountain biking. I often ride with my dogs, Raphie and Seidi but they get tired so I can't do long rides with them.

Trying to find a project

There were lots of setbacks and problems we have faced. For example, we struggled to collaborate, because some people did not do as much work as others, but we were able to work past it and put it behind us. We also thought that consumer power was the key to solving the goal, because many of the problems that cause the ocean to be in the state it is in are caused by companies that over fish or pollute the ocean. Our aim was to convince the public that what is happening to our oceans is unsustainable and wrong - then they can use buying power to force companies to change to more sustainable ways of production. However, we couldn't do this, because it would take too long and was not realistically possible in our time frame. We also realized that just raising awareness of what companies are doing affects more than just our goal - it affects SDG13 and SDG15 (The Global Goals, 2015), which are to stop climate change and protect life on land. Thus, by telling the public about what companies do, it would affect not only our goal but both of those goals as well. So, we tried to narrow down our project to something more about

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the ocean, and that is when we found an article about great white sharks and their disappearance (Tobias, 2019).

This stuck with us because a lot of people don't like sharks and think they are dangerous - which they can be! However, they do not attack people because they want to kill us, they do it because they are curious and people may look like food (Warries, 2019). Due to this no one wants to help the species, even though they are endangered and even the people who try to help sharks struggled, because so little is known about these mysterious animals. Later, in our narrative we will address this issue and talk more about how we raised awareness for the great white shark.

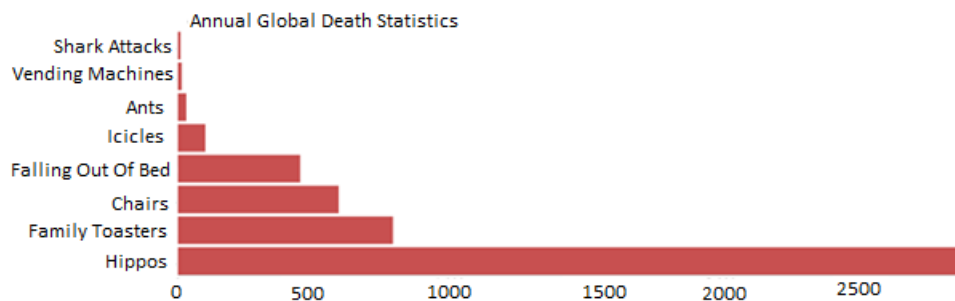


Figure 1 A Graph Showing How Deadly Sharks Are!

This is a graph that shows how small a threat sharks are! You can clearly see how peculiar objects kill more than sharks, like chairs and vending machines.

The Sustainable Development Goals

There are 17 SDG goals that were developed in 2015 to combat climate change and protect the environment and our future (The Global Goals, 2015). We chose SDG 14 which is "life below water". Basically, this covers all water-based problems. The targets for these goals are as follows:

- "By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient

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pollution.”

- “By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.”
- “Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels.”
- “By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.”
- “By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.”
- “By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.”
- “By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries,

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aquaculture and tourism.”

- “Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular Small Island Developing States and least developed countries.”
- “Provide access for small-scale artisanal fishers to marine resources and markets.”
- “Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want.” (The Global Goals, 2015)

We started researching this goal and tried to narrow down our project and after quite a bit of research, we saw that plastic was a big problem, so we started researching plastic (New, 2018).

We watched some interesting videos about plastic bottles and where they end up. This is a brief summary of it. Three different plastic bottles go through different journeys. These outcomes impact the fate of the planet. These plastic bottles were formed from products of an oil refinery. They are formed by chemically bonding oil and gas molecules. These bottles were wrapped, shipped, bought, opened, consumed and then discarded.

The first bottle gets dumped in a landfill. This landfill keeps on building. Rainwater fills this landfill and absorbs the water-soluble compounds, and some are highly toxic. They form Leachate. This goes into the ground and poisons other ecosystems.

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The second bottle floats down a stream. This stream connects to a river. This river reaches the ocean. Slowly trash builds up in the sea. Some animals like birds get entangled in the big plastic pile up. For example, a small fish could eat plastic, then a squid eats the fish then a tuna eats the squid and finally a human will eat the tuna.

The third bottle gets disposed of properly. It goes into a plant. It gets squashed and compressed into a block. This block gets shredded. The shreds are washed and then melted. The plastic can now be used again (What really happens to the plastic you throw away?, 21 April 2015). This seemed like a very solid theme to go and investigate. In order to make the project more specific, we decided to look at the great white shark and how it is being affected by the oceans. We did some research about it and found out that they are slowly disappearing from Cape Town (Tobias, 2019)

There are four potential causes that are likely to have resulted in the disappearance of the great white sharks. Firstly, pollution, secondly, overfishing, thirdly, climate change and fourthly Orcas along the coastline. The first three causes are global whereas the Orcas are a local issue along South Africa's coastline. (Warries, 2019)

We started by researching SDG 14 and learned that our oceans are being poisoned and millions of animals are dying, there are three main causes for this. (The Global Goals, 2015)

1. **Pollution:**

All the plastic that you throw away eventually ends up in the ocean, this plastic kills millions of fish and other species, because the fish mistake the small colorful pieces of plastic for food and this makes them think that they are full. They then die of starvation. It also kills millions of animals when they get caught and tangled in the plastic, as many under water animals need air to breath, so they drown. (The Global Goals, 2015)

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Figure 2. Fish swimming under plastic

2. Over-fishing:

Millions and millions of fish are caught by huge nets the size of football fields that get dragged along the sea bed catching all in their path. This way of fishing is unsustainable and very dangerous. There is no telling what you will catch and often fisherman end up with dolphins and sharks. This method of fishing also catches way too many fish and leaves ecosystems unbalanced and very fragile. (The Global Goals, 2015)



Figure 3. A fishing boat catching fish

3. Ocean Acidification:

The last main reason why the ocean is at risk is due to ocean acidification. This is the process of carbon dioxide getting dissolved by the sea water, normally oceans do contain carbon dioxide but because of the large amount of fossil fuel released by huge production factories, the acidification levels in the oceans are too high, this is killing lots of coral and other sea plants and fish that live in it. This can cause a chain reaction, unsettling the food chain and leading to disaster (The Global Goals, 2015).

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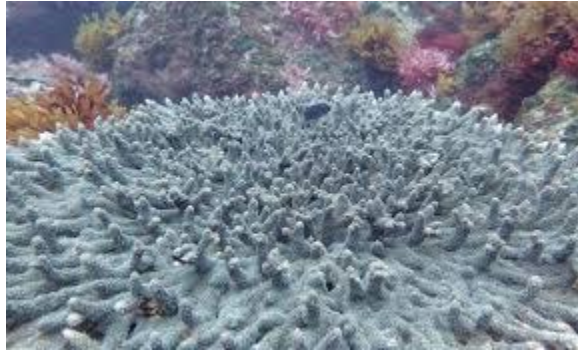


Figure 4. Dying coral from over acidification

Carbon dioxide

We read an article about carbon dioxide in the ocean and summarized it. The article talks about the main problems that face South Africa, due to climate change. The first problem the article mentions is that the carbon dioxide in the water, found normally at around 1000m in depth, is rising to the surface too fast, releasing all the gases into the atmosphere. The second problem the article mentions is that, because of the change in temperature, and the carbon dioxide being released into the atmosphere causes the dry air and high pressure over the southern tip of South Africa. Thus, creating drier and stronger winds which do not bring rain and fuels fires. In order to slow this down, we need to keep climate change down to 1.5 degrees a year.



Figure 5 Carbon Dioxide being Released into the Atmosphere

Disappearance of the great white sharks due to the Orcas

A new apex predator is roaming the coastline of Cape Town and could be responsible for the missing great white sharks. Shark-eating killer whales have surfaced the coast of Cape Town and have been eating sharks, mainly from the False Bay area. Shark carcasses have been found floating in the ocean and experts have analyzed the bite marks and determined that they are indeed from killer whales. This leads you to believe that the sharks could have left False Bay, due to the arrival of this new predator.

Some experts say that two orcas cannot destroy an entire shark population and so the theory cannot be true. While other experts say that climate change is not the most appropriate reason for their disappearance, because the period of recorded time is still too short to make any assumptions. The last thing is overfishing, but sharks rely on fish as their primary source of food, their primary source of food is seals and seals eat mainly squid, crustaceans, mollusks, and a variety of fish; including, rockfish, herring, flounder, salmon, hake, and sand lance.

The actual reason or most plausible reason is that there are just very few sharks left in Cape Town. Many experts believe this because in 2012 experts estimated that there were only 300-500, which meant their population is in big trouble. This isn't enough sharks to sustain a population, because of their reproductive rate and growth to maturity is slow, as well as fisherman and other dangers, experts fear there are not a lot left in Cape Town. (The Global Goals, 2015)



Figure 6 A Great White Sharks Swimming in The Ocean

Information received from the 2 Oceans Aquarium.

The aquarium provided a climate change theory. Climate change is increasing the temperature of the water and because of this some plants aren't able to grow and breed where they did previously. As they start to grow in other better suited places, the small fish that feed on the plants move to where the plants are and then, the bigger fish move to where the small fish are and eventually you get the great white sharks moving, because their prey has moved. The problem with the theory is that if it were true, there would be sharks popping up somewhere else and so far, we have found nothing saying that there have been more shark sightings or shark attacks than usual elsewhere. (An Aquarium Employee, 2019)

Shark fin soup

We also watched a video about shark fin soup, and this really annoyed and frustrated us because of how they treat the sharks. They basically catch the sharks, using big hooks and then pull the sharks aboard the boat. They then proceed to cut off the fin of the sharks and then throw the shark back in to the ocean to die. There are many reasons why this is wrong - for starters, they treat the shark incredibly badly even though it is an endangered species. Only a tiny portion of the sharks are used, and the rest is thrown back into the water. Shark fin soup is considered a delicacy in Asia and even though it is an endangered species they still proceed to kill sharks just for a tiny bit of the shark's body. It sounds very similar to rhino poaching and we think that if it does not stop, sharks could be as endangered as rhinos and that will cause a huge problem for the ocean's ecosystems, as one of their major predators would no longer be there. (Shark Fin Soup in the U.S., 2017)



Figure 8 A bowl Of Shark fin Soup

Research on Sevengill sharks

We also did some research on the fact that with the great white sharks gone, no apex shark predators are roaming the False Bay coastline and a massive gap has been left in the food chain. However, recent studies have shown that a new species of shark has stepped up to fill the gap. The Sevengill shark (*Notorynchus cepedianus*) that normally lives in the confined areas of the kelp beds has entered the open waters and is now taking the place of the great white. It used to be kept at bay by the great whites but with their disappearance, they have filled the gap. The Sevengill shark earned its name by the peculiar seven gills it has on either side. (most sharks only have five gills.) The common size for the male Sevengill is 1.5 meters while the females range to about 2.2 meters. Although they are a lot smaller than the Great white (females being around six-meter and males around four meters) they are still lethal and can swim extremely fast (Warries, 2019).



Figure 4. Sevengill Shark living in caves



Figure 5. Sevengill shark living in Kelp beds

In the Cloud

Over the past weeks, we have been through a lot together. We have learned to understand, communicate and collaborate. We have had to think critically and efficiently in order to achieve our goal. When times got tough, we got tougher.

We faced our biggest struggles when we were in the cloud. Things were foggy and we were not sure what to do. We found that there were no clear paths for us to take and we

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spent a while doing nothing. At times we would come up with ideas on interesting things to do but after much research, we would normally end up at a dead end. There was a fair amount of arguing among us and, a couple of times, things got heated. We found that we were letting out our frustration on each other but once this was opened, we were able to talk about our issues and provide support for each other.

By the fifth week, we had established a good routine of coming up with ideas. We spent the first ten minutes of each period discussing ideas and trying to make a blueprint that was simple and easy to execute. Chevalier had the idea that we could raise funds for great white sharks by surfing for twenty-four hours. He has a house in Kommetjie so we thought that we could host it there. This all seemed good until we started talking about publicity and safety. Our parents were not happy with us surfing all night in the cold water of Kommetjie. We also realized that the waves could pick up and visibility is extremely difficult. We decided to ditch the idea of surfing for twenty-four hours because it was not going to work. However, we still really liked the idea of raising money for research on the disappearance of the great white sharks (Warries, 2019).



Figure 9 A Photo of a Cloud

Interview with Sarah Warries

We also went to talk to Sarah Warries (a marine biologist at Shark's Spotters) to learn more about the sharks and their disappearance. We asked her a lot of question and

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interrogated her for about 45 minutes. Some of the questions that were asked are at the end of the document if you are interested in reading them.



Figure 1. Us after interviewing Sarah Waries (shark spotters)

1. Our original ideas: consumer power

Originally, we planned to do something along the lines of consumer power, because if you analyse the SDG14 targets they all relate to companies or governments not producing their goods in clean sustainable ways (The Global Goals, 2015). If the public can come together and stop buying these products, because of how they are produced, then companies will be forced to change their production methods. Their source of income will be cut off and the best thing about this plan was that we did not have to come up with any of the solutions, because the firms will come up with these methods themselves in order to keep the firm growing and making a profit (Woodring, et al., 2018). We thought about organizing a talk or some other form of communication with the public, perhaps using social media. Although there is a lot of fake news on social media and people might

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not believe or trust us, it is the easiest way of telling everyone about the idea of not buying products from companies that do not use sustainable methods of production.

This was our thinking behind consumer power:

- Create awareness.
- Teach people about what is happening.
- Show them how bad it is for the earth.
- Give alternative ideas of production that are ecofriendly and more productive.
- Make the public force companies to change their ways by not buying their products.

Chevalier:

I thought this was a rubbish idea. There was no realistic way for us to make it work in the time frame that we had, and it was boring.

James:

I thought the thinking behind this idea was very cool, but the idea itself would be extremely hard to do, especially in a country like South Africa, because inflation is too high.

Max:

This was quite a good idea. It is just hard to convince a lot of people not to buy a product that they want.

2. Making an app.

The first project idea we really had was about creating an app that could tell you if a fish was on the red list. You could then leave a review on the website about the restaurant, saying what fish you had and whether it was on the red, orange or green spectrum (WWF, n.d.). We thought this idea was amazing until we realized that there are a lot of apps very similar to this (Hoshaw, 2017), and they are very expensive to code, if you do not know how. This impacted our group greatly because now we had to think of something new. Now we were back in the cloud.

Chevalier:

This was one of our early ideas and I thought that is wasn't very original and I had no idea how to make an app, so I wasn't going to be much help.

James:

I never really liked this idea, although it would have been cool, it just seemed very unoriginal.

Max:

This was a great thought. The only problem was that no-one knew how to code an app. If we got someone to code it for us it probably would be quite expensive. Secondly there are a lot of similar apps.

3. 24hr surf

We wanted to do something to raise awareness of the disappearance of the Great whites (Warries, 2019). So, we decided we would do a 24-hour surf to raise awareness. This was great at first but then we had to think of a beach. We were going to get sponsors

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from company like Capital Land, Esportif and Bishops, and if everything went according to plan, we would raise a lot of money to give to the shark spotters. We thought it would be a good idea to do it at Kommetjie because Chevalier has a house there, but there are not as many people at Kommetjie as Muizenberg. We wanted as much publicity as possible, so we decided to make Muizenberg the location. Then we thought about safety. This idea would not be safe to do for 24 hours so we decided to do it from sunrise to sunset, but that didn't seem hard enough, because three of us taking turns to be in the water will only add up to being in the water for 5 hours each, and so we decided to try and think of another idea.

Reflective Box: Chevalier's reflection

In the beginning I was keen on this idea because I thought that it could potentially be very successful and fun to do. I was disappointed when this idea got shut down.

James's reflection

I also thought that this idea was very good, but when I talk to my parents about it they brought up all the safety risks and how Max was a very inexperienced surfer.

Max's reflection

This seemed like a cool idea but there were a few setbacks. Mainly the fact that I don't know how to surf. But if we somehow managed to pull this off it would've been great.

4. Setting a world record

Then we had an even better idea. We would try and break the world record for most people surfing on a single wave. This is our final idea and the idea we are doing. Now we must start planning the event. Our plans are to collaborate with Surf Emporium and Lifestyle surf shop. We would like to make an agreement saying that we will get twenty

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percent of each rental they make that day, this money will all go to Shark Spotters to contribute to the hard work they do. We will publicize the event so that all the companies involved can benefit. We started by contacting the people who organized the event last time and asked them if they were keen to do it again. Then we tried to find an organization that we were going to donate the money to, so we did some research and we settled on the Shark Spotters (Warries, 2019). The Shark Spotters is an organization that does lots of shark research and projects to help and protect the sharks, they also protect people from shark attacks at beaches across Cape Town. They do this by sitting on the mountains watching the water through binoculars and if they see a shark, they sound an alarm that tells all the surfers and swimmers to get out of the water. They then change the flags to communicate with the public, so they know if there are sharks or if there was a shark. (Warries, 2019).

Reflection box: Chevalier

This was my favorite idea! I thought that if it worked it would be a real success because it would be recorded, and people would say “oh that’s the thing that those boys did for the sharks”. By doing this it would keep the realization that sharks are endangered so we need to protect them as best we can. I was disappointed when this idea got shut down. I felt useless and this made me want to give up at times. However, thanks to my group we were able to support each other and get this narrative complete.

James

I really thought that this was going to be our project and that we were going to be able to pull this off and if we did it would have been amazing, but when we called Kahuna Motors and they told us how to do it or how much it would cost for them to do it, it was really demoralizing and depressing, because we were now back to square one with no project and no ideas.

Max

Setting a world record would've been amazing. This would've created a ton of awareness for the Great whites. We really wanted to do this as our idea. We hit a massive roadblock when we were told it cost a lot of money. Now we were stuffed.

5. Surfing for the disabled

While we were in Muizenberg, we thought we would go and see the owner of Roxy as well, because Chevalier's family is friends with them. We wanted to help them with one of their projects they run which is surfing for the disabled. So, we wanted to set up a stand there with some Shark Spotter's pamphlets and flags and talk to the public about sharks and their importance with a donation box for Shark Spotters. We were also going to take some of the Shark's Spotters' merchandise so people could buy it if they wanted to. This would increase the awareness of the Shark's Spotters and will help their company grow. So, while we helped with the disabled surfing, we could educate the public and try raise some money for the shark Spotters. However the owner of Roxy said that that would be very hard to do and he did not think it would work, because there were not enough people there to raise a significant amount of money it is very dangerous to help with the disabled surfing unless you are an expert, which we are not. This made us quite sad that we could not do this, because it was a great opportunity to help disadvantaged people and help the sharks at the same time. It was also our back up project, if we couldn't think of something else in time. So, it was very demoralizing to not be able to do it and it made us very worried and scared. We needed to move on and think of another avenue.

Chevalier:

I thought that this idea would work well, and I was surprised when I was told 'No'.

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James

I thought this idea could really work and be successful at first, but after a bit of thought it seemed like a we were just jumping on some on else project.

Max

This idea had potential

6. Woolworths reusable bags

We are trying to make a deal with Woolworths. They sell reusable shopping bags, that say “save the rhinos”. We wanted them to sell some that say “save the sharks”, this would raise a lot of awareness and questions about the sharks. This would be very good, because if everyone knows about the problem, then big corporations will start funding research to make their companies look good and we had an easy connection through our friends Mum who works for Woolworths, This project was very big and would be very hard to do in such a short period, and even though it was not very creative, it would have been very successful. The time limit made this project too hard to do.

Chevalier

I did not have much to do with this idea. James emailed Woolies with a hope that they would reply but nothing happened.

James

This idea was a long shot, because we had no connections and they are a really big company and are unlikely to listen to three boys from Bishops.

Max

I didn't think idea would work.

So, what is our project?

After we tried all the above projects, we did a lot of thinking and thought that we should narrow down our project to something simpler, that we could accomplish. All our previous projects were very big and hard to do, for example “the world record project” was too expensive to run or we required legal documents. These projects would be very hard to do, especially since we have a time limit. So, we decided to do something more localized and thought we would have a surf competition to raise awareness. We contacted two surfers from the Bishop’s Surf Club to surf against each other to raise awareness for great white sharks and the shark spotters. This project is much easier and more do-able, because it involves Bishops and we have more control over how the project runs. We have to set a date which could be problematic due to exams, we have to advertise the event and spread the word to get the most people there as possible. After that we have to have the competition and announce the winner - then talk a little about Shark Spotters and what they do and why sharks are so important to the economy and to the environment.

Here’s how it worked

We started by contacting Joe and Jono and asked if they were keen to do a competition. We then asked if we could talk in assembly to tell the school about the event and how it works. This way we can spread the word and get lots of people there. We also had to close a beach where there are a lot of people so that we can really communicate to the public about sharks. However, our hopes weren’t high, because this late in the term most boys are writing exams, or they are on Epic (an adventure the Grade 10 go on to the Cedarburg). Sadly, we never got a reply from either of the boys.

So, we didn’t actually get to do an event that helped the sharks or the Shark Spotters, but we did do a project, this course wasn’t just about finding a problem with the world and trying to solve it. The course is instead designed to educate and teach your life lessons, which it has. The whole purpose of this course is to prepare you for the future and teach about the world. Instead we taught ourselves, it is ridiculous to think of how much we have done, we learnt so much about SDG 14 and great white sharks as well as the

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economy and false bay. We also learnt about communication and we developed skills that will help us forever. For example, we learnt how to write a proper formal email, how to organize meeting, how to interview people and these skills are all extremely beneficial.

Conclusion:

In conclusion we tackled SDG14 (life below) (The Global Goals, 2015), and tried to help solve the shark's problem, because the sharks are disappearing from the Western Cape area and for reasons no one knows for sure and through trial and failure we were able to make a significant contribution to helping the pollution of sharks in south Africa. We examined the problem, but couldn't figure out the main issue, because there were too many articles contradicting each other. So, we went to talk to Sarah Waries a shark expert who works at shark spotters, we learnt about the two killer whales and climate change making everything move east. So, we looked at the problem and thought that by raising awareness and money for sharks and the shark spotters to get the public to support the sharks. People think that sharks are just bad, that they are "man eaters" and that it is a good thing that they are gone. So, we thought of trying to educate the public. When we were trying to find a project there was a lot of argument and no one was motivated and not willing to work, but as soon as we started coming up with ideas we started to click, and we started to work well together. We started focusing on sharks, we started to email biologists and other specialists to ask them questions to speed up the learning process.

SDG 14 and great white sharks have a serious relationship, because white Sharks are one of the main apex predators of the ocean and without them there is a huge gap in the food chain. This gap could either be filled by another predator which could change the food system depending on their eating habits or the gap could be left empty and this would have a catastrophic impact on the eco system. The one question that we were not able to find an answer for is why the sharks left. There are many theories but there is simply not enough evidence to go on.

We think that for the project to last long and be successful we need to get a lot of support and really get people to realize that sharks are very important and are in much bigger danger than we comprehend. Therefore, the public needs to come together and raise

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funds for organizations like Shark Spotters who are doing valuable research and generally taking care of the Great whites while at the same time protecting humans. So, we think that we need to grow and spread the word of our project, in order to increase the support. The project will help contribute to saving the sharks which will in turn help save the ecosystems and keep them in balance and it will help the economy, because the lack of sharks have hit the sharks diving industry hard, because many tourists and film makers came to see the famous sharks leap out of the water, and some organization were taking up to 50 people a day, and to go on this trip you had to wake up very early which encourage people to stay in the local BnB's and hotels, as well as eating in the nearby restaurants.

We think that as a group we work really well and were able to communicate and were able to identify and work to our strength. At the beginning of the project we were able to identify our strengths and weaknesses so that we knew what each other were good at.

	Strengths	weaknesses
Chevalier	Grammar and attention to detail and good public speaker. He also organized the meeting and is very good at communicating.	Easily distracted and sometimes just can't work.
Max	Creative, and came up with lots of our ideas, he also brought a chilled vibe that allowed us all to keep calm and focus.	Can't concentrate for long periods and is hard to get him working, but once he starts, he works hard.
James	He is very committed and works hard. He is very	He can get quite stressed and worried, and he not

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	emotional and competitive which can be bad sometimes.	very good at communication. Sometimes doesn't like working.
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Reflecting on this project, we found that we should have started to find project earlier, because all though it seems like a long time to the dead line at first in the end it takes long to organize meeting and outings, not to mention the project. Especially when you must email people, because people take forever to reply, and it can be very demoralizing and makes you very angry. It also delays everything so, if we had to do the project again, we would start right away and try to find and organize a project as fast and as early as possible.

Some facts about us and this project

- We spend over 280 hours on this project.
- The document was created on the 10/10/2019 at 9:47pm, but we started working on a separate document before this that started on the 03/09/2019
- That means we worked on this document for 70 days
- And worked for about 3 hours a day on this.

Pros and Cons of big ideas course.

We found the big ideas course very easy and very difficult at the same time, sometimes we hated it and would get so angry, because of how it tests you. The course gives you a lot of freedom and lets you think for yourself, which after all my years of schooling and learn from text books than writing the same thing in test, made it a very hard transition. We think that the thing we hated most was relaying on other people, because they are uncontrollable and no matter what you do it is up to them to decide to do the task or not. we struggled a lot with group work as a result of this, because we hated relaying on members of our group to do work, because it meant that we wasn't in control so if one persons fails we all fail and this caused a lot of stress and anger for me, because we tend

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to take things way to seriously and when someone didn't do something for example we can get every stressed and annoyed about this. we also hated waiting for people to reply to messages or emails (which is also a uncontrollable), because it make everything take so long and delays activity and processes that need to be done before a deadline, this can also be very stressful especially coming to the deadline for your project and you are waiting days for people to reply. We also think that having the deadline so close to exams is very inconvenient, because if you are trying to do a event of a socials of some sort, like we did, a lot of people don't come, because they are studying for exams. Although these things seem very negative, they teach you very important lessons, like time management, collaboration, teamwork etc. And these are skills you will need for the future in order to be successful in life.

Overall, we have really enjoyed the freedom and responsibility that we get during the Big ideas course and how much you learn, it can be very stressful just relaying on yourself and not having any instructions from a teacher or guidelines to go by. But this process really teaches you to manage your time and how the real world will be. It can be very stressful and daunting, but if you manage your time and play to your strength you will be able to make thought it and you can manage. You need to have people you trust and rely on to help you out and have your back, because sometimes you need that extra help, because things happen that are out on your control and a closing as your friends or family member can help you cope with the problem and work past it.

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Questions that we asked Sarah Waries:

Q) When did the sharks first start disappearing and how did you notice it?

S) They started to decline in number in 2015, and they noticed this by the number of shark's spotting's and activity on the tagged sharks.

Q) Where do you think the sharks have gone?

S) They think that the sharks have moved east up the coast, because there has been an increase in shark activity in Plett and Knysna.

Q) What other causes could be affecting the shark's disappearance?

S) There are two killer whales that have been eating sharks and that could have scared them away or climate change could have moved their food sources east, because of the increase in water temperature.

Q) What apex predators have taken the places of the Great white?

S) The sevengill sharks and bronze whaler fin sharks have many taken the place of the great whites, feeding on the seals, and other fish.

Q) What are these new predators feeding on?

S) The sevengill and bronze whaler fin sharks are feeding of mainly yellowfin and seal pups, which is pretty like the great white's diet.

Q) a. How does this effect the seal colonies for example?

S) The seals colony is not affecting a lot because of the sevengill and bronze whaler sharks feeding on them

Q) b. And how does that then effect the seals food sources?

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S) They are also not effect, because the seals are still the normal population same.

Q) How does this effect the balance of the ecosystems?

S) The ecosystem is still balanced, the only thing that has changed is the increased activity of sevengill, and bronze whaler sharks.

Q) What can we do to help (as the public)?

S) Unfortunately, there isn't much that the public can do to help this problem, because there is still a lot of uncertainty over the cause.

Q) How did the appearance of the two killer whales effect the shark population?

S) The killer whales have scared the sharks, and every time the return the sharks run away, there are two whales that specialize in eating sharks and only eat their liver, for it nutrient value, and now every time they show up the sharks move east and don't come back.

(Warries, 2019)