Catching plastic by the bottle-neck



Cleaning Cape Towns Waters

Making our waters cleaner for all



By Oscar Baum, Max Cary, Murrough Epstein









Contents

Introduction	3
Body	5
The Unfolding of our first idea	5
How did we come about this idea?	5
Stage 1:	6
Stage 2:	8
Stage 3:	10
Outing part 1:	10
Outing part 2:	11
Outing part 3	13
Stage 4:	14
Our second idea	16
Our third idea	17
Our outing to meet Michael Ryder	17
Conclusion	20
Reflections	20
Personal reflections of our project unfolding	20
Group reflection	22
Bibliography	24

Introduction

Throughout recent years the whole world has come to realize that our ocean is in a lot of trouble due to people's negligence when it comes to handling their waste. Our group consists of three members them being Oscar Baum, Murrough Epstein ,and Max Cary. From the front page, you can probably realize that our group's project goal is SDG 14

(Life below water).



Figure 1 Our group – Taken by Felix de Bruin

The UN stands for the United Nations and it's is a collaboration of different governments to maintain peace and develop relationships among nations. To achieve this the UN created the SDG's which are the sustainable development goals and consist of 17 goals that tackle all sorts of problems throughout our current nations.

The UN stands for the United Nations and it's is a collaboration of different governments in order to maintain peace and develop relationships among nations.

Every year more than 8 million tons of plastic are dumped into our oceans (Conservancy, 2019). We see the Oceans plastic epidemic as one of the biggest if not the biggest threat to our marine life.

We all chose SDG 14 as we all have a common goal which to help clean our oceans and protect the animals living in them. We all were lucky enough to be able to have this opportunity to be able to work on we what are interested in.

Given our outlook on this situation, we think it's fitting that the exact problem we'd be targeting in our SDG is reducing the amount of plastic in the ocean. Through this, we would be helping reduce the amount of plastic pollution in the ocean and help promote rehabilitation of marine life.

Our first and initial Big Idea came about right at the beginning when our group had just come together. We ran with this idea and all was going well. We hit a rough patch and our focus shifted.

Oscar's Reflective bubble: At the Beginning we were confident and motivated. We worked through our ideas and thought of ways to use them. Although we had many extreme ideas, we thought that the nets were the most viable option that wasn't too complicated and would make a big enough of an impact to be worth it. It felt good to have an idea and not even experience the cloud that we had been warned about.

This shifting in our focus quickly lead to us going on a research-based outing to the V&A Waterfront. Here we met Julian Kruger who's head of waste management at the V&A waterfront, we also met with some of the men who help keep the harbor clean. This took place from the last week of the third term and onwards.

This outing was influential in the progression of our project. After the outing, we decided that our new-found momentum would be channeled towards our project. This project consisted of implementing nets on the Black River to catch plastic in the river before it reaches the ocean. We chose the Black River for several reasons, it is close to Bishops, so we have easy access to the area, it is a massive contributor to the plastic in the ocean.

According to News24 over three hours, twenty-five volunteers managed to collect 128Kg of plastic bottles, 19kgs of polystyrene and 14kgs of plastic bags (News24, 2019) This was confirmed by the men working on the Sweeper, the trash collecting boat that cleans the waterfront. This is a devasting fact and that's one of the reasons that we chose the black river.

We feel that by trying to implement this project we will be contributing to SDG 14. SDG 14 is so important to all of us because we all love spending time in the company of the

ocean. Whether that we enjoy this through surfing and sailing or even fishing we all feel that by helping to make a difference in the protection of our oceans we will also be contributing towards our happiness and that of future generations.

Throughout this narrative, we will take you through the different stages of our first and initial idea. Due to the time frame, we moved on to a second idea which will also be run through in this narrative.

Body

To be frank, we did not spend more than one small lesson doing research. During this lesson, we stumbled upon the idea of the stormwater nets system. Given the terrible fact that only 5% of plastic in the ocean floats on the surface of the ocean yet just that small percentage contains so much plastic (Jenny Griffin, 2019). This is just one small fact of the mountain of figures that are deeming that the ocean is dying.

Given that and the fact that our group's goal is goal 14, life below water, we thought that trying to implement these stormwater catchment nets in Cape Town could be something that we could do to help protect our oceans. This was the start of our first idea.

The Unfolding of our first idea

Our first idea consisted of putting detachable nets on the end of stormwater systems. This way any plastic or pollutants that are swept into the stormwater drain off roads in the rain will be caught in the nets before it exits into the rivers or lagoons that will lead to oceans where this plastic will cause further damage to our natural systems. We will break how this plan/idea unfolded into 4 different stages.

How did we come about this idea?

Max had seen pictures of these nets on social media prior to the project so when we were all brain-storming as a group, Max mentioned it and Oscar had also heard of them, so we all got on board with the idea and started working straight away.

Stage 1:

This was our research stage where we talked to likeminded people. We just simply googled "drain nets" and it came up with the pictures of the nets and where they were implemented, the city of Kiwanawa in Australia. We googled who is the mayor of Kiwanawa and Carol Adams came up we got her contact details and sent her an email explaining what we are wanting to do and if she could give us any information that could help us. We asked her how they did it and what problems they faced implementing the nets on their stormwater drains. Carol Adams put us in touch with the city's head of infrastructure, Doug Elkins who gave us a basic rundown of the net system and how it works and linked us to the company that made it for them (Ecosol, 2018)



Figure 2 Kiwanawa implantation of drainage nets successfully captures 370kg's of rubbish waste (Utaraite, 2018)

Too much of our surprise we got a prompt response from a foreign mayor. She put us in contact with their towns head of water and infrastructure who gave us their designs for the stormwater plastic catchment systems. We were very surprised to see how easy it was to contact and communicate with high up foreign government workers.

We realized that although the system they had there was highly effective it was also highly costly so we decided that we would make modifications to the design to make it less costly, these modifications involve using recycled nets from old fisherman and instead of having a detachable system have a solid one that does not move and requires labor in order to clean the nets Some of these designs even involved integrating old fishing nets to be recycled and used. This way we could also be reducing the amounts of ghost netting in the ocean that's caused by Fisherman and can be highly detrimental. Ghost netting is when old fishing nets that fishermen no longer want are through overboard into the ocean (Wikipedia, 2019). This is so detrimental because marine life can get caught in it and die.

After this, we decided that we needed other alliances in Cape Town to implement these systems. We decided that is would be best to form a relationship with officials and the local municipality for water and sanitation in the areas of the waterfront and Paarden Island which is where we wanted to implement these nets. We very quickly learned that contacting South African municipalities can be very difficult and sadly their efforts cannot remotely be compared to those from foreign countries. While we were going through this tiresome process of trying to contact the South African government, we found out that a similar project was going forward in Gansbaai on the West coast. The Gansbaai project had been named project Storm, only two nets had been implemented but they were highly successful and were catching all sorts of rubbish before it entered the ocean.



Figure 3 Nets catching plastic in Gansbaai (Kirsten, 2019)

We proceeded to contact and communicate with the person heading up this project. She informed us that there were other people in Cape Town who were like-minded and put us in contact with them. Through this we thought/ were hoping that we'd be able to work together with the help of these Brenda a woman who heads up the nets in Gansbaai to implement our awesome project.

Stage 2:

This was a long and tiresome stage in the development of our project. Everything fell apart and we failed to amount to any forward momentum. Everything that we had planned and thought meticulously had fallen apart. The reason this all had happened was due to one main factor, it being that communication is a complete problem in South Africa. After countless phone calls, 10 emails, messages on Twitter and LinkedIn communication with anyone we had plans to have alliances with fell through. This left us in a complete halt for any progress.

Murrough Epstein reflective bubble: This is one of the most frustrating things' that happened throughout Big Ideas in my opinion. To have plans that could very potentially be successful not even have a chance to develop just because of a small thing like communication is very frustrating. I think this demonstrates that in this day of age everything is about power, and contacts and it can be hard for "small fish" to make a big Impact. But we kept on trying and in my opinion that's what count's.

During this time, we came up with some other ideas including creating reefs and kelp forests using cleanly stripped old unusable cars, because we were seriously considering trying to pursue a new idea.

One of these ideas had to do with creating artificial reefs. These reefs can grow and thrive because the area's where they are made are picked for its particular conditions, the old cars also can act as shelter for many different marine species (Parke, 2015).



Figure 4 Artificial reef made from and old tank (Simon, 2019)

One of the last ideas we had was involving harnessing the tides and nets to catch plastic at certain times of the day (Lavas, 2019).

After the time we spent brainstorming we decided that we no longer wanted to have to rely on the government and thought about keeping our original idea and just moving our implementation sites to make it easier for us. The place we thought of happened to be the Waterfront canals and harbor.

Stage 3:

This is our most productive stage by far, this is the stage where we managed to communicate would the V&A waterfront managers and go on a research-based field trip. We figured and learnt from our mistakes last time and realized that we had to use all the advantages that we have in order to get to a stage of communicating with the V&A. Thanks to one of our group members, Oscar having a well-connected dad, he managed to organize a meeting/ research-based outing with the cleaning manager, head of sustainability at the waterfront and the boat crew of the sweeper boat.

Once Oscar and his dad had organized the meeting with the waterfront, we did research on the layout of the waterfront canals and harbor. The waterfront canals are raised above sea level and the water is pumped in using huge pumps, this means that theirs a point in the canals where water from all over the canal system is let out at a regulated speed back into the harbor (waterfront, 2019) We also looked into how our nets would work in the waterfront layout, but we could not get very far due to the fact that there was a lack of information on the internet. We had hoped that this outing would give us a chance to find out this further information so that our project could progress.

Outing part 1:

Oscars dad picked us up from Bishops at the start of the long break and we started heading to the Waterfront. We were dropped off at the head office for the managers of the V&A waterfront. Upon first glance I think these were some of the coolest offices I had seen, they looked like they had designed it to be interactive and modern.

Promptly upon arrival we greeted and where told our itinerary for the day from. After this we met Josh who oversaw the canals and harbor and their sustainability in the V&A waterfront. He informed us about the growing amount of marine life in the canals and the project that they run with the Aquarium to have marine animals in the canals. We found this interesting and it was nice to see that the waterfront where co-operating with other corporations in order to become more sustainable and Eco friendly. He explained their canal and harbor plastic clean up system. This system consisted of two boats one being small for the canal and the sweeper boat which was

bigger for the harbor. Both boats would have one driver and one person who would use a net to scoop up any sort of rubbish he sees.

Murrough Epstein reflective bubble: I was thrilled to see that their where big companies that were putting time towards maintaining our oceans and ecosystems. It was good to see that the men working on these boats new that they were making a difference and where very happy about it. I think if other "big" companies can follow in the V&A waterfronts foot set's that our earth would be a lot healthier than it is currently.

Outing part 2:

We were lucky enough to meet the men who operated on these boats and we got to go out into the harbor with them. We noticed that this was highly labor-intensive job, but even including this factor the men where highly enthusiastic which was great to see. We believe that this was the most impactful part of our outing. We got to see in person how much plastic there really is. They explained which boats and companies spread the most plastic into the ocean and are the most harmful.



Figure 5 Sweeper Boat tour – Taken by Max Cary

However, it was not only the amount of plastic that shook us. It was also the amount of large fishing vessels there where and to the extent that they operate. This really outlined to us how horrific and damaging the fishing industry is to biodiversity in our Oceans. We were also pleasantly surprised to find out that their where fishermen who were aware of the plastic problems and on occasion would even help them clean up the plastic.

Throughout this boat ride we also found out that the waterfront had already implemented their own system to filter out plastic and waste from their stormwater systems before they

reach the canals or harbor. Although this is great and shows that people and big companies are trying to help our oceans current situation, it did also mean that our project would once again maybe have shift and change.

We found out that there are about 70 black bags worth of plastic carried into the ocean by the Black river every day. The men on the boat with us informed us that on days when the common South Easter wind blows the plastic that goes out the black river drifts and is blown into the V&A harbor giving them a much bigger workload.

While this was bad news it also meant that we had a great alternative. This being our newly thought of site, the black river. The Black river is the perfect implementation site because it is a tributary of three other rivers. The Liesbeek, Salt river and Elsieskraal river are the three rivers that join to make the Black river (Wikipedia, 2019).

This is helpful to us because it means that there is three times the amount of plastic and you can clear plastic coming from different area's in one go. Fifty five percent of the river is canalized meaning that controlling the net's will be easier and more controllable. One last good reason for implementing the nets here would be that it is relatively close to Bishop's and a difference will be easily seen.

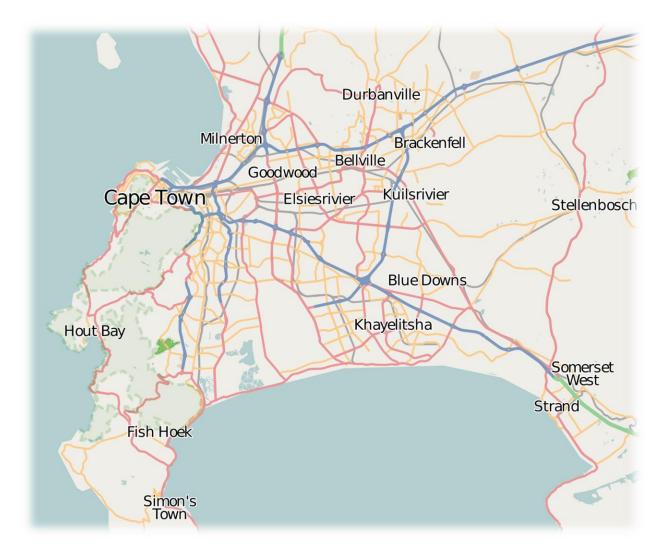


Figure 6 Map of Cape Town's rivers (contributors, 2011)

Outing part 3

After our amazingly informative boat ride we met Julian Kruger the head of cleaning at the V&A. She proceeded to drive us round to the V&A waste plant. During this drive she told us about the punishment that the tenants receive if they don't separate their waste properly. Every tenant in the V&A has to separate their waste into organic, unrecyclable, recyclable and wet. The V&A collect bins from the tenants twice every day. If the bins are not separated into the correct sections, then they get charged a R40 fine per bin. This means that a lot of tenants work hard not to cross contaminate because if they day the R40 fines can add up to big fines.

Once we got to the waste plant, we were introduced to some of the staff and shown a presentation that informed us on how the V&A runs and is sustainable. We found out that in the waste management system there are as many as 87 employees who work 24-hour shifts to keep our ecosystems clean. After the presentation we walked around and witnessed the plant at work. This was extremely interesting, and I think we by far enjoyed hearing one of the female staff members singing the most.

Throughout this outstanding outing we learnt that it turns out that the V&A waterfront are very well managed and if there's a place for improvement we won't really be able to do it.

Oscars reflective bubble: This outing was just what we needed, it gave us a renewed energy and a way to work around the government, we were initially disappointed that there wasn't much for us to improve on, but it gave us new direction and support. This put us back on our feet and started to build our momentum once more

Stage 4:

We decided that through our findings about the Black River that this would be a great place to start off our project. The Black River is absolutely infested with loads of plastic. We believe this is because it passes through areas where plastic is in high usage and there is still a large disregard for the disposal of plastic. These are areas such as Paarden Island (a factory area) and the Cape flats.

Murrough Epstein's reflection: Sadly, a lot of people in the Cape Flats have so much adversity in their lives that something like keeping the sea's clean is not exactly on their minds. This is a big problem for anyone who is trying to tackle a problem in a poverty-stricken environment.

We believe that given that the V&A waterfront regularly use their resources to clean up their harbor and their waters from plastic that originated in the Black River they might be willing to assist us with our conquest to clean it up and in turn keep their harbor clean.

Some of our rough plans for the nets in the Black River consisted of, many designs however with consultation from an engineer friend we settled on two designs for different scenarios our first design is a modified version of Ecosol's trash rack system. We

Cleaning Cape Town's Waters – catching plastic by the bottleneck

discovered Ecosol through our connection with Carol Adams as Kwinana uses their systems.

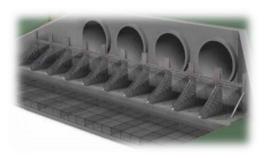


Figure 7 Ecosol Trash rack (Ecosol, 2018)

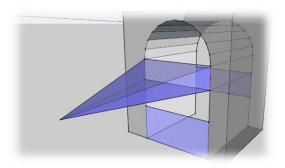


Figure 8 Our modified version

This was our idea to use on bridges such as the train crossing next to the river club. We



Figure 9 Train Bridge (Shange, 2018)

also had plans to maintain the nets by working with friends of the Liesbeek (Anon., n.d.) who were happy to take care of the nets and empty them while The recycling team at the waterfront have offered to take care of the waste treatment.

Sadly, the main factor holding us back from completing this project is definitely the fact that there was not a lot of time to implement anything especially after it took so long to get a final implementation site and plan. Due to this we decided to try look for a new idea that we could try implement in the little time we have left.

Our second idea

Max Cary Reflection bubble: After our first idea which was to put nets on Cape Town's storm water drains, we were very motivated and really enjoyed the potential outcome this idea and when we got a prompt response from the mayor of Kiwanawa Australia, Carol Adams we got the ball rolling and the first obstacle we hit was the south African government which eventually ended our idea. As we could not get a single response after contacting them on every platform possible. If the government wasn't going to answer us, we thought Private companies would so our next target was the Victoria & Alfred Water Front. We went on a tour there and we had a look at all they are doing to stop plastic entering their harbor and eventually our sea. We were pleasantly surprised as they are doing more than needed and that's where we wanted to help by Reducing manual labor needed to keep the harbor clean by just putting our plastic catching nets but in this situation the jobs are more important than efficiency which is understandable in South Africa's terrible unemployment situation.

Knowing that there is a is only a few weeks left for us to complete a project our first and initial idea will not exactly be able to be carried out by us. This is where our second idea started forming. We want to have implemented something by the end of Big Ideas, so we started a new process all over again. We were again. We were brain storming and doing research, but an idea was not coming through. One idea that came about was trying to implement bamboo Toothbrushes and biodegradable soaps in the Boarding houses so that Bishops could be making a difference. We were difference. We were going to do this by creating a recommendation list for grade 8 new boys joining the boarding house and supplying the soap in the Bathrooms.

After thinking about this and receiving a valuable opinion from one of our group members that is a boarder, we decided that this idea would not work well in a Bishops setting. Max thought this wouldn't work as he is a boarder and he understands the boarding house environment better than anyone as he brought up a great point, every boy has different preferences when it comes to personal hygiene from electric toothbrushes to what type of deodorant and doing this would be a waste of our time in the Big Ideas Corse as they would just use what they prefer. This step was important as it was a stepping stone to our next idea. So, our search for a new idea carried on.

Our third idea

Our research continued and we discovered through social media that there had been nets successfully implemented in Zandvlei by a man named Michael Ryder (News24, 2019). We proceeded to contact him because what he was doing was along the same lines as what we wanted to do in our first idea. We organized a meeting with him at his net's site in order for us to find out more about the process he went through with his nets. This is when our second idea started coming through. We wanted to try connecting bishop to projects like this in one way or another.

Our outing to meet Michael Ryder

On Monday the 4th of November we went on an outing to Marina da Gama to meet Michael Ryder. We used an uber to get they're and the journey was interesting to say the least. We definitely saw lots of things that we wouldn't see on a normal day as we drove through areas that we normally wouldn't. We would not normally see these things as we drove through these area's because these are societies on the fringes that we would not normally drive through.

Once we got to our destination we met and briefly spoke with Michael before we were off to see where most of the plastic was entering the canal system. This happened to be a dumping site on the side of the road where bakkies just pull over and throw all their stuff beside the canal. When there is rain all plastic comes down the canals in one big wave.



Figure 10 Wave of plastic after heavy rains – Taken by Max Cary

This is so sad to see. Most of the people are dumping their plastic and rubbish like this because the city has not provided them with a better alternative. People in this

environment do not have a care in the world about things like global warming and pollution because it does not directly affect them, and their lives are already so difficult already that they can only try and change what they see directly affecting them. Fighting this problem would be very difficult to do and the best way to try stop this would be at the source.

After that we were shown the actual nets that have been implemented in the canal lower down. These nets are well designed and where implemented by Michael Ryder and a few other of his fellow residents. These nets require labor intensive work in order to be cleaned and this was not sustainable for the residents to carry on doing. They spoke to the council and now the nets are cleaned every third day, before and after bad weather by the council. This was great to see that the council where taking some action to try make a difference. Well done on their part.



Figure 11 Empty and clean nets thanks to council – Taken by Max Cary

On the other hand, the council is not doing much about the illegal dumping situation and at least trying to stop people from dumping or even adding an alternative. Michael showed us the places he has seen residents of the area dumping their garbage. He has told the council where it is happening and even what times the bakkies normally come and they have not done anything to help the matter. Ryder suggests that they should put ballads in place so they bakkies cannot reverse right up next to the canal and just dump everything or put up CCTV and apprehend the people dumping.



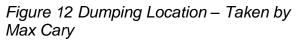




Figure 13 Variety of items dumped – Taken by Max Cary

After going on this outing, we decided that given the time we have left that our best bet to actually do something in the time we have left is through publicity. We have taken and received a lot of footage through our journey on Big Ideas and we are going to use this to create a video that we hope will open the eyes of the people in Cape Town. This video will be posted on different social media accounts so that people from all different walks of life will see it in order to have the biggest impact possible. At the end of the video there will be a link to go fund me so that if people feel like they would like to make a difference they can put a small donation towards the cause. This money will go towards the cleaning and upkeep of the Black River. This is our small project that we will be attempting to complete before school ends this year.

Conclusion

Our SDG was number 14, Life below water. Our objective was to protect our oceans and the life in them by preventing plastic from reaching the ocean. We decided to so this by using a net system in rivers and canals. Our plans didn't work out as we had hoped. We ran into many problems with getting permission and contacting council. This halted our project and caused us to choose a new version of the same idea. The new plan to use the nets through already existing organizations solved our government problems however we ran out of time to finish the idea at this point. Even though we didn't complete the project we did enough research to realize how important this is to our SDG as animals under water struggle with pollution and plastic getting in the way of their life by implementing nets, we would reduce the plastic in the ocean and save many sea animal's lives. This effort was unfortunately undermined by logistics with authorities which was the main complication to our project. Due to the many connections we have made a possibility has risen for us to hand over a project like this to the friends of the Liesbeek and The V&A recycling team to keep the project going. If someone were to take this project, we would recommend that they contact us and we will give them all the details so they could look after the project and solve any issues that are sure to occur. If next year no one takes on this project here is the advice they should hear. Don't attempt projects that rely to heavily on big parties like the government, if you do rather work through an already existing organization.

Reflections

This course has been a roller-coaster ride of experiences with all three of our members having very different opinions. Below are some final reflections and thoughts about our time spent in the Big Ideas program.

Personal reflections of our project unfolding

Murrough Epstein: I believe that the big ideas course has been somewhat interesting. Filled with new experiences and surprises I have learnt a lot. With complete certainty, I

can say that just about everything that I have learnt in the big Ideas course would not have been learnt in the normal classroom environment.

Throughout the unfolding of our project I have realized the importance of self-control. I believe that this is something that the Big Ideas course teaches very well compared to other teaching methods. To me frustration has been very common in the unfolding of our Big Ideas project. Frustration is also something that normally only the person feeling it has the power to make it go away. I think that due to feelings of frustration while we were trying to get to an implementation state of our project, we were slowed down a lot. From this I have learnt that a lot of the time even something that's flawless in theory can be halted by one small external factor.

Oscar Baum: I enjoyed the Big Ideas course. In the beginning I was frustrated because the things we were being taught were, in my opinion, quite basic because I knew most of what the teachers taught us already. However, after the first few weeks the teachers opened up into a much more effective style of lessons where we could go at our own pace. I began to enjoy the classes as I had more freedom and we were allowed to learn rather than being forced to be taught. I felt more motivated and came out of classes with more then I got out of normal lessons.

The project was a slightly different story. We started great and it felt like an even better version of our class. We were full of ideas and going well until we hit our first problem. It felt like a brick wall. It left me confused but we kept trying and pushing for weeks until we realized we were pushing in the wrong direction. This was my biggest lesson. I was so focused on the task that didn't look at the whole picture, of course we thought of out of the box ideas, but they were all trying to do the same thing. I had stepped back and looked at the problem but not our whole project and so it took a long time to find another way forward. This is how I learnt that there is always a bigger picture to look at and another box to think out of, it's all about learning how far to go. Big Ideas has taught me this and so much more, so while it is frustrating and seemingly arbitrary if I was in the second term of Grade 9 again, I would still choose Big Ideas.

Max Cary: The big ideas course has been an eye opener for me. The course has showed me different ways of thinking and taught me skills that my classmates and I will need to change the world. Our coaches have told us time and time again we are the generation that has to change the worlds ways and they have equipped us to do that. We have been learning about the UN's sustainable development goals and what we have to change to achieve them. We started off by learning about each goal in our different subjects all 17 of them. After we had a basic understanding about all the goals, we were brought into a class with pictures of each SDG stuck on the walls and told to stand by the one that felt related with you the most. This is almost a representation of the Big Ideas course in its self the coaches gave us very open-ended guide lines and said run with it and don't stop.

This style of teaching is very effective when motivated as our group did more work in a week than others did in a month, but it is very hard to keep that up as we later found out when we hit a dead end. This is where I think maybe a little more classroom like teaching would have been when we were forced to work. We later found a Facebook post of nets in Zandvlei. We met with Michael Ryder the man the implemented the nets and he showed us around, like where the plastic gets into the river and where the plastic is collected by the nets. I really don't think we can stop the plastic getting in from the people as we saw while we were there the people living in the areas surrounding the river are in poverty and the river being clean is not one of their priority's. So once again we were reminded that everything is inter connected as if you solved the poverty the people living around the canals would have the time to worry about the environment and not where the next meal is coming from. This really made everything that Mr. Noel was talking to us in third term Finally was clear as I had an example I could see and relate to. I really felt everything we were learning was relevant and will be useful in our future. Therefor I think the Big Ideas course is a must to experience and work on for any grade eight next year who is considering it.

Group reflection

We all felt very different things throughout this time but there is one common thread. The fact that we are all upset about the amount of professionalism that the South African local municipality had. This very clearly helped illustrate to us how in world controlled by hierarchies and mega powers it is important to have contacts and stay connected

Cleaning Cape Town's Waters – catching plastic by the bottleneck

because if you don't it is very likely that no matter how strong your idea or opinion is it won't get anywhere because it has come from the "small fish".

We believe that this is one of the most valuable lessons we have taken from the Big Ideas course and we hope that we can learn from this experience to so we can do better in the future and help some people along the way.

Apart from that many other life lessons have been learned and a feeling of making a difference. Although we never got to a stage of implementation of our project we still tried and learnt a lot which is all part of the journey. We feel that we made a difference in the way that we voiced our opinions about the situation that our ocean is in as well as the fact that we also informed people about the state our oceans are in and proved that even "Bishops' boys" care about something that might not be to our immediate benefit.

We have enjoyed the Big Ideas course and are hoping it will carry on evolving and allowing boys to experience new things even at school.

Bibliography

Anon., n.d. Friends of the Liesbeek. [Online]

Available at: http://fol.org.za/

Anon., n.d. One mans where on the Capes plastic waste.

Conservancy, O., 2019. Fighting for trash free sea's. [Online]

Available at: https://oceanconservancy.org/trash-free-seas/plastics-in-the-ocean/

[Accessed 20 October 2019].

contributors, O. S., 2011. File:OpenStreetMap Cape Town small.svg. [Online]

Available at: https://en.wikipedia.org/wiki/File:OpenStreetMap Cape Town small.svg

[Accessed 6 November 2019].

Ecosol, 2018. Ecosol. [Online]

Available at: https://www.ecosol.com.au/

[Accessed September 2019].

Kirsten, E., 2019. Trash traps installed in Gaansbaai. [Online]

Available at: https://www.getaway.co.za/travel-news/trash-traps-installed-in-gansbaai/

[Accessed 9th July 2019].

Lavas, N., 2019. Reducing plastic in the ocean. [Online]

Available at: https://newatlas.com/environment/ocean-cleanup-rivers-plastic-the-interceptor/

[Accessed 27 october 2019].

News24, 2019. black river clean up. [Online]

Available at: https://www.news24.com/SouthAfrica/Local/Peoples-Post/cleaning-up-black-river-

20190520

[Accessed 21st of may May 2019].

News24, 2019. Black river plastic clean up. [Online]

Available at: https://www.news24.com/Video/SouthAfrica/News/watch-volunteers-collect-128-kgs-of-

plastic-bottles-from-cape-town-river-in-3-hours-20190824

[Accessed 24th of August August 2019].

Parke, P., 2015. Artificial reef's. [Online]

Available at: https://edition.cnn.com/2015/02/26/world/subway-cars-coral-reef/index.html

[Accessed 27th feburary 2019].

Shange, Z., 2018. EWN. [Online]

Available at: https://ewn.co.za/2018/04/12/city-of-ct-urban-environment-to-blame-for-black-river-

pollution

[Accessed 7 11 2019].

Simon, M., 2019. Recycle nation. [Online]

Available at: https://recyclenation.com/2011/03/coral-reefs-recycled-sunken-vehicles/

[Accessed 6th november 2019].

Cleaning Cape Town's Waters – catching plastic by the bottleneck

Utaraite, N., 2018. Australi's rubbish catching net's. [Online]
Available at: https://www.boredpanda.com/drainage-nets-catching-trash-kwinana-city/?utm_source=google&utm_medium=organic&utm_campaign=organic
[Accessed 18th March 2019].

waterfront, V., 2019. *The Layout of the V&A waterfront*. [Online] Available at: https://www.waterfront.co.za/map/ [Accessed 25th of october october 2019].

Wikipedia, 2019. The Black river, Cape Town: Wikipedia.

williams, D., 2019. Ocean clean up. [Online]

Available at: https://edition.cnn.com/2019/10/02/tech/ocean-cleanup-catching-plastic-scn-

trnd/index.html

[Accessed 3rd October 2019].