

BIRDEN

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LUNDS
UNIVERSITET

Project name: Birden

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Main field of study Industrial Design

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”The world is a dangerous place to live; not because of the people who are evil, but because of the people who does not do anything about it.”

– **Albert Einstein**

Abstract

Plastic is harming life below the water surface as well as land-living animals, including ourselves. It is now a part of our food chain and it's in our drinking water. Instead of saying: "The Blue Planet" we will soon be saying: "The Plastic Planet".

In this project you will see my artistic interpretation of the problems with plastic pollution. The inspiration and understanding of the world-wide problem started with a single photo which gave me, as a designer, a personal connection that became the root for this project.

My first idea was that I wanted to create something out of recycled ocean plastic. I wanted to contribute to ocean clean-up and somehow create a design paradox. Nonetheless, even though recycling is great, scientists and according to what the research revealed, it's not going to be the solution.

The project is not intending to solve the problem, but more as an approach to use design to reflect upon what's happening in the world. Environmentalism should be a norm and knowledge should be a source of inspiration. This project is exploring a way to accomplish this, while using only subtle form language.

Problem background

We humans have created a world that is dependent on plastics. We cannot imagine a functioning world without it. This fantastic material is flexible, lightweight and moisture resistant. It can be strong or soft, colored or transparent. As the material is versatile, so are the problems caused because of it. This project is inspired of the problem of plastic pollutions in the oceans.

In 2050, there will be more plastics in the oceans than there are fish, according to a recent prognosis. 8 million tons of plastic are entering the oceans every year¹. Plastics in the oceans are harming the life below the water surface as well as animals on land. One study found that 94 percent of the petrel birds of the North Sea had plastics in their bodies. On average they had 34 pieces of different plastics. Plastics have also been found in invertebrates such as nudibranchs and jellyfish.

Much of the marine debris, through ocean currents, unite in large clusters. One of these clusters have become very notorious and is called 'The Great Pacific Garbage Patch' and is the largest accumulation of ocean plastics in the world. The size is, at the time of writing, three times the size of France. To emphasize that this pacific trash vortex is continuously growing². In summary, the problems connected to plastic pollutions in the oceans are of unimaginable proportions.

How did it get there? Most of it are plastic waste that has been thrown in the nature, on streets, or from trash bins that are already full. The wind and rainwater are then carrying the trash to the drains or rivers which leads to the oceans³. This behavior is upsetting for many people and has led to campaigns that makes us more aware of our plastic consumption and encouraging people to stop using plastics as much as possible.

It is hard to envision a world without plastics. Imagine a cucumber without a plastic wrap. Thanks to the plastic, rehydration and potential damage is prevented and it also ensures that the cucumber lasts longer in

the grocery store or in the fridge⁴. Food supply chains are heavily dependent on plastics and food is connected to how our societies function. Plastics are also hugely important in modern healthcare such as packaging medicines. While plastic is a dangerous threat to our planet, it is also saving our lives and getting rid of plastics would change everything.

It is ironic that plastic is the world's most wasteful material. People are doing their best to recycle their plastic waste and sorting the trash into the correct trash bin, but when it is finally transported to the recycling center; it gets burned. It is profitable for local authorities to burn plastics since the heat and gas from burning the material are turned into energy⁵. Sadly, environmental toxins are released during the burning process in the bargain. While recycling plastics is much more energy efficient than creating virgin plastics, only 8 percent are being recycled. The reason why this number is low is the fact that the market for recycled plastics is weak.

¹ <https://www.scientificamerican.com/article/world-s-oceans-clogged-by-millions-of-tons-of-plastic-trash/>

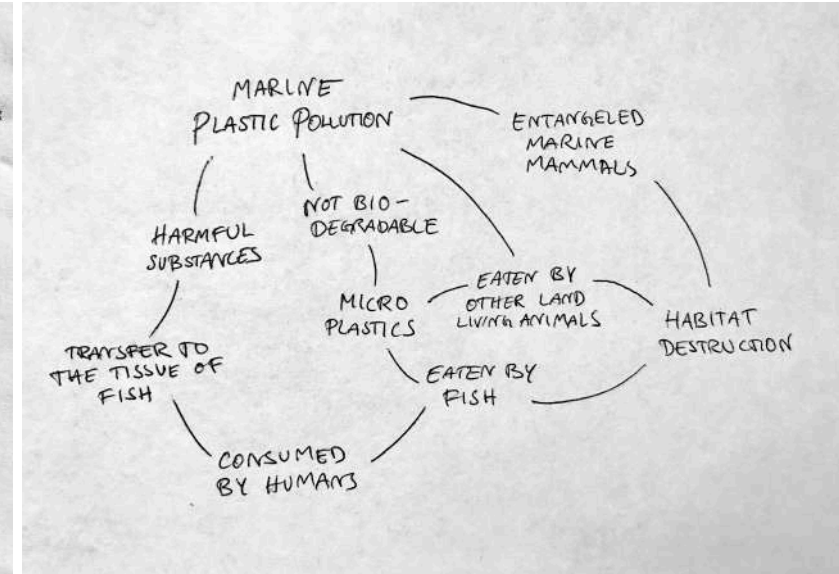
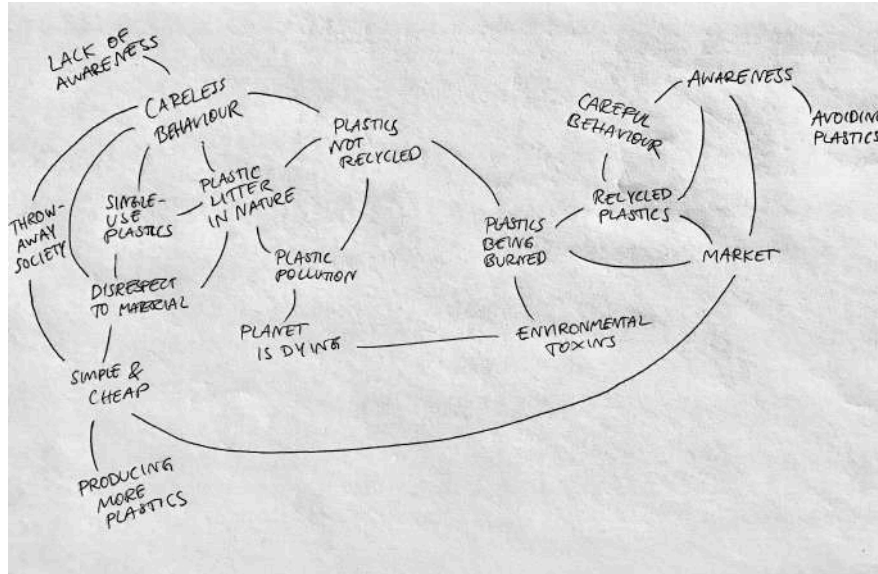
² <https://edition.cnn.com/2018/03/23/world/plastic-great-pacific-garbage-patch-intl/index.html>

³ <https://www.greenpeace.org/new-zealand/story/how-does-plastic-end-up-in-the-ocean/>

⁴ <https://www.thekitchn.com/why-are-some-cucumbers-at-the-grocery-store-wrapped-in-plastic-246306>

⁵ <https://fof.se/tidning/2003/5/artikel/atervinna-eller-branna?fbclid=IwAR16dXjOYaeTs0RYy1w0CYLQpEORsTdYiCF4N1qnTCs4-HAOYR-wLKMj7jc>

Reflections of marine plastic pollution



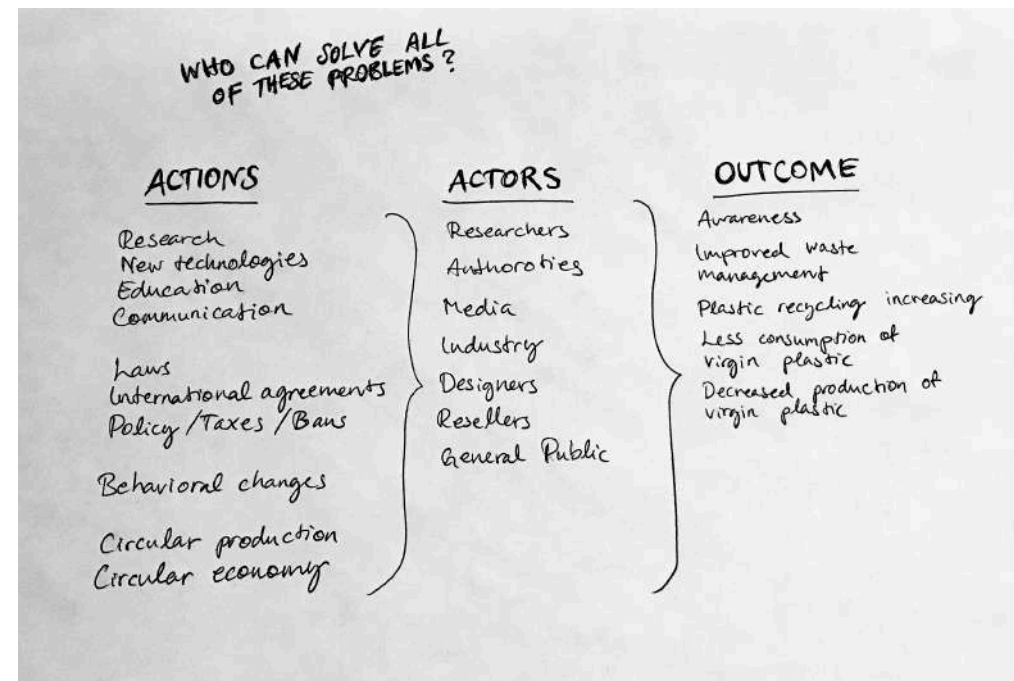
If we go back to the problem marine plastic pollution, it is clear that there are several reasons and many roots to why it ends up in the oceans. It is a complex problem with no single solution. Therefore, I made an analysis of my research to sort it all out and find my role as a designer.

It is partially because of careless behavior that leads to plastic litter in nature that eventually ends up in the oceans, as mentioned above. This behavior is created by a culture called throw-and-trash which is very established in our society. Plastic is the material that has become the main character in this culture.

It has become so simple and cheap to produce new virgin plastic instead of recycling it. People have stopped seeing the value in the material and it has

become a part of our throw-and-trash-society. A scientist in *Forskning & Framsteg's* article said: "If we treated plastic like gold, no one would throw it in the oceans". There has to be a change in attitude.

Is using recycled plastic or perhaps recycled ocean plastic litter the solution? This is going to be discussed further after some more research about plastics and its treatments, as well as social design.





Plastics

Most plastics are derived from crude oil. Crude oil is a complex mixture of compounds and this mixture needs a long process; hundreds of million years, before it even can become crude oil. The resource of crude oil will eventually run out since the plastic production is continuing to grow⁶.

As mentioned before in the beginning of this report, plastic is cheap and simple to produce while recycling plastic is way more complex. This makes plastic a non-cyclic-material. For example; of the plastic waste produced between 1950 and 2015, only 9 percent of the plastics were recycled⁷. During these years, the global plastic production were increasing (see chart).

Why hasn't the process of recycling plastic improved? The main problems and issues with recycled plastic, according to the European Parliament, is described in the article *Plastic waste and recycling in the EU: facts and figured*, written the 19th of December 2018.

” The main issues complicating plastic recycling are the quality and price of the recycled product, compared with their unrecycled counterpart. Plastic processors

require large quantities of recycled plastic, manufactured to strictly controlled specifications and at a competitive price.

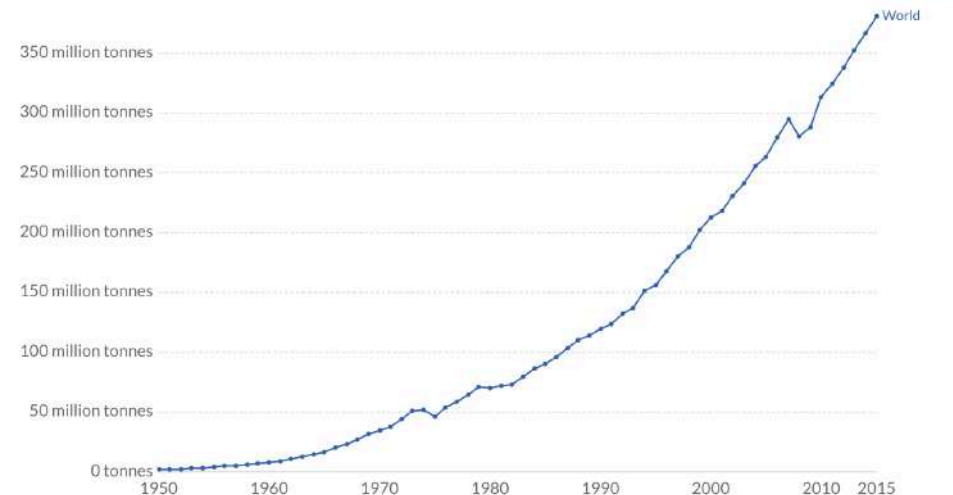
However, since plastics are easily customized to the needs (functional or aesthetic) of each manufacturer, the diversity of the raw material complicates the recycling process, making it costly and affecting the quality of the end product. In consequence, the demand for recycled plastics accounts for only 6% of plastics demand in Europe.”⁸

This makes the problem with marine plastic pollution even more complex. As with any other business, plastics are dependent on economical profits and so are the recycled plastic. When plastic reaches the oceans, organizations like Håll Havet Rent and Naturvårdsverket, for example, are doing their best to clean it up. I made a phone call to the local recycling center, SYSAV, and asked some questions about the handling of plastic waste found in the oceans. The answer was that it gets burned. Sometimes they receive dead seabirds which are being sent to cremations.



Global plastics production

Annual global polymer resin and fiber production (plastic production), measured in metric tonnes per year.



⁶ <https://www.plasticseurope.org/en/about-plastics/what-are-plastics/how-plastics-are-made>

⁷ <https://ourworldindata.org/faq-on-plastics>

⁸ <http://www.europarl.europa.eu/news/en/headlines/society/20181212STO21610/plastic-waste-and-recycling-in-the-eu-facts-and-figures>



Interviews and Discussion

While studying the problems with plastics and doing research about marine plastic pollution, I always have the design project in the back of my mind and how I can transfer the knowledge to design. If my goal is to prevent the problem, is using plastic a solution or is it just making the problem worse? What signals are my project sending if I use marine debris?

I scheduled an interview with Olof Kolte who is a lecturer at School of Industrial Design and is known for highlighting the climate change and is teaching in thinking more environmentally friendly. I wanted to know if he could answer my questions and see his point of view on this.

Olof Kolte and I started to talk about the greatness and the versatility that plastic has but with a melancholic undertone because of its contribution to such sad problems. He said:

”If you are going to create something out of ocean plastic waste — it would be like saying that it is ok to throw waste in the ocean because someone else will use it”

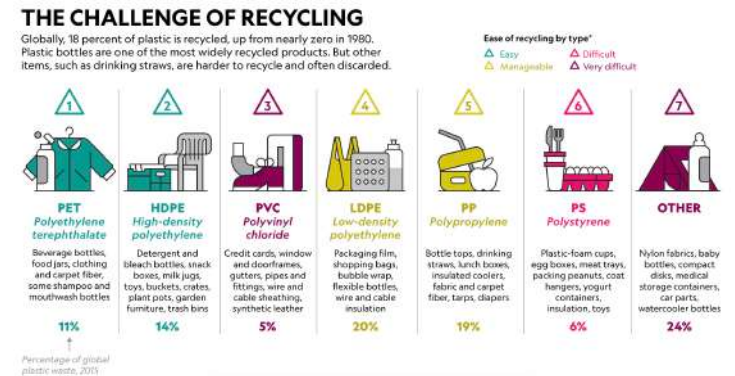
He suggested that I should use environmentally friendly materials if I actually want my project to be environmentally friendly.

I did not want to give up my idea of using recycled plastic yet so I scheduled another interview. The second interview was with Andreas Hopf, who also is a lecturer. After explaining my thoughts to him he said that if I want to solve a problem like this, I should narrow it down and use the research to strengthen my future design choices. He also explained that politicians are the responsible ones for tackling these kinds of problems and probably not a designer’s responsibility nor job.

After the two interviews, I had no idea what material I should use and what would be the most suitable. Either I use recycled (ocean) plastic since it is already there (in the oceans), destroying the habitat for marine life and seabirds. If I were to use recycled plastic, I would try to change the attitude towards the material. On the other hand, it could end up as just another plastic product, contributing to the problem and making ”trash” out of trash. Besides, recycled plastic loses its quality the more it is being recycled. The reason is that we do not have the right technology for recycling plastic *and* keeping the quality. When

plastic gets recycled it also gets *down-cycled* and the quality gets to poor to even create new products⁹. In fact, many scientists are arguing that, even though recycled plastic is great, it is not the solution to fighting plastic waste¹⁰. It seems like Hopf had a valid point to what he said about the problem being politicians responsibility. If my project would be about recycled ocean plastic, it would need information about the actual collecting and recycling process as well as by whom the recycling would be taken care of. I would also have to consider what kind of plastic I would use and how it should be sorted out.

Another alternative is to use a sustainable material, as Kolte suggested. Then the question would be how I can communicate the problem while aspiring for a prevention of the problem — solely by form language. After speaking with my supervisor, I had to do more research of what my project was going to achieve that.



⁹ <http://www.keepblountbeautiful.org/blog/2018/12/3/plastic-recycling-its-not-enough>

¹⁰ <https://www.nationalgeographic.com/magazine/2018/06/plastic-planet-waste-pollution-trash-crisis/>



Awareness

Marine plastic pollution has, in a short time, become a surprisingly powerful international environmental movement. While writing this report, the EU members are discussing a prohibition against single-use plastic, as these types of plastic products constitutes 70% of the marine plastic¹¹.

We now live in a world that is becoming more and more aware of the dangers of the human throw-and-trash-society and the awareness is growing in many areas. How is consciousness increased?

In 1935, the term 'environmental psychology' was for the first time introduced. Today, researches in this area are studying how to encourage people to take greater responsibility for the action around environmental crises. In an article from Vox Science, Nick Nash, who studies social and environmental psychology at the University of Cardiff, explains that the most effective way to get people more aware of their behavior is to make environmentalism a social norm.

"If everybody else in the restaurant is using them, and the context condones their use

(e.g. straws on tables or put into drinks when served), then this increases the likelihood that an individual will act in accordance.

There are different ways to increase the odds of a practice becoming a social norm; for example, getting people to make explicit commitments, getting celebrities or well liked people to publicize their own actions, and raising awareness about easy-to-follow behaviors."¹²

But this project is not about me becoming a celebrity. Instead I will translate what this research has shown to product design. I continued my research and discovered a field called 'awareness design'. After reading an article by Vanessa Miemis, who is a movement strategist and a social researcher, I understood that this way of using design can be a very powerful tool. Vanessa Miemis explains the field:

"By creating more awareness in one's inner world, people would become aware of a larger range of options in how to respond to situations and make decisions. By creating more awareness to the outer world, people would gain a more thorough understanding of the impacts of their choices and behaviors

on themselves and the world at large. These feedback loops would encourage more creative and empowered behavior."¹³

I found this article very interesting as it is presenting new ways of design thinking, what the effects are of awareness design and what is happening in the user's mind. The researcher says that it is not about quick dramatical changes in the user's personality after being exposed to awareness design. In reality, the sequence is that it occurs a shift in awareness first — and the new behaviors and practices grow afterwards. She continues with that the purpose of awareness design is about widening the frame of as many viewpoints as possible and to be open and inquisitive towards the unknown, Vanessa Miemis writes. A designer that is making awareness design is acting as a guide as well as a source of inspiration and is showing what the world looks like with an embodied model.

Awareness Design: The Most Powerful Field for Our Future?

POSTED BY VANESSA MIEMIS IN UNCATEGORIZED

≈ 26 COMMENTS



¹¹ <https://www.svt.se/nyheter/inrikes/klar-eu-majoritet-for-ett-plastforbud>

¹² <https://www.vox.com/science-and-health/2018/7/3/17514172/how-much-plastic-is-in-the-ocean-2018>

¹³ <https://emergentbydesign.com/2012/06/11/awareness-design-the-most-powerful-field-for-our-future/>

Social Design

Design is essentially dependent on worldview. Designers both from the previous and present generations have more or less, with design decisions, shaped and are still shaping our world view and values. It can be described as a cyclical relationship between worldview and design.

Daniel Christian Wahl is an international consultant and educator specializing in biologically inspired systems, design and transformative innovation.¹⁴ He has written an article in the 6th of September 2017 for the web page *A Medium Corporation, Age of Awareness*, in which he is showing the relationship between designers and consciousness, worldview and values, see picture to the right¹⁵. He writes:

”Consciousness, world views and intentionality manifest through design, and the designs thus created in turn shape the way we see the world, what we value, our needs, and thus our intentions.”

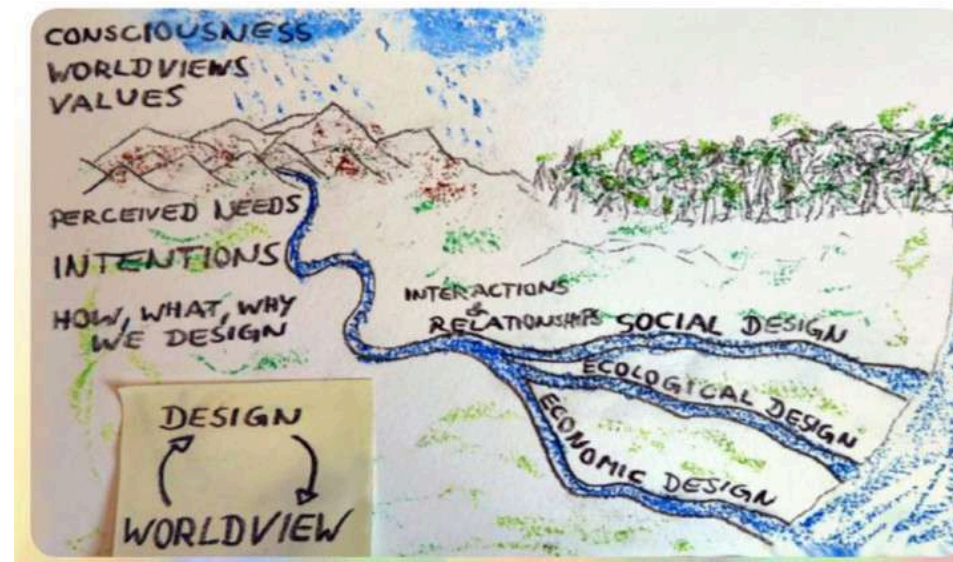
A German-American author, designer and entrepreneur, Tim Leberecht, is described as a humanist in Silicon Valley. He believes that designers acts as curators of conversations and he argues that in a time of artificial intelligence, we are the importance of the emotional and social aspects of our work¹⁶. In his article *Design Conversations — Not Products*, he describes products as stories of construed memories, associations and provocations, and that good designers are conversation starters, as they instigate opinions and re-create the ”aura” of the art object¹⁷.

”Designers are creating a memorable, *auratic* and yet reproducible experience for consumers. Conversations are part of this experience; they are integral to the *aura*. Designers visualize it. They unearth, discover, and articulate the consumer stories. They invent the product stories. And then they connect both.”

The field of Social design will be further discussed in this report on how I will apply the knowledge for my project

”*Good designers are conversation starters*”

- Tim Leberecht



Sketch of the metaphor of the 'river of design' (D.C. Wahl 2011)

¹⁴ <https://gaiaeducation.org/face-to-face/trainers/daniel-christian-wahl/>

¹⁵ <https://medium.com/age-of-awareness/design-and-how-it-matters-9323932936e8>

¹⁶ https://www.ted.com/speakers/tim_leberecht

¹⁷ <https://www.cnet.com/news/design-conversations-not-products/>

Market

Having mentioned before that using recycling plastic is an option for this project, which lead me to researching about the market for this area. Apparently this is, at the time of writing, an enormous trend to use recycled plastic — and even ocean plastic. This phenomenon has turned out to have reached the well-known designers, and not the "tree-hugging" ones, where it usually ends up when dealing with these types of problems.

Adidas is, in collaboration with Parley, are making shoes and clothes partially out of collected and recycled ocean plastic and are, according to them, ocean-inspired. The amount of recycled plastic that is being used depends on the product and is not directly expressed. On their website, they are explaining that they are actively creating awareness¹⁸.

Adidas is not alone with collaborating with Parley and the use of ocean plastic. Stella McCartney has also partnered with Parley and has changed her brand from being a luxury brand to an environmentally conscious brand by using recycled polyester¹⁹. A similar story goes for G-star Raw but they are going with a

celebrity-collaboration-style as Pharrell Williams is the brain behind the collection²⁰

In the *Interview and Discussion* chapter, I came to a conclusion of tackling the problem solely by using form language. The market research showed a lot of designers shifting to more sustainable materials, which indeed is a great evolvment, but what I am missing is the story-telling, communicating and expressing part. When looking at the form language it does not convey anything particular that is, like Adidas themselves expressed it, actively creating awareness. Except if you actually look it up on their website and see their striking graphics with the informative text.

After all the research, it warms my heart to see brands and designers striving for a more sustainable world. It is great to see other people, who work with design, adjusting their role in order to rig this problem. This inspired me to take my own route and find my design and form language. After all the research, I could finally enter the creative phase.



no storytelling
←

DESIGNERS AND BRANDS WHO USE OCEAN PLASTICS!

¹⁸ <https://www.adidas-group.com/en/sustainability/products/materials/#/>

¹⁹ <http://material-magazine.com/stella-mccartney-recycled-plastic-collection/>

²⁰ <https://www.dezeen.com/2015/08/18/pharrell-williams-g-star-raw-ocean-plastic-clothing-range-aw-2015/>

Project Brief

The dilemma, stated above, of wanting to clean the oceans but not contributing to the problem has been torturing my mind during the research phase.

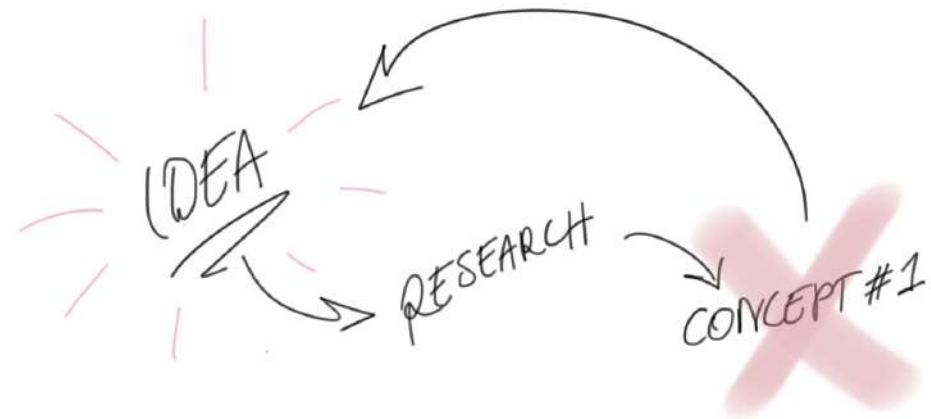
Eventually, I realized that it would be too difficult and complex and with too many obstacles to use ocean plastic in a new way. As Andreas Hopf said, I should use the research to strengthen my design decisions and the research pointed to that recycling plastic is not the solution of ending plastic waste.

My brief would therefore read as follows "An artistic interpretation of the problem with marine plastic". It should result in a product that shows the beauty of awareness in its form language. It's not an attempt to save the world but more as an approach to use design to reflect upon what's happening in the world.

Environmentalism should be a norm and knowledge should be a source of inspiration. Consciousness does not have to scare people away and be categorized for those who are tree-hugging, unhygienic hippies and Birkenstock-wearing people. Consciousness can be translated to design and it could also be a simple yet beautiful product.



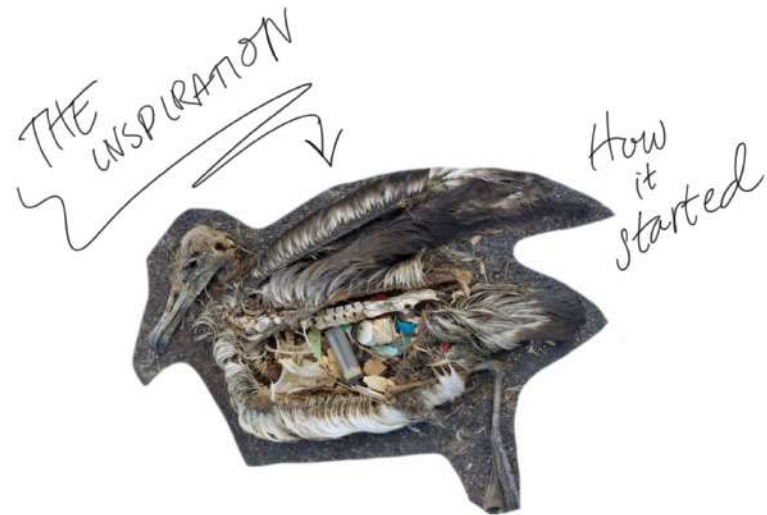
Early mood board made at the beginning of the research process, communicating a feeling of purity and dirtiness.



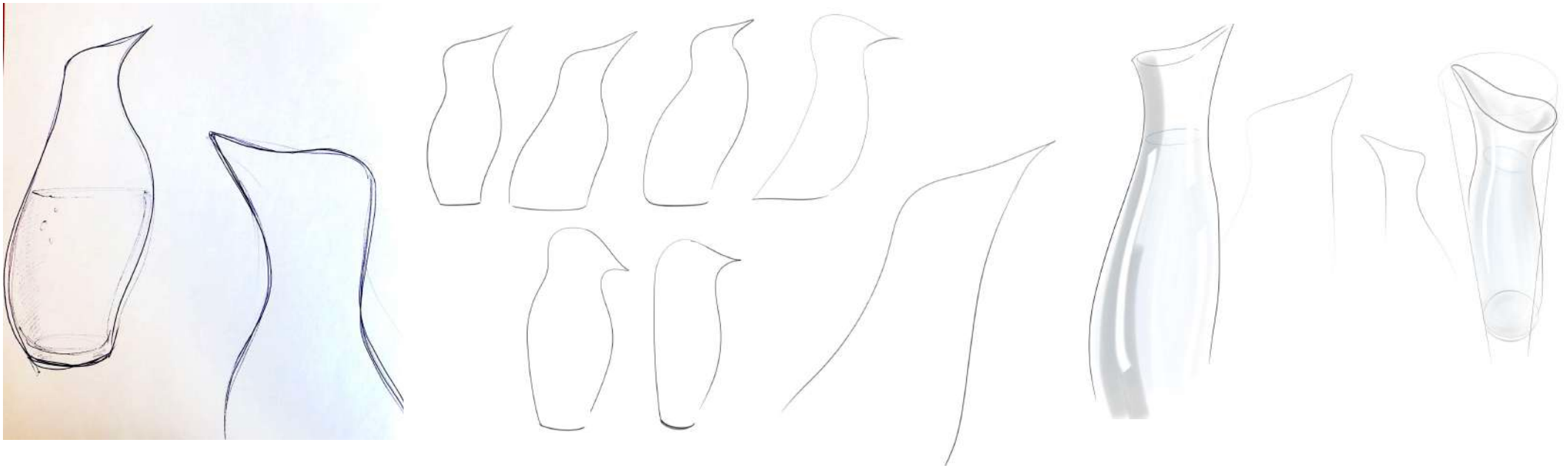
Brainstorming

How did I get inspired of plastic pollution in the first place? During the exchange semester in autumn 2018, and professors and designers talked about sustainability during several lectures and several times, a photo appeared in the presentation. This photo, which was the same for each lecture, showed a corpse of a seabird that has its bowel filled with single-use plastic pieces. The photo always had its own slide in the presentations and the room's atmosphere always changed when the lecturer switched to this particular slide. This photo made me realize how bad this problem has become.

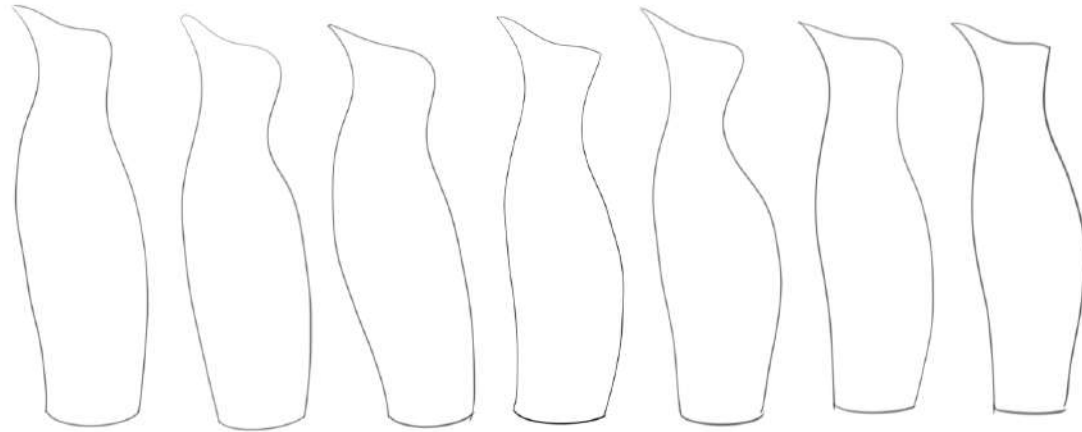
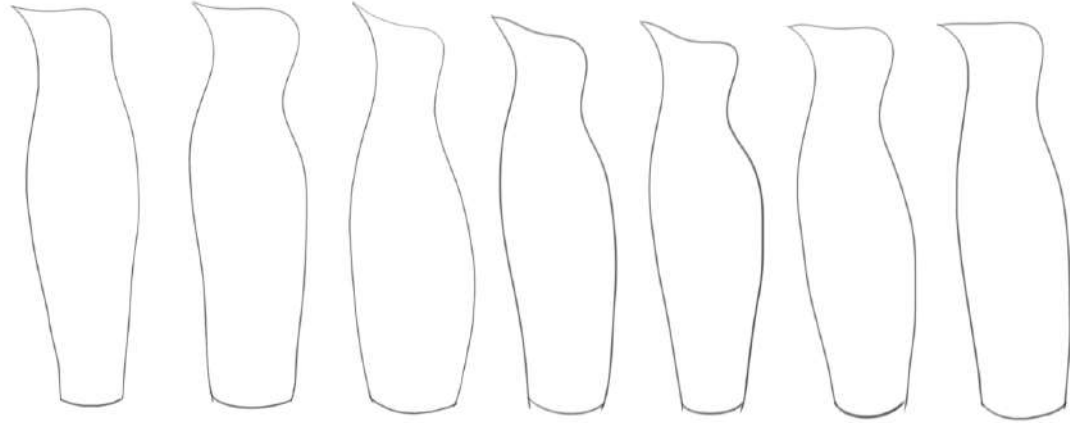
I thought about how I can visualize my initial inspiration in a product and the use of the product should be symbolic and linked to the ocean problem. I had early in the process thought about a carafe for beverages but never continued to work with this idea, as I needed more research according to my supervisor. A water carafe is a clear symbolization of water which is essential for our existence and life on earth. This water carafe is going to, by its form language, show the irony of the humans polluting the water in the oceans, a resource as essential as other living beings. A water carafe that acts as a conversation piece and sculpture on the dinner table.



Sketching



When I was sketching, I quickly got attached to a simplified, abstract silhouette of a bird. I wanted an elegant and discrete design so I did a couple of variations. I don't want the user to see a bird immediately, but after looking at it for while, you will finally have that satisfying "AHA" , when you see it.



I had been exploring and sketching different variations and, after trying to find the perfect form, I ended up choosing this silhouette.

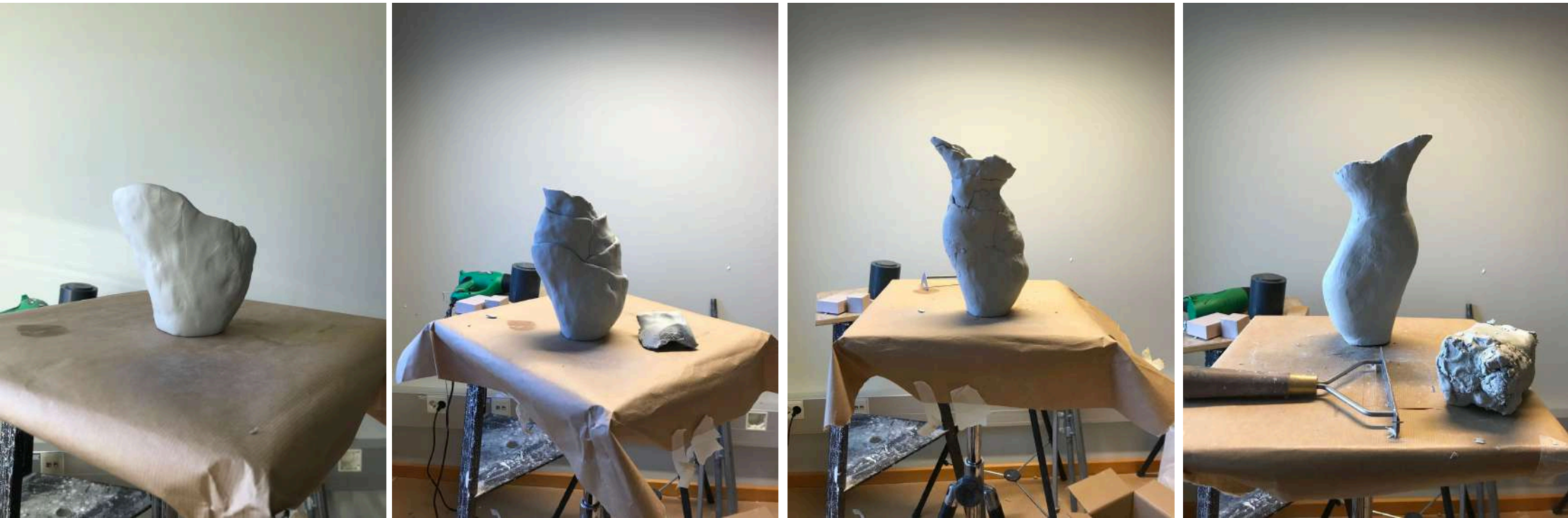
It has an elegant neck and soft lines that narrates that it is a bird but is at the same time not too obvious.

I decided that the material should be glass since it is a cyclic material and very environmentally sustainable, because, after all, it is part of the message I want to send out.



Model-making'

During the time I was sketching, I also formed my design using clay, in order to understand the shape as well as making it easier for me to visualize it. The clay model's length is 25 centimeter, which I found suitable as it seems to be the average height of a carafe when looking at IKEA's website²¹.



²¹ <https://www.ikea.com/us/en/catalog/products/00342975/>

So now I have the bird and the water connection, how should I show the plastic pollution problem? The idea of making the glass in a way that it is representing plastic pollution was very interesting to me. I was inspired of micro plastics. It has a special look and combination of colors. Making the glass this way will also reflect what is in the body of the corpse.

The process continued with 3D modeling. I had the idea to give this carafe some color variations with the micro-plastic effect and pattern. I would like that each carafe had its own variation of colors, in order to make each carafe more personal to its owner.



Bird + Water/Ocean + Plastics

✓ ✓





Recently, many designers are using recycled plastics and are making it clear by showing it in the way that the plastics look. For example, Smile Plastics are selling recycled plastic panels and they have one particular panel called Ocean²³.

Making materials reflect what is in the nature is, what I would describe as a child of our time, why I feel even more committed to the Idea of making the glass look like micro-plastics yet it is instead a very sustainable material instead.



²³ <https://smile-plastics.com/ocean/>

3D







A visualization of what the carafe would look like when being used.





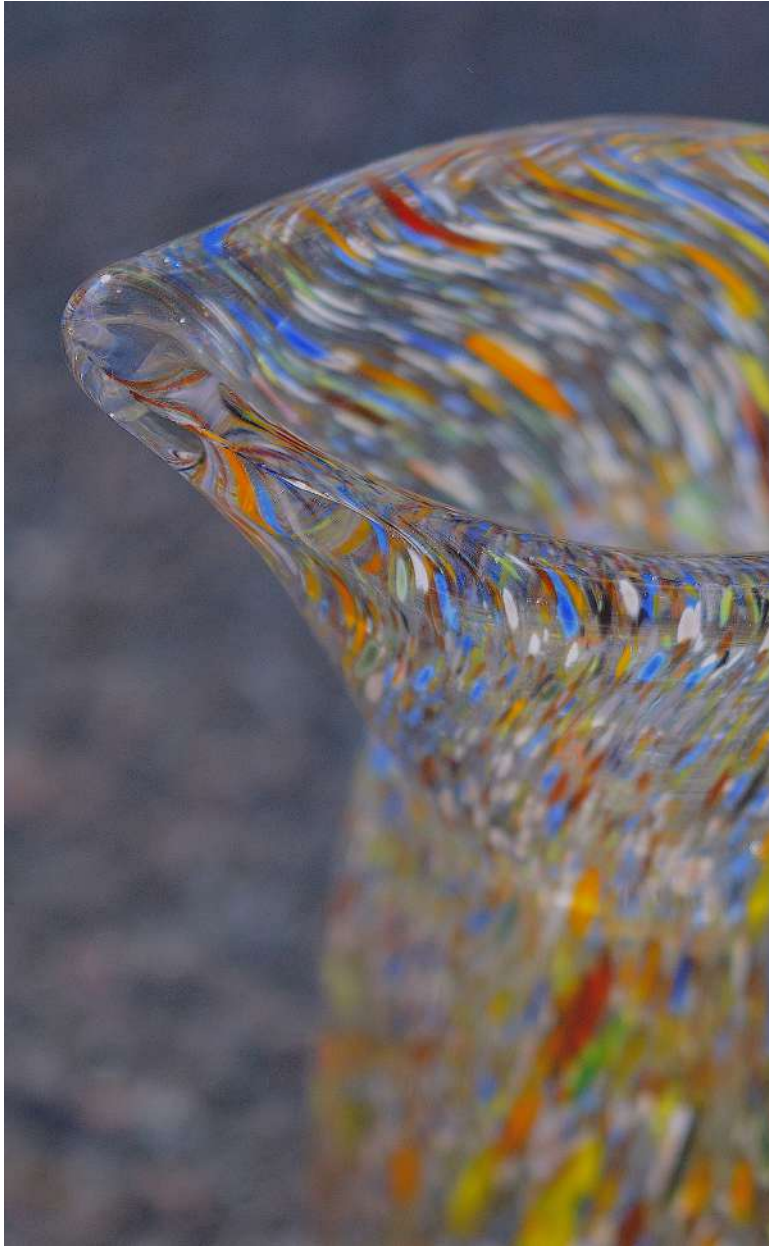
I met a glass blower, Magnus, at Steninge Glashytta in Halmstad who helped me with making the carafe, which he did by hand. Unfortunately, the silhouette did not turn out the way it should even though we tried to make it three times. What I have learned is that the carafe should be made with glass casting instead. I wish that the glass blower could have said that he would not be able to make the form correctly by hand, from the beginning. At least I learned how glass works and since I have a 3D model, I could easily prepare an original that can be used for glass casting.

However, what did turn out really well was the finish of the pattern and the colors. What I like is that the pattern is not constant, it has a flow that follows the shape, giving the curves an organic feeling.

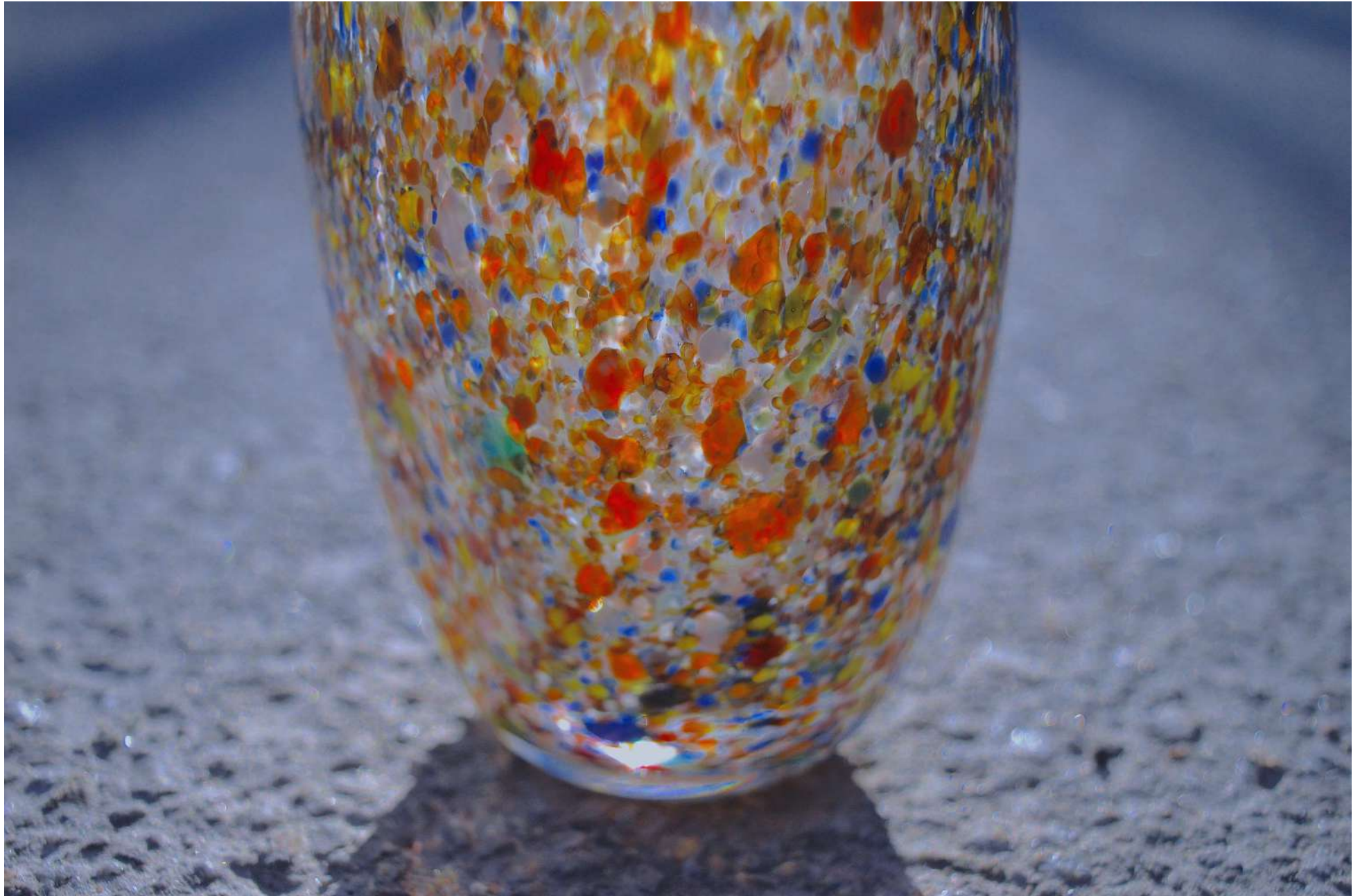
During a dinner gathering, I let my friends use the carafe and I listened to them as they were discussing the problem that the carafe is highlighting. It was interesting to see them slowly realize it had a shape of a bird, as I did not explain it. I liked the fact that they could see it on their own, even though they had no background of art studies.











Logo and Name

The carafe needed a name and the name should reflect the problem that the product was designed to call attention to. I thought that the name Birden fitted this description.

As I did not want the logo to steal any attention of the form language of the carafe itself, I decided I should use this minimalistic and poetic name with a traditional yet simple font.

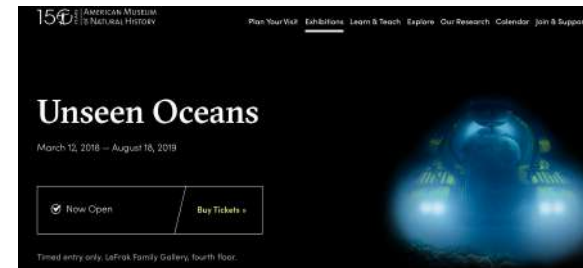


Where it could be sold

2



Where can Birden be found? The cafe needs to be in a context so that people will understand the message so it could be sold at environmentally conscious places such as no-waste-shops like Sustain-eco-store. Or it could be sold in association with exhibitions. For example at the shop at the Natural Historic Museum, which currently runs the exhibition Unseen Oceans.



Final thoughts

This project has a combination of contrasts. What otherwise is dreadful to see in the nature — is what becomes beautiful on a table.

Environmentalism doesn't have to be complicated, It can also be something beautiful

And in this project I explored how that can be translated into product design. Because every design decision is based on the research. It has been educational to study plastics and what this material is doing in this world and at the same time I have been practicing my artistic skills and communication skills, which was been an interesting combination of fields.

This project is not about saving the world, It's more about shaping the way we see the world.

Thank you for taking your time. I hope you have enjoyed reading this project documentation.

Image Sources

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