

# SERVING WITH CONSCIOUSNESS

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Fact Sheet

1. You're eating a credit card worth of plastic a week. You're eating, swallowing or breathing in about 2,000 tiny pieces of plastic each week, according to the study, most of the pieces of plastic we ingest come from drinking water, but it's also in other foods such as shellfish and salt. (WWF x Australia's University of Newcastle)
2. More than 8 million tons of plastic are dumped in our oceans every year. This is enough to go around the earth twice. (Plastic Oceans)
3. In the Citarum river in Indonesia, where various wealthy countries ship their trash to 20,000 tons of waste is thrown into the river everyday. Since 2008 nearly 60 percent of fish species have been destroyed. However, 25 million people still use this river as their primary water supply, even though it is 1000 times worse than USA standards for drinking water.
4. At least 1000 turtles die each year from being entangled in plastic waste, oftentimes they also confuse plastic waste to food. Especially plastic bags and fishnets. (WWF)
5. Nearly every seabird on earth is eating plastic. Sharp-edged plastic kills birds by punching holes in internal organs, as a result approximately 1 million seabirds die from plastic every year. (Ocean Crusaders)
6. Microplastics are small enough to be ingested by sea animals, including those that end up on our plates. 70 years of manufacturing plastic later, we are finally starting to see where it all ends up when we toss it. According to a 2017 UN report, there are more than 51 trillion microplastic particles in the sea, more than 500 times the number of stars in the Milky Way. (Forbes)
7. By 2050 there will be more plastic in the ocean than there are fish -by weight. (Earth Day)
8. Most trash reaches the seas via rivers, and 80% originates from landfills and other urban sources. This waste, which is also consumed by fish and can entangle sharks and damage coral reefs, tends to accumulate in gyres (areas of slow spiraling water and low winds) and along coastlines. (National Geographic)

“Our actions for the next 10 years  
will determine the state of the  
ocean for the next 10,000 years.”

-Sylvia Earle

Our Oceans are turning into plastic.

Are we?

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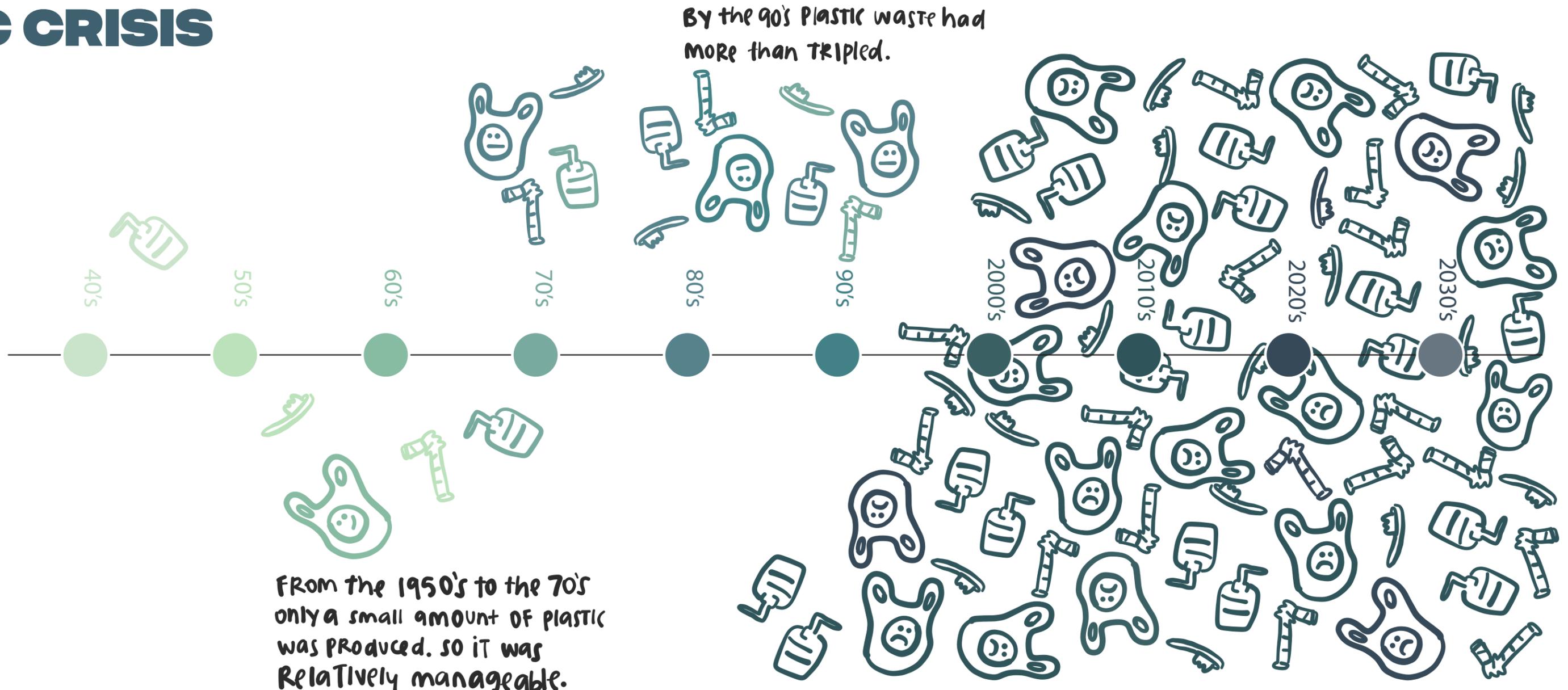
# INTRODUCTION

# THE OCEAN PLASTIC CRISIS

## A GLOBAL CRISIS

Plastic accumulating in our oceans and on our beaches has become a global crisis. At current rates plastic is expected to outweigh all the fish in the sea by 2050. Thousands of seabirds, sea turtles, seals and other marine mammals are killed each year after ingesting plastic or getting entangled in it. While plastic pollution is having a direct and deadly effect on wildlife, new studies are showing that this is also affecting us, humans.

From the clothes we wear to the food we eat, plastic has become a household staple for families and communities around the world. One million plastic drinking bottles are purchased every minute globally, while up to 5 trillion single-use plastic bags are used worldwide every year. In total, half of all plastic produced is designed to be used only once -and then thrown away. Given its prominence, and the fact that scientists estimate it takes somewhere between 450 -1,000 years to decompose (some argue it will never decompose), it is essential for us to understand this material.



Today we produce about 300 million tonnes of plastic waste every year. Almost  $\approx$  the weight of the human population.

# RECYCLING

91% of plastic waste isn't recycled. And since most plastics don't biodegrade in any meaningful sense, all that plastic waste could exist for hundreds or even thousands of years.

Recycling is determined by the market and city government. It is a system demanded by market demand, price determinations, local regulations, the success of which is contingent upon everyone, from the product-designer, to the trash-thrower, to the waste collector, to the recycling factory worker.

We consumers play a much more critical role than we might imagine –depending on how we use our products and in what shape we throw them away, determines their value and quality post-use.

Recycling allows plastic manufacturers to continue to produce excessive amounts of plastic instead of implementing more sustainable waste policies. It also continues to allow 'Big Plastic' companies to place responsibility on the problem of plastic pollution on consumers and government, rather than themselves.

IT WAS THE PLASTICS INDUSTRY THAT OFFERED RECYCLING AS A SOLUTION.  
IT CREATES AN ILLUSION OF ENVIRONMENTAL PROGRESS.



# PLASTIC POLLUTION + COLONIALISM

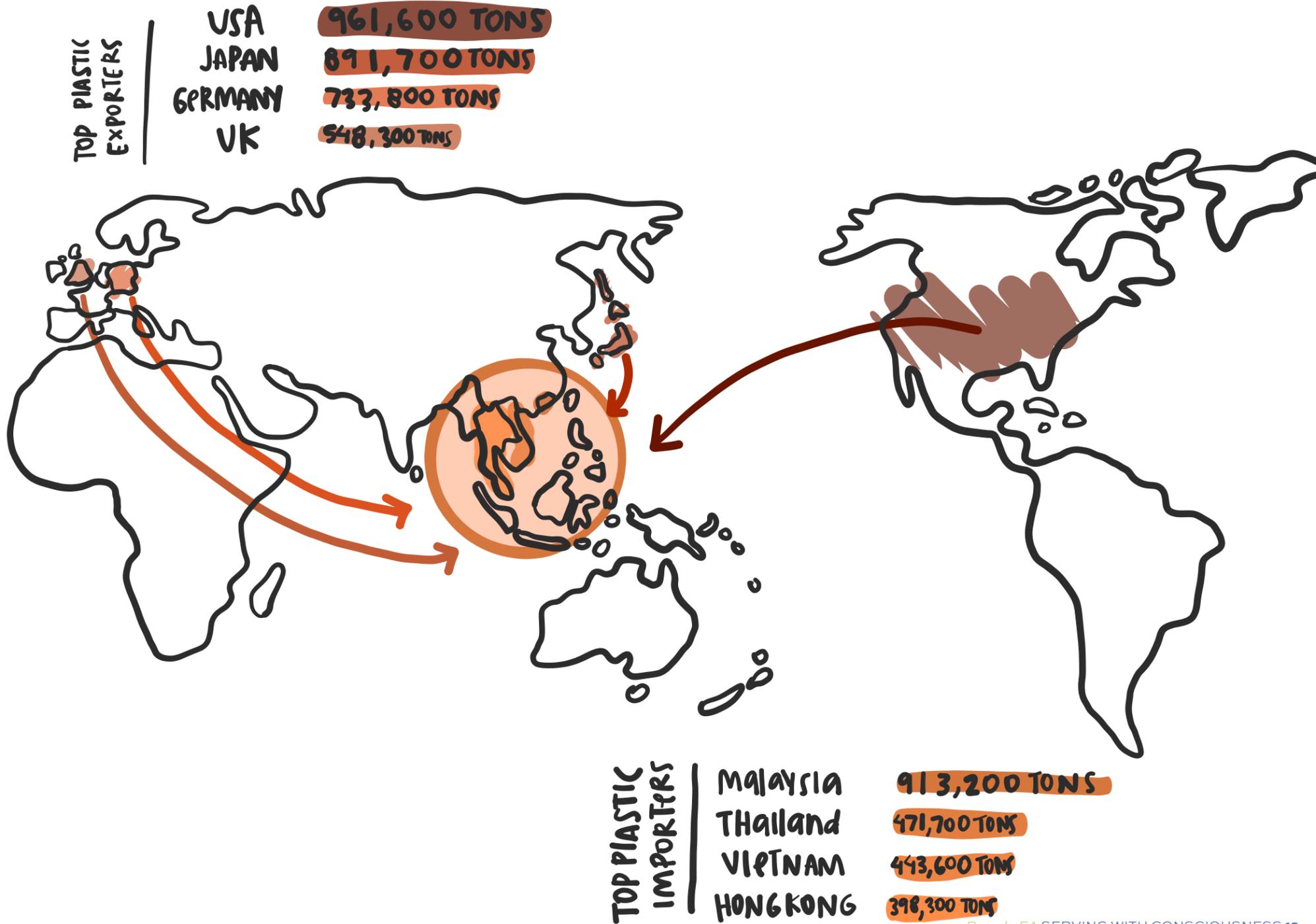
Colonialism refers to a system of domination that grants a colonizer access to land for the colonizer's way.

This can mean using using land as a resource that may generate pollution through pipelines, landfills & recycling plants.

According to scientist Max Liboiron, colonialism refers to a system of domination that grants a colonizer (countries like US, UK, Germany) access to land for the colonizer's goals.

In many countries such as Thailand, Vietnam, and the Philippines the waste that is accepted from colonizers ends up polluting their own waters, or is put in landfills, incinerators or recycling plants on their own land that leads to health problems in their own people instead of the nations that produced the waste in the first place.

Also, in most cities around the world, facilities like incinerators, landfills and recycling plants are most of the time located in areas or regions where minority groups or less priviledged communities live.



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# PLASTIC + CLIMATE CHANGE

## A POLLUTANT

The world's growing production of plastics - about 100 million tonnes annually - is not just clogging landfill sites, causing health problems, threatening our oceans and marine life; it's also accelerating climate change.

Plastic is one of the most persistent pollutants on Earth. It's made to last - and it does, often for 400 years or more. At every step in its lifecycle, even long after it has been discarded, plastic creates greenhouse gas emissions that are contributing to the warming of our planet.

By 2050, when plastic production is expected to have tripled, it will be responsible for up to 13% of our planet's total carbon budget - on a par with what 615 power stations emit.

## OUR OCEANS

At least 8 million tonnes of discarded plastic enters our oceans each year, and plastic pollution at sea is predicted to double by 2030.

Our oceans are our largest natural carbon sink for greenhouse gases, and plastic is directly choking and smothering a host of marine animals and habitats. Also, sunlight and heat cause the plastic to release powerful greenhouse gases, leading to a feedback loop.

As our climate changes, the planet gets hotter, and plastic breaks down into more methane and ethylene increasing the rate of climate change, therefore perpetuating the cycle.

## PLASTIC FOR PROFIT

With the recent fracking boom causing low gas prices, fossil fuel companies are looking for other ways to bolster their profits. Just as the world is starting to address its enormous plastic pollution problem, these companies are doubling down on plastic, with huge potential consequences for the climate and environment.

Due to the low gas prices since 2016, some fossil fuel companies like Exxon Mobil, Shell, and Saudi Aramco are compensating for their low prices by investing in plastic production, since plastics are made from oil, gas and their byproducts. Due to this, the World Economic Forum estimates plastic production doubling by 2040.



# PLASTIC + ITS HEALTH EFFECTS

“For years the petrochemical industry has ignored the upstream human health impacts in the extraction and refining process. Instead, they’ve chosen to frame the human health question narrowly, after plastic gets to the ocean where the science is a bit less smoking gun. Finally, we have a baseline for understanding the whole pollution matrix that surrounds this ubiquitous material called plastic.” Stiv Wilson, Campaigns Director, Story of Stuff Project

In a report authored by, by David Azoulay (CIEL), Priscilla Villa (Earthworks), Yvette Arellano (TEJAS), Miriam Gordon (UPSTREAM), Doun Moon (GAIA), and Kathryn Miller and Kristen Thompson (Exeter University) it reveals that plastic is a human health crisis hiding in plain sight.

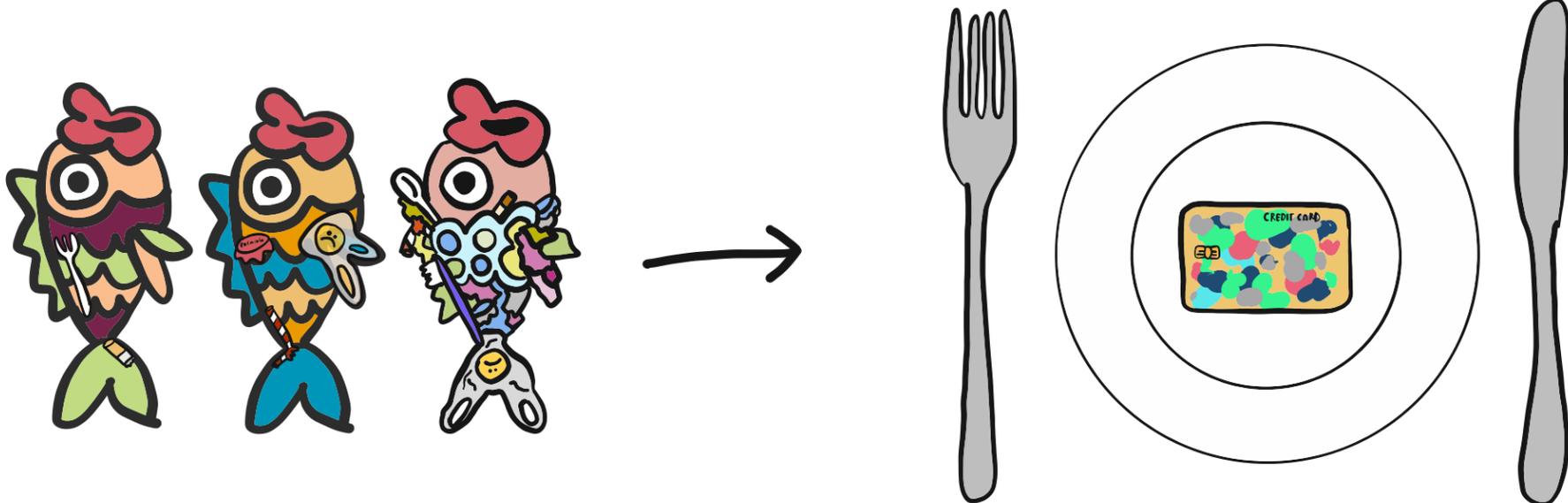
At every stage of its lifecycle, plastic poses distinct risks to human health, arising from both exposure to plastic particles themselves and associated chemicals. People worldwide are exposed at multiple stages of this lifecycle. Before this report, research into the human health impacts of plastic had focused narrowly on specific moments in the plastic lifecycle, often on single products, processes, or exposure pathways.

## INGESTING PLASTIC

You are eating, swallowing or breathing in about 2,000 tiny pieces of plastic each week, which is the equivalent of a credit card worth of plastic a week. According to a study done by WWF and Australia’s University of Newcastle most of the pieces we ingest come from drinking water, but also in other foods such as shellfish and salt.

## CHEMICAL LEACHING

Plastic has been linked to disrupting hormonal growth and carcinogens. While its use is also associated with public hygiene and preventing bacteria contamination (for example, the use of plastic straws to drink out of fear of a contaminated supply chain), consumers should be cautious of chemicals leaching into food or drink products.



# PLASTIC + SEA LIFE

There are an estimated 270,000 tons of plastic floating through the world's seas where it threatens 700 marine species with its presence. There is growing evidence that plastics play a role in rising rates of species extinctions.

Plastics in the ocean become covered with marine algae which release a natural sulfur compound, dimethylsulfoniopropionate (DMSP), when they die or become damaged. This chemical is detected by hungry seabirds and other marine creatures, which are attracted to it and then they mistake plastics for lunch.

Because plastics do not biodegrade, nor are they digestible, eating plastics results in malnutrition, intestinal blockage, or slow poisoning from chemicals leached from or attached to plastics.

Apart from confusing plastic waste to food, many sea animals such as turtles, and dolphins are dying from getting entangled in plastic waste, especially bags and fishnets. Every year, 1,000 seaturtles are found dead due to entanglements.



NEARLY EVERY SEABIRD ON EARTH IS EATING PLASTIC.

1 MILLION SEABIRDS DIE FROM PLASTIC EVERY YEAR.

# INSPIRATION

# HOW IT ALL STARTED

4 years ago I was alarmed to see more plastic than fish in the ocean. Although it upset me, I noticed that most people did not appear very concerned about the consequences. I felt like I had to do something about it, so I began to raise awareness about the plastic pollution crisis through illustrations and reusable alternatives.

Even though I began to see a change in people's behaviors, most people still saw the idea of not consuming disposable plastic as an environmental act to save the sealife, they didn't understand that we are all connected and that this pollution crisis is also affecting us humans through many different ways.

How is it possible that people could not be alarmed about polluting our planet and ourselves? I've noticed how many people continue to ignore the inconvenient facts by choosing the story they want to believe in such as plastic pollution is just an issue for environmentalists. They don't understand or choose to ignore that we are all connected and that this pollution crisis is poisoning all of us.

HOW IS IT POSSIBLE THAT PEOPLE  
COULD NOT BE ALARMED ABOUT  
POLLUTING OUR PLANET & OURSELVES?

## OBSERVATION

After noticing how people continued to ignore the inconvenient facts of the plastic pollution crisis by choosing the story they wanted to believe in such as plastic pollution is just an issue for environmentalists.

I realized they either didn't understand the reality of this crisis, or were simply choosing to ignore that we are all connected and that this pollution crisis is poisoning all of us.

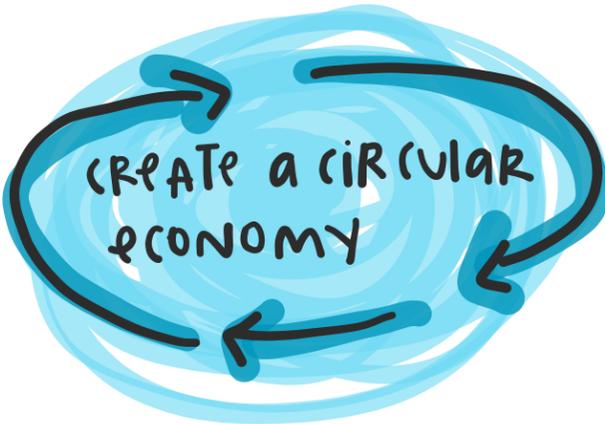
## TARGET MARKET

After understanding people's point of view on this crisis, I decided to bring a fact-based narrative directly to the seafood dining table by designing a custom tablecloth and napkin set for progressively minded seafood restauranters. My goal is not only to raise awareness among patrons and support a more responsible seafood industry, but also to direct funding to ocean cleanup efforts.



# DESIGN OPPORTUNITY

After doing extensive research, I identified three main opportunities which were lacking in the restaurant industry:



CELEBRATE THE RESTAURANT FOR CREATING AWARENESS & CONTRIBUTING TO THE CLEANUP OF THE OCEAN.



- Material Strengths:
- Purpose in unwanted material.
  - Unclaimed, lots of it
  - Gives value to "trash"
  - Reduces plastic waste in ocean and landfill
  - Profiting from waste.

# WHAT IS SERVING WITH CONSCIOUSNESS?

SERVING WITH CONSCIOUSNESS is an interactive experience that creates awareness of the ocean plastic pollution crisis through imagery found in a tablecloth and napkin set.

Balancing the stark reality of how we're polluting our oceans and ourselves against the pleasure we seek for an evening out to dinner was an interesting problem.

The designs, made from recycled ocean plastic, stimulates delight through vibrant colors, pattern, and humorous illustrations while provoking a patron's curiosity to learn more. The imagery on the table is coded with a number that corresponds to a legend on the back of the napkins.

# MARKET RESEARCH

# SUSTAINABLE + PROGRESSIVE DINING

**AVANT GARDEN** NY, NY  
PROGRESSIVE DINING

**AURPOLE** NY, NY  
PROGRESSIVE DINING

**HART'S**  
BROOKLYN, NYC  
Menu built around sustainable, wild-caught fish species & seasonal local produce.

**OCIANA**  
NY, NY  
PURE & NATURAL informs their cooking style that focuses on sustainable & seasonal ingredients.

**SOUTH EDISON** MONTAUK, NY  
CRAVE'S SISTER RESTAURANT

JamesBeard  
SMART CATCH  
Foundation

**James Beard Foundation**  
NON-PROFIT whose MISSION IS to CELEBRATE, NURTURE & HONOR CHEFS & OTHER LEADERS making AMERICA'S FOOD CULTURE MORE DELICIOUS, DIVERSE & SUSTAINABLE FOR EVERYONE.

**LUCKY ROBOT**  
AUSTIN, TX  
1st sustainable sushi restaurant in TEXAS. PROMOTES & supports seafood sustainability in TX & the USA.

**LUCKY ROBOT**  
JAPANESE KITCHEN

**Grand Banks**

**GRAND BANKS**  
NYC, NYC.  
Menu built around sustainable, wild-caught fish species & seasonal local produce.

## DEEPER RESEARCH

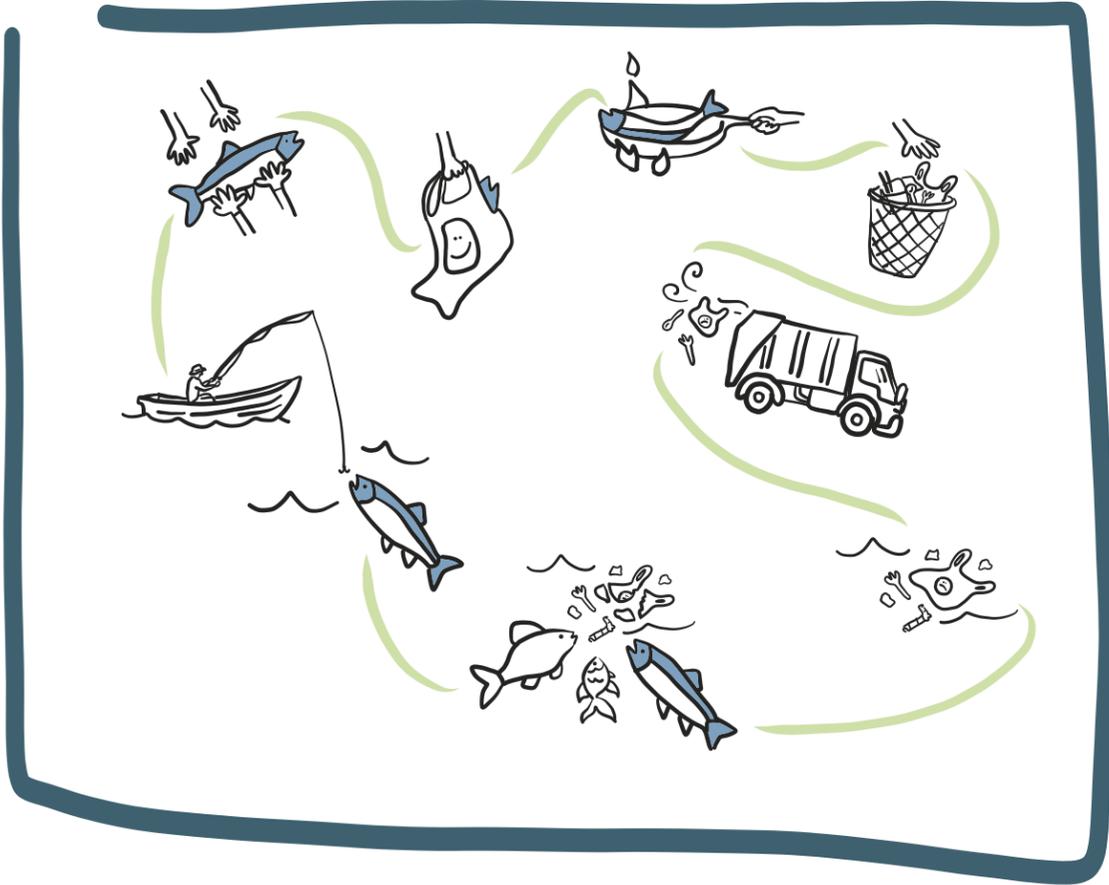
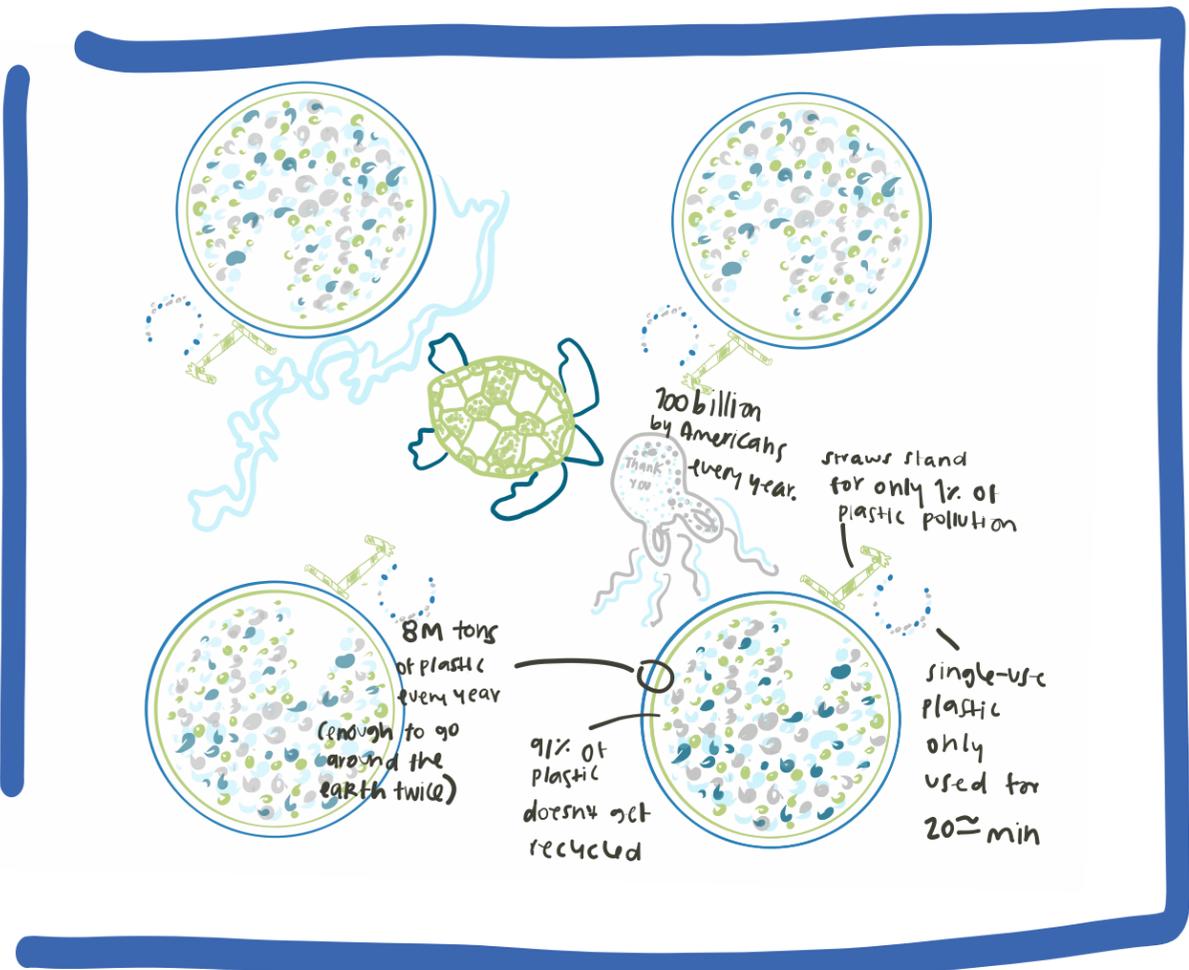
These were the top two restaurants along with a non-profit that I chose to study deeper, and understand who their patrons were, what their restaurant interiors looked like, what their menu looked like, as well as what kind of seafood they used.

**DESIGN**

**DEVELOPMENT**



# SECOND ITERATION

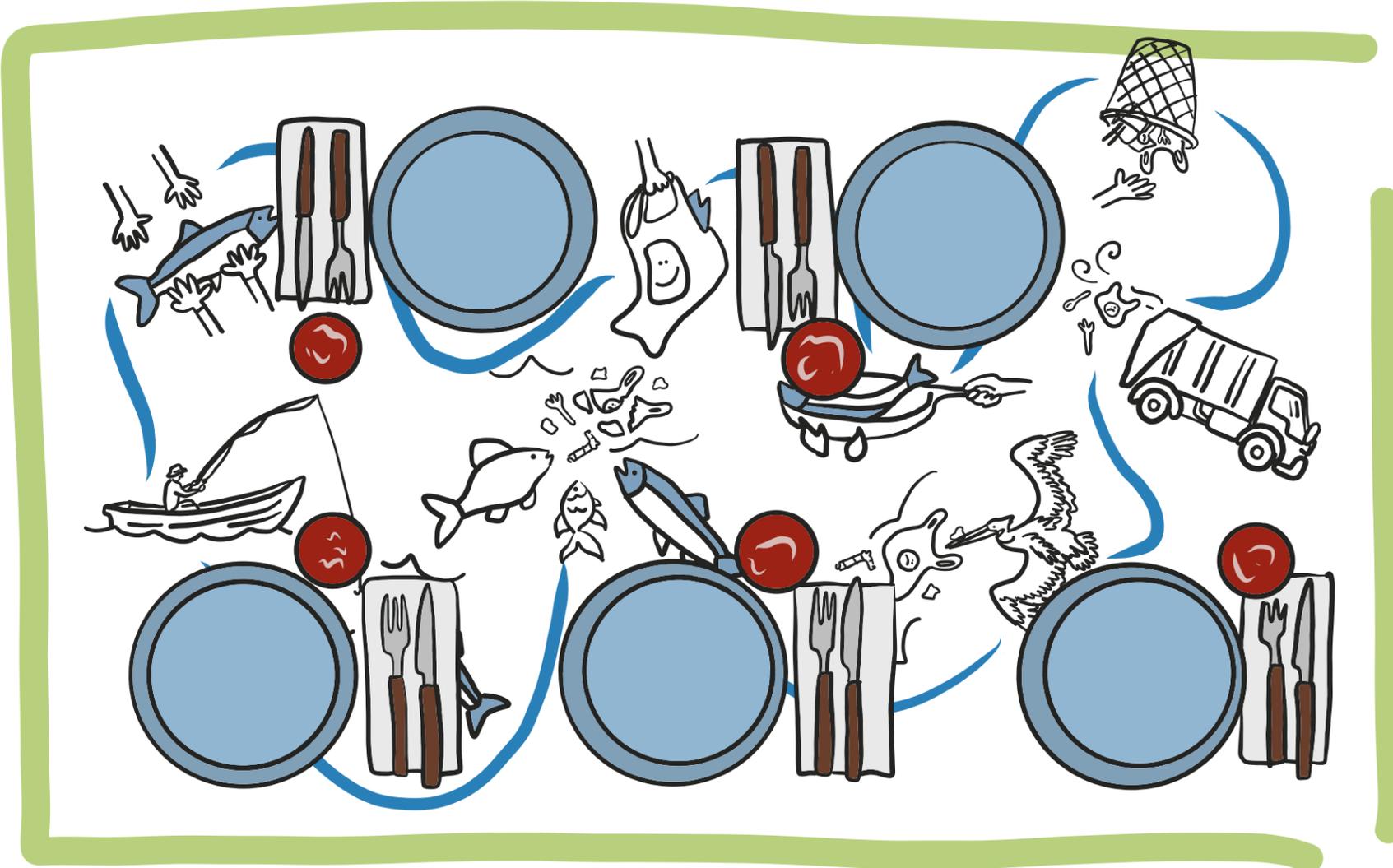
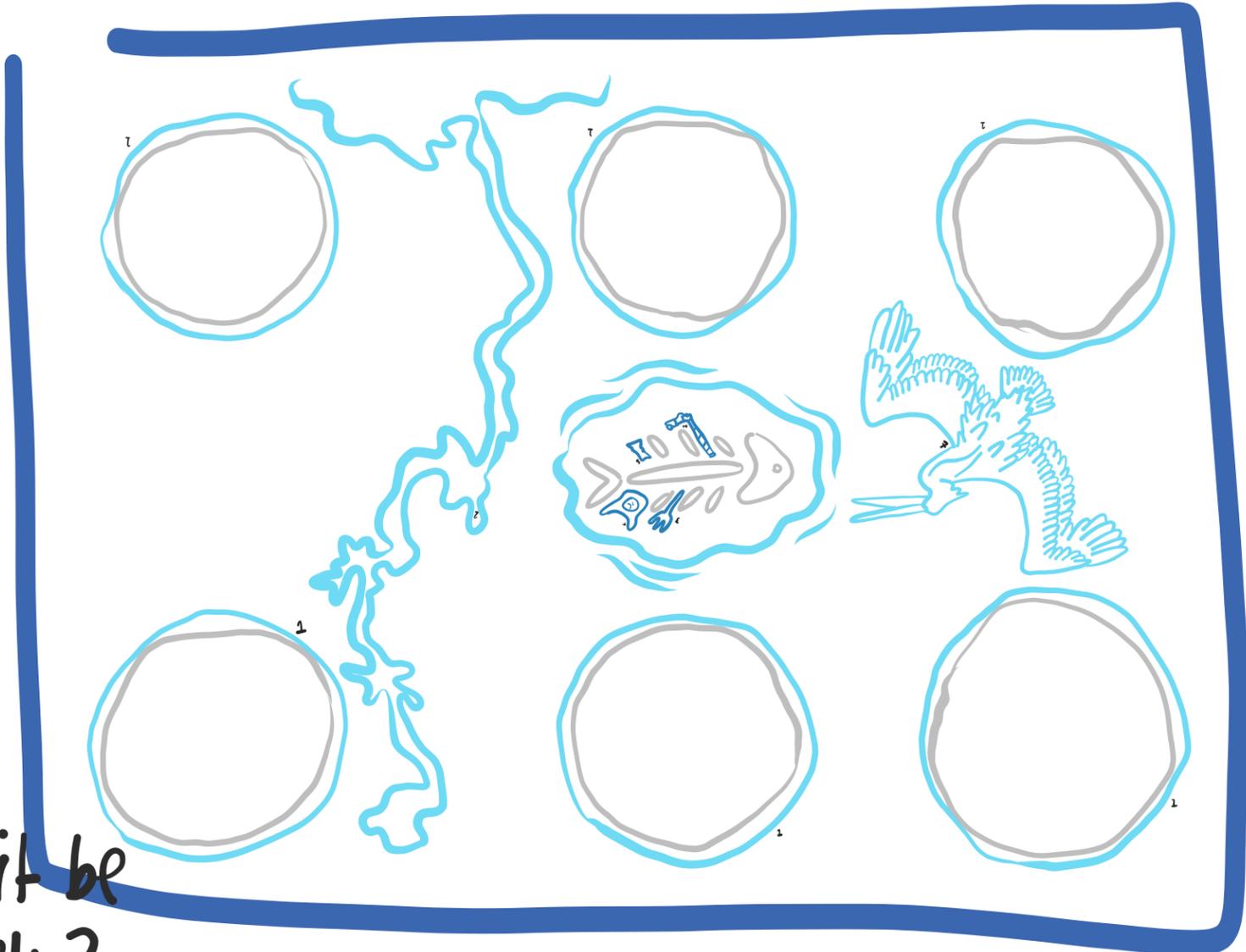


how can I make the reality pretty enough to have a meal, but direct enough that at the end one understands it is a crisis?

how can I engage everyone at the table?

# THIRD ITERATION

how can it be more lively?



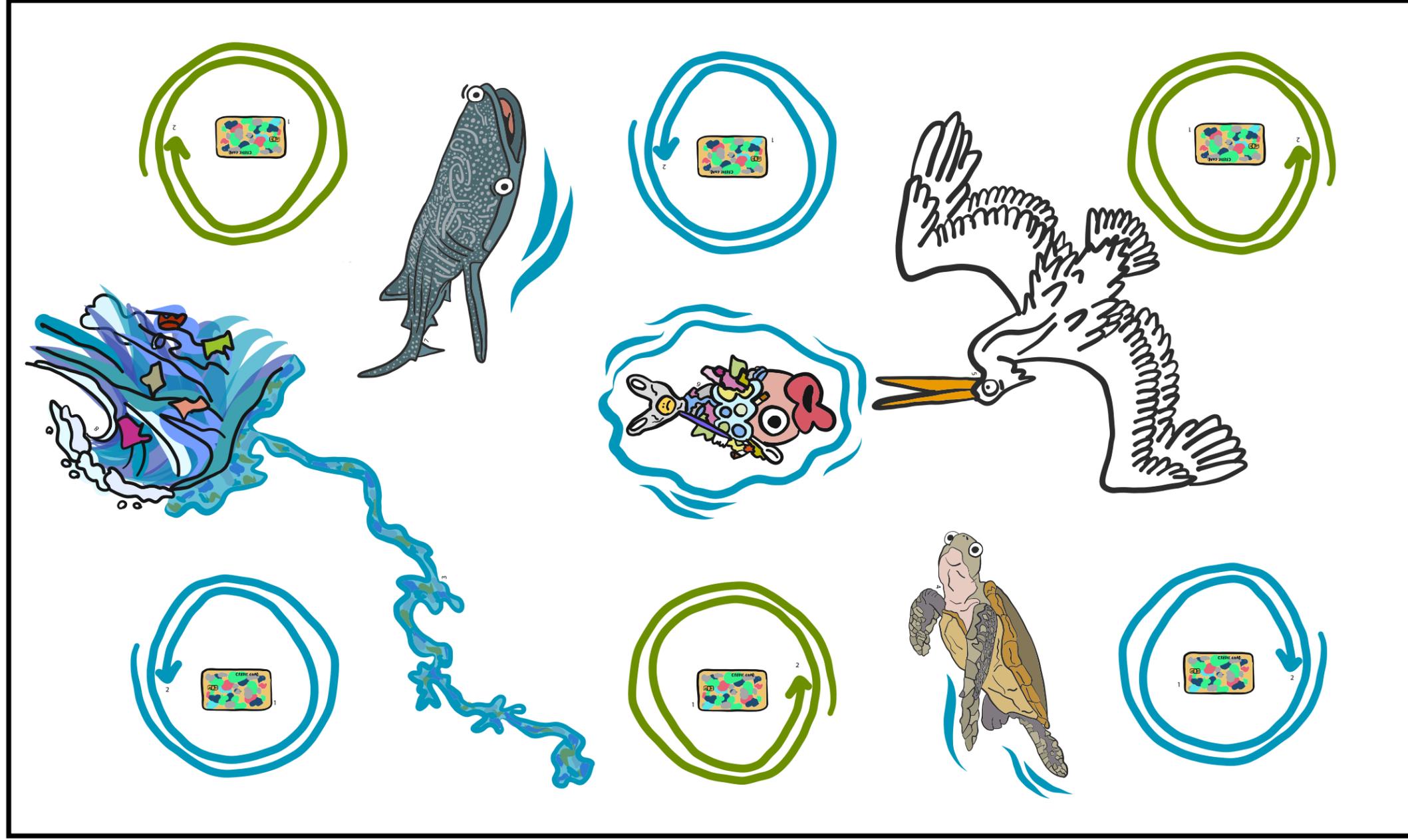
how can I be subtle  
yet DIRECT?

# FINAL ITERATION

By bring a fact-based narrative directly to the seafood dining table by designing a custom tablecloth and napkin set for progressively minded seafood restaurateurs. It will not only raise awareness among patrons and support a more responsible seafood industry, but also direct funding to ocean cleanup efforts.



**NAPKIN**



**TABLECLOTH**

# PROTOTYPE





This physical mockup was used to explore the setting and role play a dining experience.



Fact Sheet

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2. More than 8 million tons of plastic are dumped in our oceans every year. This is enough to go around the earth twice. (Plastic Oceans)
3. In the Citarum river in Indonesia, where various wealthy countries ship their trash to 20,000 tons of waste is thrown into the river everyday. Since 2008 nearly 60 percent of fish species have been destroyed. However, 25 million people still use this river as their primary water supply, even though it is 1000 times worse than USA standards for drinking water.
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5. Nearly every seabird on earth is eating plastic. Sharp-edged plastic kills birds by punching holes in internal organs, as a result approximately 1 million seabirds die from plastic every year. (Ocean Crusaders)
6. Microplastics are small enough to be ingested by sea animals, including those that end up on our plates. 70 years of manufacturing plastic later, we are finally starting to see where it all ends up when we toss it. According to a 2017 UN report, there are more than 51 trillion microplastic particles in the sea, more than 500 times the number of stars in the Milky Way. (Forbes)
7. By 2050 there will be more plastic in the ocean than there are fish -by weight. (Earth Day)
8. Most trash reaches the seas via rivers, and 80% originates from landfills and other urban sources. This waste, which is also consumed by fish and can entangle sharks and damage coral reefs, tends to accumulate in gyres (areas of slow spiraling water and low winds) and along coastlines. (National Geographic)





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My design, made from recycled ocean plastic, stimulates delight through vibrant colors, pattern, and humorous illustrations while provoking a patron's curiosity to learn more. The imagery on the table is coded with a number that corresponds to a legend on the back of the napkins.

# PERSONALIZING

# PERSONALIZATION

Rough sketches of how the design could be personalized to appeal to the restaurant's design and menu.

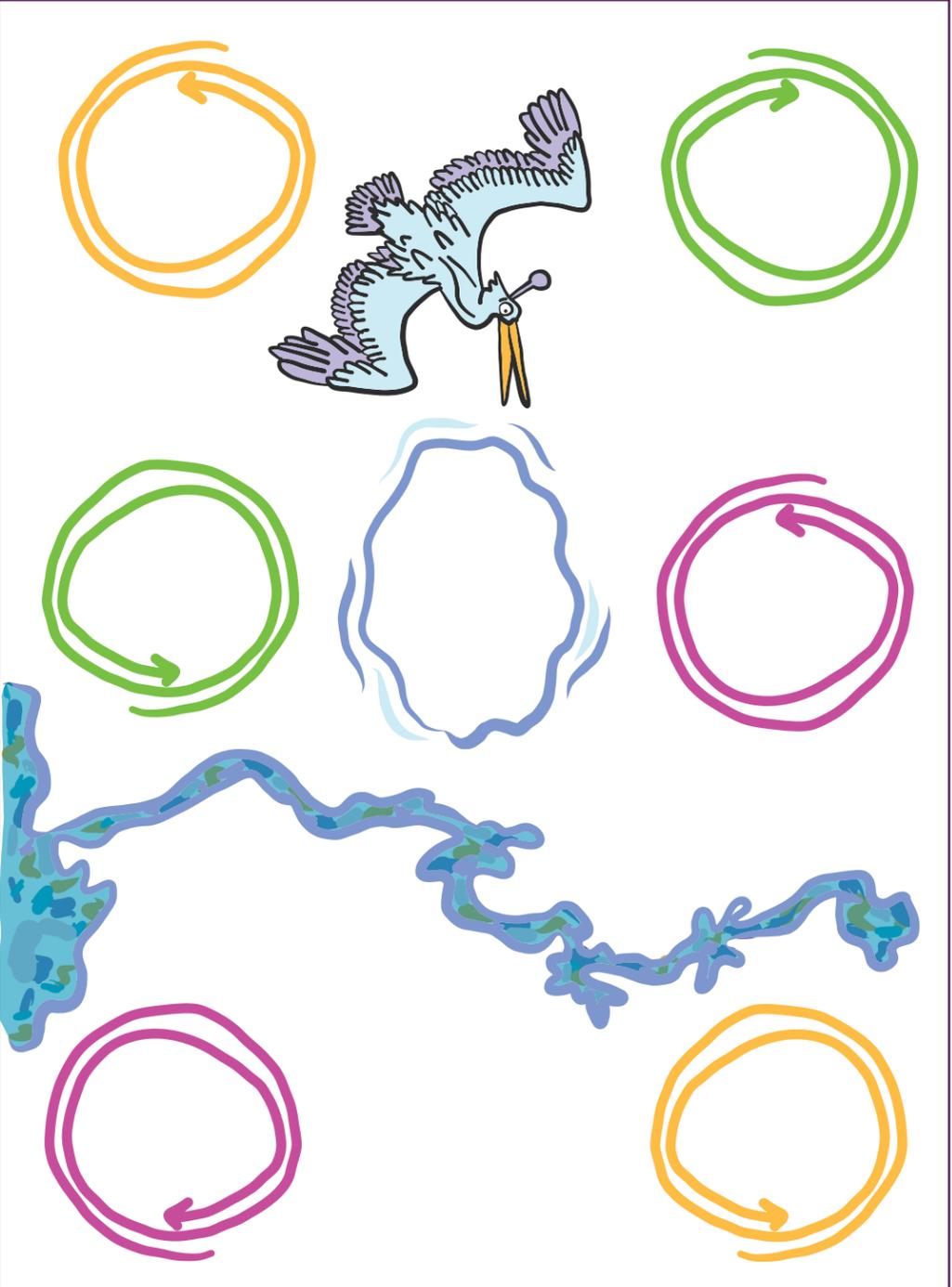
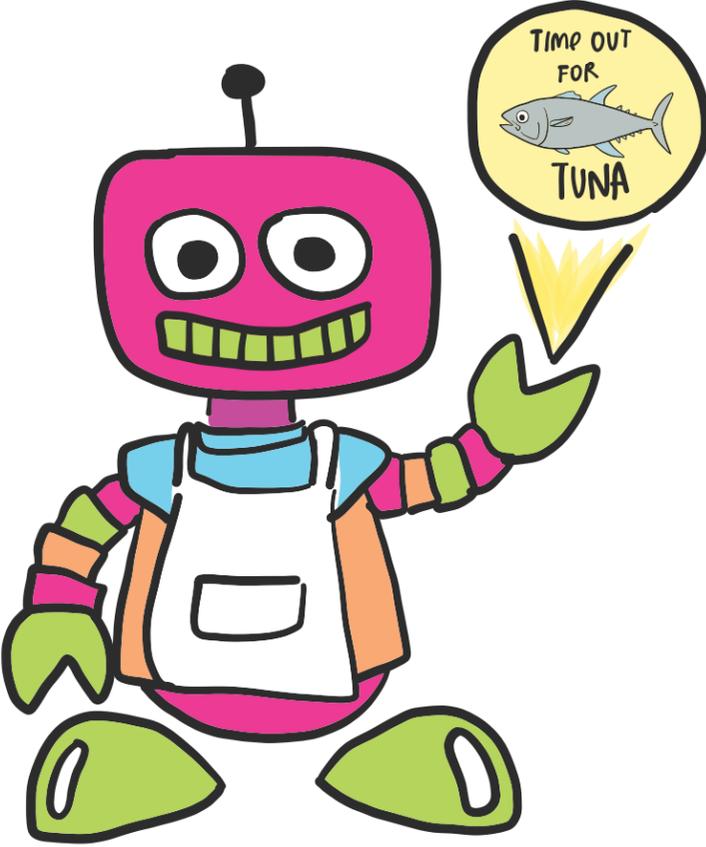


# PERSONALIZATION

Rough sketches of how the design could be personalized to appeal to the restaurant's design and menu.



**LUCKY**  
**ROBOT**  
**JAPANESE KITCHEN**



# MATERIALS AND

# PRODUCTION

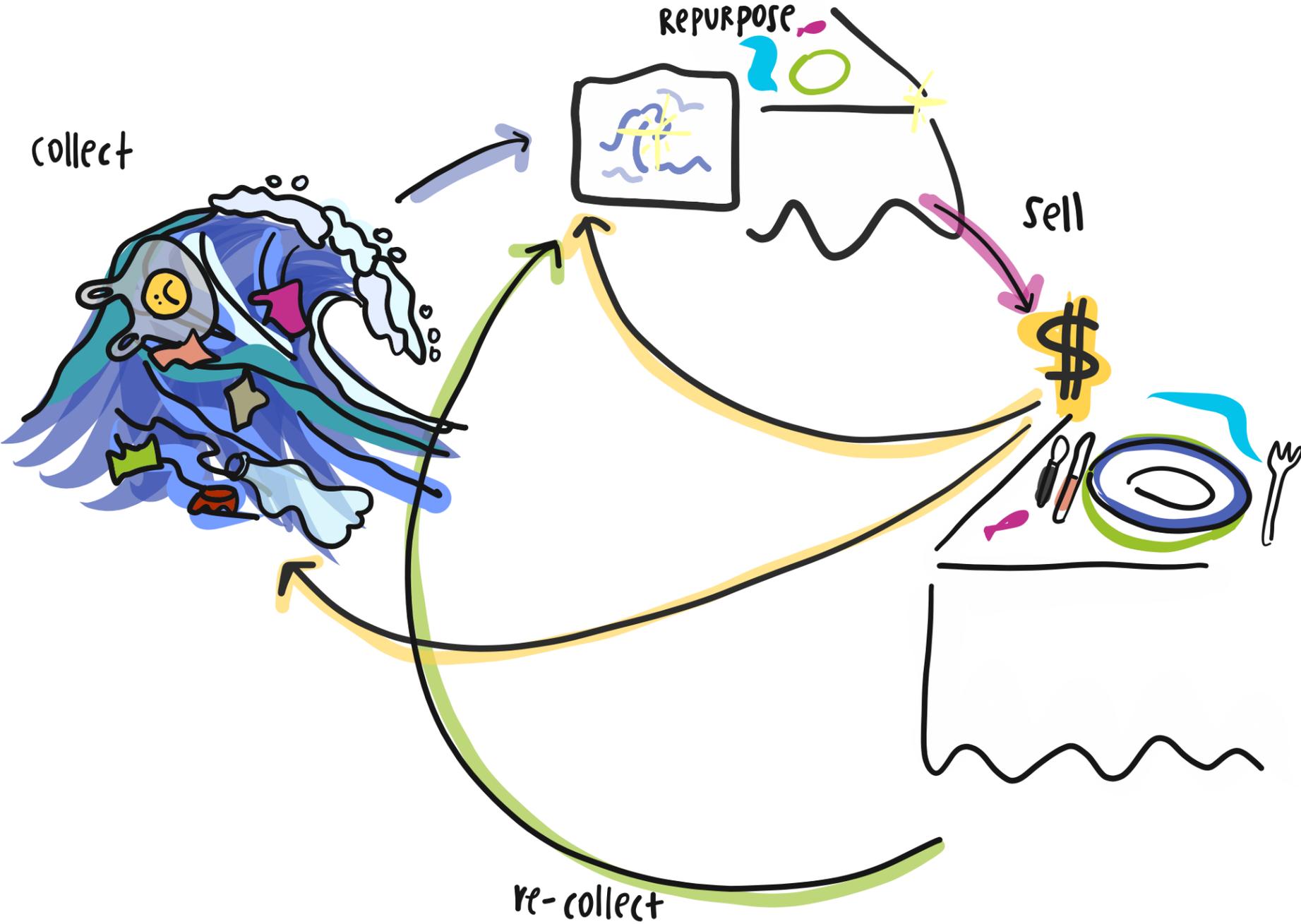
# CREATING A CIRCULAR ECONOMY

My goal is not only to raise awareness among patrons and support a more responsible seafood industry, but also to direct funding to ocean cleanup efforts.

By collaborating with organizations such as Parley and Repreve to manufacture the fabric and thread out of plastic ocean waste this will ensure that repurposing of materials thus avoiding the creation of potential new waste.

When selling, or renting the tablecloth and napkin set to restaurants, a percentage of the profit will go to the cleanup of the ocean.

At the end cycle of either the tablecloth or napkin, it can be sent back to us and recycled into a brand new set.

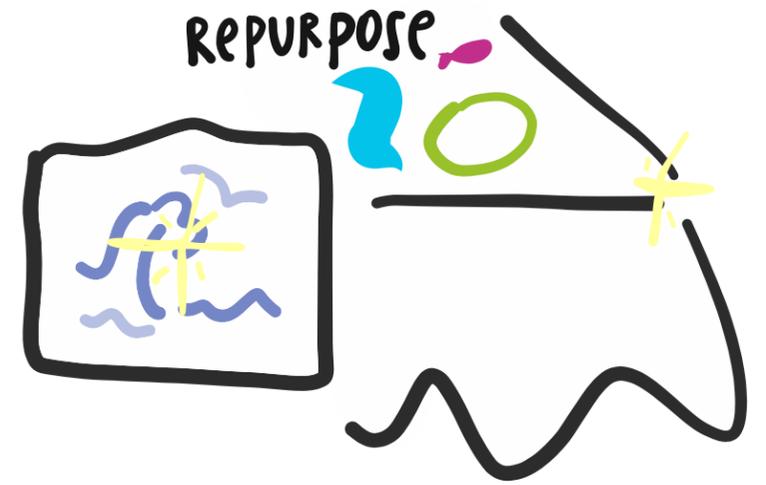


# FABRIC

## MATERIALS

Fabric: made out of repurposed ocean plastic by companies such as Parley or Repreve.

Thread: made out of repurposed ocean plastic by Repreve.



# EMBROIDERY

## PRODUCTION A

Hand Embroidery

### PROS

- Done by local artisans
- More luxurious
- Support local economy, and or indigenous communities if produced in Mexico.
- One of a kind.

### CONS

- Slower production
- More expensive

## PRODUCTION B

CNC Embroidery

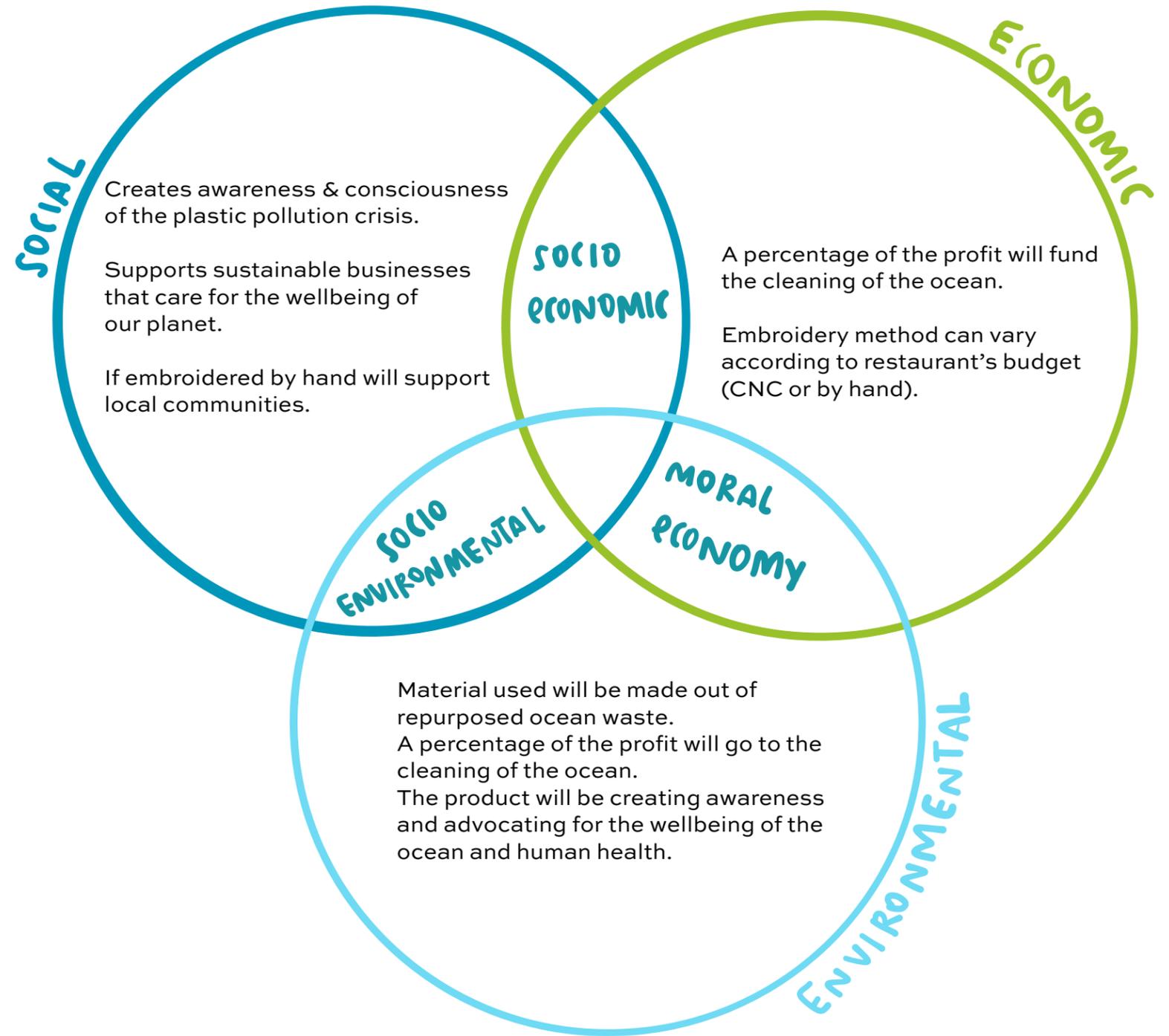
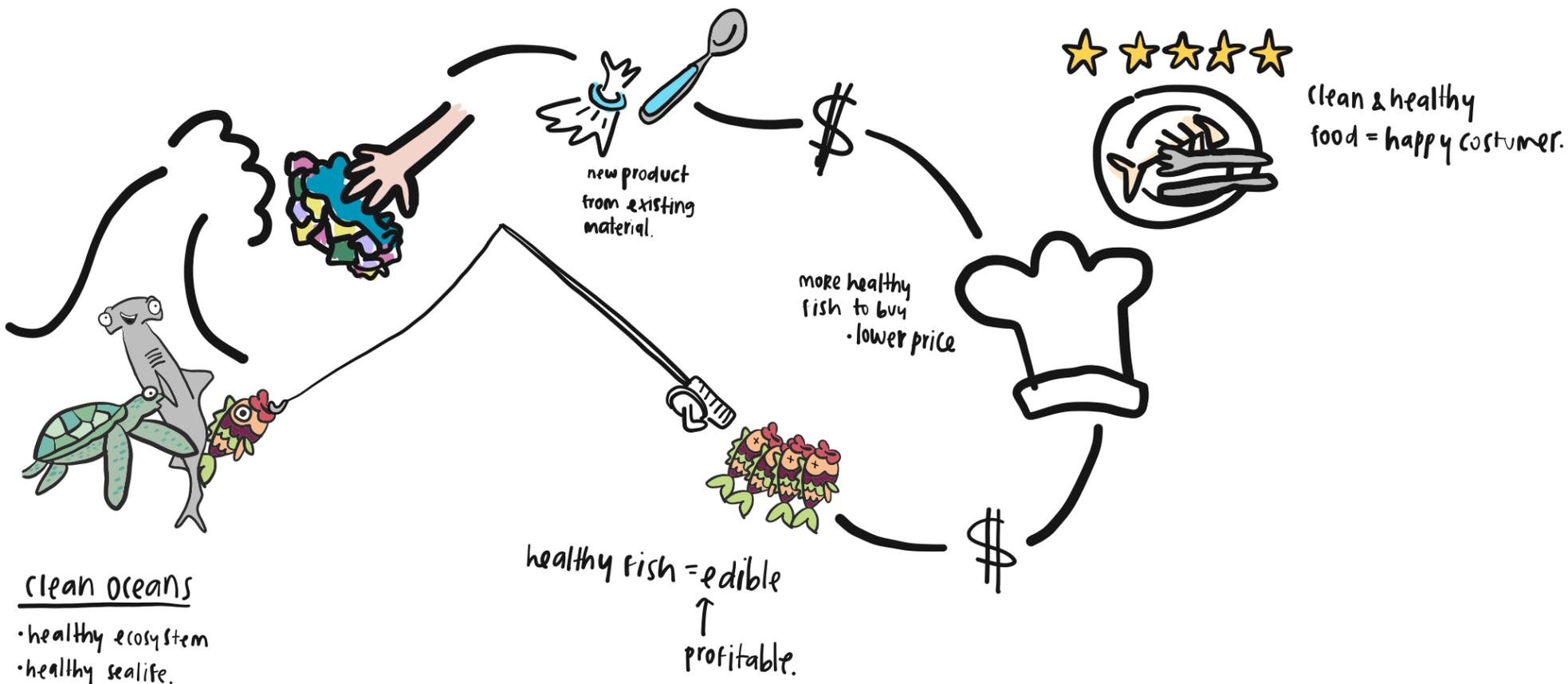
### PROS

- Fast production
- Less expensive than hand embroidery
- Accesible anywhere

### CONS

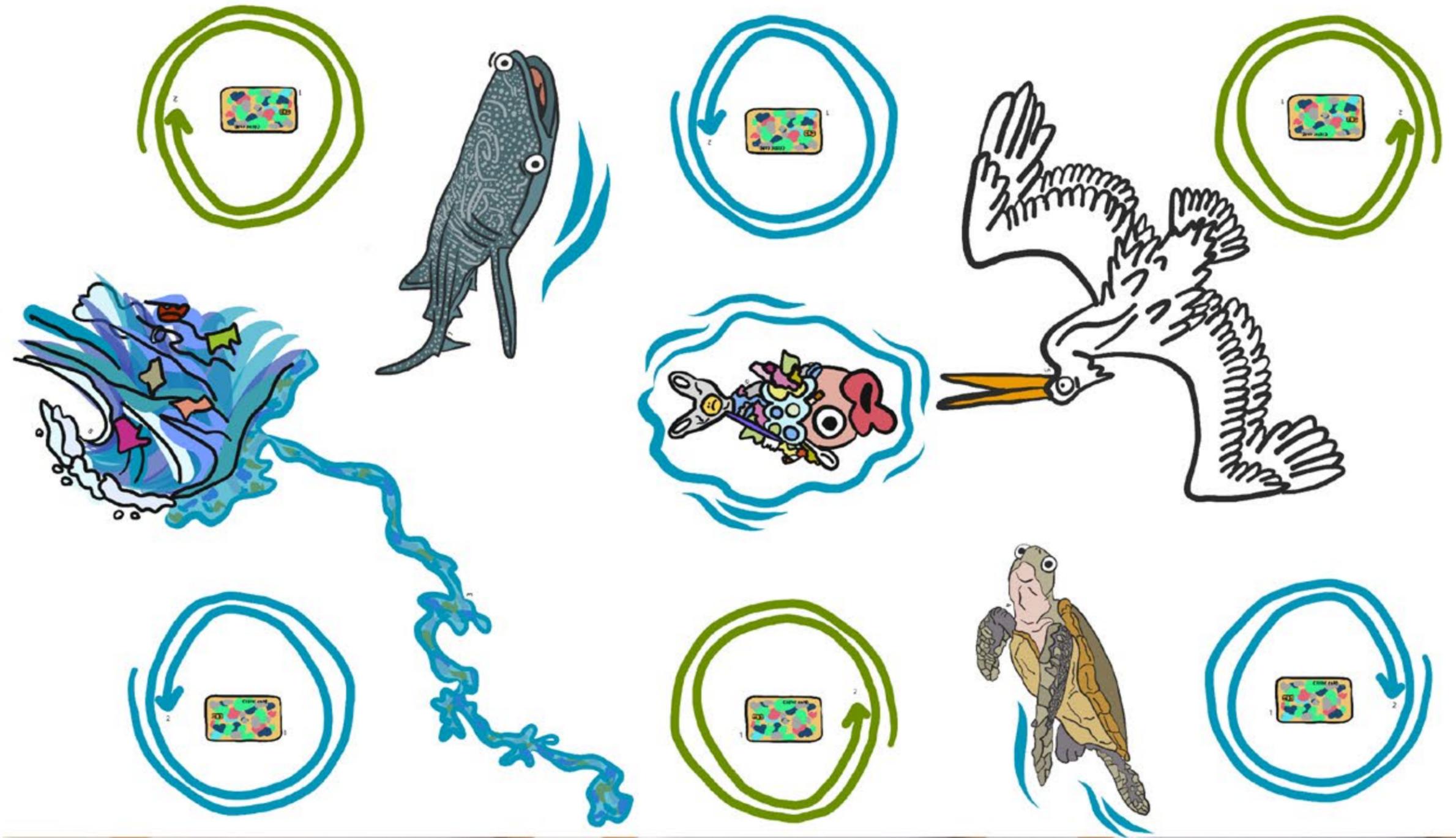
- Machine made
- No handmade touch
- Might require minimum quantities for production

# TRIPLE BOT TOM LINE



“Only powered by knowledge can we take the necessary actions to transform our relationship with plastic & protect our families, communities & the environment.”

-Lilly Sedaghat



# ACKNOWLEDGMENTS

## MANY THANKS TO:

Mark Bechtel -Capstone 2020

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Dave Marin -Precious Plastic

Sarah Hasted -Business Strategy

NYC Youth Climate Coallition -Climate Justice Activists

& last but not least: Mom and Dad for having taken me to that scuba diving adventure 4 years ago! ... and also for giving me this undergrad adventure.

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# SERVING WITH CONSCIOUSNESS

PAMELA ELIZARRARAS ACITORES

Parsons School of Design

Mark Bechtel, Capstone 2020