

bioplaSEAtic

Material Experiment and Jewelry Design of Bioplastic with the Theme of Plastic Pollution in the Ocean

Plastic pollution is causing more and more serious harm to marine life. I selected three most intuitive and typical effects, using bioplastic as the medium and jewelry design worn by people as the final presentation form to appeal to more people to pay attention to this problem.

INSPIRATION



I visited an island near my hometown during the holiday. I was deeply impressed by the plastic garbage left by tourists on the beach. A large number of plastic products were eventually swept into the sea by the waves. I can't imagine how much plastic can be removed from the ocean and how much will be floating around for hundreds of years.

RESEARCH

Ocean Plastic Pollution

Plastic End up in Ocean Every Year

> 8,000,000 t



Impact on Marine Life



Half of sea turtles worldwide have ingested plastic. Ingesting as little as 14 pieces of plastic increases their risk of death.



Plastic waste kills up to a million seabirds a year. 60% of all seabird species have eaten pieces of plastic.



Corals that come into contact with plastic have an 89% chance of contracting disease.

At least 800 species worldwide are affected by marine debris.

As much as 80% of that litter is plastic.

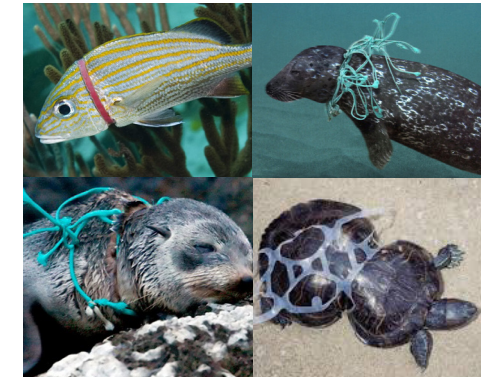
After deeper research, I found the plastic pollution in the ocean is much more serious than I saw. And plastic waste is having a huge impact on marine life.

MOODBOARDS

COVER



STRANGLE

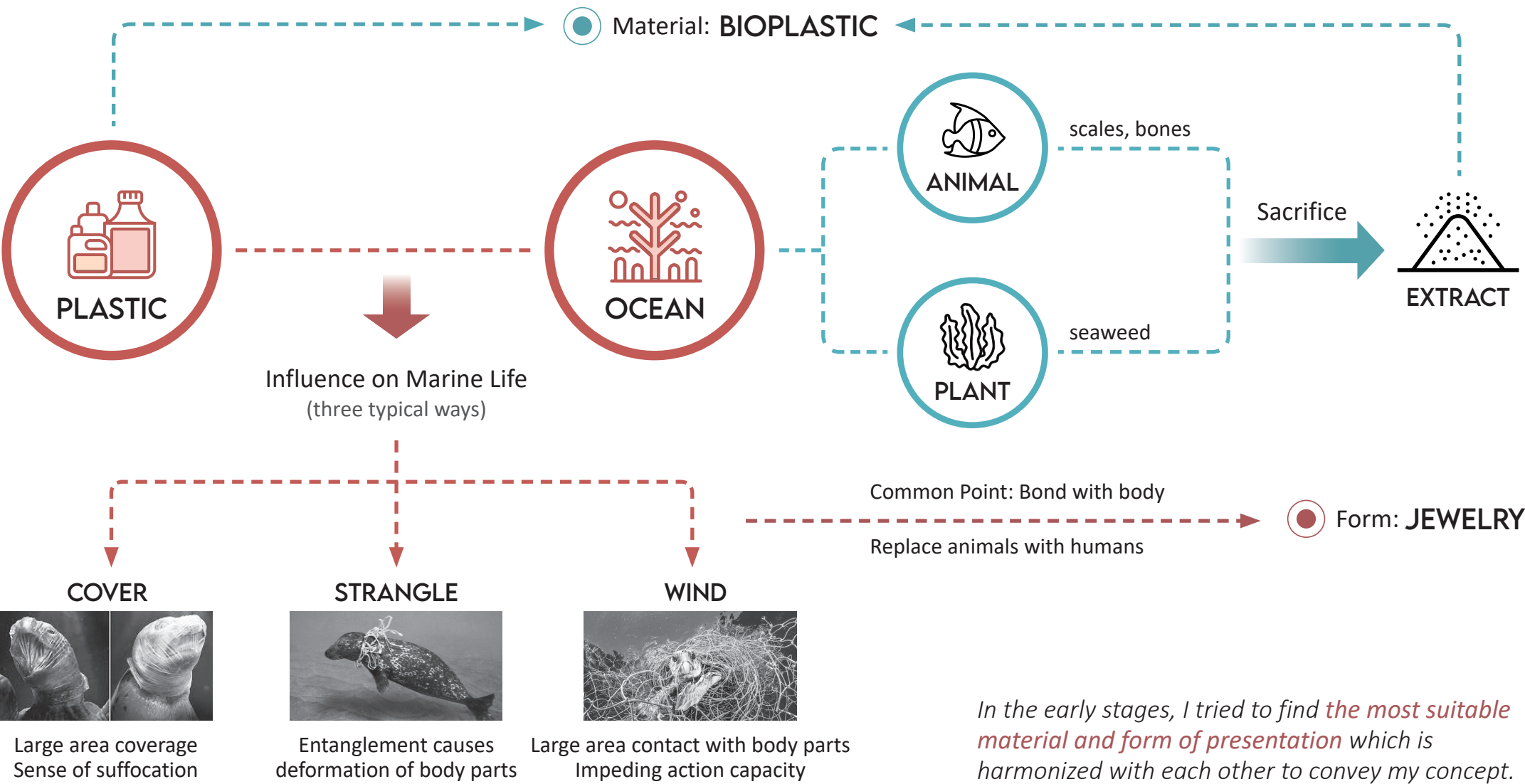


WIND



THINKING PATHWAY

I hope that my design can enable more people to learn about the impact of plastic pollution on marine life *in a more touching way* and *appeal to more people to take action to improve the situation*.



MATERIAL EXPERIMENT

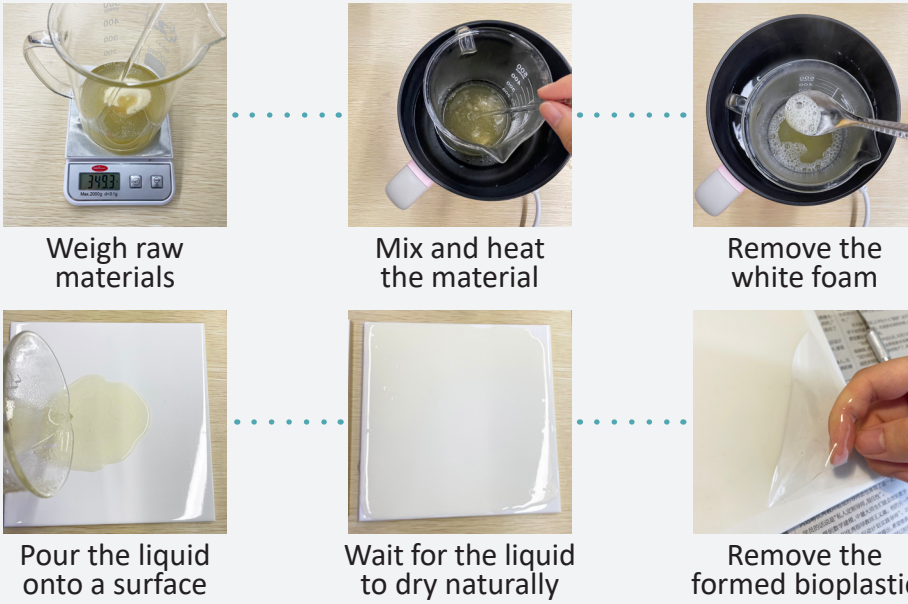
I conducted further material experiments to better understand the *characteristics and possibilities of bioplastic*.

Raw Material

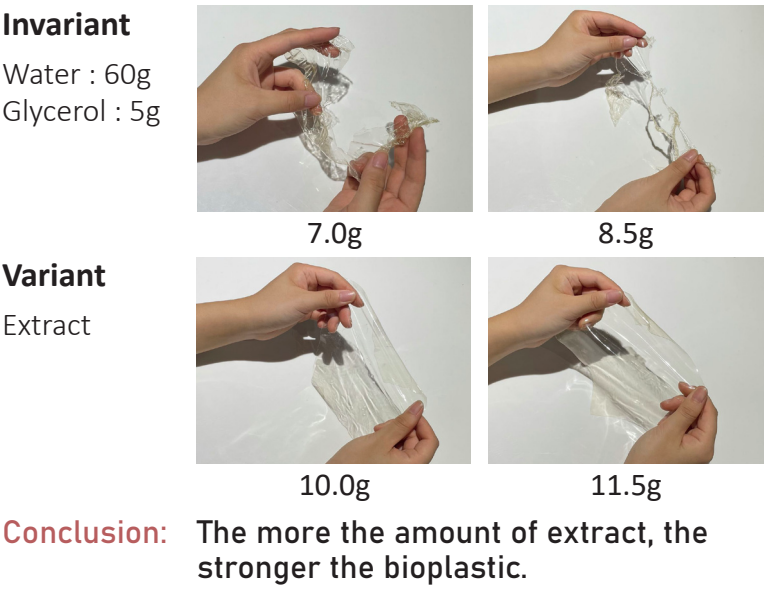


Fish Scale & Bone Extract as the Main Raw Materials

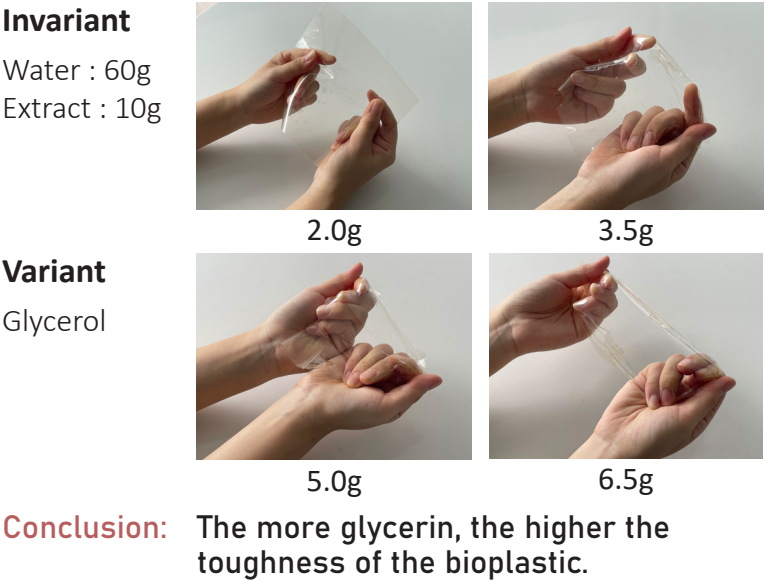
Forming Process



Amount of Extract



Amount of Glycerol



● Color

I tried to *extract colors from natural plants*, and add them to the heating process to color the bioplastic.



One single color



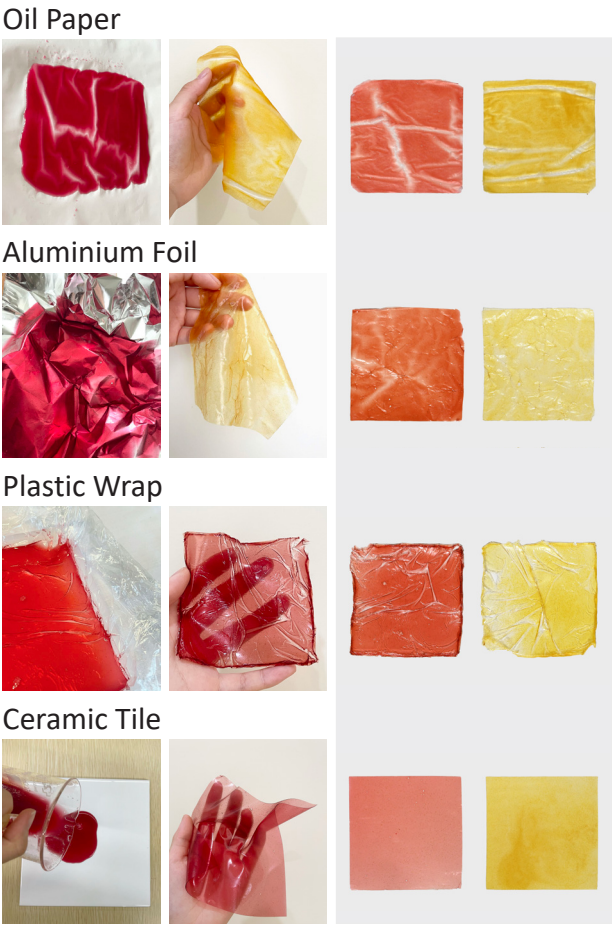
More possibilities for color fusion



Conclusion:
Bioplastics can achieve monochrome gradient, multi-color gradient, pattern depiction and other color processing methods.

● Plane for Solidification

In addition to the original ceramic tiles, I tried to pour the heated liquid on *a plane of different materials for air drying*.



Conclusion:
Bioplastics can reproduce surface features of other objects.

● Combine with Other Materials

Some accidental aluminum foil paper left on the bioplastic in the last experiment made me discover the possibility of combining bioplastic with other materials.



Conclusion:
Bioplastics can be tightly combined with other materials.

● Three-dimensional Shaping

I tried to find ways in which bioplastics are *processed differently than sheet fabrics*.

Rely on other containers for shaping



Attached the semi-dry material to the container, and after the material is completely dry, it can be shaped in three dimensions.

Self Deformation



The semi-dry material can be folded, stretched and bent until the material is completely dry.

Conclusion:
Semi-dried bioplastics have a strong ability to shape.

● Other Output

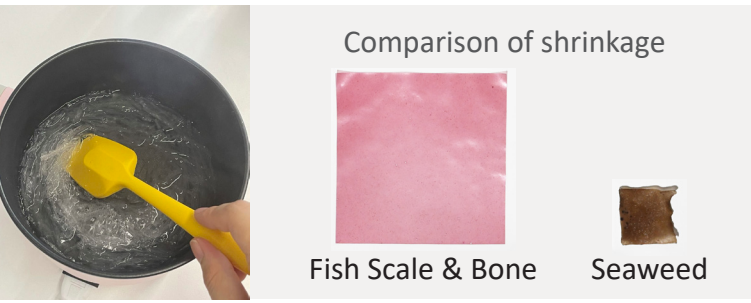


I discovered that the *foam* skimmed during heating can solidify into a *porous, soft material* similar to a sponge.

Use Seaweed Extract as the Main Raw Materials

● Forming Process

I used the same steps to conduct experiments on this kind of bioplastic, and found that it has similar characteristics to bioplastic with fish scale & bone extracts as the main raw materials, but *the main difference is that the bioplastics with seaweed extracts as the main raw materials have stronger shrinkage in the drying process*.



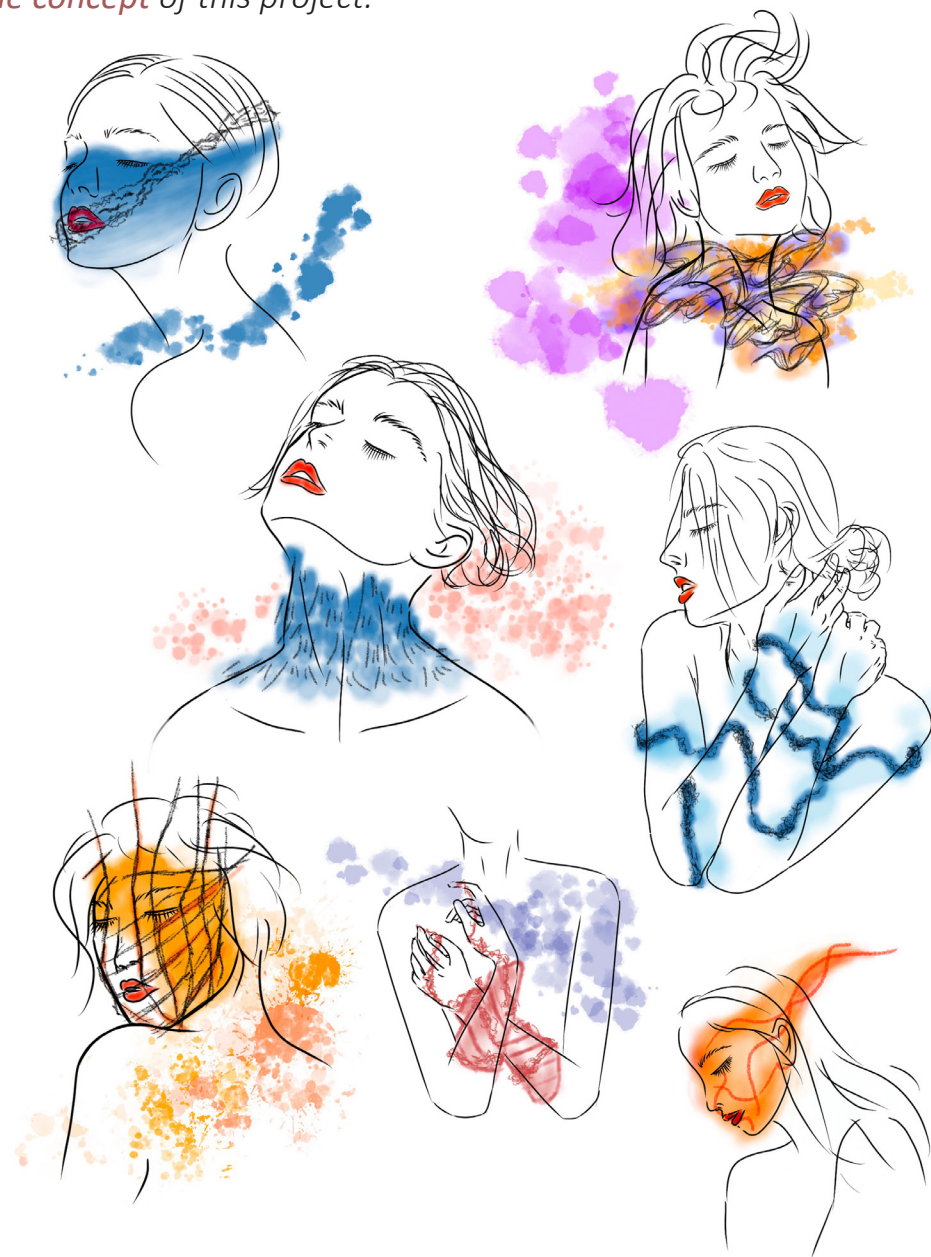
● Specific Output

The contractile properties of this type of bioplastic yield surprising results when *combined with plastic wrap*, which records the process of bioplastic shrinkage in the final forms, resulting in a *yarn-like effect with a crumpled texture*.



JEWELRY DESIGN DRAFT

After a large number of material experiments, I have basically understood the characteristics and production possibilities of bioplastic. Then I began to try to **apply this material to jewelry design to express the concept** of this project.



PRODUCTION PROCESS



In the **initial production process**, I was **eager to show many possibilities** of bioplastics more comprehensively in the finished products, which made the final output seem **cumbersome and unnatural**. Finally, I pursue to integrate **the most important characteristics** of bioplastics into jewelry in **the most natural way**.

FINAL DESIGN



/ Choking /

/ Struggling /

/ Spreading /



/ Choking /

I combined three bioplastics with different textures to make the work more visually layered.

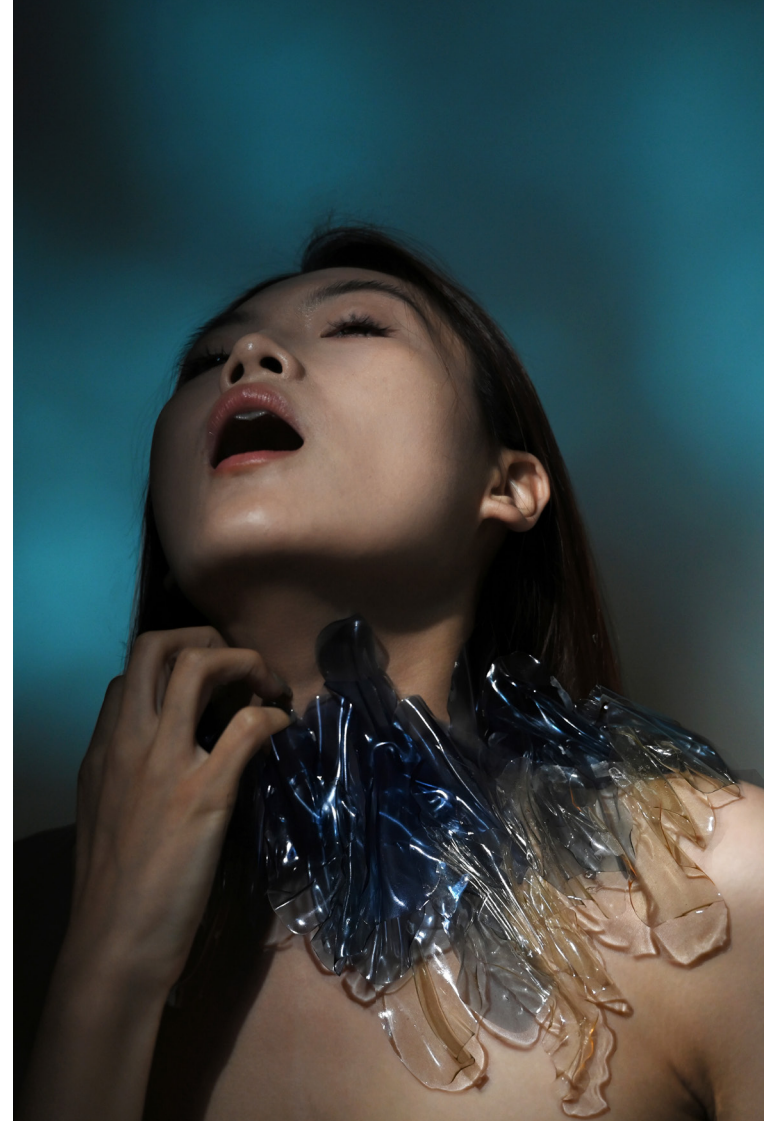
The face is covered with multiple layers of material to simulate the choking sensation of marine life enveloped in plastic.



/ Struggling /

The biological plastic sheets of different color shades were bent into shape, showing a sense of tension.

The winding around the neck is used to show the helplessness of marine life when they are strangled by plastic



/ Spreading /

I used the elasticity and viscosity of bioplastic when it was semi-dry to wind strips of bioplastic into long chains of varying thickness and shade of color.

The large-area winding around the hands is used to show the struggling feeling of marine life when wrapped in large-area plastic which makes them difficult to move.

