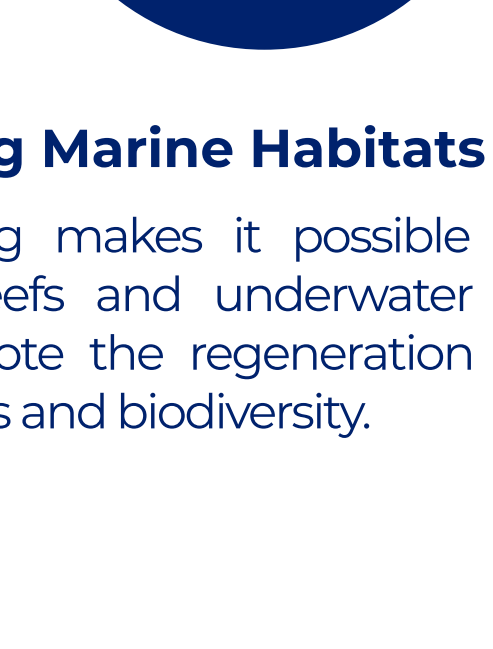


3D PRINTING TO PROTECT THE OCEANS

2025

WHY IS 3D PRINTING BEING USED TO PROTECT THE OCEANS?



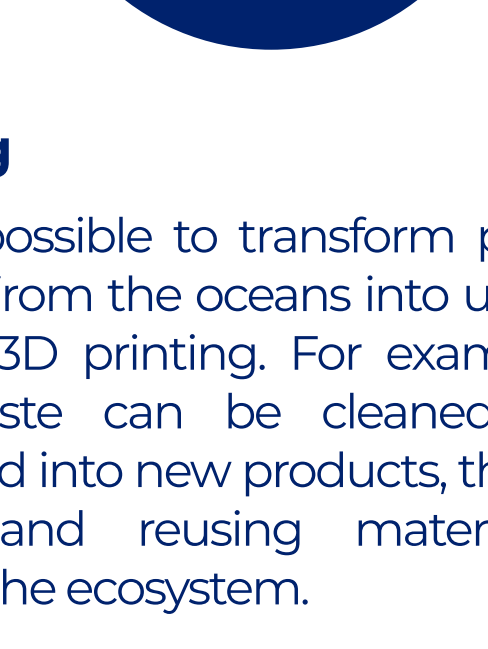
Restoring Marine Habitats

3D printing makes it possible to design artificial reefs and underwater structures that promote the regeneration of marine ecosystems and biodiversity.



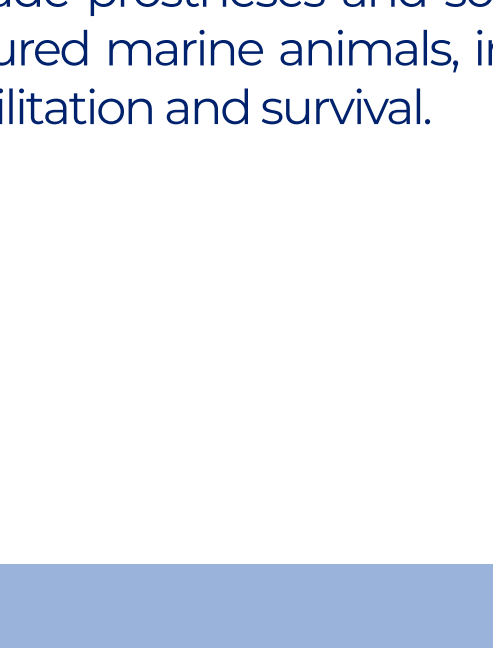
Food Alternatives

3D printing makes it possible to create sustainable food alternatives, such as 3D printed fish, to meet demand while protecting the oceans.



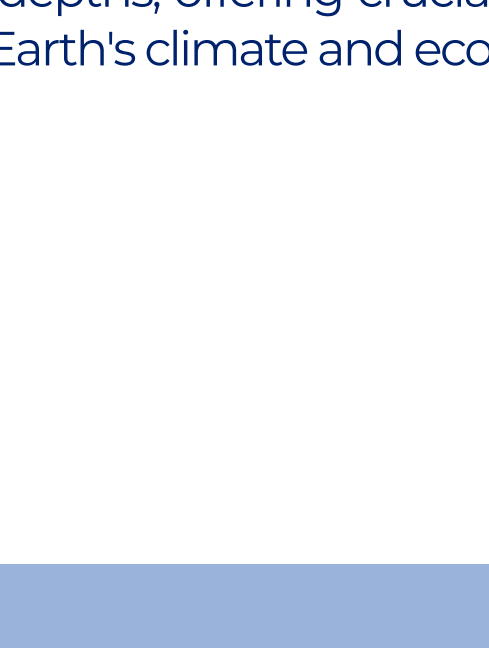
Recycling

It is now possible to transform plastic waste recovered from the oceans into useful objects thanks to 3D printing. For example, marine plastic waste can be cleaned and then transformed into new products, thus reducing pollution and reusing materials already present in the ecosystem.



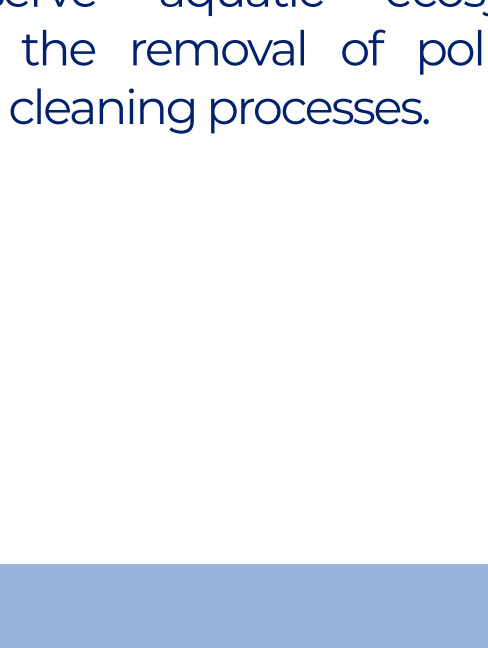
Protecting Marine Wildlife

3D printing enables the creation of custom-made prostheses and solutions to care for injured marine animals, improving their rehabilitation and survival.



Deep-Sea Exploration

3D printing has made it possible to explore the ocean depths, offering crucial information about the Earth's climate and ecosystems.



Improving Water Quality

3D printing and robotics combine to purify and preserve aquatic ecosystems by facilitating the removal of pollutants and optimizing cleaning processes.

APPLICATIONS

SEAWALLS

3D printing can be used to design artificial seawalls and reefs. In Miami, Kind Designs has recreated a seawall that mimics the characteristics of the marine habitat, providing a refuge and food source for aquatic fauna.

RECYCLED FISHING NETS

Nylon fishing nets abandoned at sea contribute to the plastic pollution of our oceans. Fishy Filaments recovers these nets from the oceans and seas, recycling them and transforming them into filaments for 3D printing.

ARTIFICIAL BARNACLES

Barnacles are crustaceans that cling to the surfaces of rocks and boats. The New Zealand agency Eke Panuku has developed artificial barnacles to provide a food source for other marine species and contribute to the conservation of biodiversity.

PROTECTING MARINE MOLLUSCS

Protecting oyster larvae is essential to the survival of the species. Researchers at the University of South Florida have designed protective 3D-printed clay structures to shelter these larvae at sea.

CLEANING UP THE WATER

British student Eleanor Mackintosh has designed a salmon-sized robot with gills equipped with nets. These are capable of sucking up microplastics from the water and storing them in its body.

PROSTHESES FOR MARINE ANIMALS

Every year, hundreds of turtles collide with various types of watercraft, sustaining fatal injuries. The Mystic Aquarium in Minnesota has developed a 3D-printed prosthesis to help turtles heal, saving their lives.

ARTIFICIAL REEFS

3D printing is used to help preserve corals. Reef Design Lab has created the world's largest 3D-printed artificial coral reef, immersing it in the waters of the Maldives and encouraging the growth of living corals.

KEY FIGURES

400

The number of bio-attractive modules for coastal protection and restoration sent by D-Shape to Tenerife, Tarragona, Norway and Denmark.

(D-SHAPE)

100

The number of corals analyzed in one day by the Artec 3D Spider scanner to study the long-term impacts of climate change-induced stress on various coral species.

(ARTEC 3D)

72
KM

The quantity of illegal fishing nets and lines recovered for the creation of the prototype Ultra Boost shoe by Parley and Adidas.

(PARLEY)

6

The number of 3D printed reefs, made from natural materials, immersed in the Larvotto marine reserve in Monaco by the Boskalis company.

(FONDATION PRINCE ALBERT II DE MONACO)

7
METERS

The depth at which the MARS reef on Summer Island is located, in a coral farm where coral is cultivated to be reimplanted in natural reefs and replace damaged coral.

(GUINNESS WORLD RECORDS)

95%

The survival rate of reef tiles 3D printed from terracotta clay by Archireef.

(ARCHIREEF)

TIMELINE

- 2017** ● Fishy Filaments is founded. The company recovers old fishing nets and transforms them into 3D printing filament, with the aim of making UK fishing more sustainable.
- 2018** ● To reduce ocean pollution, Dutch company Serious Business suggests 3D printing a sailboat from plastic waste.
- 2019** ● Volvo installs Living Seawalls in Sydney Harbour, 3D-printed tiles designed to reduce plastic pollution and promote marine biodiversity.
- 2020** ● After the destruction caused by a typhoon in 2018, researchers from the University of Hong Kong deploy 3D-printed terracotta tiles in Hoi Ha Wan Marine Park to promote coral regeneration.
- 2021** ● Scientists from the Marine Environment Society began installing artificial corals around the island of Culebra, Puerto Rico, a project that continues to this day.
- 2022** ● Thanks to the UN's "Closing the Loop" program, designer Karim Rashid brings the OCEANA COLLECTION to life for Solaris Community. He created furniture pieces using 3D printing and plastic recovered from the oceans.
- 2023** ● LightArt and Ocean Works create luminaires with 3D printing using plastic waste collected in coastal areas.
- 2024** ● Revo Foods creates 100% plant-based, 3D-printed salmon fillets to preserve the species. These can be found in supermarkets.