



BSSSC
ANNUAL CONFERENCE

September 29th – October 1st 2020

CLEWAT

SAVING THE SEAS

TURNING THE TIDE OF MARINE PLASTIC

Environmentally friendly solution to remove algae and control their growth



Clewat Ltd is a Finnish cleantech growth company, specializing in tech and innovation-driven solutions to lake, river and sea-related environmental problems.

We manufacture waste removal and oil spill response vessels. Creating Value Chain for collected materials.

Headquartered in Kokkola, Finland
Sales and Administration in Helsinki, Finland
International Operations, Singapore

A photograph of a beach heavily littered with plastic waste. The foreground shows a sandy beach covered in various pieces of trash, including plastic bottles, caps, and fragments. The middle ground shows the ocean with a large amount of floating plastic debris. The background features a clear blue sky with scattered white clouds. The overall scene illustrates the impact of plastic pollution on coastal environments.

10 MILLION TONNES MORE EVERY YEAR
250 MILLIONS OF TONS PLASTIC WASTE



Seascape: the state of our oceans

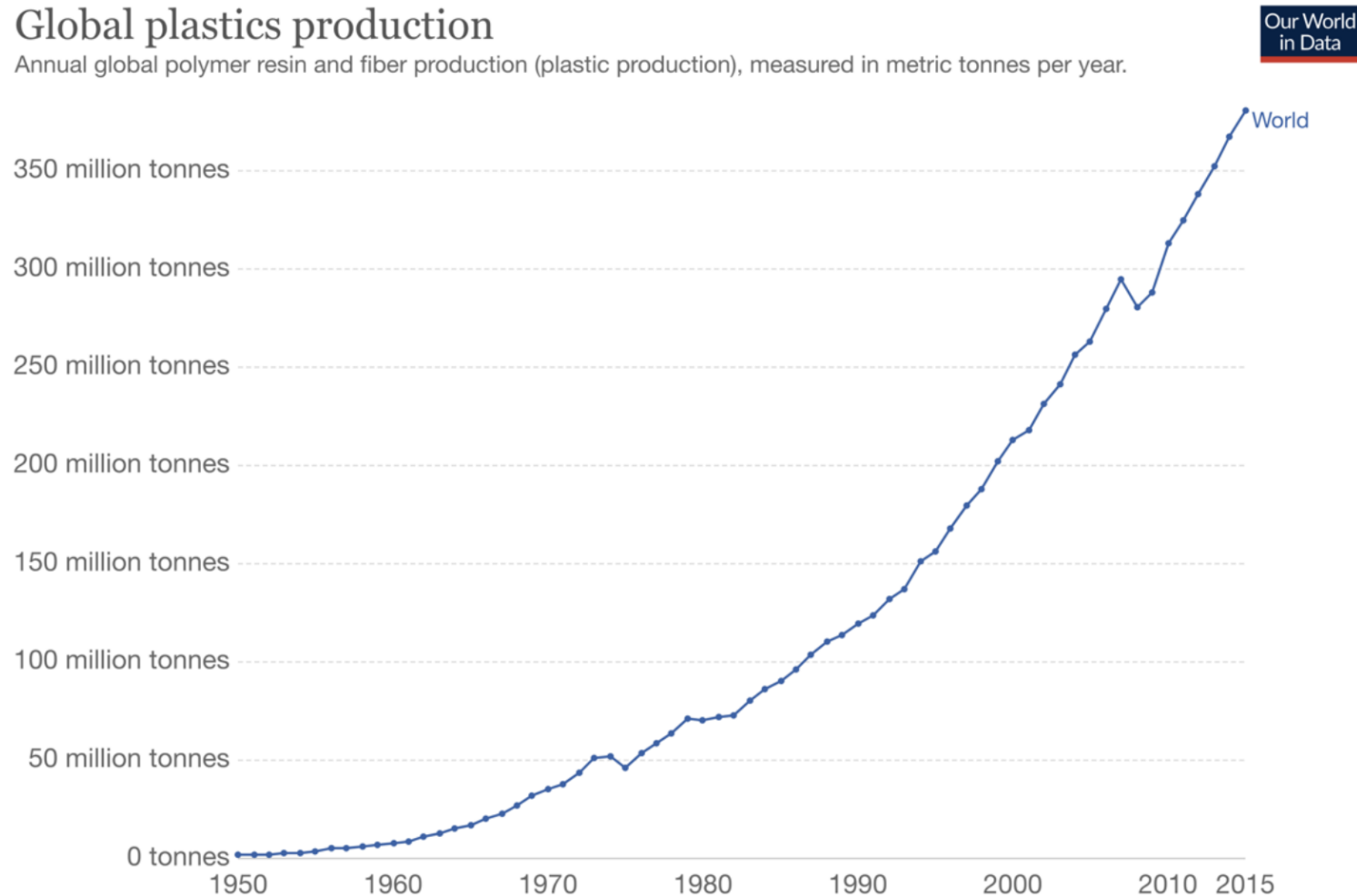
Plastic superhighway: the awful truth of our hidden ocean waste

▲ Plastic debris litters the beach on the Soko Islands in Hong Kong. Photograph: Reuters

400 million MT of new plastic per year

Global plastics production

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



Source: Geyer et al. (2017)

CC BY

**Latest (2019) estimate:
400 million MT per year**

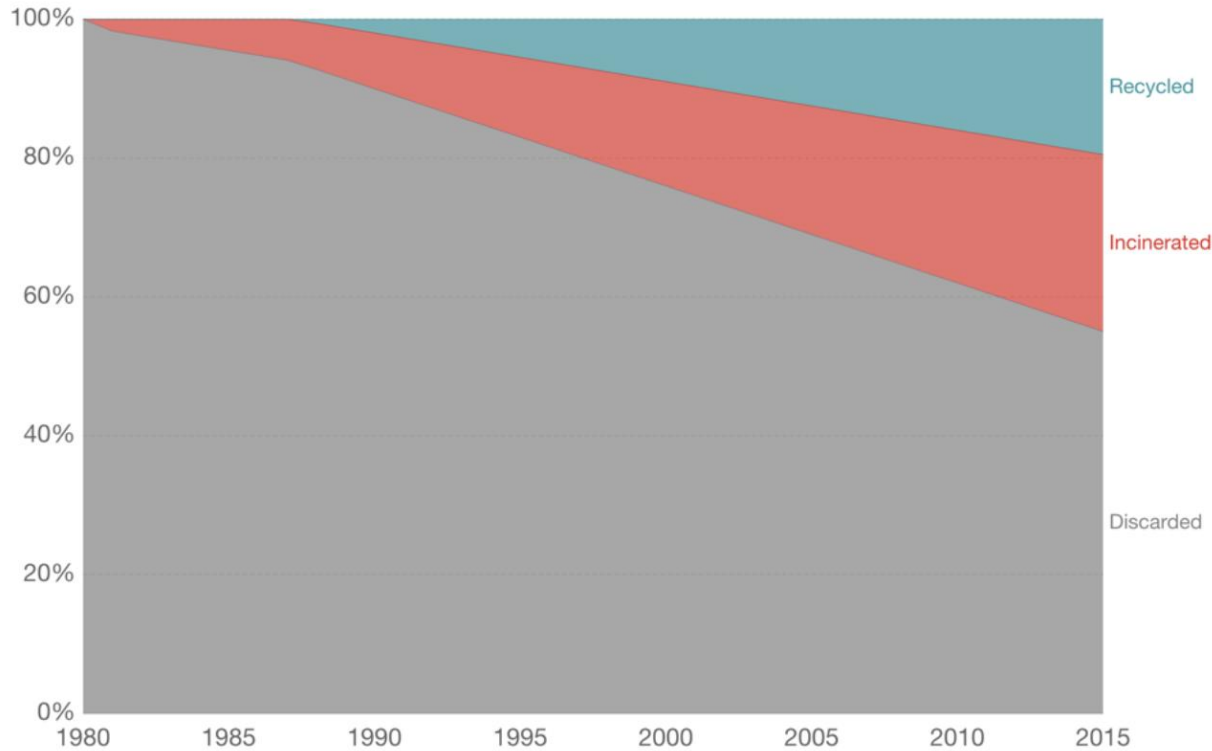
**Cumulatively, there's
more than 8 billion MT of
plastic in existence**

Source: Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. *Science Advances*, 3(7), e1700782.

Only 9% of plastics is recycled globally

Global plastic waste by disposal

Estimated share of global plastic waste by disposal method.



Source: Geyer et al. (2017)

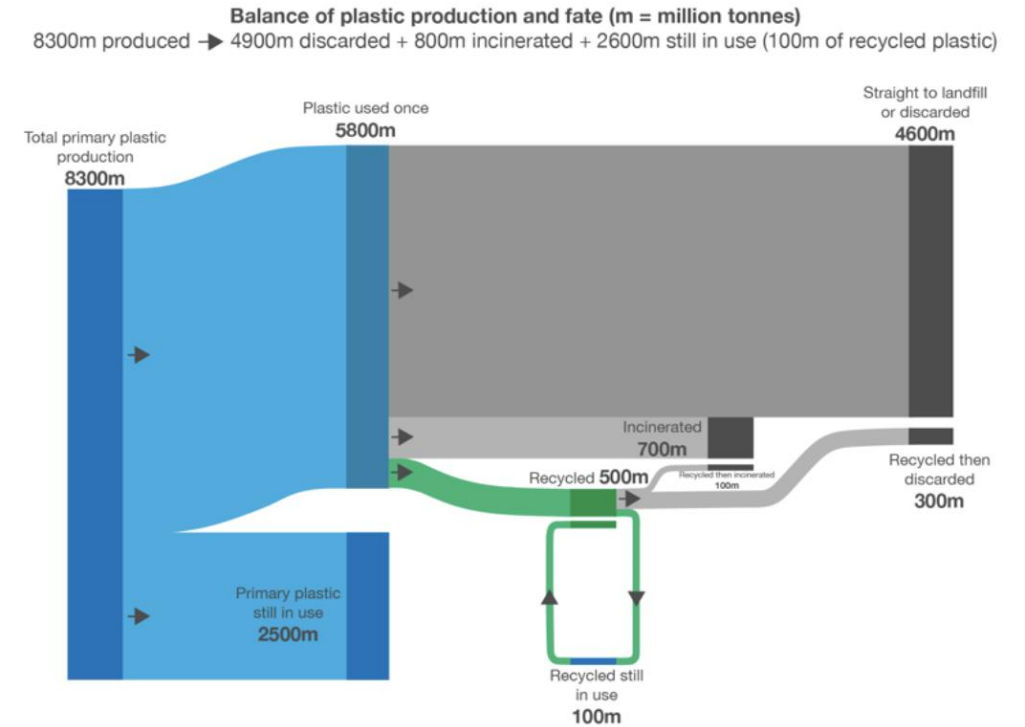
Our World in Data

Global plastic production and its fate (1950-2015)

Global production of polymer resins, synthetic fibres and additives, and its journey through to its ultimate fate (still in use, recycled, incinerated or discarded).

Figures below represent the cumulative mass of plastics over the period 1950-2015, measured in million tonnes.

Our World in Data



Source: based on Geyer et al. (2017). Production, use, and fate of all plastics ever made. This is a visualization from OurWorldInData.org, where you find data and research on how the world is changing. Licensed under CC-BY-SA by Hannah Ritchie and Max Roser (2018).

CC BY

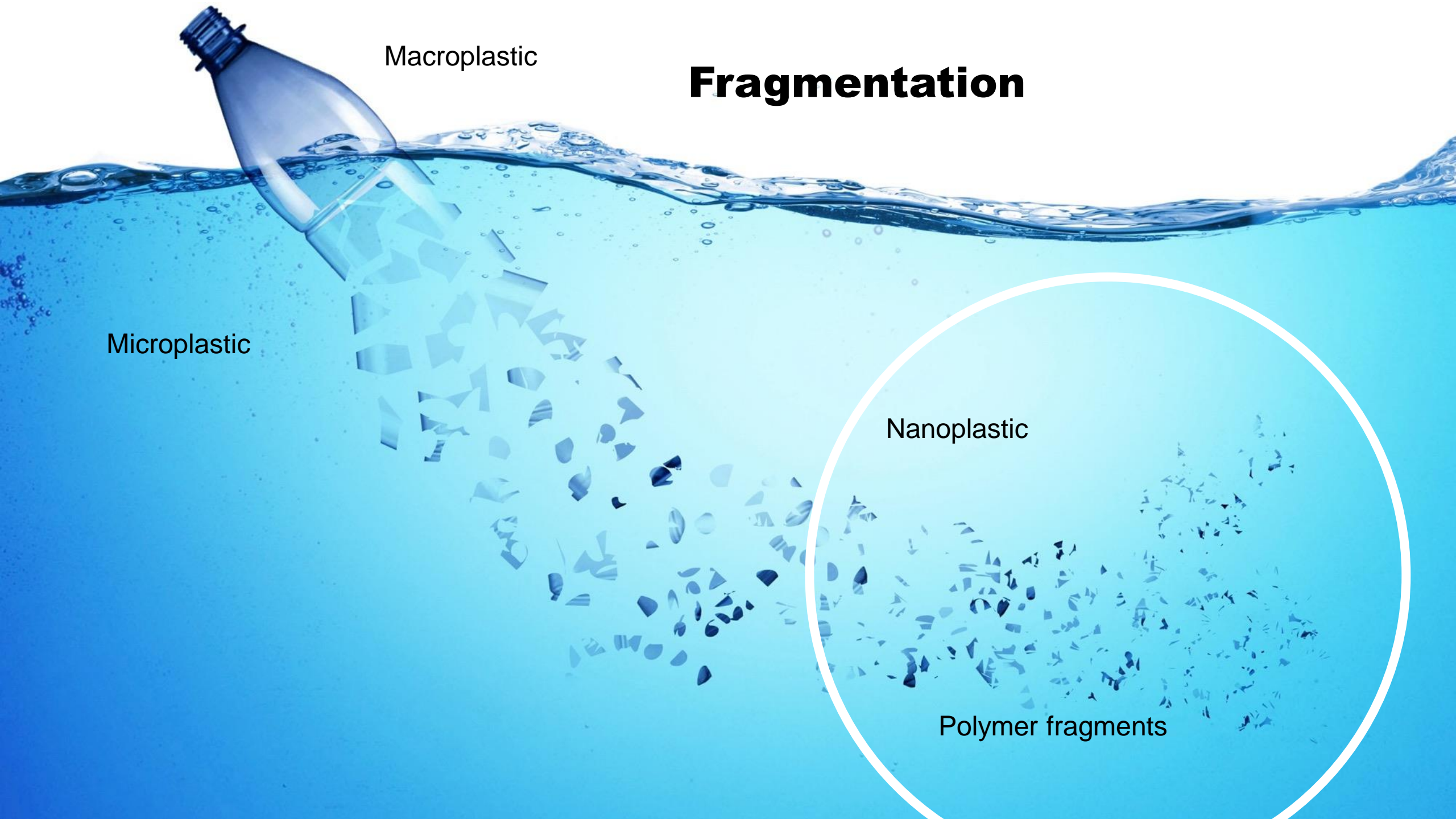
Macroplastic

Fragmentation

Microplastic

Nanoplastic

Polymer fragments





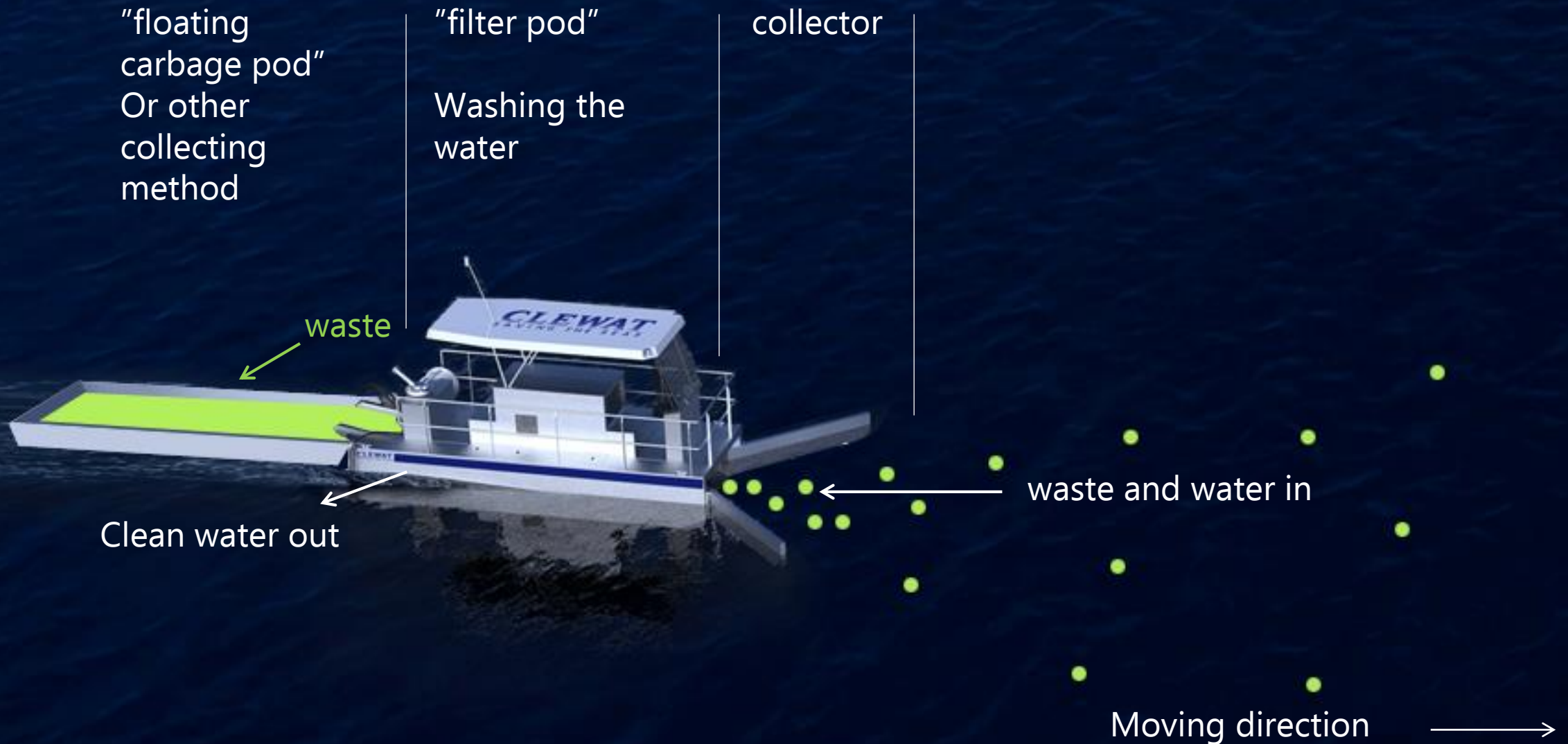
CLEANUP FOR FLOATING PLASTIC





CLEANSWEEP III

Clewat system



Work as fleet



Comparative marine plastic content study with macro samples

- Macro samples (1 million litres each) analysed from 25 selected locations in five selected geographical areas: EU, SEA, NA & Finland
- Compares the plastic content of different seas to improve models of marine plastic
- Completed in 2020
- The results are analysed in collaboration with academic partners
- Focusing the solutions to where the problem is

Public research partnership call

We at Clewat believe that combination of science, innovation, legislation and private and public partnership are the keys for long-term prevention and stopping plastic pollution reaching the oceans.

Our work with plastic pollution wouldn't be possible, if that many researchers weren't recognizing and identifying the problem years ago. Moving forward we believe in partnership between researchers, decision makers and our company will create new ways of fighting plastic pollution and identifying the most cost-effective actions.

While we are removing plastic from the environment, we would like to contribute to scientific efforts as much as possible. However, we alone are not capable of doing this. Instead we are capable of collecting a big amount of samples and data regarding micro- and macroplastic in aquatic environments.

We need help from researchers in the plastic pollution field. Due process the collected samples, to advise us on the best sampling procedures and overall research approach. We strongly believe our vessels are a great ship of opportunity platform for collecting samples of plastic pollution.

Clewat Cleansweep-vessels with its effective collection method and a high capacitor for collecting materials, can be utilized for sampling and monitoring floating macroplastics in bigger rivers and coastal areas. There is a substantial knowledge gap and data deficiency in said areas, and we would like to change that.

Currently our focus is towards river plastic pollution and we would like to contribute to the understanding of amounts, distribution and movement of macroplastic in rivers.

This collaboration is imagined as a two-way street. We would like to help researchers conduct top level research and find partners for joint projects.

If you would like to collaborate, please contact our:

Senior Research Coordinator

Stjepan Budimir

stjepan.budimir@clewat.com

+358 45 166 7930





FLORIDA

FINLAND

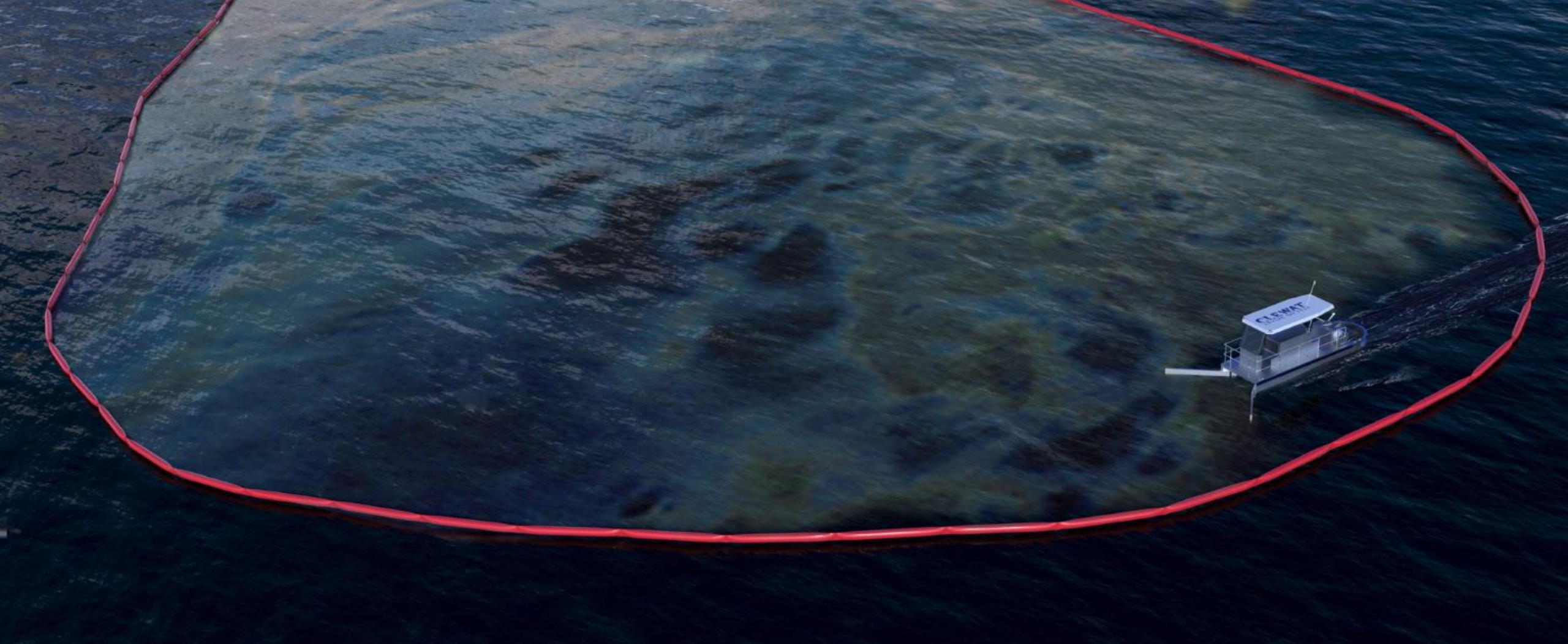
BALTIC SEA

MEDITERRANEAN

BLACK SEA

SOUTH EAST ASIA





CLEANUP FOR OIL SPILL

CLEANUP FOR FLOATING PLANT



Clewat Cleansweep system

"Post-collection logistics"

"filtering"

Washing water with water using flow in closed system

Collection

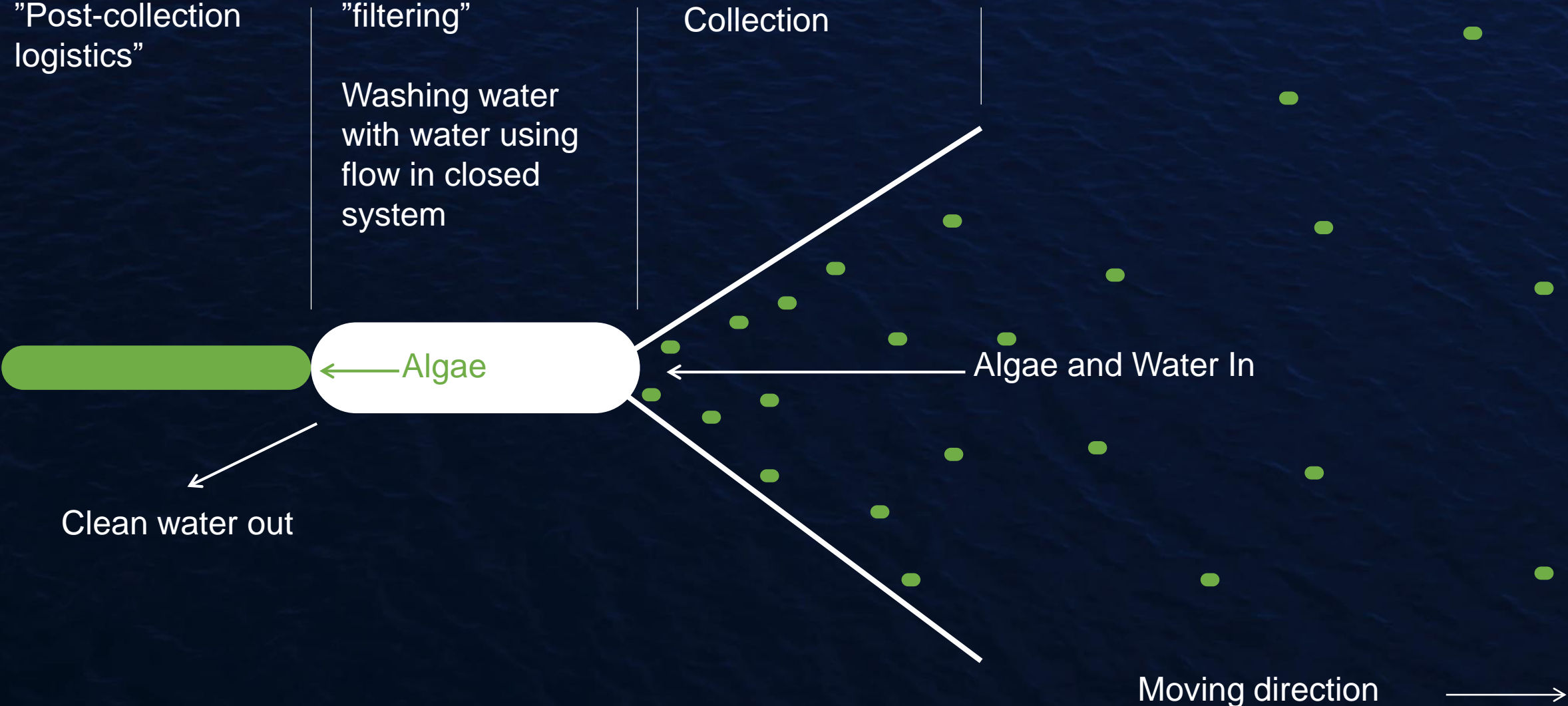


← Algae

← Algae and Water In

Clean water out

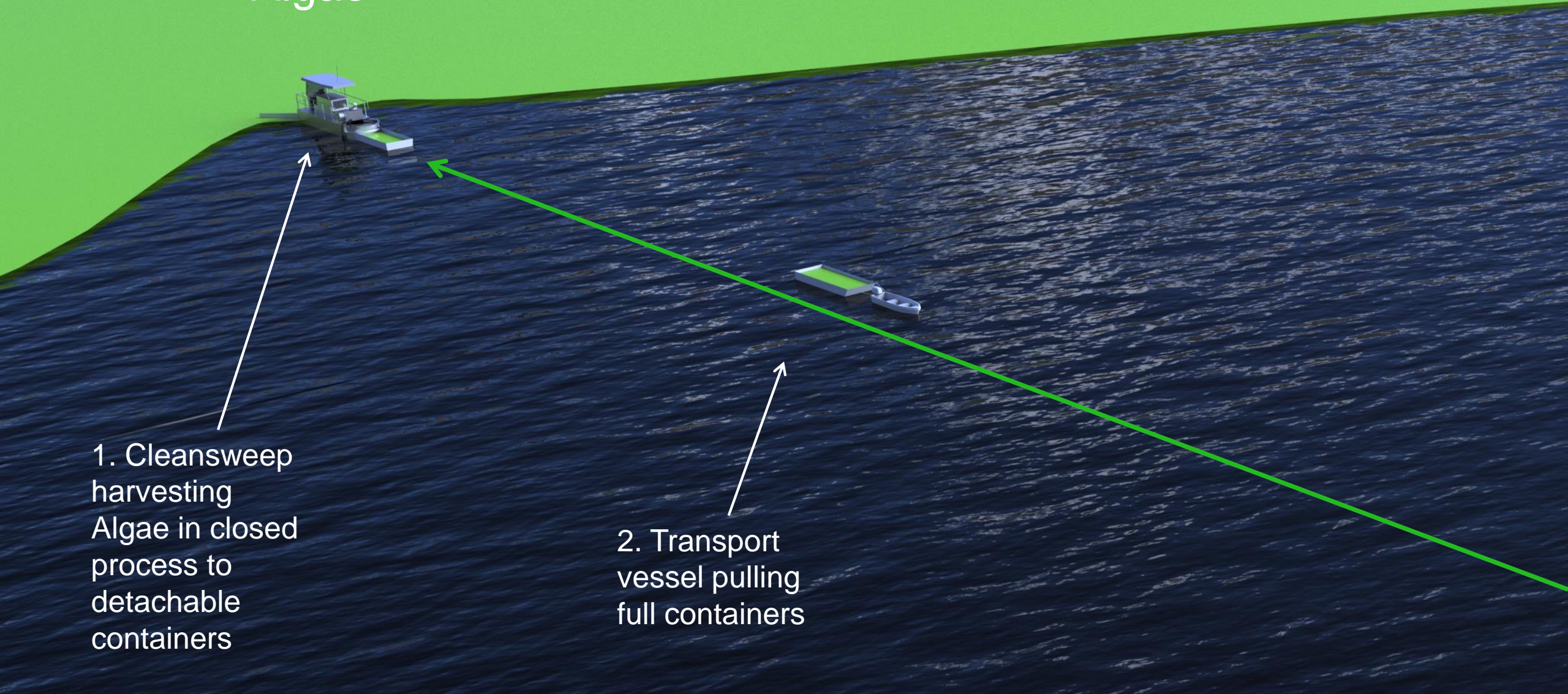
Moving direction



Harvesting Algae

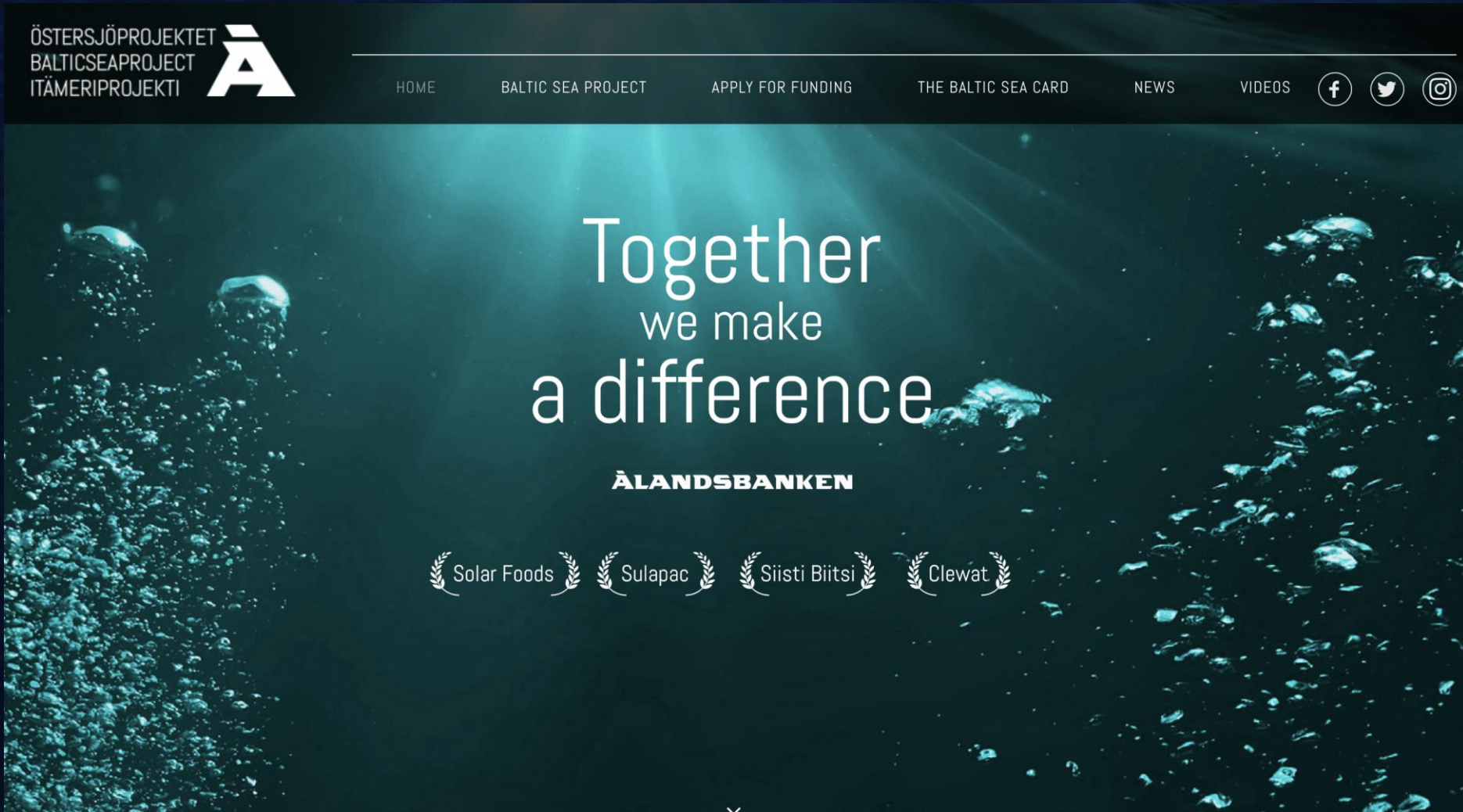
1. Cleansweep
harvesting
Algae in closed
process to
detachable
containers

2. Transport
vessel pulling
full containers





Awards



Projects summer 2020



Clewat Oy trials a new water-treatment vessel that removes debris and microplastics from marine locations.



Clewat Oy remove harmful vegetation (Eurasian watermilfoil) from the harbour of City of Kokkola.

An underwater scene with a shark's head visible at the top, looking down at a school of fish swimming in the water. The water is dark blue and slightly murky.

CLEWAT

SAVING THE SEAS

www.clewat.com

marko.karkkainen@clewat.com