

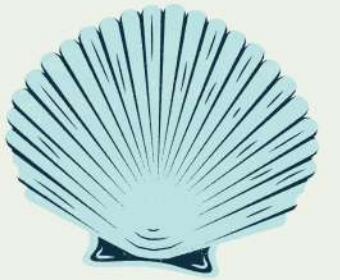
Caloocan National Science and Technology High School

MARMORIS

A Plastic Concentration and Movement Tracker for
Earth's Water Systems



PROBLEM

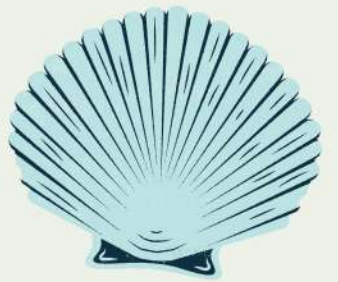
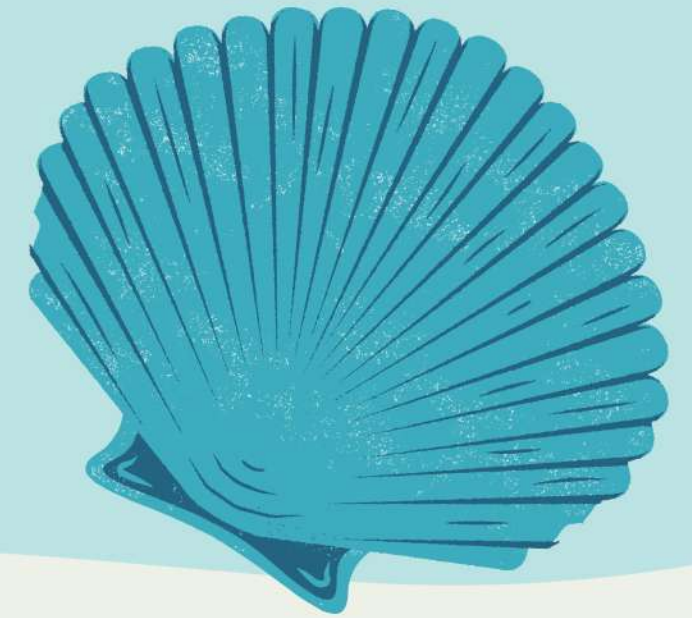


MARINE PLASTIC POLLUTION

- **80%** of all marine pollution is made up of plastic
- **8 million tonnes** of plastic bottles fill ocean waters every year
- Beyond 2050, scientists believe that plastic pollution in the ocean will **outnumber** the fish population
- An estimate of **50-75 TRILLION** of microplastics are currently in the ocean



PROBLEM



EFFECTS OF PLASTIC POLLUTION IN OCEANS

- Every year, more than 1 million seabirds and 100,000 marine mammals **die**.
- Roughly 700 species are **facing extinction**.
- **Microplastics** have found their way into the food chain.



OBJECTIVES

THIS SATELLITE WILL...

- **identify** the concentration of plastic pollution in bodies of water around the Earth
- **track** the flow and movement of plastic from inland water systems and coastal areas to oceans.
- **demonstrate** the feasibility of tracking plastic waste with satellites





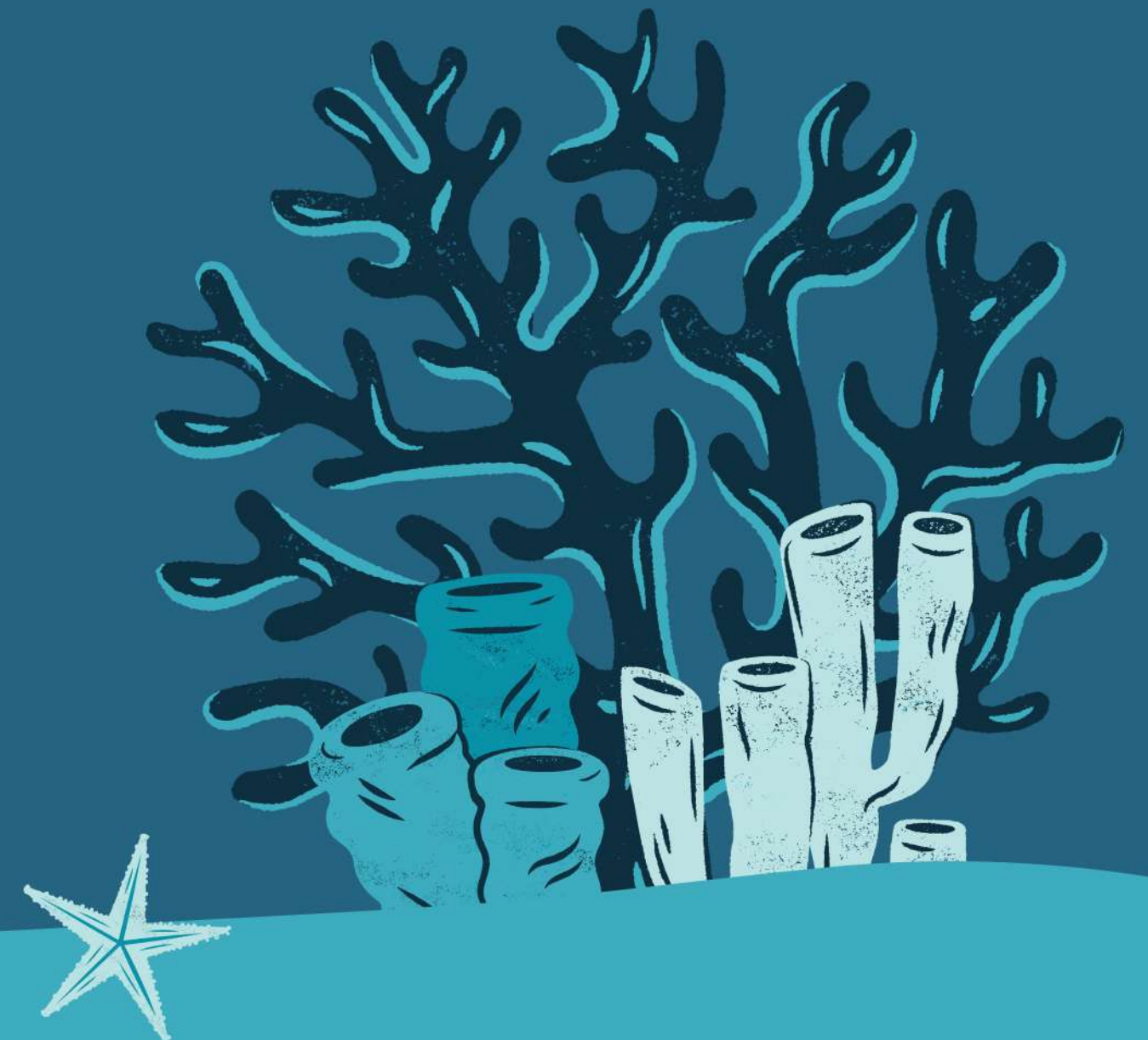
THIS SPACE MISSION WILL

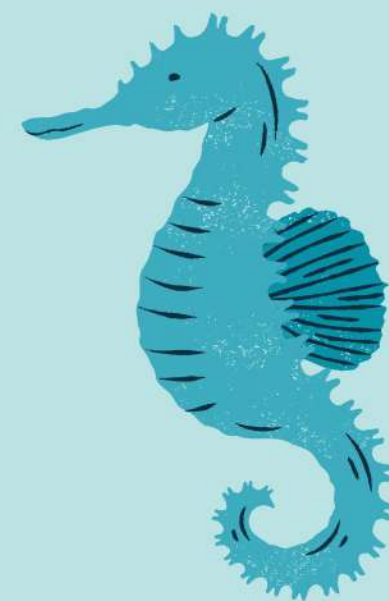
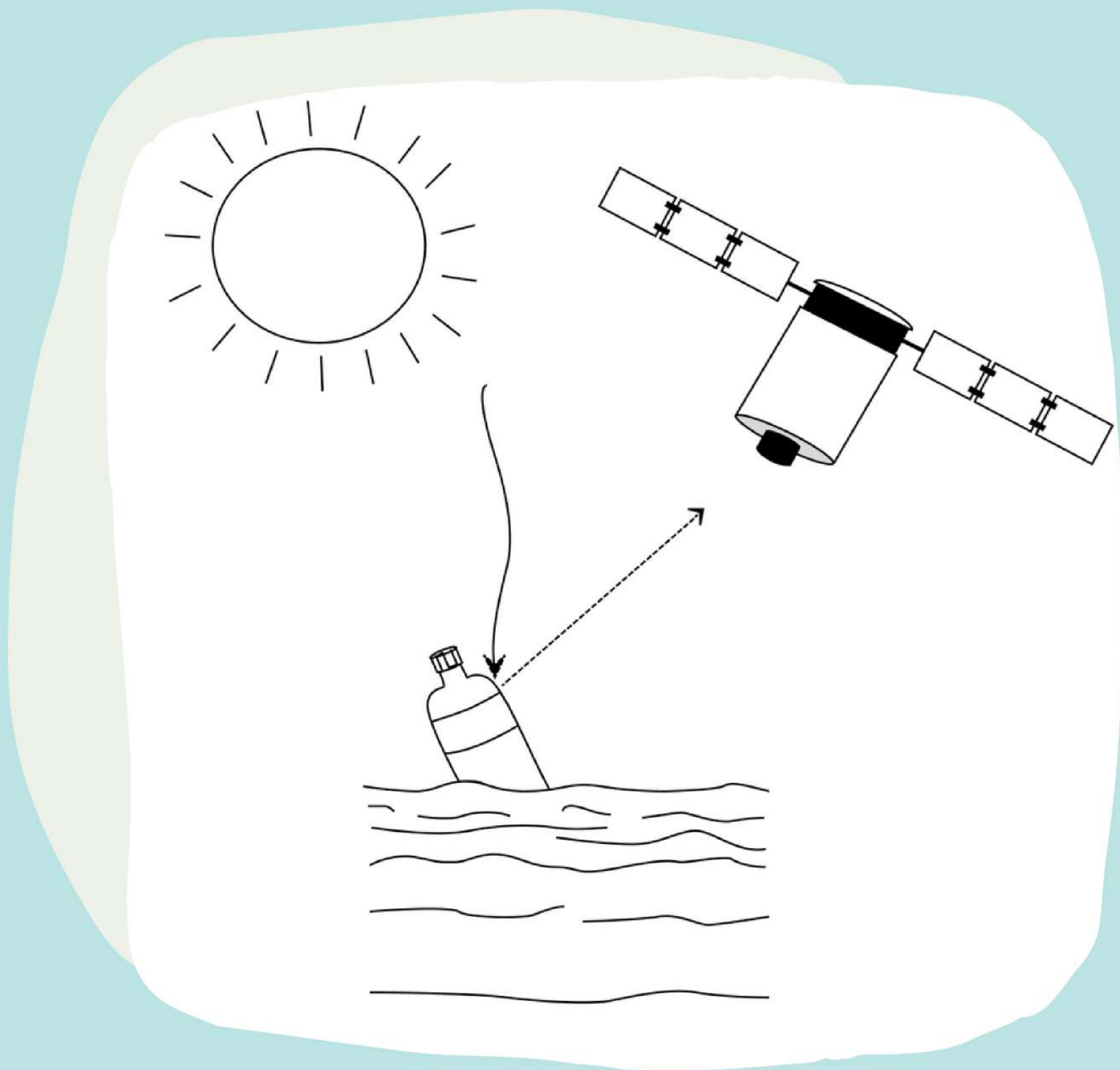
- **assist** in plastic management and disposal along bodies of water
- **help** determine the origin and movement of plastic pollution
- **aid** in microplastic mitigation
- **motivate** policy makers and authorities to become more aware to the increasing severity of marine plastic pollution

IMPORTANCE

KEY FEATURES:

- ~ There will be **two satellites** placed in Low Earth Orbit to shorten the revisit time.
- ~ Each satellite will have a **multispectral sensor** detecting visible, near infrared, and short wave infrared light to gather data that will be used to recognize plastic in water. The spectral bands will be chosen based on multiple factors but especially the absorption and reflection of light by plastic



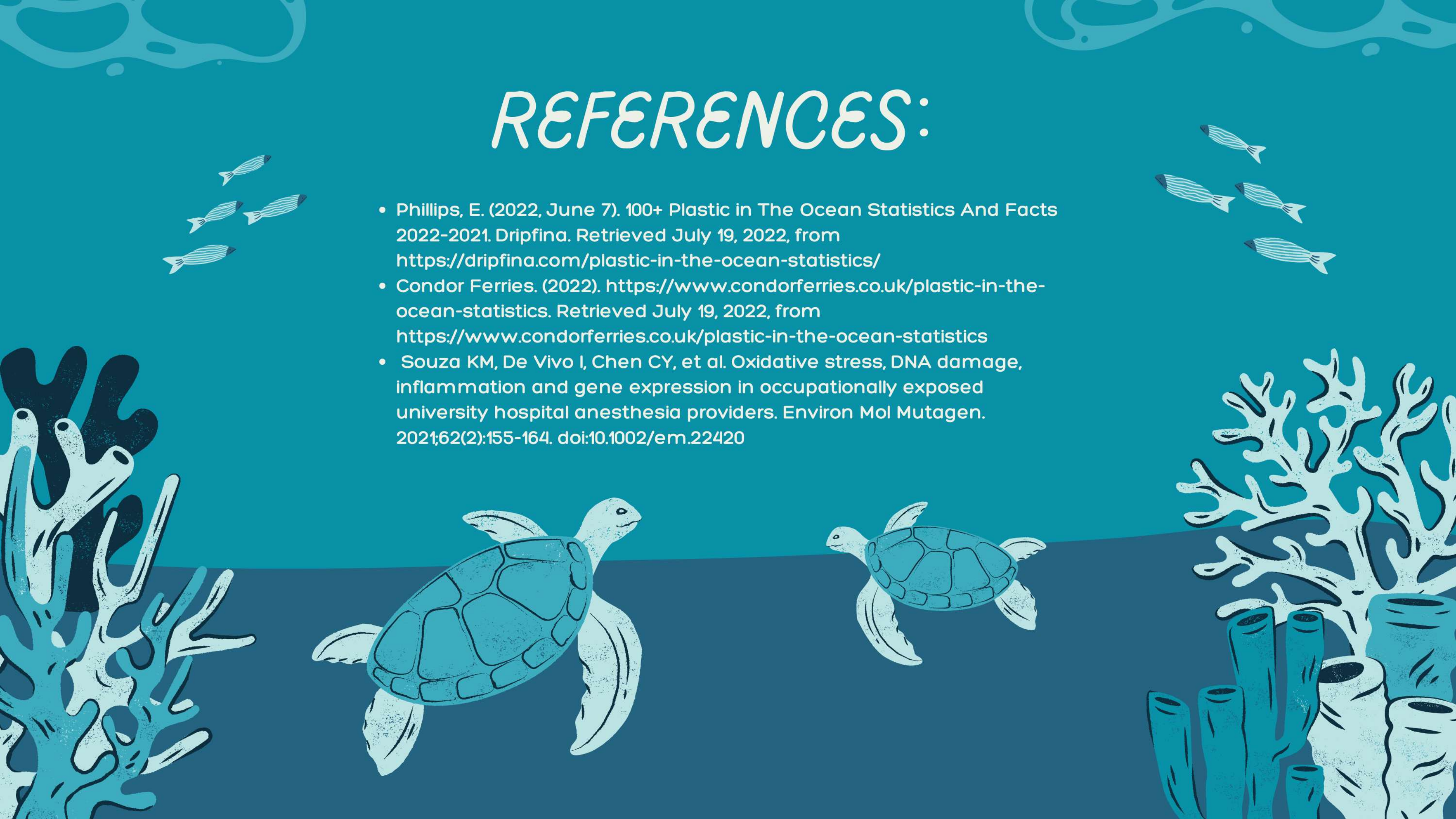


SPACE DATA DASHBOARD



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THE MEANING BEHIND MARMORIS:

Marmoris means "the shining surface of the ocean." It is to be known that plastics increase the reflectivity of the earth. With plastic being more widespread in our ocean, the marmoris or reflectivity of the ocean increases. In relation, our satellite MARMORIS capture these reflections to track the plastics in the ocean.