

Ocean plastic pollution is expected to outweigh all of the fish in the world's oceans by 2050. The Great Pacific Garbage Patch is the largest accumulation of plastic debris located off the coast of California. It is one of five gyres that exists throughout the oceans. Within the earth's environment, plastic pollution is the accumulation of plastic objects and particles (bottles, bags and microbeads) that adversely affect wildlife, habitats, and humans. Plastics that act as pollutants are categorized into micro-, meso-, or macro debris, based on their size. Through the production of plastic, there is a burning of toxic chemicals in the air that leads to environmental pollution. The polluted air, when inhaled by humans and animals, affects their health and can cause respiratory problems. Ocean bound, social plastic packaging is created by businesses who make the choice to leave a negative impact on the planet. Fish ingest small pieces of plastic due to their continuous uptake of water. Microplastics make their way into the next level of the food chain when other animals eat the fish. This cycle continues all the way up to the top of the food chain. Plastic toxins like BPA are prevalent in many of the items we use in our everyday lives. The amount of BPA ingested can affect women's infertility and hormones at extreme rates. Single-use plastics are a key contributor to the world's pollution epidemic. Plastics do not biodegrade, they break up into tiny pieces. The size of microplastics is deceiving because they seem harmless since they are so small. Whether or not someone lives close to a coastal city, rivers all over the United States pour plastic pollution into the oceans and the currents create large trash piles. There is legislature being implemented across many states and cities, but the individual actions we take part in are what make the difference. Upcycling and reusing are two of many ways to take action. Our ecosystems are crying out for help. Plastic pollution is a huge issue - but it can and must be fixed.



REALIZATION

we depend on plastic, now we're downing in it





GYRES



GYRES AROUND THE WORLD

ocean water currents affect garbage masses

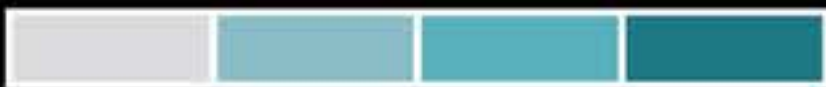


NORTH PACIFIC GYRE
EASTERN GARBAGE PATCH

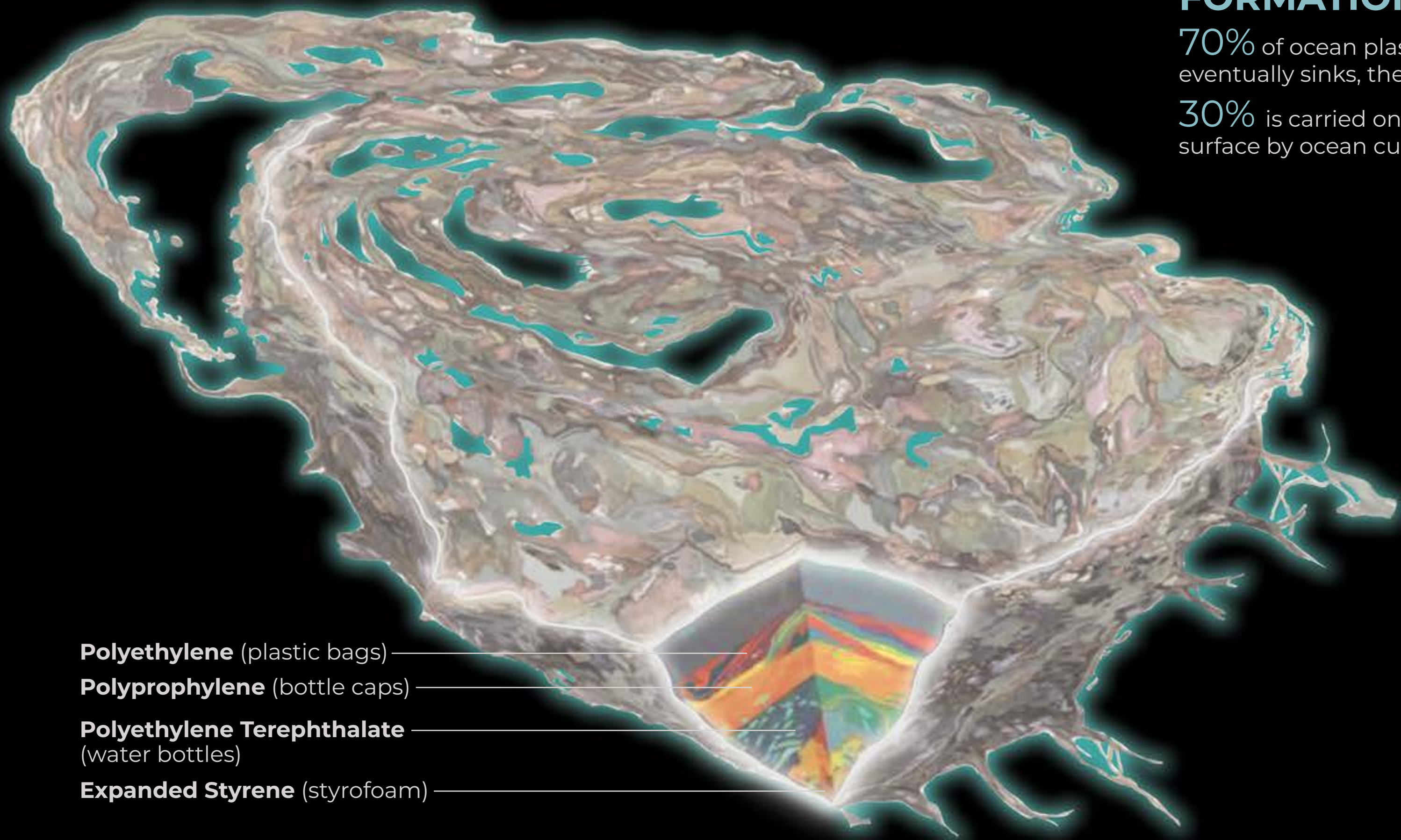
**MORE THAN
3X SIZE OF
CALIFORNIA**

GARBAGE CONCENTRATION

kilograms per square kilometer



0.1 1 10 100
1.3 trillion pieces | 192.8 million pounds



FORMATION

70% of ocean plastic eventually sinks, the other

30% is carried on the surface by ocean currents.

Polyethylene (plastic bags)

Polypropylene (bottle caps)

Polyethylene Terephthalate
(water bottles)

Expanded Styrene (styrofoam)

USED ONCE, LASTS FOREVER

every piece of plastic you've ever used still exists today



DENSITY



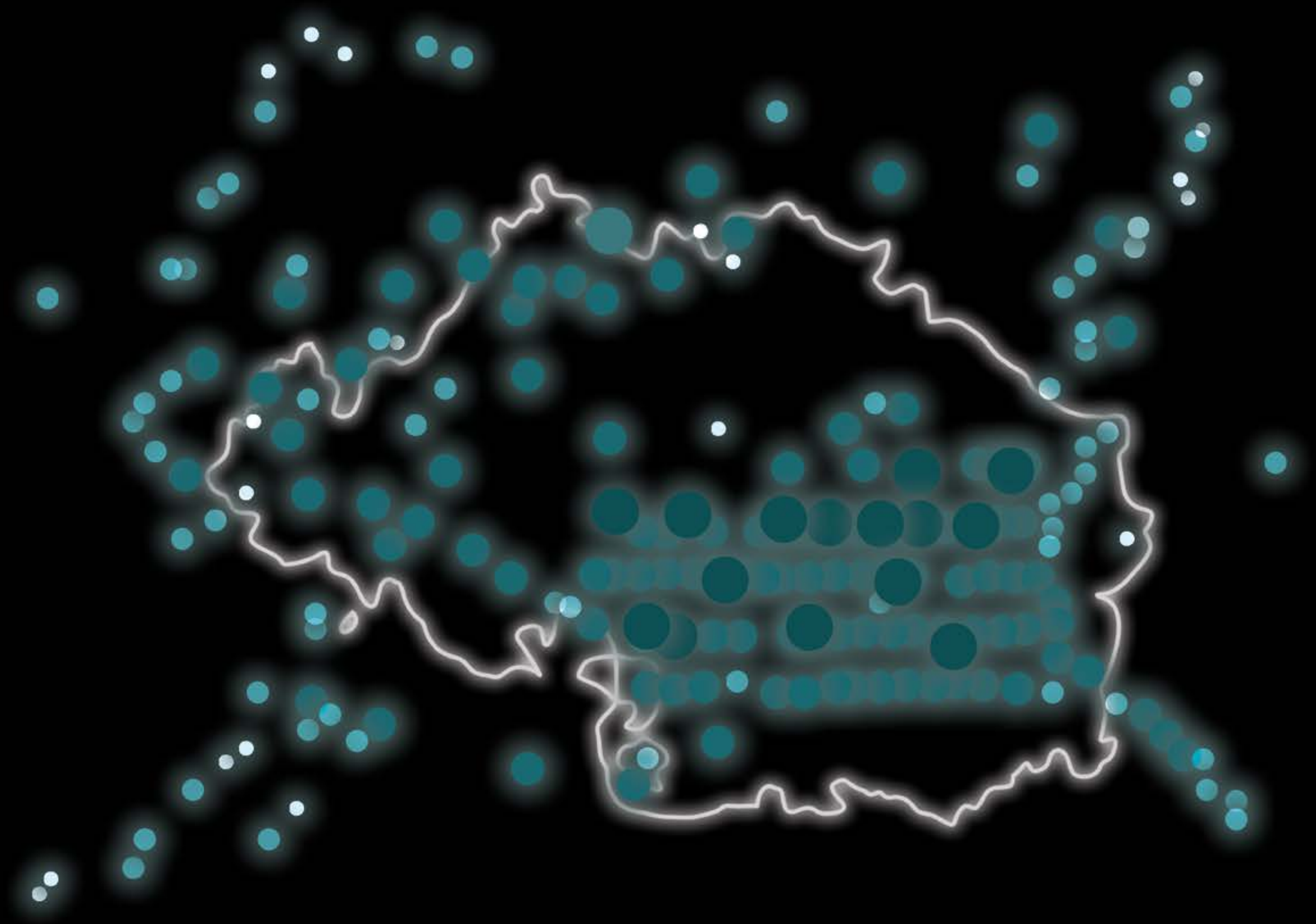
MICROPLASTICS

0.05 - 0.5 cm



0.01 0.1 1 10 100

measured mass concentration (kg km⁻²)

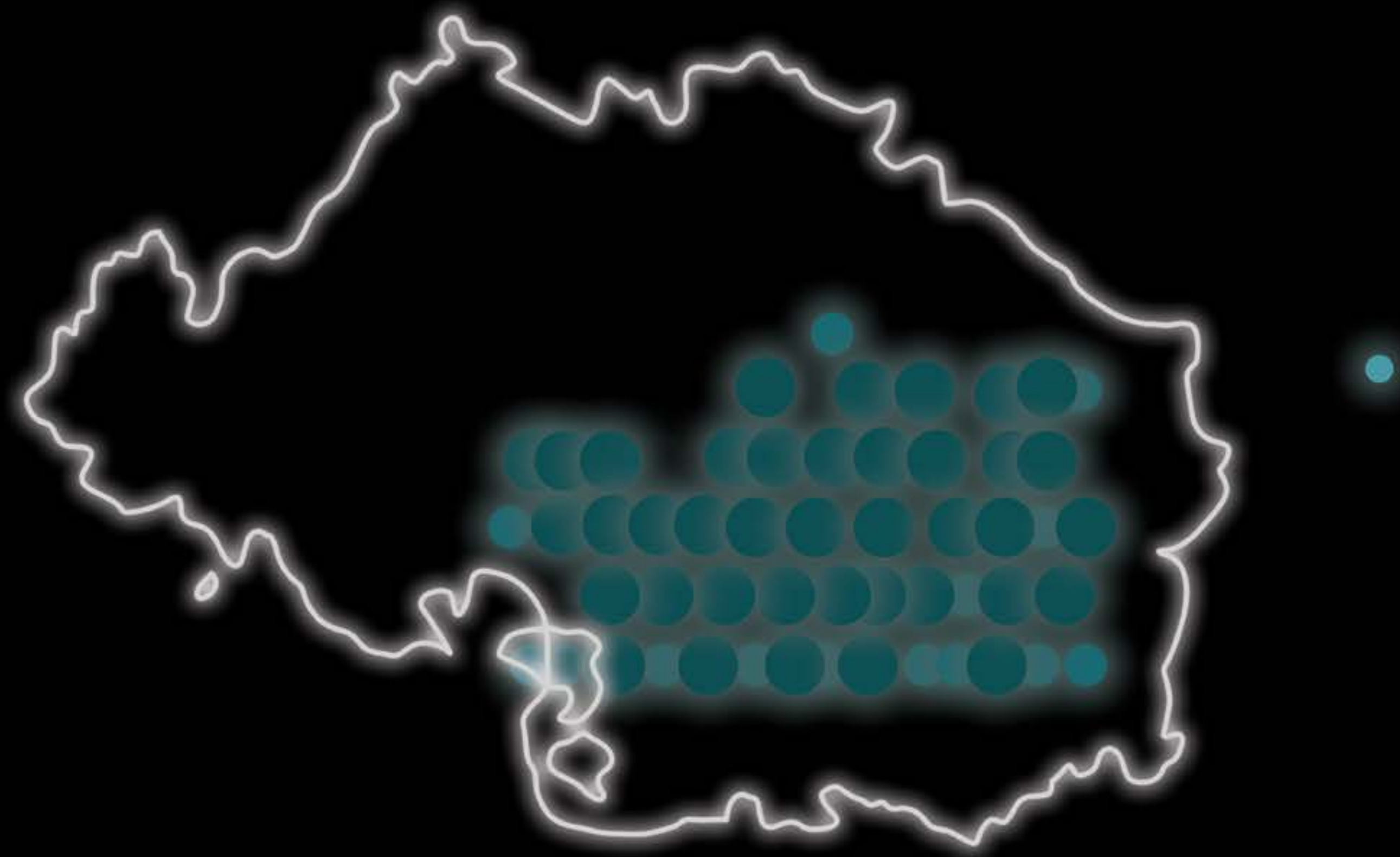


MESOPLASTICS

0.5 - 5 cm



0.01 0.1 1 10 100
measured mass concentration (kg km⁻²)



MACROPLASTICS

5 - 50 cm

0.01

0.1

1

10

100

measured mass concentration (kg km⁻²)



MEGAPLASTICS

> 50 cm



0.01

0.1

1

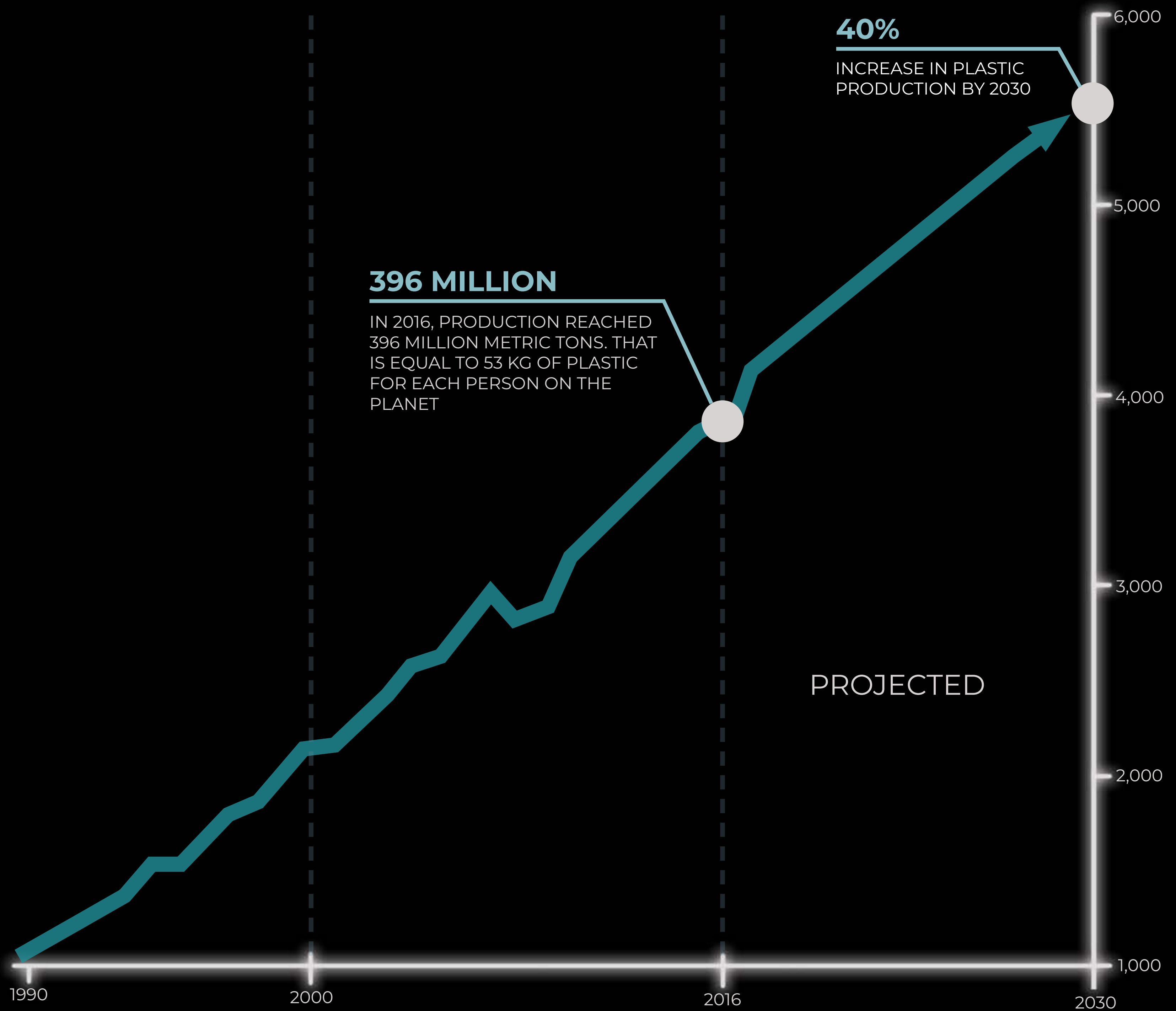
10

100

measured mass concentration (kg km⁻²)



RESULTS



PLASTIC PRODUCTION ACROSS THE WORLD

manufacturing creates carbon emissions that affect marine life

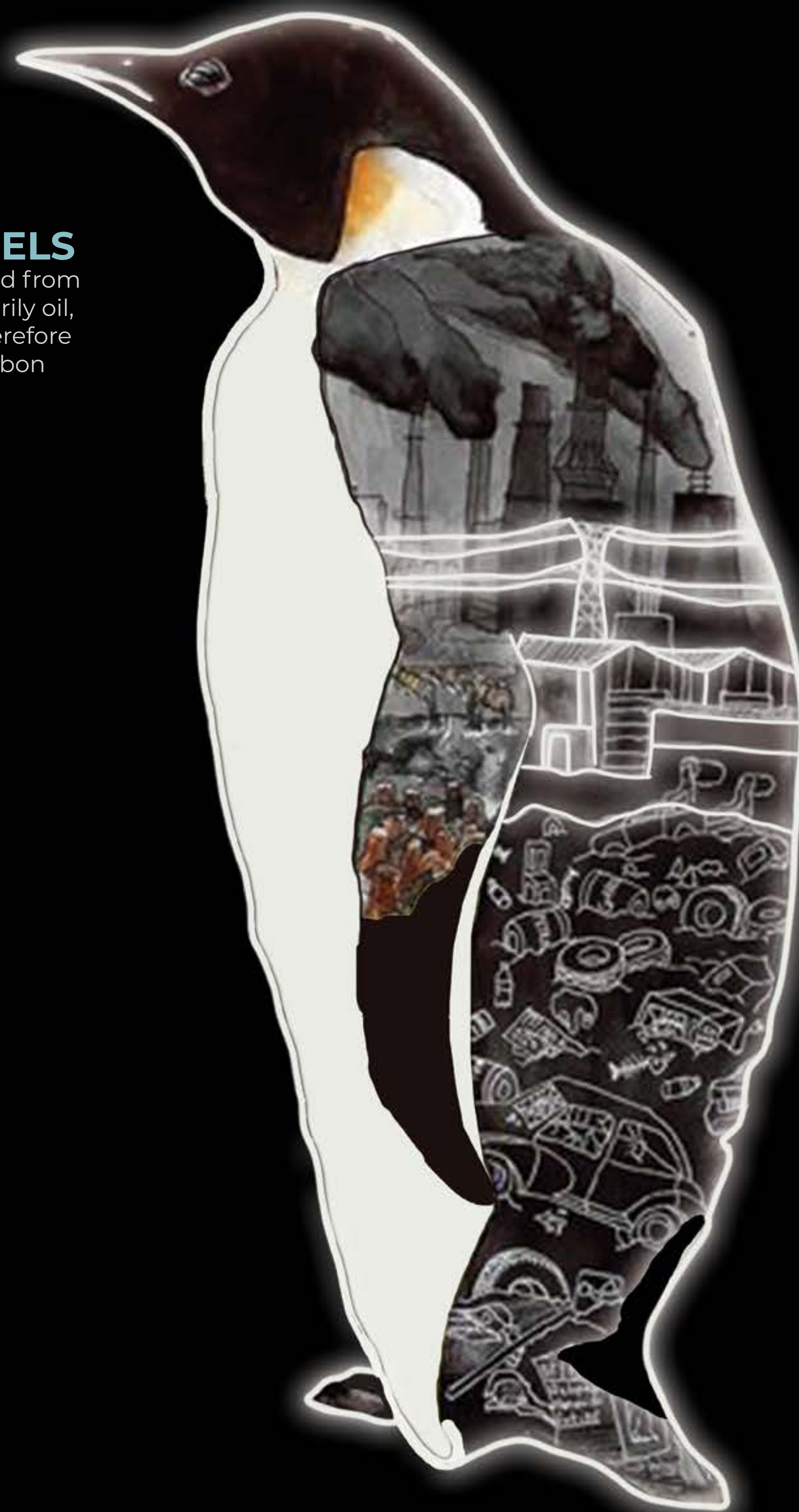


SUFFOCATION

we depend on plastic, now we're drowning in it

FOSSIL FUELS

Plastics are derived from fossil fuels - primarily oil, gas, and coal - therefore creating more carbon emissions.



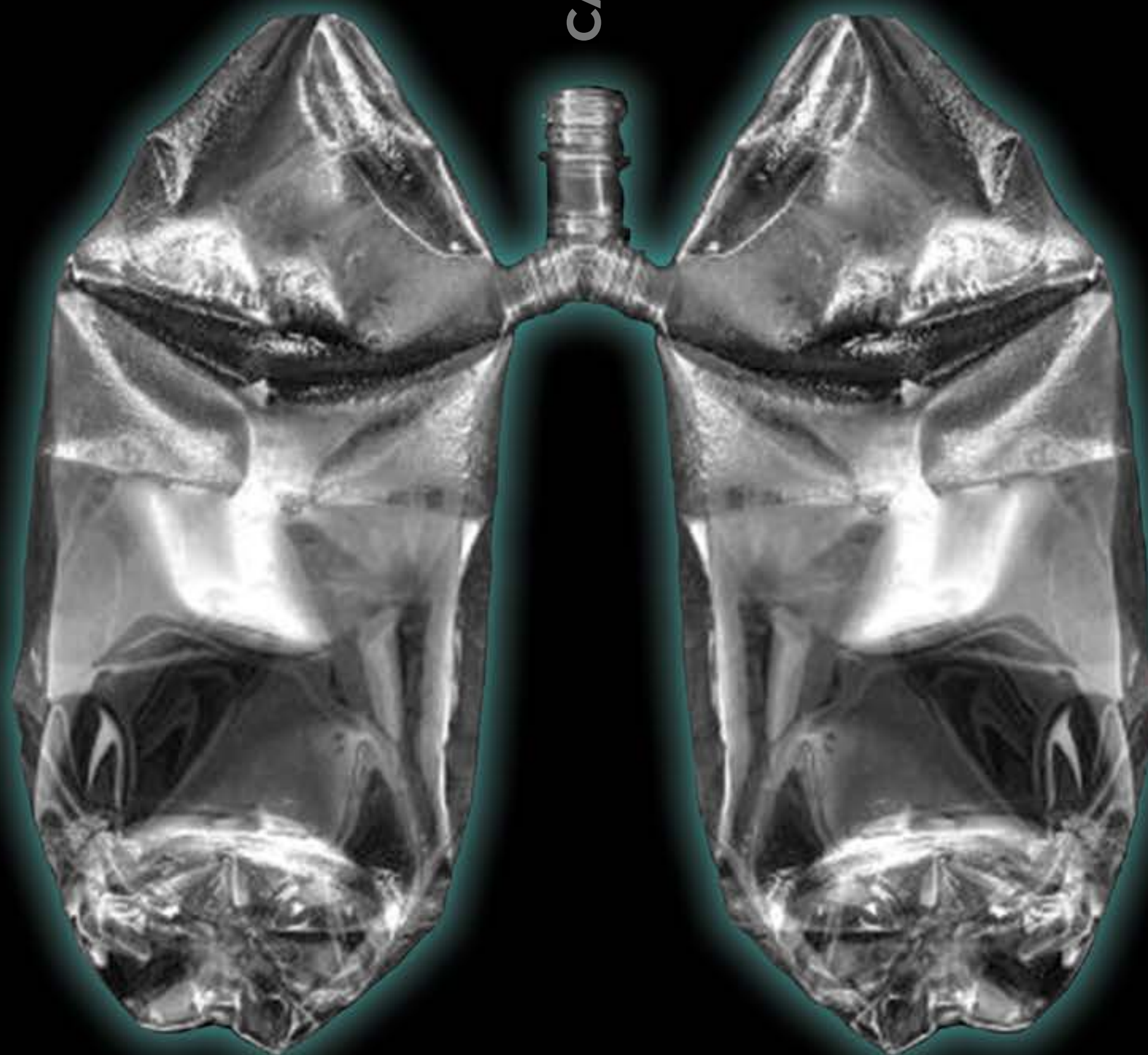
TOXIC FUMES

Plastic is destined to be toxic from birth to forever. When plastic is produced, it's made from toxic materials such as benzene and vinyl hydrochloride. These chemicals are known to cause cancer, asthma, and problems with endocrine systems.

RELEASING HARMFUL CHEMICALS

production contaminates our air, water, and soil

CANCER ENEMY



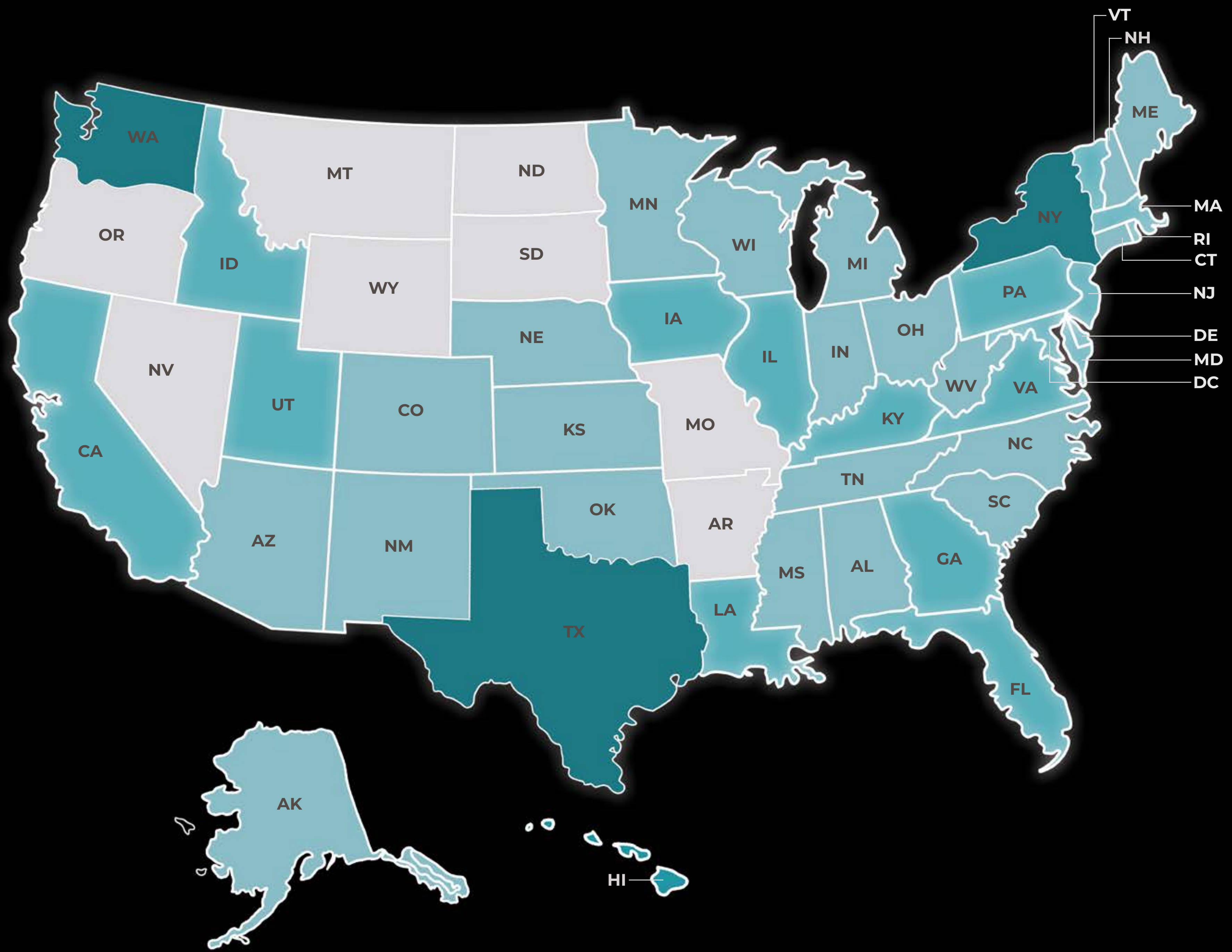
BIO-PERSISTANT

33% of fibers in indoor environments are plastic fibers

11 particles per hour is the rate at which we probably ingest microplastics from dust inside a building

STOP WASTING LIFE

microfibers are found inside buildings and outdoor air



MARINE DEBRIS
states that generate shoreline waste

least				most
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CONCERNS



Coca-Cola
IS THIS YOURS?

Unilever
IS THIS
YOURS?

SOCIAL PLASTIC PACKAGING
well-known companies create ocean bound packaging



MOST DANGEROUS SPECIES IN THE OCEAN

plastic is the most lethal killer of ocean animals



NO EXCUSE FOR SINGLE-USE

plastic poses a danger as ecosystems are altered and animals become trapped



HARMFUL

Four minutes from your life is taken away when a plastic straw is used. To animals, plastic straw usage takes their whole life.

STOP USING DRINKING STRAWS

their destiny does not need to be in your hands

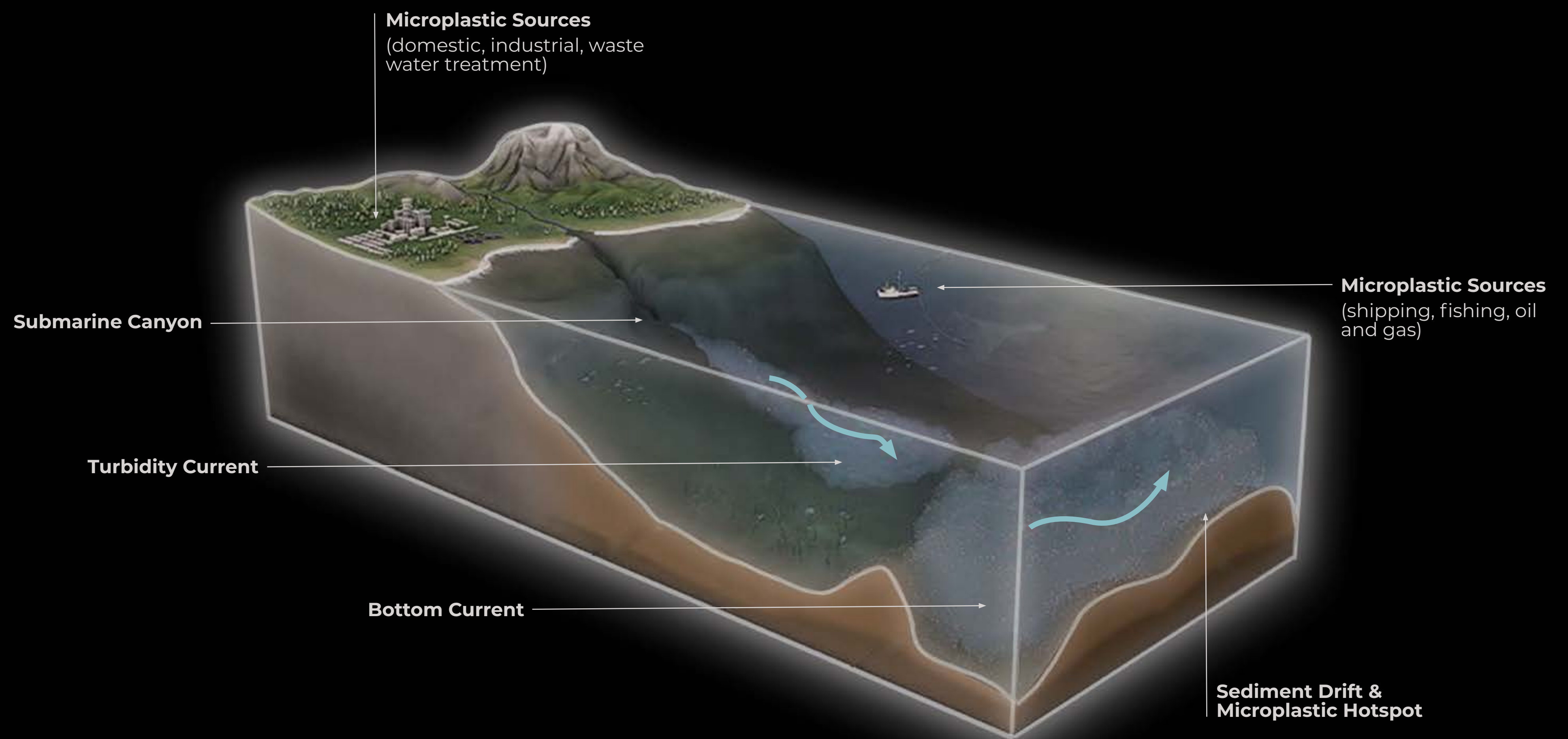


FISHING INDUSTRY

nets make up 86% of the great pacific garbage patch



MICROPLASTICS



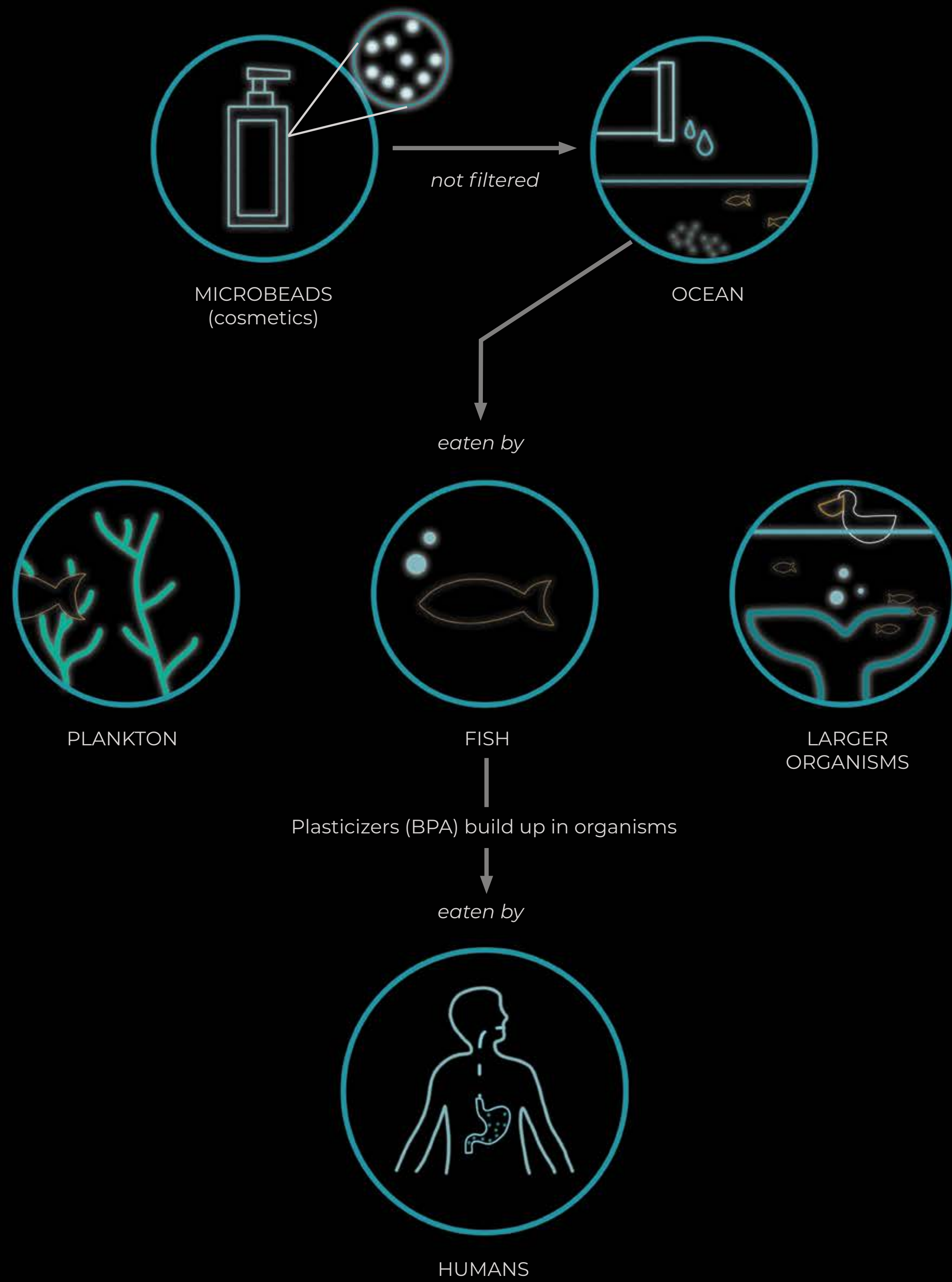
GLOBAL PROBLEMS

where do the oceans' microplastics come from?



MICROPLASTICS GET DIGESTED

plastic ingestion kills 100,000 animals annually



BIOMAGNIFICATION
how plastic enters the food chain



BOTTLED WATER

10.4 plastic particles are estimated to be inside water bottles

DRINKING PLASTIC

water bottles are major contributors to trash heaps

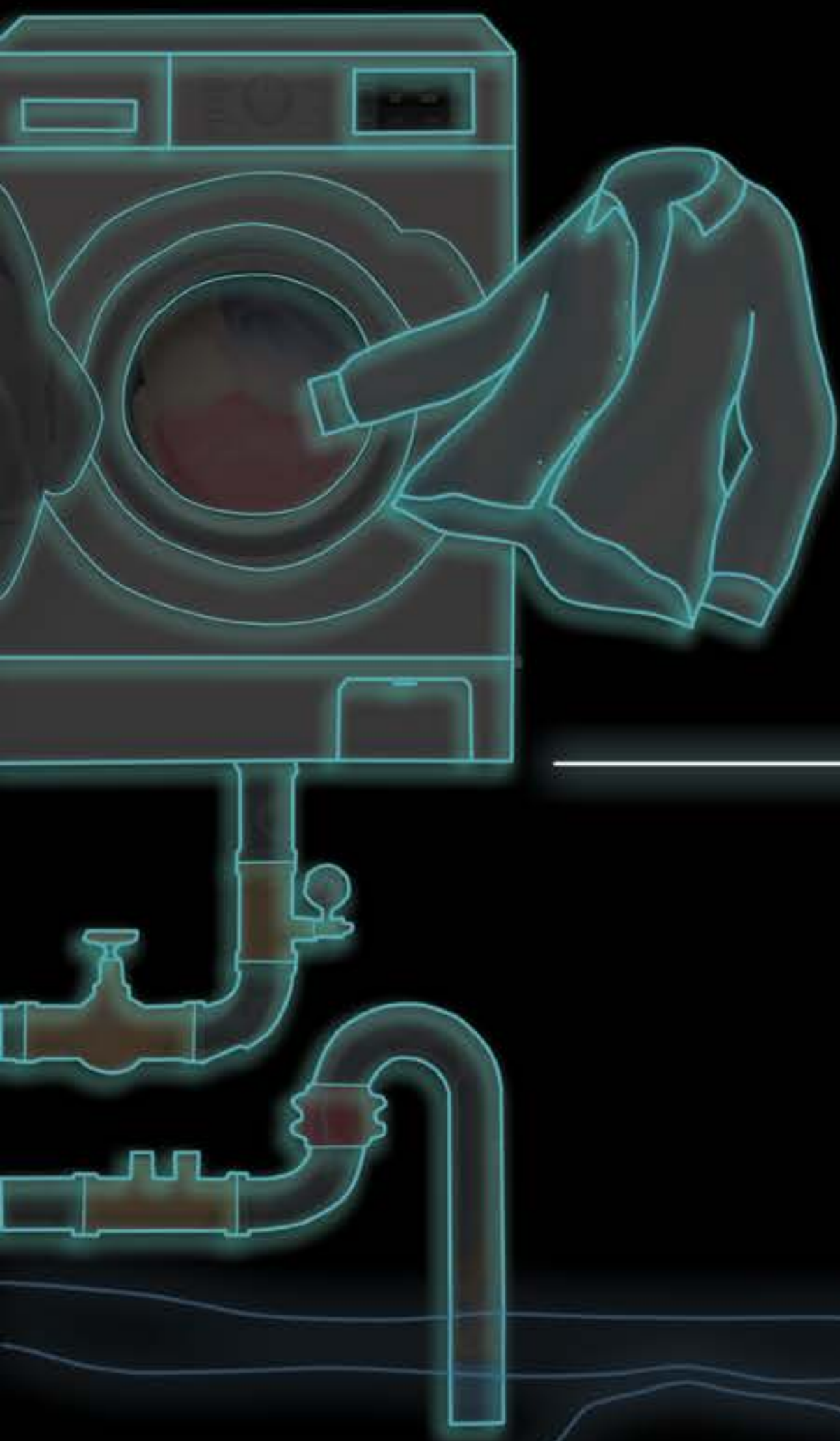


INFERTILITY

BPA (Bisphenol-A) is found in polycarbonate plastics and epoxy resins used in food and drink packaging. BPA alters the function of the endocrine system and affects the maturation of human eggs, yet not much is being done to change this pattern.



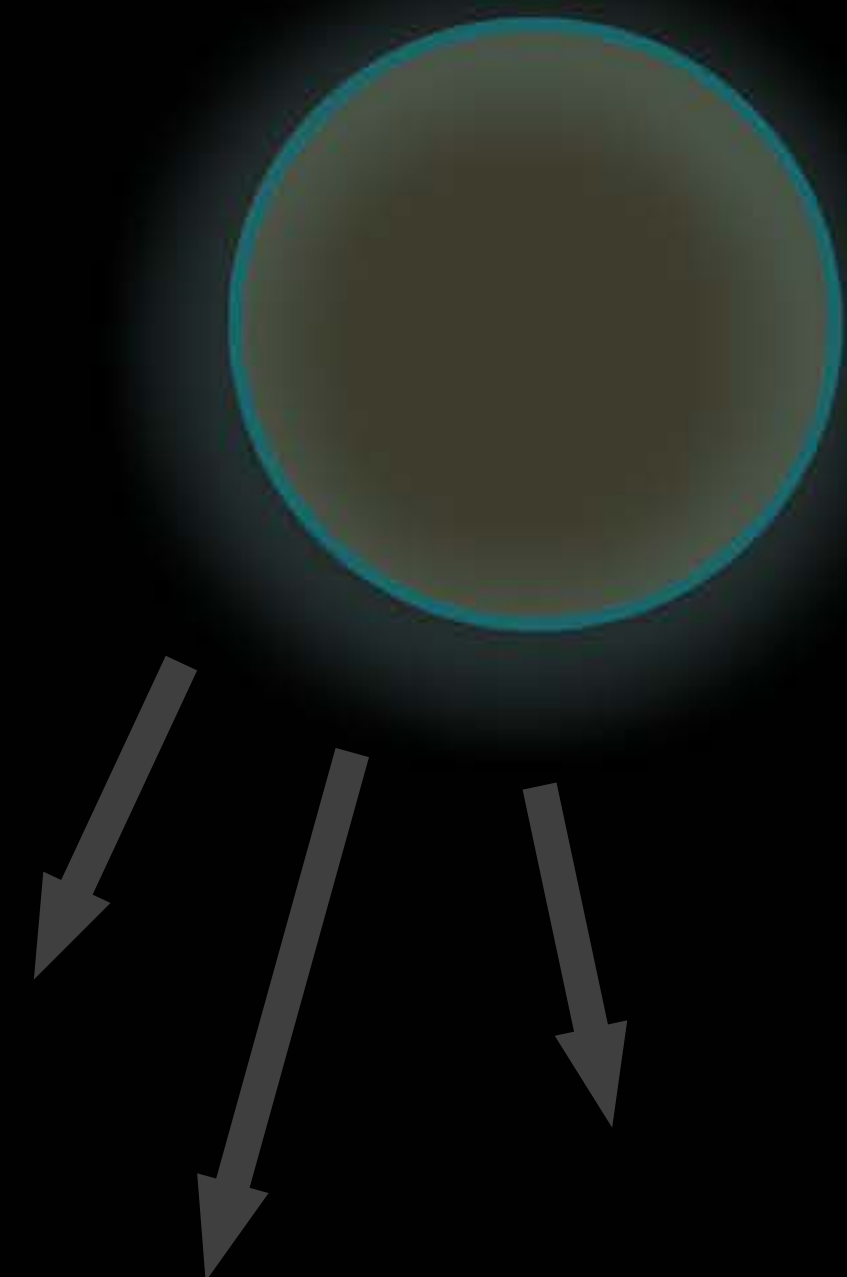
IN ONE EAR, OUT THE OTHER
plastic toxins affect women's infertility



TEXTILES

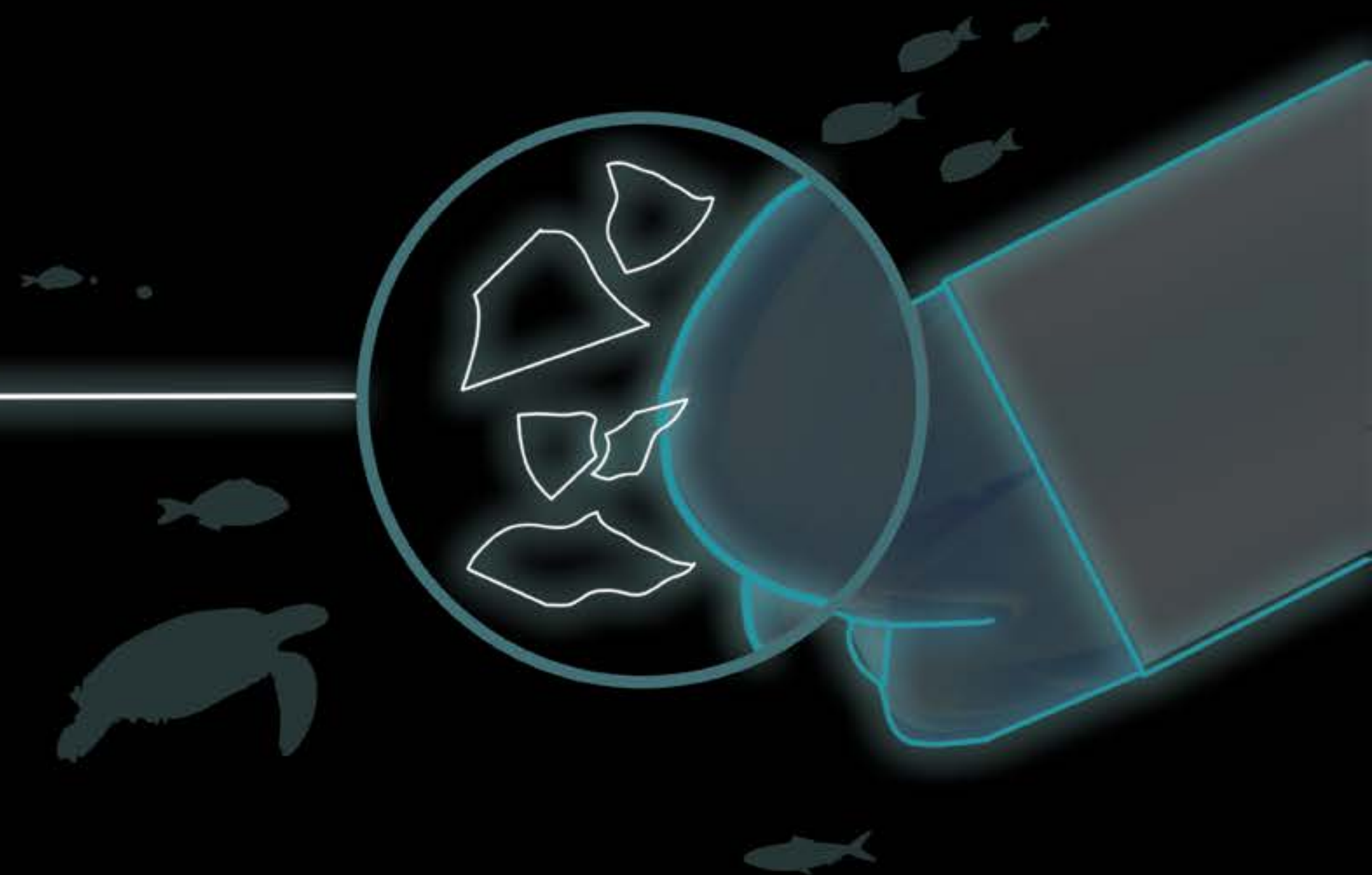
64% of fabric is made from plastics, including polyester, nylon, acrylic, and polyamide.

700,000 tiny pieces of plastic fabrics break off every time synthetic textiles are washed.



SINGLE-USE

As this water bottle is weathered and degraded, the plastic will break up into smaller pieces. These small pieces are consumed by marine life. It is difficult to remove microplastics due to their small size. They can absorb other pollutants and become more toxic.



HOW MICROPLASTICS ARE GENERATED

plastic does not break down, plastic breaks up



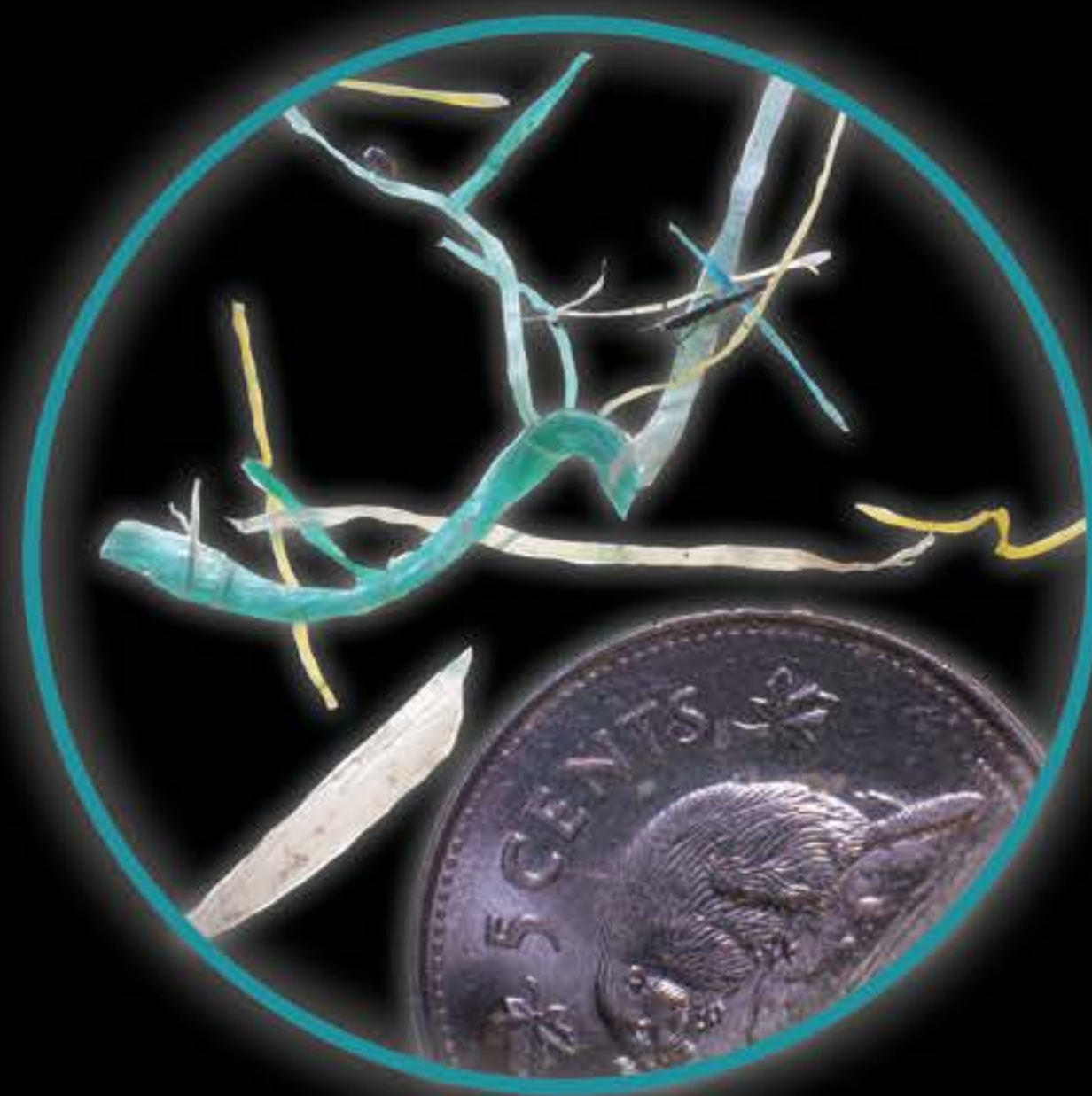
Microbeads



Industrial Pellets

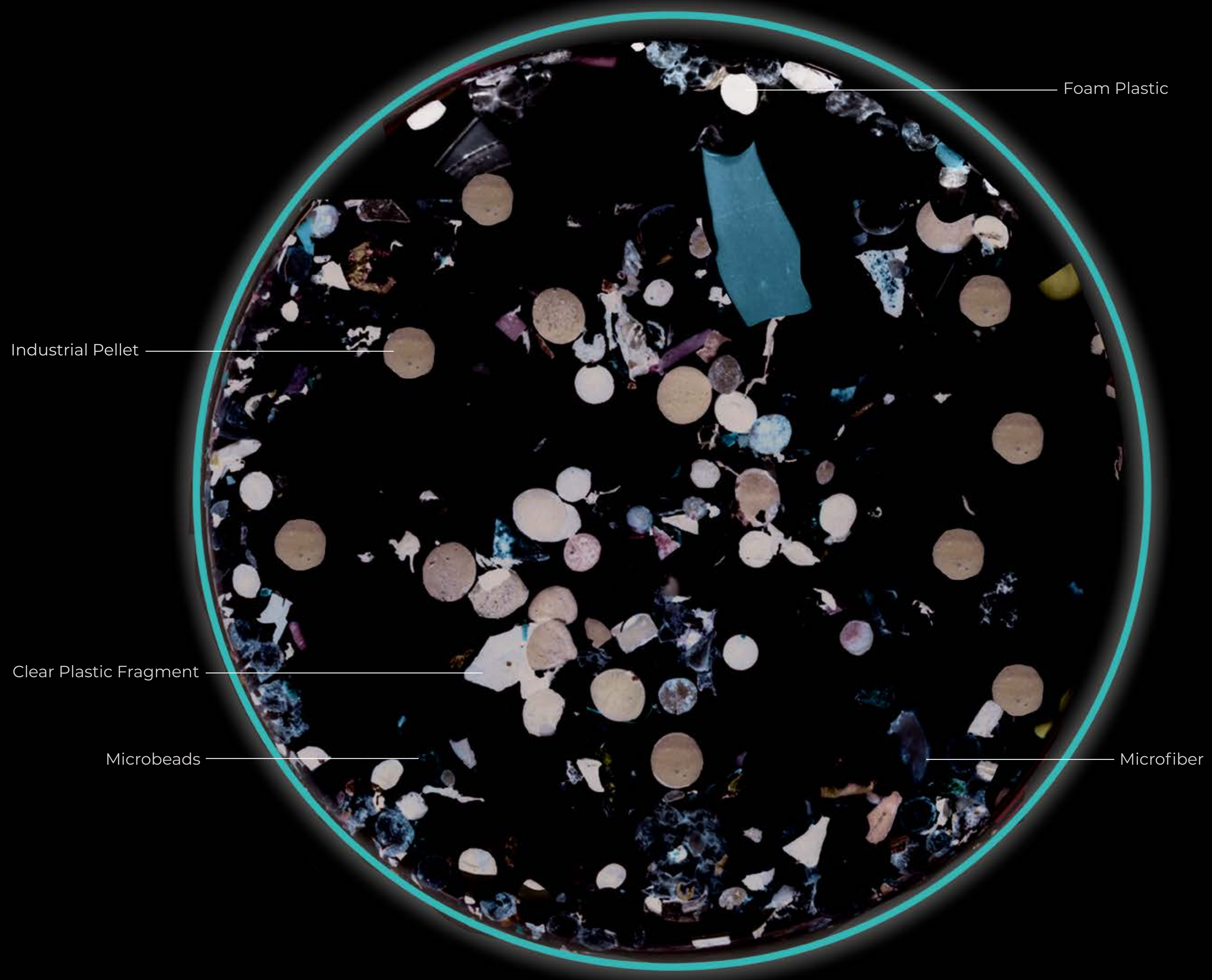


Foam Plastics



Threads

THROUGH THE LENS OF A MICROSCOPE
don't let the sizes deceive you of the impact



ANALYZING MARINE PLASTICS

identification of common plastic types



ORIGINS



RISE ABOVE PLASTICS

sinking waste is a hidden issue



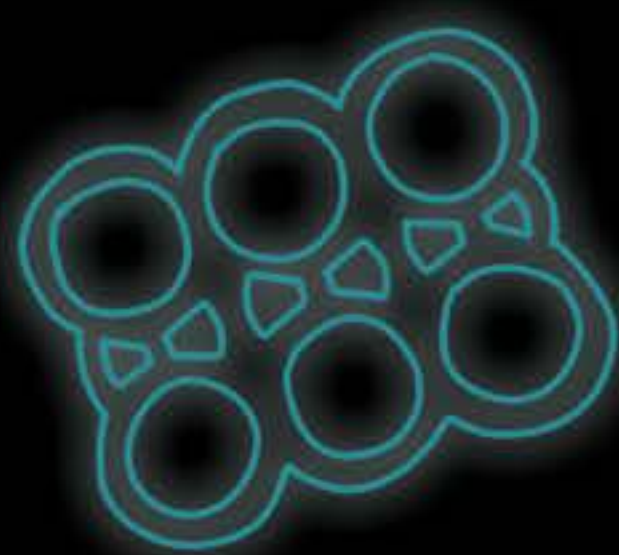
PLASTIC BAG
20 YEARS



COFFEE CUP
30 YEARS



PLASTIC STRAW
200 YEARS



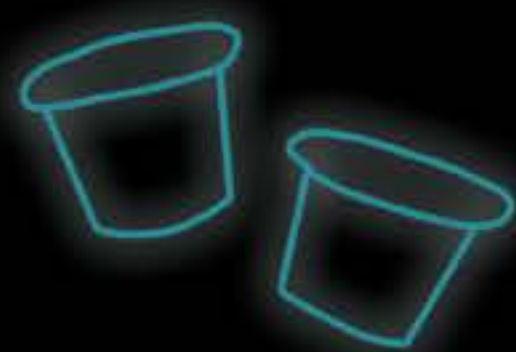
6-PACK PLASTIC RINGS
400 YEARS



WATER BOTTLE
450 YEARS



PLASTIC CUP
450 YEARS



COFFEE POD
500 YEARS



DIAPER
500 YEARS



TOOTHBRUSH
500 YEARS

CRADLE TO GRAVE: HOW LONG UNTIL IT'S GONE?

280 million tons of plastic enter our oceans annually



RIVER PLASTIC EMISSIONS

major source of pollutants



coastal areas where debris pours into oceans



LOS ANGELES
COAST



WE CROSS THE LINE

streams lead to piles we can't see from land



PLASTIC USAGE

One trillion plastic bags
suffocate our planet every year

MOTHER EARTH IS CRYING OUT

refuse to take the pressure off recycling

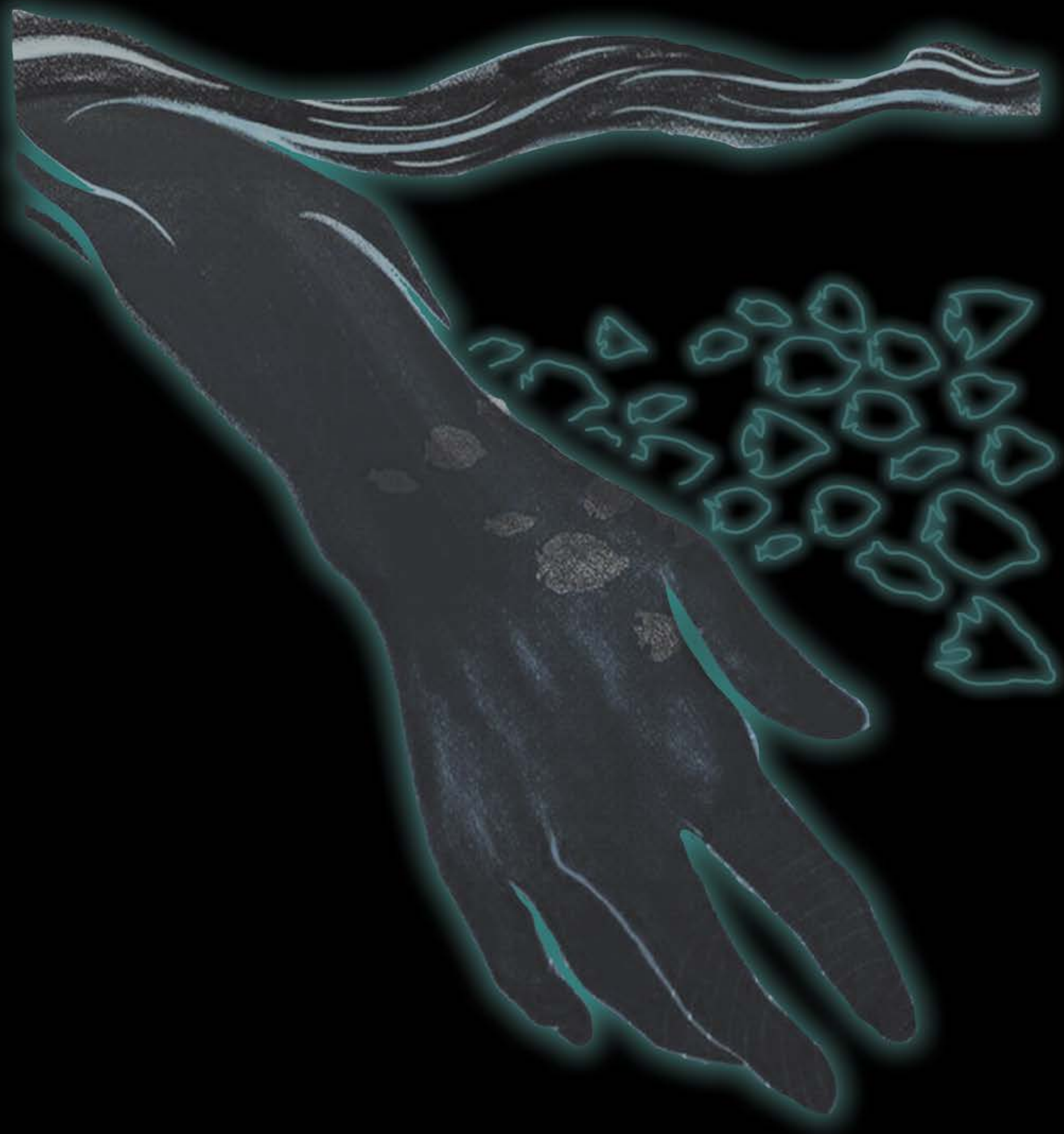


SOLUTIONS



IGNORANCE IS BLISS

many of us ignore the plastic epidemic that we take part in



RESIST: DON'T WAIT UNTIL IT SINKS IN
one ecosystem in danger, means all are in danger



Say no to single use
plastic carrier bags



Wash fleece and other
synthetic fabrics less



Put pressure on
businesses, make your
voice heard



Replace single use
plastics with reusables



Say no to disposable
straws and cutlery



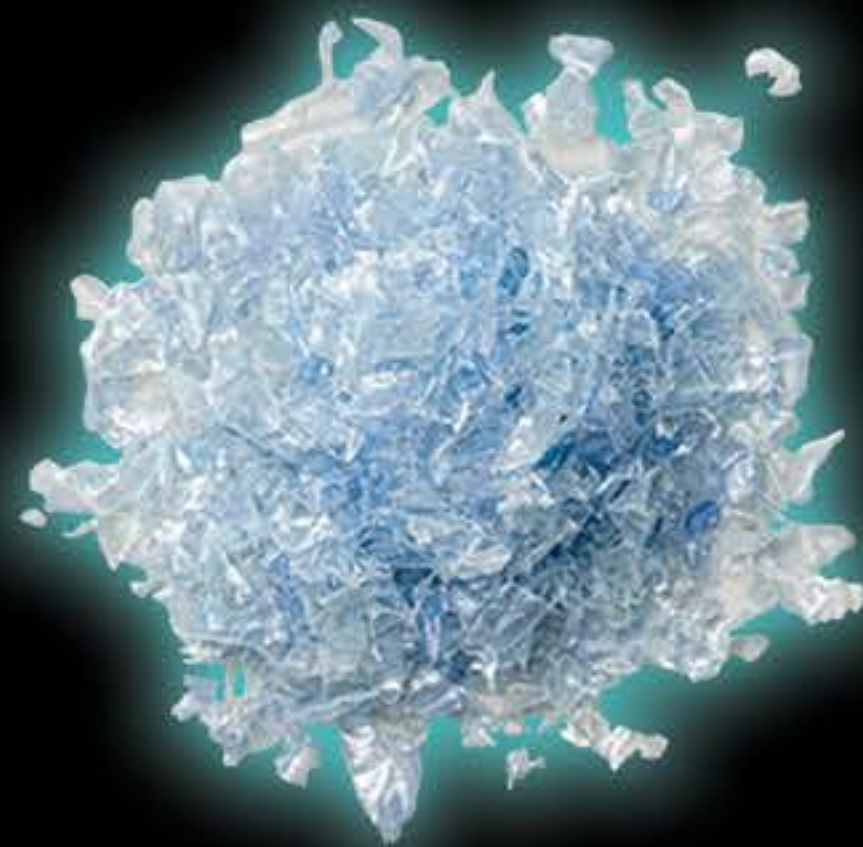
Buy in bulk, get bigger
instead of several
smaller

MAKE YOUR ACTIONS COUNT

cut down on the trash you generate



Recover Plastic
Contains PET



Plastic Flakes
Crush, Wash, & Dehydrate



Resin Pellets
Heat, Dry, Cool, & Cut



Polyester Yarn
Create Filament

UPCYCLE MARINE WASTE
turning plastics into yarn



1 Reusable Bag

OR



1 Trip



1 Week



1 Month



6 Months

ENVISION CHANGE
plastic bag consumption per person



BE PART OF THE SOLUTION, NOT THE POLLUTION

there is no planet b

PLASTIC PLANET

<https://www.bbc.com/news/business-42646025>

GYRES

<https://neptune911.com/2009/11/05/the-great-garbage-patch-time-to-think-beyond-plastic/>

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RESULTS

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<https://www.coastal.ca.gov/publiced/marinedebris.html>

MICROPLASTICS

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ORIGINS

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<https://pubmed.ncbi.nlm.nih.gov/31829850/>

<https://www.cnn.com/2019/06/24/health/plastic-pollution-rivers-oceans-scn-intl/index.html>

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<https://climate.nasa.gov/news/2473/study-maps-hidden-water-pollution-in-us-coastal-areas/>

SOLUTIONS

<https://www.parley.tv/updates/adidasxparley>

<https://blog.gopurepod.com/sustainability/our-earth-in-50-years-how-plastic-pollution-will-impact-our-future/>

<https://www.marketwatch.com/story/this-is-how-the-plastic-thats-choking-oceans-can-be-cleaned-up-2019-10-31>

<https://theoceancleanup.com/faq/what-are-the-long-term-effects-of-plastic-pollution-in-the-oceans/>