



JUNK & GYRE

A traveling exhibit about an ocean adventure that led to research expeditions around the globe to study plastic pollution and the solutions that followed.

The JUNK and Gyre exhibit utilizes adventure and storytelling to engage diverse audiences in understanding the science and solutions to plastic pollution, centering on a voyage across the Pacific Ocean on a homemade raft. The exhibit includes scientific research findings gathered during more than a decade of expeditions that followed JUNK raft, as well as numerous artifacts collected along the way, from a Japanese fishing boat found in the middle of the Pacific Ocean to masses of plastic bags found in camel stomachs. These artifacts, the science, and sailing adventure tell a comprehensive story about plastic pollution and what we can do about it.

The JUNK RAFT adventure is the exhibit's primary draw. In 2008 two sailors drifted 2600 miles across the Pacific Ocean, from LA to Hawaii on 15,000 plastic bottles, torn fishing nets and broken sailboat masts to hold it together, and an old airplane as a cabin. Thirteen weeks later, with no motor or vessel support, they landed in Waikiki. The purpose was to bring global attention to the rising tide of plastic polluting our oceans, and to zero in on solutions. Following the JUNK RAFT adventure, they launched the 5 Gyres Institute and researched plastic pollution in all oceans.

The exhibit includes opportunities for lectures from scientists and the sailors on the rafts, school and youth presentations, educational materials and curriculum kits, and short documentary films. Together, this exhibit is a collection of stories about science, adventure, art, and passion to find solutions.

Sincerely,
Marcus Eriksen, PhD,
Executive Director
marcus@leaplab.org

Key Features:

- Size: The entire exhibit is 4,000 sq.ft., but individual displays can be rented.
- Availability: Spring 2024 & beyond
- Language: English and Spanish upon request
- Target audience: Ages 8 to adult
- Shipping: Estimated 1-2 trucks
- Installation: 3-4 personnel for 3-4 days. Same to dismantle
- Cost: inquire at info@leaplab.org



OCEAN PLASTICS

1. JUNK RAFT
2. LARGE FISHING NET
3. BANNER: THE 5 GYRES
4. PLASTISPHERE
5. BOAT FROM 2011 TSUNAMI

RIVERS

6. BOTTLE ROCKET
7. MISSISSIPPI RIVER ARTIFACS

ECOLOGICAL IMPACT

8. BANNER: OCEAN SAMPLE
9. SYNTHETIC EQUILIBRIUM
10. PLASTIC IN CAMELS
11. ALBATROSS BOLUS
12. FISH BITTEN PLASTIC

SOLUTIONS

13. DOING RESEARCH
14. CIRCULAR ECONOMY BY SECTOR
15. PLASTIC DEFINES THE ANTHROPOCENE
16. MASKS OF OCEAN HEROES

FILMS & LECTURES
EDUCATIONAL MATERIALS



1

JUNK RAFT

Exhibit space requirement: approx. 20' x 20' x 20'.

www.junkraft.com

EXHIBIT TEXT: In 2008 two sailors (Marcus Eriksen and Joel Paschal) launched a home-made raft from Los Angeles with the intent to drift to Hawaii to bring attention to the emerging plastic pollution problem. With no motor or support vessel, the crew took 13 weeks to reach their destination, three times longer than expected.

They used 15,000 plastic bottles, 26 sailboat masts and a Cessina aircraft fuselage to construct the raft, named JUNK. The bottles were stuffed into 30ft. long pontoons made from old fishing nets. Their third partner in the project (Anna Cummins) maintained daily satellite phone contact with the sailors to give constant weather updates about the 4 hurricanes that swept pass them during the journey.



2

LARGE FISHING NET

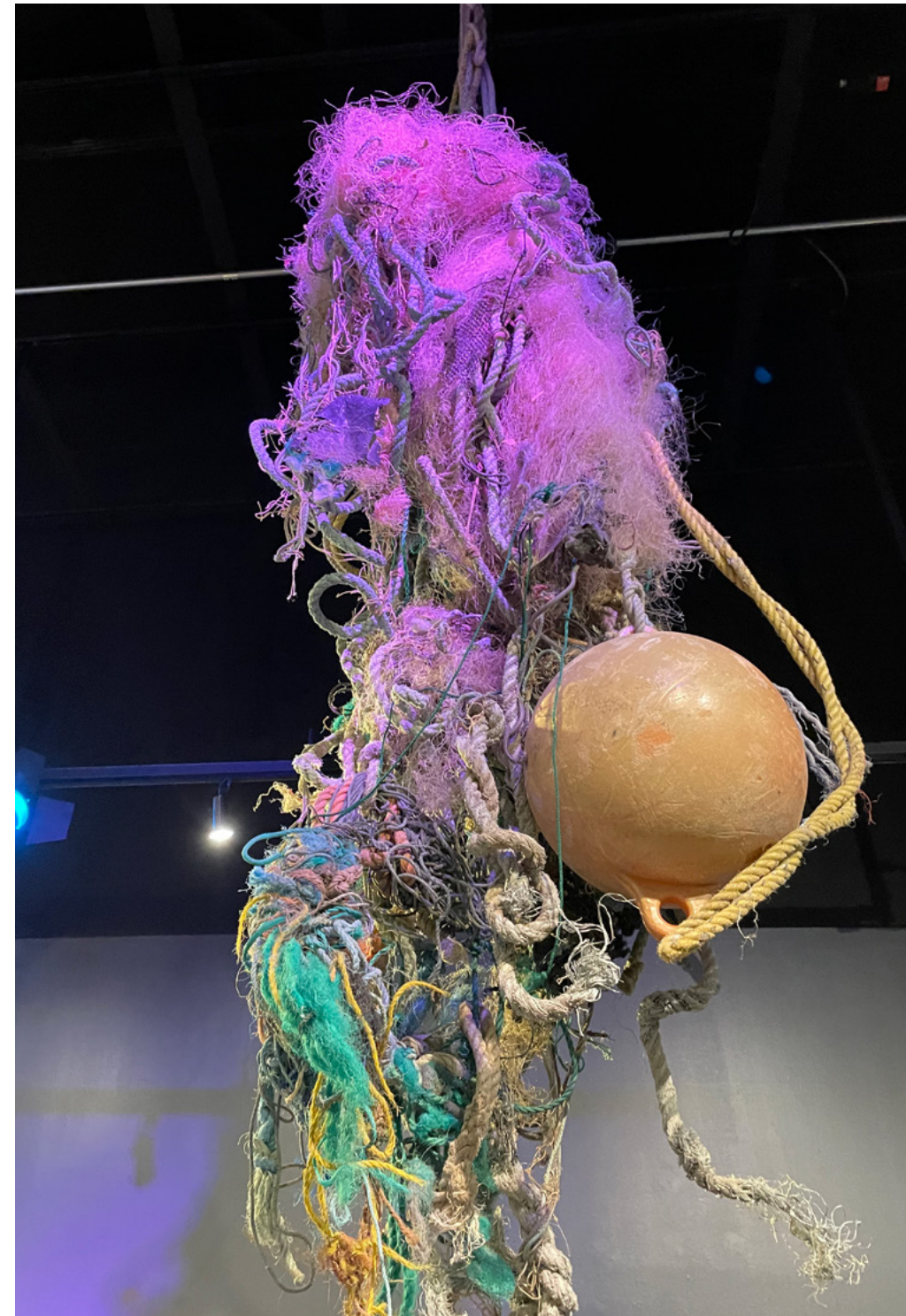
DERELICT FISHING NETS ENTANGLE WILDLIFE

Exhibit space requirement: Hang from ceiling anchor point.

Approx 8'x8' of floor space

EXHIBIT TEXT: During the middle of the 20th century fishing nets made by natural fiber were largely replaced by nets made from nylon and polypropylene because they were more durable and long lasting. These same qualities make lost fishing gear dangerous to the ocean environment. A fishing net lost to sea doesn't stop fishing.

Today, some fishing fleets are tracking their gear, reporting debris sightings, collecting what they can and transporting it to disposal sites on shore. At the same time, technology in net design and materials is reducing the likelihood of gear loss. While these efforts are progress, there are still old and new nets adrift, prompting continued calls on fishing industries to further reduce fishing gear loss.



3

THE 5 GYRES / BANNER

Exhibit space requirement: approx. 9'x12'

Large Banner mapping ocean plastic based on research conducted by M. Eriksen. (Eriksen, 2015 "5.25 trillion plastic pieces floating in the world's oceans")

EXHIBIT TEXT: After 20 expeditions sailing around the world to all oceanic gyres, polar regions and large bay and seas, the 5 Gyres Institute published the first estimate of how much plastic was in the world's oceans, totaling 5.25 trillion particles weighting 270,000 tons.

The white patches on this map of the world show where plastic accumulates. The 5 subtropical gyres (north and south Pacific, north and south Atlantic, and the Indian Ocean) are known for their lack of wind and current, trapping plastic that floats there.

Video here: <https://vimeo.com/manage/videos/427890094>



4

PLASTISPHERE

Map of the world in 450 4"x4" tiles.

Exhibit space requirement: approx. 13'x6'

EXHIBIT TEXT: Plastic is durable, resistant to breakage, making it a global material. For more than a century, plastic has been utilized in countless ways. All of the plastic collected from the middle of the 5 subtropical gyres during the 5 Gyres Institute's global expeditions between 2009-2016 is melted to form a map of the globe.

It represents the land-based origin of most ocean plastics, the oceans being downhill from everywhere. In this exhibition plastic from around the world, representing local geographies, has been melted into tiles and mapped according to location.



5

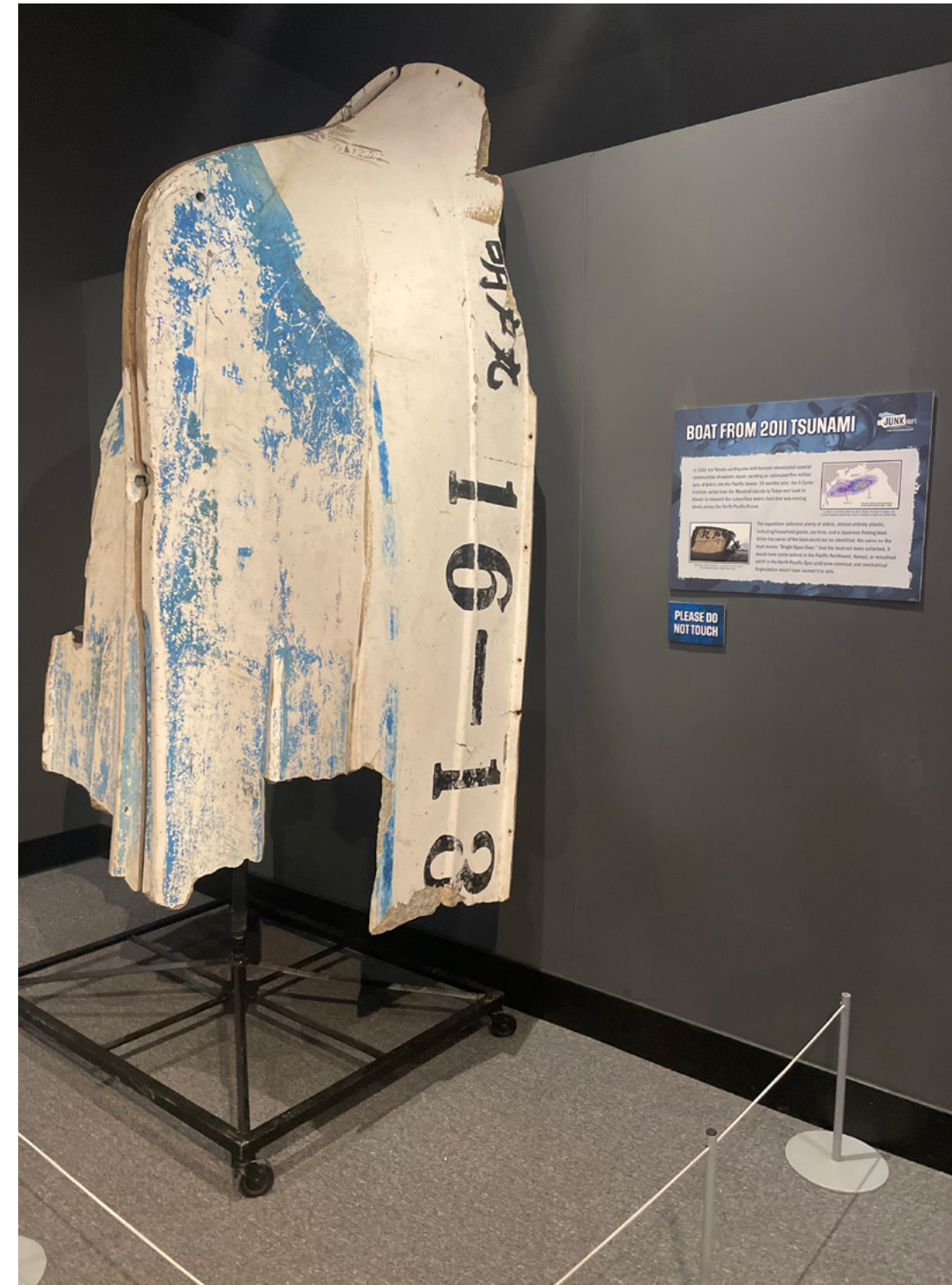
BOAT FROM 2011 TSUNAMI

Exhibit space requirement: approx. 8 ft. tall with a 4'x4' base

EXHIBIT TEXT: In 2011 the Tohoku earthquake and tsunami devastated coastal communities of eastern Japan, sending an estimated 5 million tons of debris into the Pacific Ocean.

15 months later the 5 Gyres Institute sailed from the Marshall Islands to Tokyo and back to Hawaii to research the subsurface debris field that was moving slowly across the North Pacific Ocean.

The expedition collected plenty of debris, almost entirely plastic, including household goods, car tires and a Japanese fishing boat. While the owner of the boat could not be identified, the name on the boat means "Bright Open Door". Had the boat not been collected, it would have come ashore in the Pacific Northwest, Hawaii, or remained adrift in the North Pacific Gyre until slow chemical and mechanical degradation processes would have caused it to sink.



6

BOTTLE ROCKET

Exhibit space requirement: approx. 8'x12', and approximately 8' tall with the sail raised.

EXHIBIT TEXT: The Mississippi River is the greatest watershed in North America, draining all or part of 31 states, 42% of the United States, excluding AK and HI. The river naturally carries millions of tons of sediment to the Gulf of Mexico, but today also carries many agricultural and industrial chemicals, and plastic.

In 2003 the Bottle Rocket, floating on 232 plastic bottles, launched from Lake Itasca to start a 5 month journey 2,340 miles to the Gulf of Mexico. From crawling over beaver dams to dodging 500ft-long barges, this adventure focused on solutions to plastic pollution drifting downstream to the sea.



7

MISSISSIPPI RIVER ARTIFACTS

Exhibit space requirement: All objects could hang on a wall (approx 5'x5') or fit into a 2'x2' exhibit case.

EXHIBIT TEXT: The Mississippi River serves the United States as a transportation route for many industries, from logging, coal and iron, to all types of grain and fossil fuels. It's a watery highway that connects the U.S. to the world. But many industries have come and gone, leaving a few artifacts behind.

During the 2003 float down the river, Eriksen found evidence of the thriving logging industry, like a log peavey, chains and spikes, that provided board lumber to build many mid-west and east coast cities. Before plastic replaced many natural materials used in consumer goods, buttons were drilled from clams. The button manufactures in Muscatine, Iowa harvested millions of clams for buttons, leaving drilled shells to fill the levees along the river.



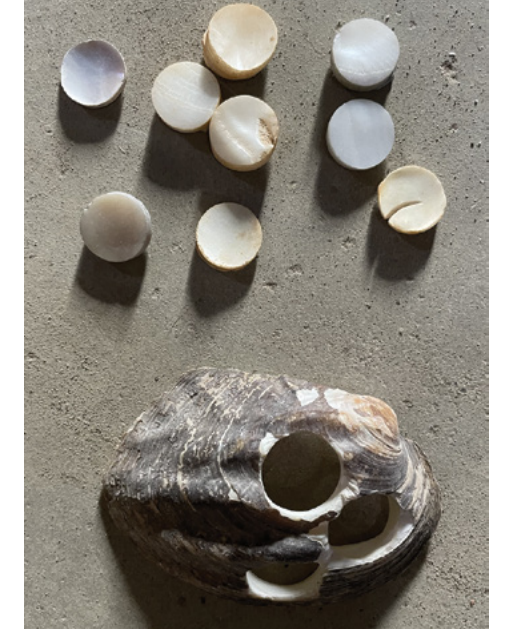
Log peavey: Found in the middle of the Mississippi River, used by loggers to rotate logs.



Log chains for binding logs to make rafts.



Mississippi River clams were used before plastic to make buttons in factories along the river.



8

OCEAN SAMPLE / BANNER

Exhibit space requirement: approx. 9'x12'

EXHIBIT TEXT: In 2012 the 5 Gyres Institute sailed across the North Pacific with Artist Mandy Barker as one of a dozen crew. After towing a research net across the ocean surface for an hour, the contents of the net were spread across a black felt cloth. Barker is well known for photographing nature's interactions with plastic. In this sample we see plenty of plankton, flying fish and By The Wind Sailors, a type of jellyfish, mixed with hundreds of microplastic fragments. Some of the other marine life include a paper nautilus near the top right corner, a flying fish top middle, and a deep sea viper fish along the right edge of the image. Plastic and life are co-mingled.



9

SYNTHETIC EQUILIBRIUM

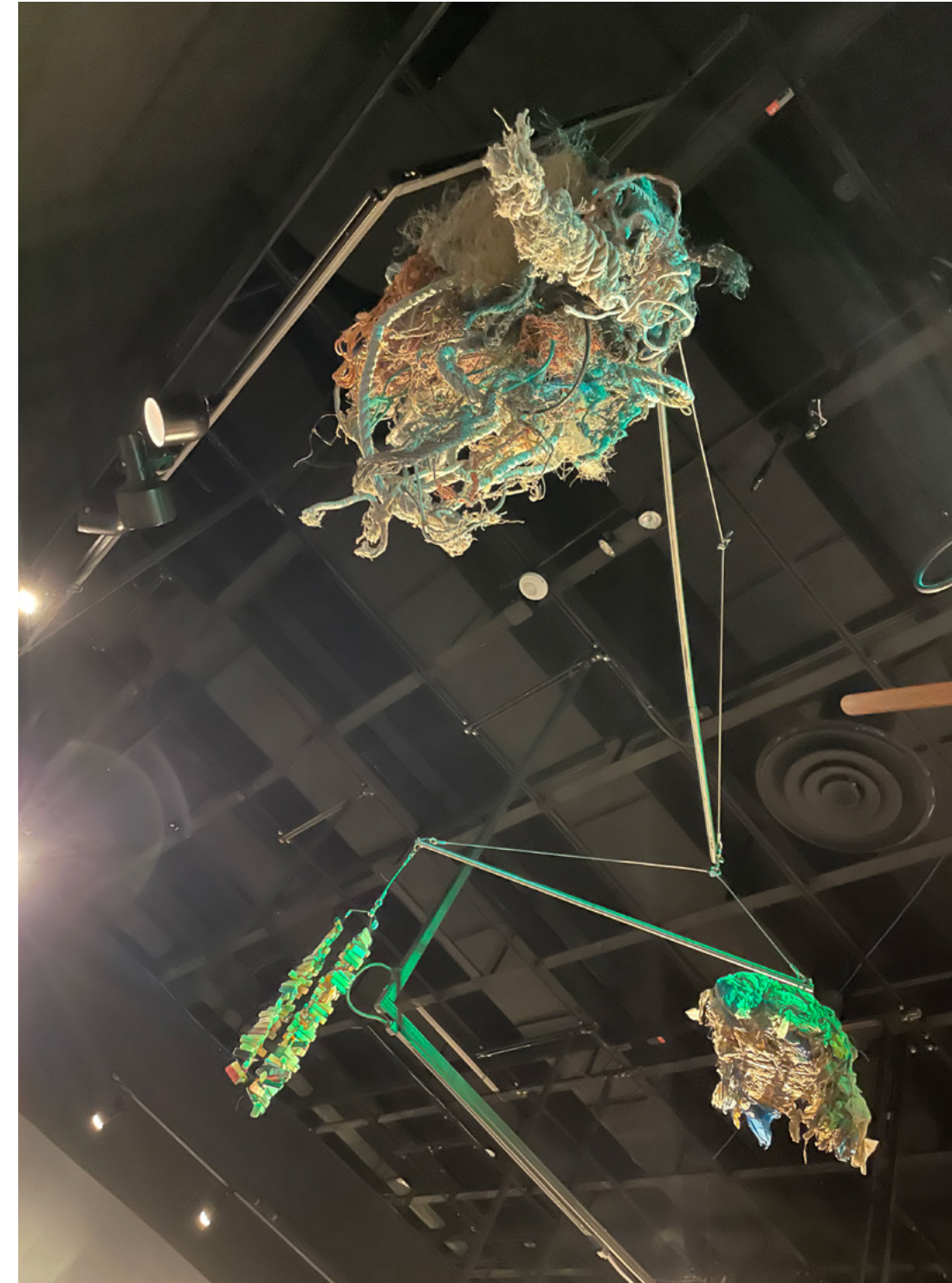
Exhibit space requirement: The exhibit hangs from the ceiling and is approximately 80lbs. IT requires roughly 8'x8' floor space, or it can hang high above visitor space.

▶ www.youtube.com/watch?v=8AL2scpl99Y

▶ vimeo.com/manage/videos/531752784

EXHIBIT TEXT: The Earth's biosphere is adapting to an influx of synthetic chemistry, leaving entire ecosystems to adapt to plastic. Other living things adapt to plastic in many ways, from transporting invasive organisms across oceans, harm from ingestion or entanglement, to ecotoxicological effects. A new equilibrium is in motion.

This large mobile intentionally plays on the idea of "Balance in Nature" by suspending artifacts, including a tangled ball of old fishing nets collected off the coast of Japan that was found adrift with new fish stuck in it. A lost net doesn't stop fishing. There's also a mass of plastic bags dug out of a camel skeleton found in the desert of Dubai, and 200 cigarette lighters extracted from Laysan albatross skeletons on Midway Atoll. These wildlife impacts are examples of the millions of interactions other life has with plastic waste daily.



10

PLASTIC IN CAMELS

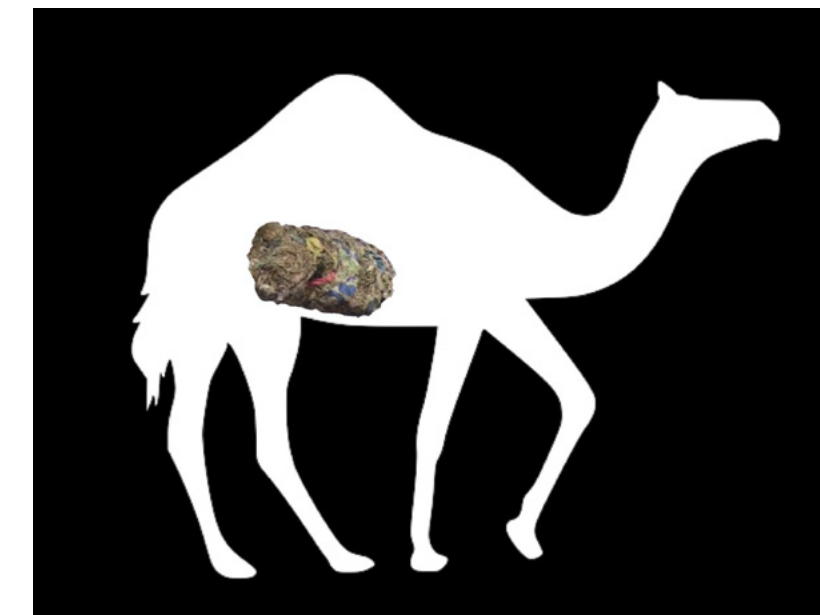
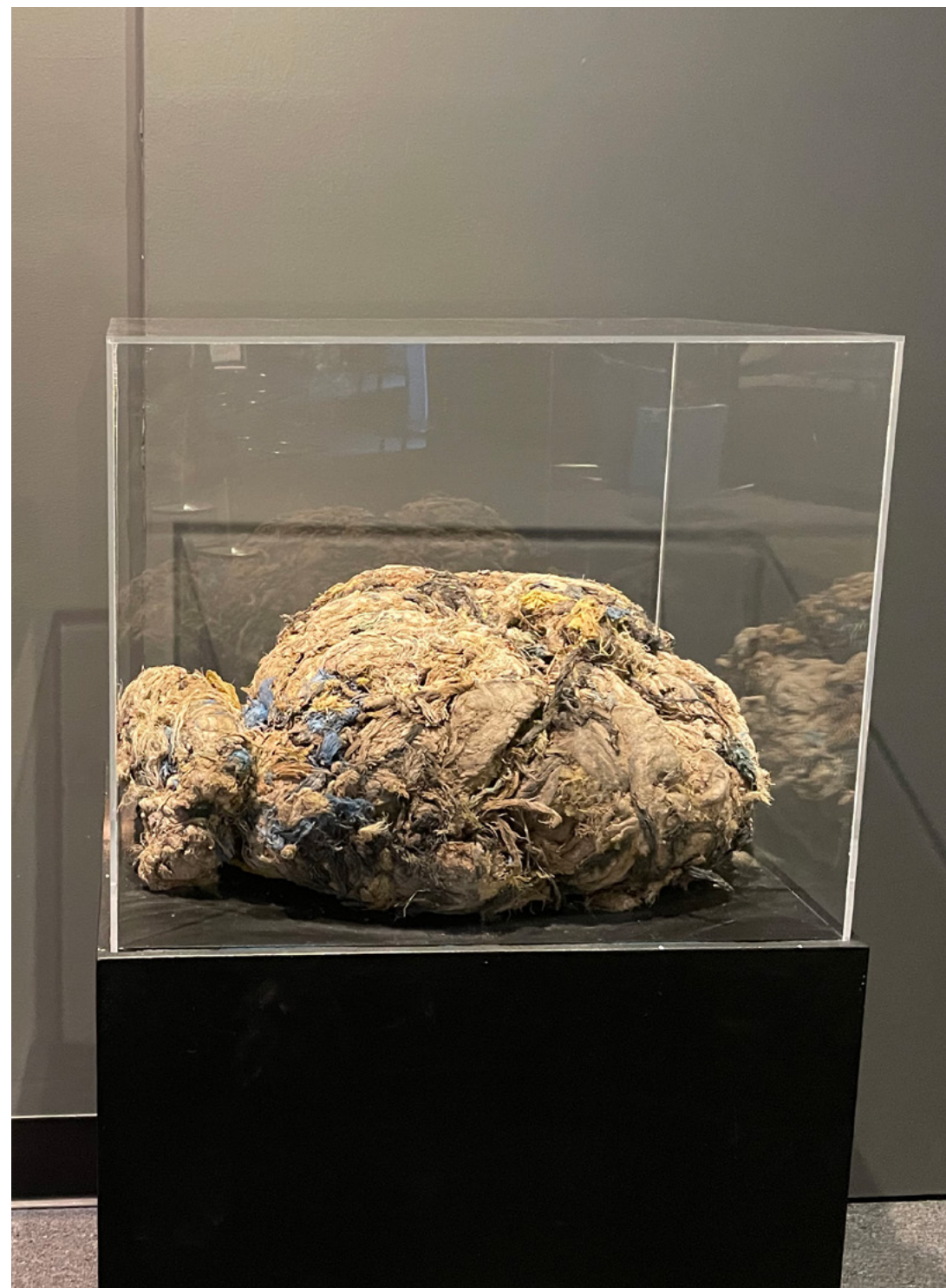
Exhibit space requirement: 3'x3' floor space. Displayed on a stand or exhibit case.

Our research here: www.sciencedirect.com/science/article/abs/pii/S0140196320302731

Video here: www.sciencedirect.com/science/article/abs/pii/S0140196320302731

EXHIBIT TEXT: Camels, like other grazing animals, including cows, horses and goats, forage for food and might mistake plastic waste as something edible or be attracted to food residue and salts. The result is the accumulation of plastic waste in the gut that can neither be passed through the body or regurgitated. The experience can be excruciating for the animal, including lacerations and lesions in the digestive tract, dehydration and malnourishment due to a lack of space in the stomach for food, and possible sepsis from bacteria that live in the folds of plastic waste in the gut.

The 5 Gyres Institute worked closely with veterinarian Dr. Ulrich Wernery in Dubai to publish these findings. Soon after publication plastic bags were banned in the U.A.E., showcasing the important role science plays in policy decisions.



11

ALBATROSS BOLUS

Exhibit space requirement: This exhibit includes a large print of an albatross skeleton from Midway Atoll with plastic in the center of its skeleton.

The regurgitated boluses can be displayed on the wall or on a pedestal in a 1'x1' case.

EXHIBIT TEXT: The Laysan Albatross of Midway Atoll in the North Pacific soar over the open sea, sometimes for weeks at a time, foraging for fish and squid near the surface. In recent decades their feeding area has become trashed with floating plastic, which the albatross mistake for food.

The observation of Laysan Albatross dying from ingesting ocean plastics led to tremendous public outcry and pressure on public servants and industry to solve the problem. Increasingly, nations are eliminating single-use plastics from society, while cities install nets in rivers to capture plastic before it reaches the sea. Both efforts will significantly reduce the amount of plastic waste adrift.



12

FISH BITTEN PLASTIC

Exhibit space requirement: 4'x4' wall space

EXHIBIT TEXT: A collection of plastic objects bitten by fish, turtles and sharks shows the ecological impact of plastic on the marine environment. Bites from marine life on plastic quickly reduce plastic trash to microplastic particles, making them available to smaller and more abundant organisms.

Research poster published by A. Markic and M. Eriksen.



13

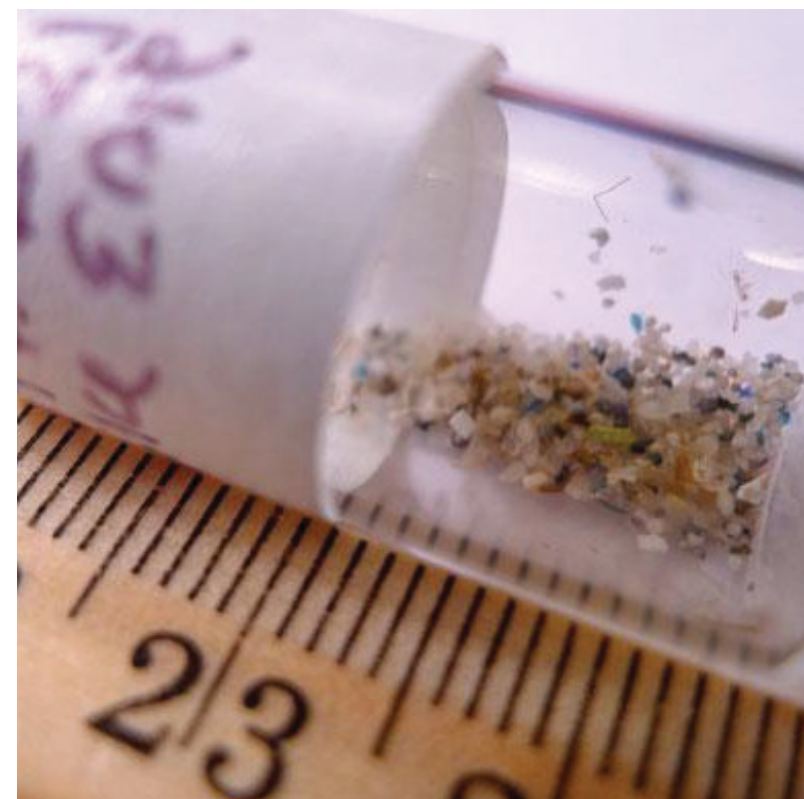
DOING RESEARCH

Exhibit space requirement: 3'x3' floor space for tools and samples, and an anchor point on the ceiling above the case to hang the research net.

EXHIBIT TEXT: Plastic pollution research in the open ocean initially borrowed methods used by marine biologists to collect plankton. A manta trawl is deployed off the side of a ship to collect floating plastic waste over a specific area of the ocean. The contents of the net are then analyzed for plastic type, particle count, shape and any interactions with marine life.

Using the width of the trawl and the distanced towed, scientists can then estimate particle count per square kilometer. With the aid of computer modeling of ocean currents, estimates for regional and global concentrations can be made.

Today, researchers are moving beyond the oceans to study macroplastic, micro- and even nanoplastics in rivers, terrestrial environments, even floating on air. Many researchers also study ecological and physiological impacts of plastics on living systems, from whole ecosystems to organ functioning. The oceans may have been where much of the research started, but today most of the research has moved upstream.



14

CIRCULAR ECONOMY BY SECTOR

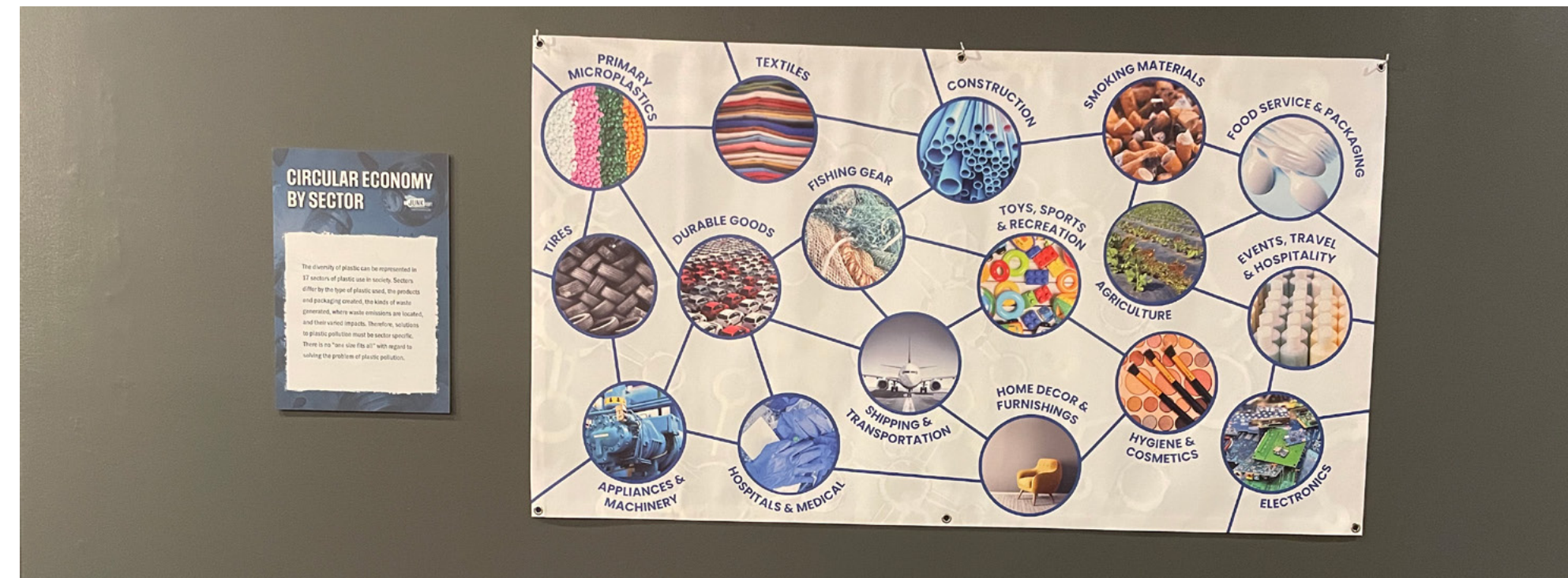
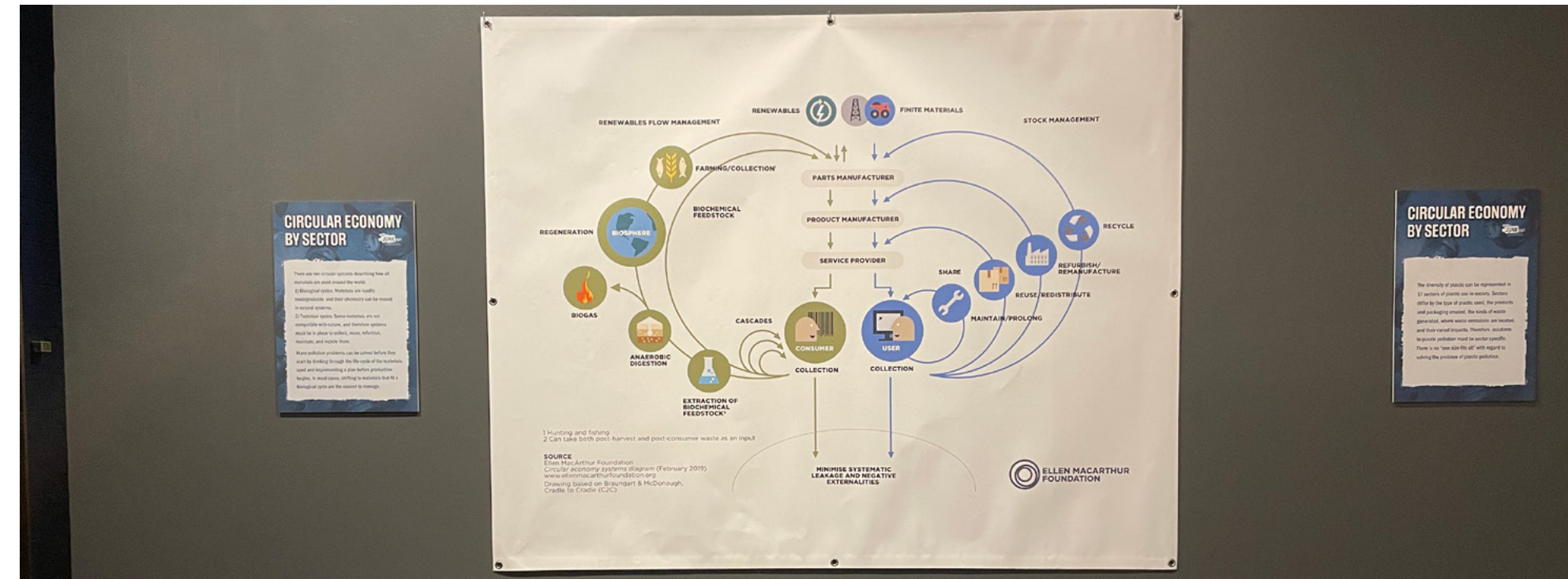
Two large posters explain how we shift to circular economic thinking

Exhibit space requirement: 5'x5' wall space

EXHIBIT TEXT: The diversity of plastic can be represented in 17 sectors of plastic use in society. Sectors differ by the type of plastic used, products and packaging created, kinds of waste generated, where waste emissions are located and the varied impacts. Therefore, solutions to plastic pollution must be sector specific. There is no "one size fits all" with regard to solving the problem.

EXHIBIT TEXT: There are two circular systems describing how all materials are used around the world. 1) Biological cycles: materials are readily biodegradable and their chemistry can be reused in natural systems. 2) Technical cycles: some materials are not compatible with nature, therefore systems must be in place to collect, reuse, refurbish, maintain and recycle materials.

Many pollution problems can be solved before they start by thinking through the life-cycle of the materials used and implementing a plan before production starts. In most cases, shifting to materials that fit a biological cycle are the easiest to manage.



15

PLASTIC DEFINES THE ANTHROPOCENE

Exhibit space requirement: 5'x4' wall space

EXHIBIT TEXT: Dead Horse Bay was a landfill in Brooklyn, NY that opened in the late 1800's to render horses that died in the city, and remained a city landfill until it closed in the 1950s. It's a stratigraphic section of time that represents the Anthropocene, or Age of Humankind.

The ocean is now tearing it open, exposing a 1 meter thick cross-section of human history. Many researchers think that plastic is the best global marker of humanity in geologic terms. It qualifies as a better index fossil than our bones ever would.

In this exhibit we would include a 1-meter cross section of the landfill (horse bones on the bottom and nylon stockings on top). We have boxes of artifacts to include in the exhibit, as well as a real copy of Life Magazine 1955, with the infamous article titled "Throw Away Living". This article lays out the beginning of the Age of Plastic.



16

EIGHT OCEAN HEROES

THE FACES OF THE MOVEMENT TO SOLVE PLASTIC POLLUTION

Exhibit space requirement: 3'x15' wall space.

EXHIBIT TEXT: These 8 casts are made from the faces of people that represent different roles people play in the work to solve the plastic pollution problem. Which one do you identify with?



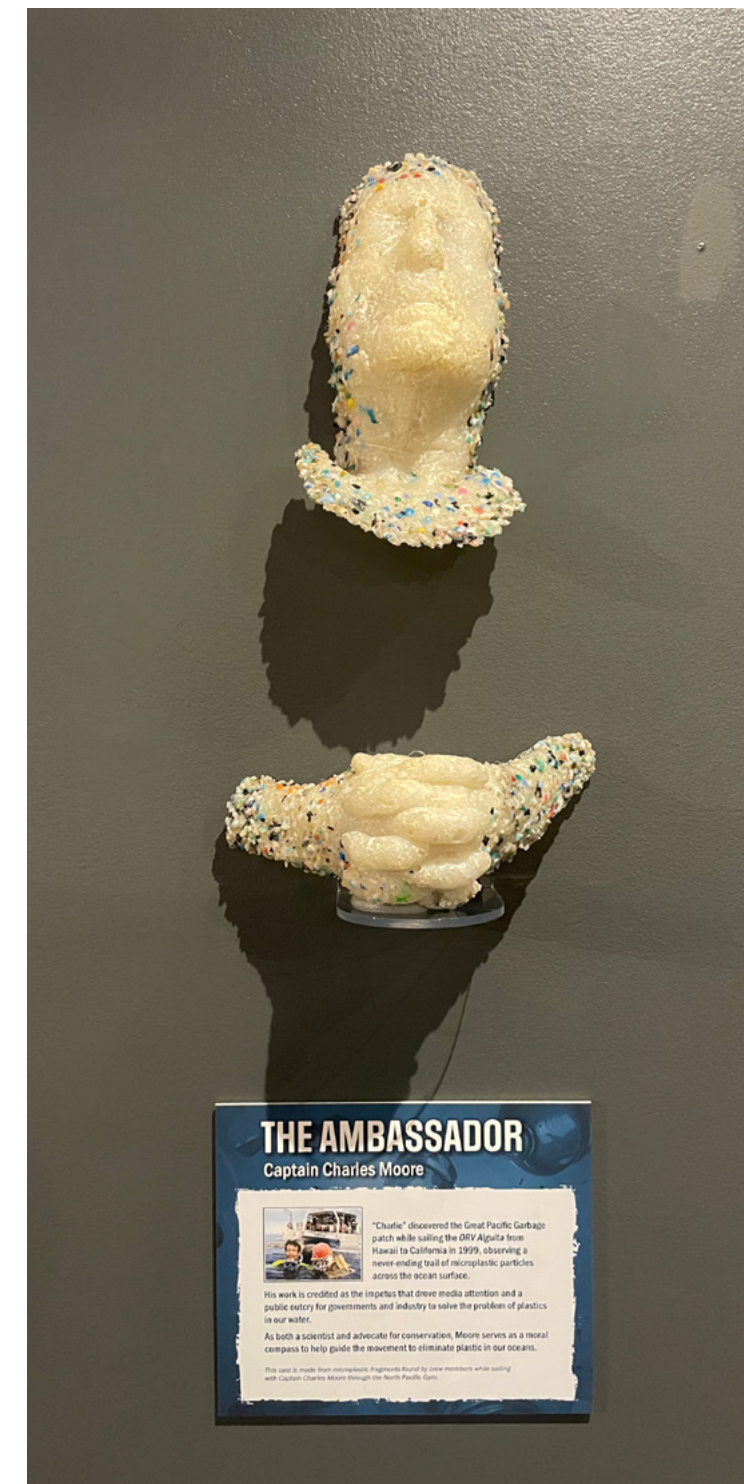
THE AMBASSADOR

Captain Charles Moore

"Charlie" discovered the Great Pacific Garbage patch while sailing the ORV Algalita from Hawaii to California in 1999, observing a never-ending trail of microplastic particles across the ocean surface.

His work is credited as the impetus that drove media attention and a public outcry for governments and industry to solve the problem.

As both a scientist and advocate for conservation, Moore serves as a moral compass to help guide the movement.



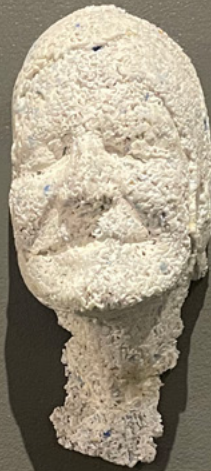
OCEAN ELDER

Sylvia Earle


As the former director of NOAA and founder of Mission Blue, Sylvia Earle engages political and business leaders around the world to understand and act on conservation issues.

Also known as “Her Deepness”, Dr. Earle has witnessed plastic accumulation on the seafloor after decades and hundreds of hours deep beneath the surface of the sea.

www.oceanelders.org



OCEAN ELDER
Sylvia Earle



Sylvia Earle is the former director of the National Oceanic and Atmospheric Administration and founder of Mission Blue, an ocean conservation organization. She engages political and business leaders around the world to create more marine protected areas, stop overfishing, and end pollution to our oceans.

Also known as “Her Deepness,” Dr. Earle has witnessed plastic accumulation on the seafloor after decades and hundreds of hours spent deep beneath the surface of the sea.

This card is made from PET bottles found on the seafloor and in her hair.

GRASSROOTS ORGANIZER

Tina Ngata

As a Maori community organizer in Aotearoa (New Zealand), Tina Ngata works tirelessly on social and environmental issues that impact her land and people. The Maori are a seafaring culture and have seen the rapid accumulation of plastic waste in the Pacific.

“We REACT to injustice, as anyone would, otherwise most people prefer peaceful lives,” Tina says, explaining that activists are better called “reactivists”.

The reaction to ocean plastic pollution has been a groundswell of grassroots organizations pressuring corporate and government leadership to stop the harm caused by plastic waste. Community organizing is central to the birth and growth of a movement.



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MOTHER

Anna Cummins

Anna co-founded 5 Gyres Institute in 2008, and quickly had her blood serum analyzed for persistent organic pollutants. The test found DDT, PCBs, and flame retardants. On Aug. 3rd 2012 her daughter was born, and like it or not those pollutants are transferred to infants through birth and breastfeeding.

Human health concerns reach everyone, going beyond politics or public opinion. Harm to ourselves and our children is a powerful argument that breaks all social and political boundaries.

This cast includes plastic pollution she has found around the world during 5 Gyres Institute expeditions. Her cast was taken at the 5-month stage of her pregnancy.

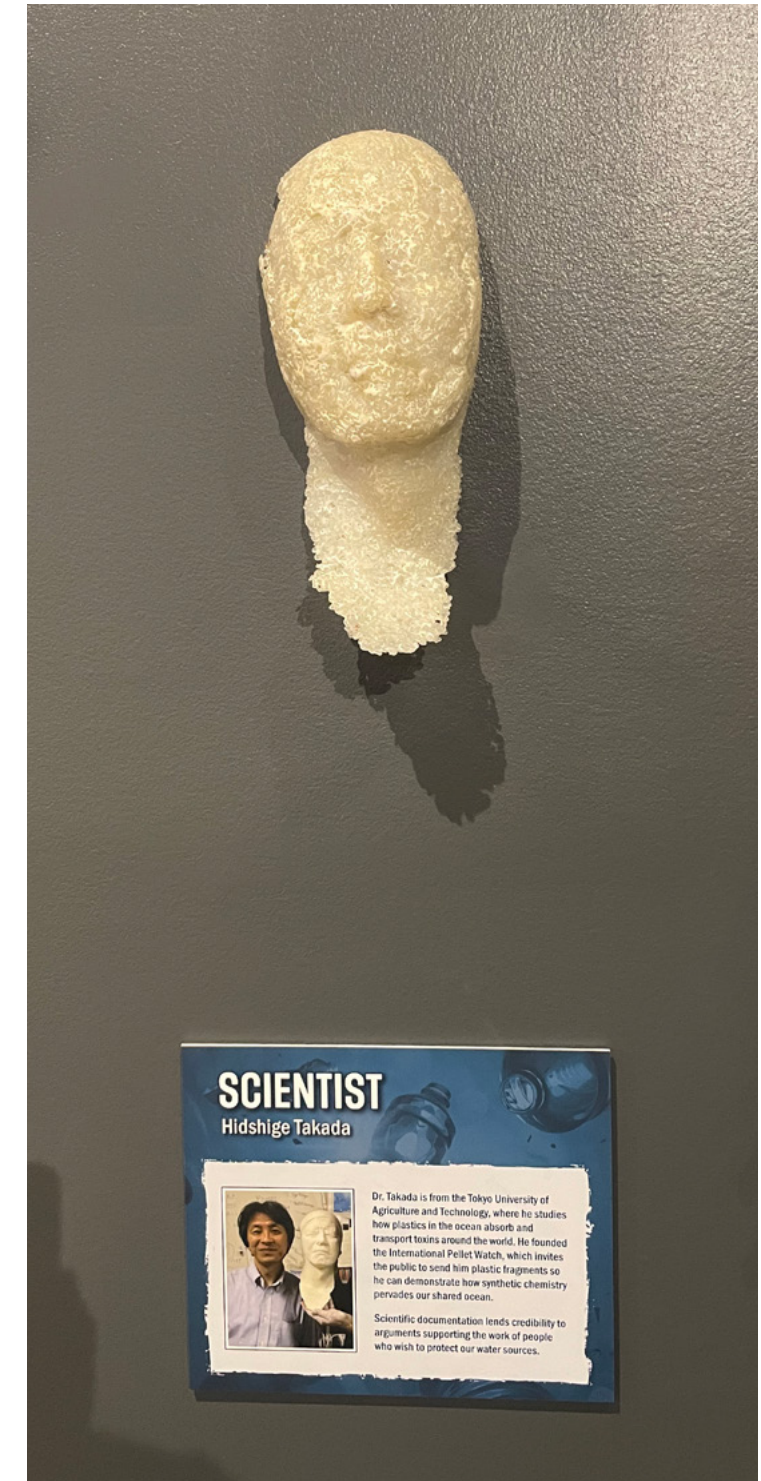


SCIENTIST

Hidshige Takada

Dr. Takada is from the Tokyo University of Agriculture and Technology studying how plastics in the ocean absorb and transport toxins around the world. He founded International Pellet Watch, inviting the public to send him plastic fragments so he can show the world how synthetic chemistry pervades our shared ocean.

Without science to document the problem, there's little credibility to the arguments made before corporations and governments.



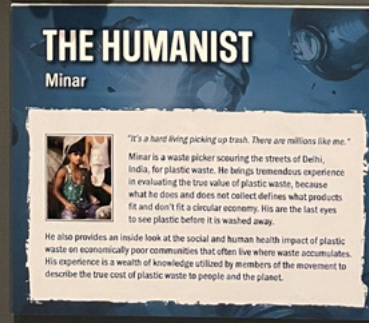
THE HUMANIST

Minar

**"It's a hard living picking up trash.
There are millions like me."**

Minar is a wastepicker scouring the streets of Delhi, India for plastic waste. He brings tremendous experience in evaluating the true value of plastic waste, because what he does and does not collect defines what products fit and don't fit a circular economy. His are the last eyes to see plastic before it is washed away.

He also provides an inside look at the social and human health impact of plastic waste on economically poor communities, that often live where waste accumulates. His experience is a wealth of knowledge utilized by members of the movement to describe the true cost of plastic waste to people and the planet.



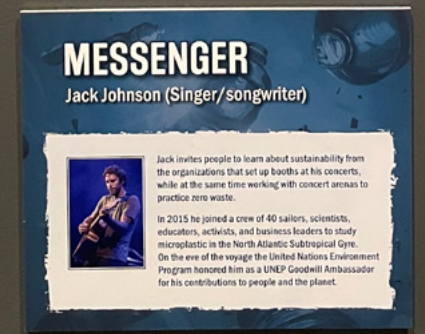
MESSENGER

Jack Johnson (Singer/songwriter)

Jack invites people to learn about sustainability from the organizations that set up booths at his concerts, while at the same time working with concert arenas to practice zero waste.

In 2015 he joined a crew of 40 sailors, scientists, educators, activists, and business leaders to study microplastic in the North Atlantic Subtropical Gyre.

On the eve of the voyage the United Nations Environment Program honored him as a UNEP Goodwill Ambassador for his contributions to people and the planet.

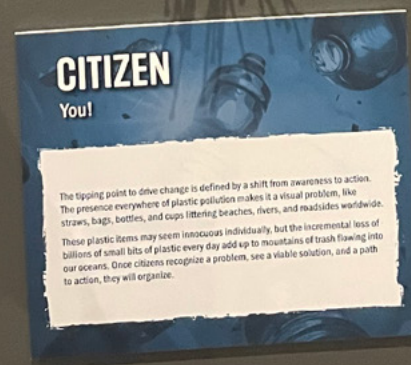


CITIZEN

You!

The tipping point to drive change is defined by a shift if public consciousness from awareness to action. The ubiquity of plastic pollution makes it a visual problem, like straws, bags, bottles and cups littering beaches, rivers and roadsides worldwide.

These plastic items may seem innocuous individually, but the incremental loss of billions of small bits of plastic every day add up to mountains of trash flowing into our oceans. Once citizens recognize a problem, see a viable solution and a path to action, they will organize.



Films and Lectures

JUNK: www.junkraft.org/videos

Smog of the Sea: www.thesmogofthesea.com/watch-film



Educational Materials

School outreach: 50 minute assembly programs for schools



Curriculum kits: a collection of activities and materials for a classroom unit on the problem and solutions to plastic pollution





This exhibit is a partnership between Leap Lab and the 5 Gyres Institute



To inquire about this exhibit please contact:

Leap Lab
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Executive Director
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323-395-1843
leaplab.org

