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LIFE BELOW WATER

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14 LIFE BELOW WATER

Mr Sojan Joseph
Assistant Professor

EDITORIAL

WELCOME TO OUR DEPARTMENT NEWSLETTER, YOUR GATEWAY TO STAYING INFORMED, INSPIRED, AND CONNECTED WITH OUR VIBRANT COMMERCE COMMUNITY!

As we navigate the ups and downs of academic life, it's easy to get caught up in our individual pursuits. But the truth is, our experience is so much richer when we engage with one another, share our stories, and support each other's passions.

That's what this newsletter is all about: fostering connection, sparking conversation, and celebrating the diverse voices and experiences that make our Department so special.

In the following pages, you'll find a wealth of news, features, and insights that showcase the best of our department. From academic achievements to extracurricular adventures, we're proud to share the stories that make our community thrive.

The ocean, which covers over 70% of our planet, is facing unprecedented threats from plastic pollution, overfishing, climate change, and habitat destruction. To mitigate this, the United Nations' Sustainable Development Goal 14 aims to conserve and sustainably use the world's oceans. We can all contribute by reducing plastic use, supporting organizations that protect marine habitats, choosing sustainable seafood, and spreading awareness about ocean conservation.

So take a moment to read, reflect, and connect with the faces and voices that make our department so extraordinary. Let's build bridges, spark ideas, and create memories that will last a lifetime.

Happy reading!

CONTRIBUTORS

AKHILA T V

ALMARIYA E J

AMRITA GOKUL P

ANAGHA T

ANET ROSE JOSEPH

ANILA K VARGHESE

DIVYA K

JASMIN C J

JISNY K R

LALY L

LIDIA LAWRENCE

MEENU M D

NANDHANA S

NEHA P R

PRAJITHA H

ROSHINI RAMA KUMAR

SANDRA THERESA JELSON

SIYA SUNNY

STUDENT EDITOR: ANUJA K A

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LIFE UNDER WATER – ANET ROSE and ANAGHA T

What is Life Under Water?

Life under Water focuses on preserving the health and biodiversity of marine ecosystems, promoting sustainable fishing practices, reducing marine pollution, and addressing the impacts of ocean acidification and climate change on aquatic life. Oceans cover over 70% of the planet's surface, host an incredible diversity of marine species, and regulate the Earth's climate and weather patterns. However, human activities such as overfishing, habitat destruction, pollution, and climate change have put immense pressure on marine environments, leading to the decline of marine biodiversity and the degradation of vital ecosystems. Marine life, or sea life or ocean life, is the plants, animals and other organisms that live in the salt water of the sea or ocean, or the brackish water of coastal estuaries. At a fundamental level, marine life affects the nature of the planet. The term marine comes from the Latin mare, meaning sea or ocean. Life underwater is one of the most important parts of the ecosystem.

Why Is It Important to Conserve and Sustainably Use the Oceans, Seas and Marine Resources?

It is the ocean which drives global systems and makes the earth habitable for humankind. The sea regulates rainwater, drinking water, weather, climate, coastlines, food, and even the oxygen in the air. Therefore, careful management of oceans, seas and marine resources is essential towards a sustainable future. Presently however, there is continuous deterioration of coastal waters due to pollution, and ocean acidification is having a negative impact on the proper functioning of ecosystems and biodiversity. This also affects small scale fisheries. Thus, saving the ocean is very important. Further, marine biodiversity is quintessential to the health of people and our planet.

Marine protected areas require to be effectively managed, wellresourced and regulations need to be established to reduce overfishing, marine pollution and acidification of ocean. Systemic and local efforts are key. Establishing comprehensive, effective and equitably managed systems of government-protected areas plays an important role in biodiversity conservation and ensures a sustainable future for the fishing industry. Local efforts such as making ocean-friendly choices while buying products, selecting certified products, eliminating plastic usage and spreading the message on the importance of marine life also supplements the systemic efforts towards achieving this Goal.

Amazing Facts About Oceans and Seas:

Now that we have read about the plants and animals found in the marine ecosystem, let us list some facts about oceans and seas.

- More than 94% of the earth's wildlife comprises marine life.
- The oceans and seas produce more than 70% of the oxygen for the whole planet.
- The sun makes the vast oceans and seas blue. This is why our planet appears to be blue from outer space.
- The deepest point recorded is in the Pacific Ocean. It is called the Mariana Trench. It is 11,034 metres, enough to drown Mount Everest. The pressure of the sea at the lowest point is 8 tons/ sq. inch. It is enough to crush us.
- After learning various aquatic animal examples, you will be surprised to know that corals produce their own sunscreen called coral fluoresce to protect the algae found in the polyps.
- The largest underwater mountain range called the Mid Oceanic Ridge is around 65,000 km long.

WATER POLLUTION

NEHA PR

Water pollution is a serious environmental issue caused by various human and natural activities that introduce harmful substances into water bodies, making them unsafe for humans, animals, and ecosystems. One of the primary causes is industrial waste, where factories release toxic chemicals, heavy metals, and untreated sewage into rivers, lakes, and oceans. These pollutants can harm aquatic life and contaminate drinking water sources. Agricultural activities also play a major role, as fertilizers, pesticides, and animal waste wash into water bodies through runoff, leading to nutrient pollution that causes harmful algal blooms, which deplete oxygen and kill marine organisms. Household waste, including plastic pollution, detergents, and improperly disposed medicines, further contaminates water sources. Additionally, oil spills from ships and pipelines create long-lasting damage to marine ecosystems. Climate change, deforestation, and urbanization also contribute by altering water cycles and increasing sedimentation in rivers and lakes.

Preventing water pollution requires collective efforts at different levels. Industries must implement proper waste treatment processes before discharging effluents into water bodies. Farmers should adopt sustainable practices, such as organic fertilizers and controlled irrigation, to minimize agricultural runoff. Governments should enforce strict environmental regulations and improve sewage treatment infrastructure to prevent raw sewage from entering waterways. Individuals can also help by reducing plastic use, properly disposing of household waste, and participating in clean-up drives. Raising awareness about the impact of water pollution and promoting conservation efforts, such as rainwater harvesting and afforestation, can further help in maintaining clean and healthy water sources. By adopting these measures, we can protect water quality and ensure a sustainable future for all living beings.

CARTOON

Collected By Nandhana s, Jisny KR , Almariya E J

THE GUARDIAN OF THE REEF

Lidia Lawrence

Beneath the shimmering surface of the ocean, a vibrant world thrived. Coral cities stretched like labyrinths, fish of every colour flitted through the currents, and sea turtles glided like ancient guardians. But the ocean wasn't as peaceful as it seemed — it was changing.

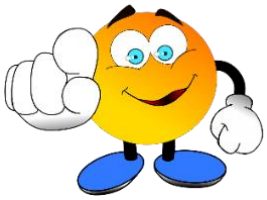
Deep within the reef, a young sea turtle named Kira explored her home. She had always been curious, swimming through caves and peeking into anemones. Her grandmother, an old turtle named Marra, often warned her of the "Shadow of the Surface" — the strange things that drifted down from above, tangling creatures and darkening the waters.

One day, while playing near the coral, Kira found a dolphin caught in a net. The dolphin, named Nalu, thrashed and struggled, the net biting into his skin. Kira, small but determined, bit at the tangled fibers. Slowly, with the help of a passing octopus, she freed Nalu. Nalu told her of the human world — of ships, pollution, and discarded fishing gear. "They don’t understand what they’re doing to us," he said, his voice echoing through the water.

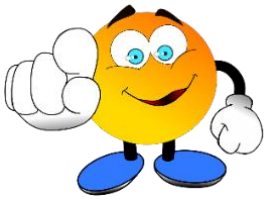
Kira decided she couldn’t just explore her world; she had to protect it. She gathered her friends: colourful parrotfish, wise old rays, and even a shy, bioluminescent squid. Together, they began cleaning their reef, dragging plastic into deep trenches, unravelling nets, and guiding lost creatures to safety.

News of their efforts spread across the ocean. Whales hummed songs of the reef's guardians, and schools of fish followed Kira like tiny silver shadows. Eventually, the humans noticed too — divers discovered the cleaner reef and saw the creatures working together. Inspired, they returned with boats to remove larger debris and started protecting the area.

The ocean healed slowly, and Kira grew into a powerful figure of the sea — not just a turtle but a symbol of hope. Life below water thrived, not because the threats disappeared, but because even the smallest creature can spark change. And when the moonlight rippled across the sea, casting silver onto the coral, the creatures of the reef swam beside their Guardian — the turtle who believed in a better world.



DID YOU KNOW?



Divya K, Meenu MD and Siya Sunny

Question 1

What is the deepest part of the ocean?

A) Mariana Trench

B) Great Barrier Reef

C) Mid-Ocean Ridge

D) Challenger Deep

Answer**: D) Challenger Deep**

Question 2

Which of the following marine animals has a built-in "compass" that helps it navigate?

A) Sea Turtle

B) Dolphin

C) Shark

D) Lobster

Answer: **A) Sea Turtle**

Question 3

What is the term for the process by which coral reefs are formed?

A) Sedimentation

B) Erosion

C) Accretion

D) Calcification

Answer: **D) Calcification**

Question 4

Which of the following deep-sea creatures has the ability to live in extreme environments with high temperatures and pressures?

A) Giant Tube Worm

B) Deep-Sea Fish

C) Hydrothermal Vent Creatures

D) All of the above

Answer: **D) All of the above**

Question 5

What is the term for the movement of ocean water from the deep sea to the surface?

A) Upwelling

B) Downwelling

C) Currents

D) Tides

Answer: **A) Upwelling**

Question 6

Which of the following marine ecosystems is characterized by open ocean waters and a lack of solid boundaries?

A) Coral reef

B) Estuary

C) Kelp forest

D) Pelagic zone

Answer**: D) Pelagic zone**

Question 7

What is the term for the study of the ocean's chemical properties, such as pH and nutrient levels?

A) Oceanography

B) Marine biology

C) Physical oceanography

D) Chemical oceanography

Answer: **D) Chemical oceanography**

Question 8

Which of the following marine animals has a unique shell that helps it defend against predators?

A) Abalone

B) Conch

C) Nautilus

D) All of the above

Answer**: D) All of the above**

Question 9

What is the term for the process by which ocean water becomes more buoyant and rises to the surface?

A) Convection

B) Diffusion

C) Osmosis

D) Upwelling

Answer: **A) Convection**

Question 10

Which of the following human activities has a significant impact on marine ecosystems?

A) Overfishing

B) Pollution

C) Climate change

D) All of the above

Answer: **D) All of the above**

Question 11

What is the largest species of shark?

A) Great White Shark

B) Whale Shark

C) Hammerhead Shark

D) Tiger Shark

Answer: **B) Whale Shark**

Question 12

Which of the following marine animals has the longest migration route?

A) Sea Turtle

B) Humpback Whale

C) Gray Whale

D) Leatherback Sea Turtle

Answer :**D) Leatherback Sea Turtle**

Question 13

What is the term for the process by which ocean water seeps into the seafloor and interacts with rocks and minerals?

A) Hydrothermal activity

B) Ocean acidification

C) Upwelling

D) Downwelling

Answer**: A) Hydrothermal activity**

Question 14

Which of the following deep-sea creatures has the ability to produce a glowing lure to attract prey?

A) Anglerfish

B) Vampire Squid

C) Giant Squid

D) Colossal Squid

Answer: **A) Anglerfish**

Question 15

What is the term for the zone of the ocean where the sunlight is too weak for photosynthesis to occur?

A) Intertidal zone

B) Bathypelagic zone

C) Mesopelagic zone

D) Aphotic zone

Answer: **D) Aphotic zone**

Question 16

Which of the following marine ecosystems is characterized by a mixture of fresh and saltwater?

A) Coral reef

B) Estuary

C) Kelp forest

D) Mangrove swamp

Answer**: B) Estuary**

Question 17

What is the term for the process by which ocean currents transport heat and nutrients across the globe?

A) Ocean circulation

B) Upwelling

C) Downwelling

D) Thermohaline circulation

Answer: **D) Thermohaline circulation**

Question 18

Which of the following marine animals has a unique shell that can withdraw into for protection?

A) Abalone

B) Conch

C) Nautilus

D) Snail

Answer: **C) Nautilus**

QUOTES

Akhila TV, Roshini Ramakumar and Laly

"The water is the driving force of all nature."

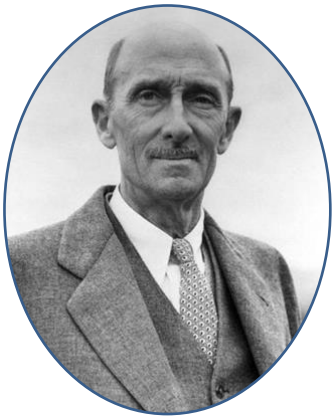
-Leonardo da Vinci

"The ocean is the life-support system of this planet. If we do not take care of it, we will ultimately perish."

-David Attenborough

"The sea is a vast desert of water, but in it, all life is bound together by an invisible thread."

-William Beebe



"A healthy ocean is vital to our economy and well-being. We need clean and healthy oceans to sustain tourism and fisheries."

-Scott Peters

"Oceans have a role in everyday life as 'the lungs of our planet' and as a source of food and medicine."

-António Guterres

“WATER IS OUR EVERYTHING”

Water is our source of life

Water is our everything

Without it,we have nothing

Together we must protect it

The little things do a lot

Start taking shorter showers

Maybe just 5 minutes or so

It's not that much to ask

Do not waste day old water

There is nothing wrong

Use it to water all your plants

So they grow nice and strong

While doing dishes, turn off the faucet

There's no need for waste

Your dishes can be squeaky clean

The earth will be okay

AMRITA GOKUL P

SUSTAINABLE PRACTICES

PRAJITHA H

SUSTAINABLE SEAFOOD:

One of the most significant ways individuals can support ocean health is by choosing sustainably sourced seafood. Overfishing is a critical issue, as it depletes marine populations and disrupts entire ecosystems. Sustainable fisheries are those that harvest seafood in ways that protect marine environments and allow species to replenish. When purchasing seafood, look for certifications like the Marine Stewardship Council (MSC) or Aquaculture Stewardship Council (ASC), which guarantee that the fish or seafood comes from responsible sources. Educating yourself on the seafood species that are endangered or overfished, and making informed choices at grocery stores or restaurants, can help reduce demand for unsustainable fishing practices.

ECO-FRIENDLY BOATING AND WATER SPORTS:

For boating enthusiasts, divers, and anyone who enjoys water sports, minimizing environmental impact is crucial. A few key ways to reduce harm to the ocean include:

- **Use eco-friendly fuel and reduce emissions**: Choose low-emission, electric, or hybrid boats to help reduce pollution in waterways.
- **Avoid damaging ecosystems**: Be mindful of coral reefs and other sensitive marine environments, especially when anchoring or engaging in water activities. Always avoid dropping anchor on coral reefs or in seagrass beds, as these areas are vital habitats for marine life.
- **Proper waste disposal**: Never throw trash, chemicals, or waste into the water. Make sure all waste is disposed of properly, especially when visiting remote areas.
- **Conserve water and energy**: Opt for energy-efficient equipment, such as solar-powered lights or energy-saving devices, and always use water responsibly.

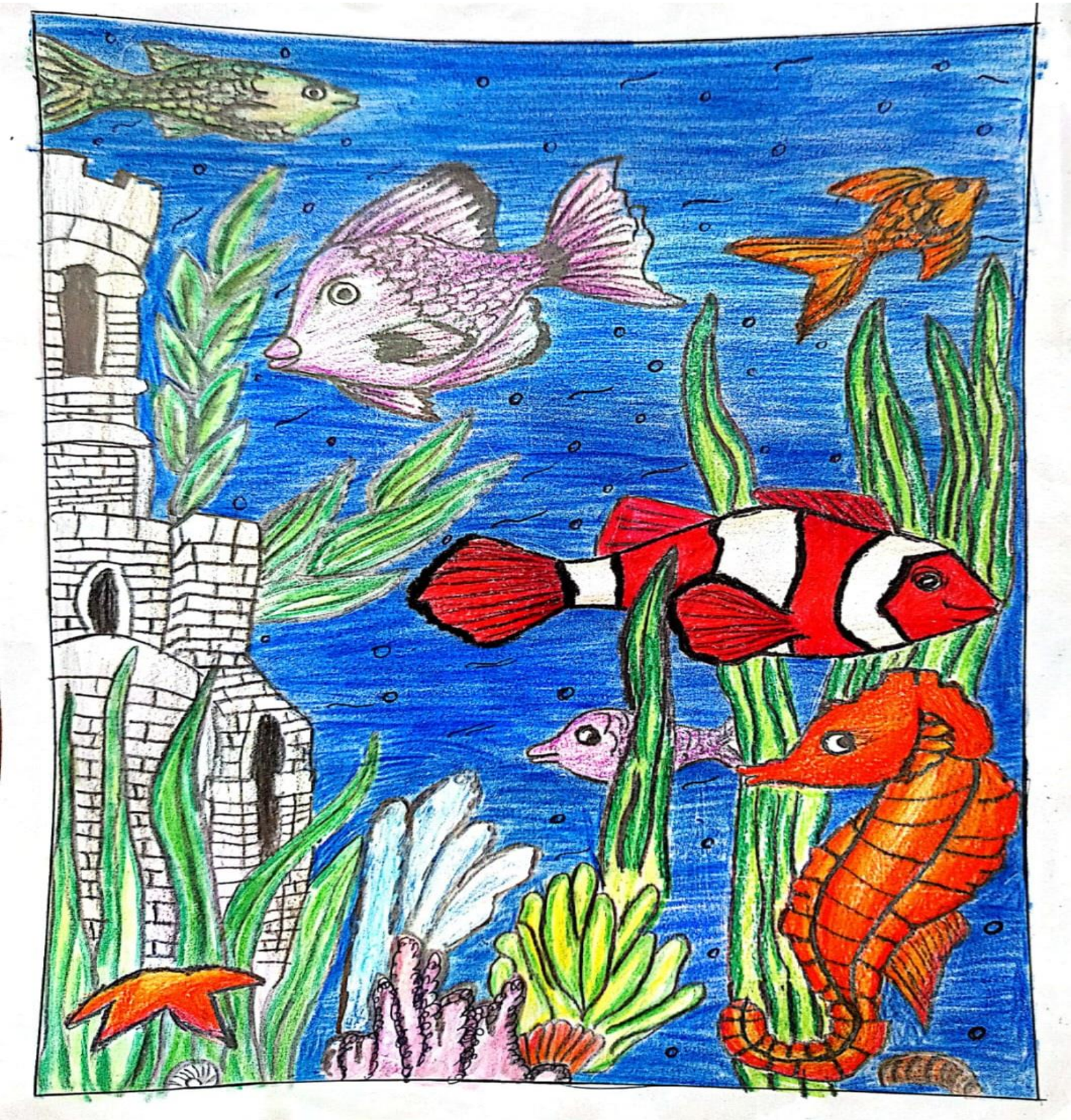
HOW TO REDUCE YOUR PLASTIC FOOTPRINT

Plastic pollution is one of the most pressing environmental issues facing the oceans. Millions of tons of plastic waste end up in the ocean each year, harming marine life and polluting coastlines. Reducing plastic use is crucial for the health of marine ecosystems. Here are some practical steps to minimize your plastic footprint:

- **Use reusable bags, bottles, and containers**: Ditch single-use plastics like shopping bags, plastic bottles, and straws by opting for reusable alternatives. These can drastically reduce the amount of plastic that ends up in the ocean.
- **Support brands with sustainable packaging**: Look for products that use biodegradable, recyclable, or minimal packaging. Supporting brands that prioritize eco-friendly packaging encourages more companies to do the same.
- **Participate in clean-up efforts**: Volunteer for local beach or waterway clean-up events to help remove plastic waste from the environment and raise awareness in your community.
- **Recycle properly**: Make sure you are recycling plastics in accordance with local regulations. Not all plastics are recyclable, so understanding what can be recycled and how to dispose of them correctly is vital.

DRAWING

Anila Varghese, Jasmine CJ and Sandra Theresa



HOW BUSINESS CAN HELP ACHIEVE SDG 14: PROTECTING OUR OCEANS

ANUJA KA

SDG 14 focuses on the sustainable use and conservation of oceans, seas, and marine resources, which are integral to global commerce. Oceans are central to international trade, with over 80% of goods transported by sea. Shipping, fisheries, and tourism all rely on healthy marine ecosystems. However, overfishing, pollution, and climate change threaten these industries, making the achievement of SDG 14 essential for long-term economic stability.

Businesses can contribute by adopting sustainable practices, such as responsible fishing, reducing carbon footprints in shipping, and promoting eco-friendly tourism. The fishing industry must prioritize sustainability to prevent overfishing and protect marine biodiversity. Shipping companies can embrace green technologies, like energy-efficient vessels and low-emission fuel, to reduce environmental impacts. Additionally, supporting marine biotechnology, which relies on sustainable resource management, can lead to innovations in pharmaceuticals, food, and materials.

The blue economy offers new opportunities for commerce, where economic growth and environmental health go hand in hand. Public-private partnerships and sustainable investments can fund initiatives

that protect marine life while fostering innovation in ocean-based industries. By aligning business practices with SDG 14, commerce can contribute to ocean conservation, ensuring healthy seas and sustainable resources for future generations while maintaining economic prosperity.

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THANK YOU

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