Includes a teacher guide & student activity pack

Contributes to:
Stage 4 (Years 7-8)

- **GE4-1 –** locates and describes the diverse features and characteristics of a range of places and environments
- **GE4-2 –** describes processes and influences that form and transform places and environments
- **GE4-3 –** explains how interactions and connections shape places, environments and human wellbeing
- **GE4-4 –** examines perspectives of people and organisations on a range of geographical issues
- **GE4-5 –** discusses management of places and environments for sustainability
- **GE4-7 –** acquires and processes geographical information using geographical tools
- **GE4-8 –** communicates geographical information using a variety of strategies
- **SC4-4WS –** identifies questions and problems, plans and conducts investigations
- **SC4-6WS –** processes and analyses data and information
- **SC4-7WS –** communicates scientific understanding using suitable language and representations
- **SC4-8WS –** follows a sequence of instructions to safely undertake investigations
- **SC4-10PW –** relates the structure and function of living things to their survival and adaptation

Teacher Resource Guide

SEA LIFE Sydney Aquarium x Seabin Stage 4 Learning Pack

Includes:

- Teacher Resource Guide (download separately)
- Student Pack
- Refers to data in Impact Reports. Find these reports here: https://www.visitsealife.com/sydney/conservation/local-conservation-projects/project-seabin/#sea-life-sydney-x-seabin-impact-report-2025-annual

Please Note:
This resource has been produced for teachers to use for FREE and for them to use within the attraction, in a classroom and online learning environments. This resource works best with an excursion to SEA LIFE Sydney Aquarium.

Go to our website https://www.visitsealife.com/sydney/schools/ to find out more about school excursions!

Students are encouraged to:

- analyse real-world environmental data relating to marine pollution
- examine human-driven environmental change in Sydney Harbour
- interpret and evaluate statistical evidence and pollution trends
- assess the reliability of data, including estimated and extrapolated results
- explore sustainability strategies and compare environmental management solutions
- consider the long-term impacts of microplastics on ecosystems and biodiversity
- develop informed perspectives on environmental responsibility
- apply their learning through policy-style proposals and evidence-based recommendations

Sustainability Starts Locally

SEA LIFE Sydney Aquarium x Seabin Stage 4 Learning Pack

Ocean health impacts climate stability, biodiversity, and human survival. Plastic pollution is one of the most visible and damaging forms of environmental change.

The SEA LIFE Sydney Aquarium x Seabin partnership demonstrates how science, technology, and community engagement can reduce marine debris in Sydney Harbour.

This resource challenges students to interpret real data, evaluate sustainability solutions, and propose evidence-based strategies.

What is a Seabin?

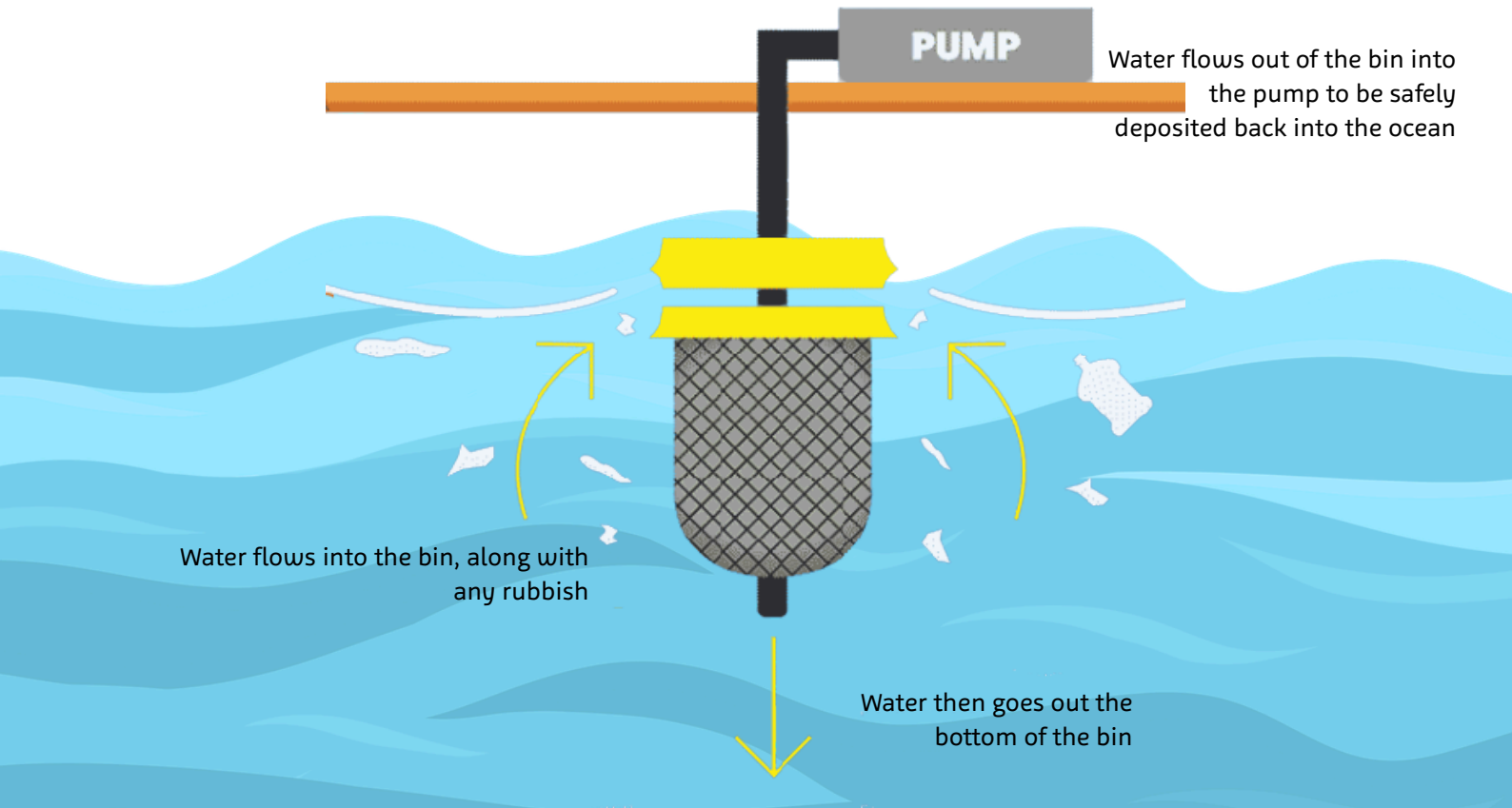
Seabin is like a “bin in the sea.” It floats in marinas and harbours and collects rubbish that is floating in the water.

It also filters the water to catch tiny pieces of plastic called microplastics.

In 2025, SEA LIFE Sydney Aquarium’s Seabin captured 664.09kg of marine litter in Sydney Harbour

How it works

The Seabin is situated at the water's surface and is plumbed into a shore-based water pump on the dock. The water is sucked into the Seabin, drawing all floating debris inside. The water then flows out through the bottom of the bin and up into the pump on the dock.

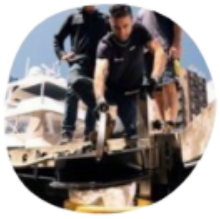


The Seabin is easy to empty and replace. It can work 24 hours a day, 7 days a week.

SEA LIFE Sydney

Sydney Harbour Impact (2023-2025)

2568.85
kilograms
of marine litter captured



711.63
million
litres of water filtered for microplastics and plastic pollution

285
Olympic swimming pools

1,407,774
plastic items captured

921,737
microplastics were captured

Average capture rate reported: 1,387 plastic items per day

SEA LIFE Sydney Seabin

Worksheet One: Environmental Change in Sydney Harbour

Environmental change occurs when human activities alter ecosystems. Plastic pollution is an example of environmental change because it impacts water quality, wildlife, and biodiversity.

What does the data suggest about the scale of marine pollution in Sydney Harbour?

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Identify 5 human activities that contribute to plastic entering waterways.

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Explain how marine pollution can impact biodiversity.

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Describe 2 ways pollution could affect humans.

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SEA LIFE Sydney

Seabin

Worksheet Two: How reliable is the data?

The two impact reports provided by Seabin cover two timeframes.

2025 Annual Report	2023-2025 Annual Report
525.84k plastic items captured	1,407,774 plastic items captured

Why might annual totals and multi-year totals be different?

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What does “extrapolated” mean in data reporting?

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Identify 2 reasons why estimates might be necessary.

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Identify 2 risks or weaknesses of using estimates.

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Suggest 3 ways marine litter data collection could be improved.

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Worksheet Three: Pollution breakdown

Pollution Type Identified	Percentage (%)
Microplastics	65.47%
Unidentified soft plastics	15.89%
Unidentified hard plastics	6.72%
Foam pieces	3.17%

What does this breakdown suggest about the biggest environmental threat?

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Why is microplastic pollution considered a long-term problem?

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Propose 3 strategies to reduce soft plastic pollution in Sydney.

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What types of industries might contribute to foam pollution?

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Worksheet Four: Sustainability Solutions

Rank the following solutions from most effective to least effective.

Solutions	Ranking (1 - most effective, 8 - least effective)
Seabin technology	
Plastic bag bans	
Improved recycling infrastructure	
Beach clean-ups	
School education programs	
Washing machine microfibre filters	
Increased fines for littering	

Explain your top 3 rankings using evidence and reasoning.

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SEALIFE Sydney

Seabin

Assessment Task: Sydney Harbour Plastic Reduction Strategy

You are part of a sustainability advisory team working with Sydney Harbour councils. Your task is to **propose a strategy to reduce plastic entering waterways.**

Your report must include:

- 3 evidence-based strategies
- 2 statistics from the Seabin reports
- 1 graph or infographic
- predicted impact (what might improve?)
- a clear conclusion

SEALIFE Sydney

Seabin

Assessment Task: Sydney Harbour Plastic Reduction Strategy

SEA LIFE Sydney

Seabin

Extension Task: Design the Next Innovation

If you could invent one new solution to stop plastic entering Sydney Harbour, what would it be?

Include:

- name of invention
- how it works
- where it would be installed
- how it would reduce pollution
- potential challenges

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Extension Task: Design the Next Innovation

SEA LIFE Sydney

Seabin