# Global Estuaries Monitoring (GEM)
**Decade Programme**

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

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## Lead Institution

**State Key Laboratory of Marine Pollution, City University Hong Kong**

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### KEY PARTNERS

- State Key Laboratory of Marine Pollution (SKLMP), City University of Hong Kong (CityU), Hong Kong, China
- Department of Environment and Geography (DEG), University of York, UK
- World Harbour Project (WHP), Sydney Institute of Marine Science, Sydney, Australia
- Baylor University (BU), Texas, USA
- State Key Laboratory of Marine Environmental Science (MEL), Xiamen University, Xiamen, China

### DECADE CHALLENGES ADDRESSED

**CHALLENGE 1:** Understand and beat marine pollution

**CHALLENGE 2:** Protect and restore ecosystems and biodiversity

**CHALLENGE 6:** Increase community resilience to ocean hazards

**CHALLENGE 7:** Expand the Global Ocean Observing System

**CHALLENGE 9:** Skills, knowledge and technology for all

### OCEAN BASINS

| | |
|---|---|
| North Atlantic | North Pacific |
| South Atlantic | South Pacific |
| Indian | Arctic |

🐦 @Marine_SKLMP

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💬 CityU_SKLMP & MELXMU

## Summary

The **Global Estuaries Monitoring (GEM) Programme** aims to develop a global monitoring network to monitor environmental contaminants (e.g., pharmaceutical residues, emerging pollutants of concern, micro-plastics, pathogens) in major urbanised estuaries worldwide. GEM will facilitate capacity building for monitoring through provision of training for standard sampling and analytical methods. GEM aims to reveal the pollution situation around the globe in estuaries, identify those that require attention and improvement, recommend priority contaminants for control, and promote best practices to combat the pollution problems thereby achieving cleaner estuaries for all.

Duration: 07/01/2021 - 06/30/2030

## Priority Activities (Phase 1: 2021-2023)

During Phase 1, GEM will focus on developing standardised methods for sampling and analysing pharmaceutical residues in global estuaries. Activities include:

- Holding virtual training workshops and videos on standard protocols.
- Conducting sampling in major urbanised estuaries in the Southern and Northern Hemispheres using the established standard methods.
- By the end of 2023, chemical analyses, data synthesis and reporting on global monitoring results.
- Holding workshops for partners to share and discuss results, co-decide new target pollutants (e.g., emerging chemicals of concern, antibiotic resistant genes, micro-plastics, pathogens) and co-design future global surveys and studies.
- Using existing and emerging networks to further solicit additional support from philanthropists, partners, and governments around the globe to sustain further development of the GEM Programme.
- Finding and inviting new partners to join the GEM network!

*"The GEM Programme will contribute to revealing the pollution situation around the globe and promote best practices to combat pollution problems and thereby achieve cleaner estuaries for everyone."*

*Professor Kenneth Mei-yee Leung, State Key Laboratory of Marine Pollution, City University, Hong Kong, China*