

Programme Introduction



Coastal Protection Masterclass

Brought to you by SWA Coastal Protection Chapter

Provide participants with a comprehensive overview and introduction of coastal protection & flood management. Enable participants to gain insight into the coastal protection sector and explore potential career transitions

Relevant if...

- You are a practising engineer pursuing professional development in coastal protection or considering a transition into the field.
- You have a minimum of 5 years of relevant work experience in engineering

Coastal Protection Masterclass – Programme Calendar

Session No.	Session 1 - Foundation Knowledge		Session 2 - Engineering and Solution		Session 3 - Testing & Execution		Session 4 - Monitoring, Hazard, Policy and Regulation	
Module No.	Module I	Module II	Module III	Module IV	Module V	Module VI	Module VII	Module VIII
Day	1/8	2/8	3/8	4/8	5/8	6/8	7/8	8/8
Tentative Dates	Q4 2025 (2 nd & 3 rd Oct)		Q4 2025 / Q1 2026 (TBC)		Q1 / Q2 2026 (TBC)		Q2 / Q3 2026 (TBC)	
Subjects	Coastal Process and Dynamic	Climate and Ocean & Coastal Numerical Modeling Extreme Analysis	Coastal Engineering	Marine Biodiversity and Ecology in Coastal Protection - Nature Base Solutions (NBS)	Coastal Physical Modeling	Construction and Execution	Monitoring, Evaluation and Early Warning System (M&E/EWS)	Adaptation and Resilience Strategies
								Integrated Coastal Zone Management (ICZM)
				Economic Assessments				
	Impact of Climate Change on Coastal Systems			Coastal & Flood Risk Assessment Hazard Assessment	Policy and Regulatory Frameworks			
					Community Engagement and Livelihood Considerations			

- ❖ Each module will consist of a full day of coursework.
- ❖ During the full-day course, there will be workshops for interaction between the trainer and attendees for each subject.
- ❖ Site visits may be available for some subjects and could be combined with the workshops.
- ❖ Tea and lunch breaks will be included as part of the course.

Disclaimer: All programme details, including speakers, topics, and timings, are subject to change without prior notice at the organiser's discretion.

Coastal Protection Masterclass

Synopsis of the Modules

Module 1: Understanding **coastal processes and dynamics** is critical for designing effective coastal protection and climate resilience strategies. These processes govern how coastlines evolve and respond to natural and anthropogenic changes, influencing the selection and performance of protection measures.

The chapters in this module include Tides, Waves, Coastal Erosion, and Coastal Ecosystems.

- This module will focus on:
 - Definition and understanding
 - Relevance
 - Engineering Consideration

Module 2: **Climate, ocean, and coastal modeling tools** and approaches are essential for understanding and predicting coastal dynamics, assessing risks, and designing effective solutions for coastal protection and climate resilience. These models simulate interactions between physical, biological, and socio-economic processes under different scenarios.

The chapters in this module include Sediment Transport and Morphology Models, Climate and Oceanographic Models, Ecosystem-Based Models, and Integrated Modeling.

- This module will focus on:
 - Introduction of model types
 - Purpose and usage
 - Application
 - Available options
 - Limitations and uncertainties

Disclaimer: All programme details, including speakers, topics, and timings, are subject to change without prior notice at the organiser’s discretion.

Coastal Protection Masterclass

Synopsis of the Modules

Module 3: Coastal engineering for coastal protection and climate resilience focuses on designing, constructing, and maintaining structures and systems that mitigate coastal hazards while adapting to climate change impacts.

Module 4: Marine biodiversity and ecological considerations, along with nature-based solutions, are critical components in coastal protection and climate resilience projects. Healthy ecosystems provide natural defenses against climate impacts, enhance the effectiveness of engineering solutions, and contribute to sustainable development goals.

Module 5: Coastal physical modeling involves creating scaled-down laboratory representations or controlled simulations of coastal environments to study processes and test solutions for coastal protection and climate resilience. These models provide valuable insights into the behavior of natural and engineered systems under various conditions.

This module also covers **environmental assessments for coastal protection and climate resilience** focus on understanding and mitigating the ecological impacts of proposed interventions while ensuring long-term sustainability. This module emphasizes compliance with EIA standards and adherence to biodiversity treaties such as the Convention on Biological Diversity (CBD)

- These modules will focus on:
 - Definitions & objectives
 - Examples & case studies
 - Applications
 - Key considerations
 - Local context
- *Site visits for available local IHL facility and workshop is part of the consideration and option

Disclaimer: All programme details, including speakers, topics, and timings, are subject to change without prior notice at the organiser's discretion.

Coastal Protection Masterclass

Synopsis of the Modules

Module 6: The **construction technical approach** for coastal protection and climate resilience projects must balance engineering requirements with environmental, social, and climate adaptation goals.

Module 7: **Monitoring, evaluation, and early warning systems (M&E/EWS)** are critical components in ensuring the long-term effectiveness of coastal protection and climate resilience measures. These systems provide actionable data, assess project performance, and help mitigate risks. This module also covers **techniques for identifying vulnerable coastal zones**.

Module 8: **Climate adaptation planning for communities, infrastructure, and ecosystems.** Building resilient livelihoods in coastal regions. Emergency preparedness for climate-induced disasters. Developing and implementing **national and international policies on coastal protection and climate adaptation**.

- These modules will focus on:
 - Definitions & objectives
 - Examples & case studies
 - Applications
 - Key considerations
 - Local context
- *Site visits for available local IHL facility and workshop is part of the consideration and option

Disclaimer: All programme details, including speakers, topics, and timings, are subject to change without prior notice at the organiser's discretion.