

Coasts, typhoons and nature's
defences: lesson 3 of 3

Grey or green?

Choosing how to protect a
coast



A mangrove nursery. Photo: MCP



Grey and green defences



Grey

Built structures: seawalls, breakwaters, rock barriers.



Green

Natural habitats: reefs, seagrass, mangroves and beach forest.



Hybrid

Both together, for example mangroves in front of a low wall.



What does it cost?

USD 19,791

per metre: median cost of building
breakwaters

USD 1,290

per metre: median cost of coral reef
restoration

Global median costs from one large study. Real costs depend on the site.

How we know: Ferrario and others, Nature Communications, 2014



Green defences do more

up to 4 times

more carbon stored per hectare by mangroves than most tropical forests

Mangroves and reefs also shelter young fish, support fishers and attract tourists. A seawall does none of that.

How we know: Donato and others, Nature Geoscience, 2011



But plant them in the right place



Plant where mangroves grew before

Old, abandoned fishponds are often the best places.



Not on seagrass or bare mudflats

Seedlings there often die, and harm other habitats.



Look after them

Keep checking, and replace the seedlings that don't survive.



Your task: advise Barangay Dagatan

1. The barangay has a budget for coastal protection.
Your group is the advisory team.
2. Score each of the four options on the decision matrix: cost, protection, time to work, extra benefits and risks.
3. Choose a plan. You can combine options, but you must stay within the budget.
4. Present your plan in three minutes, with your evidence.

Remember

Natural defences reduce damage.
Warnings and evacuation save lives.
Most good plans use more than one.



Talk about it

Why do many towns still choose seawalls?

What would you say to a fisher worried about losing fishponds to mangrove replanting?

Which option would you want for your own coast?

Well done! You have finished the Coasts, typhoons and nature's defences lessons.



Photos and sources

Photos: mangrove nursery, mangroves and seagrass by MCP. Seagrass by Benjamin Jones. All illustrations drawn for this lesson by Marine Conservation Philippines.

Sources:

- Ferrario, F. and others (2014). Nature Communications.
- Primavera, J.H. and others (2013), via ACRS 2016.
- Donato, D.C. and others (2011). Nature Geoscience.

Full links are in the teacher reading. Free to use and share for education. Made by Marine Conservation Philippines. More free lessons: marineconservationphilippines.org/resources/teachers-resources/

