

Coral reefs: lesson 4 of 4

The future of the reef

What is harming reefs, what is helping, and a board game



MCP's coral nursery. Photo: MCP



How are Philippine reefs doing?

22%

average live hard coral
cover on Philippine reefs

0

of 166 reefs surveyed were
in excellent condition

over 90%

were in poor or fair
condition

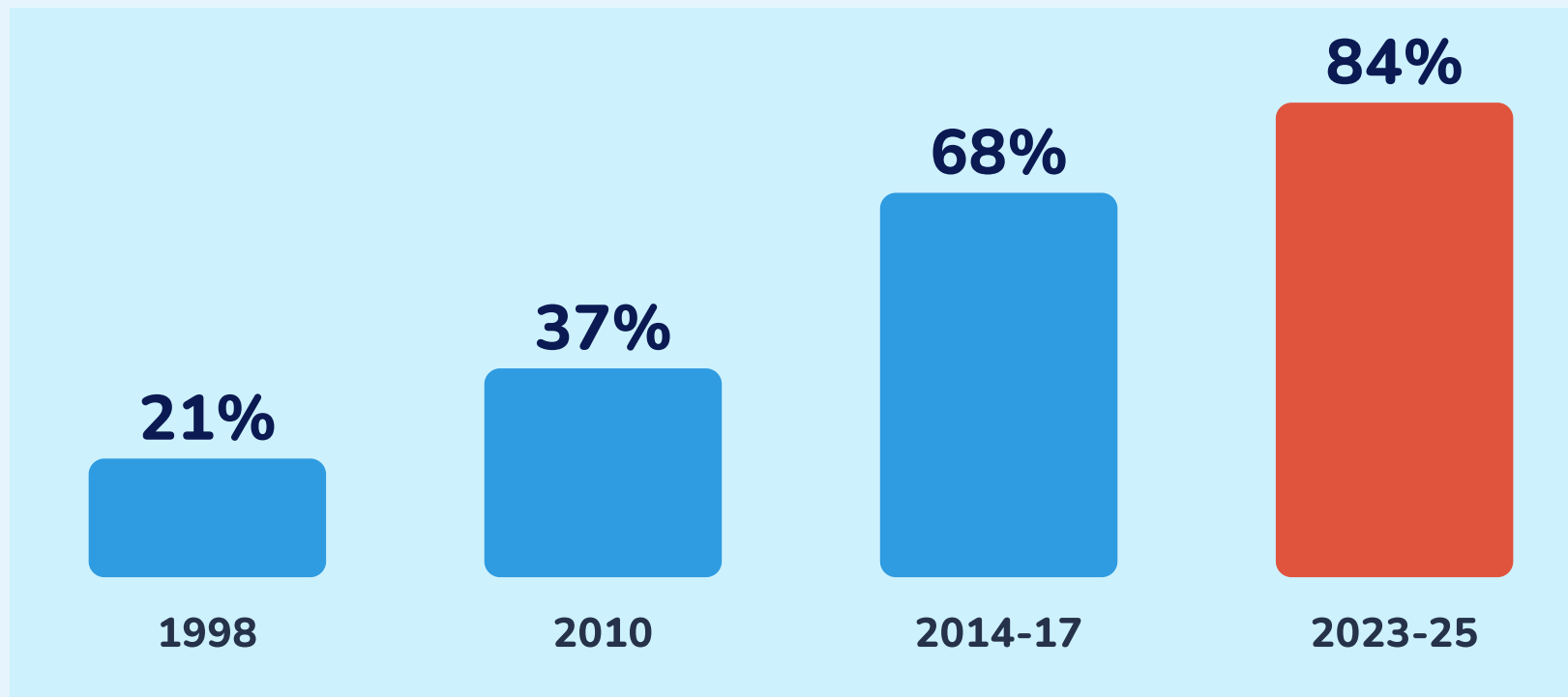
About a third of the coral on fringing reefs was lost in 20 years. But not everywhere: well-protected reefs are doing better.

How we know: Licuanan and others, 2017 and 2019



Too hot

Share of the world's reefs hit by bleaching-level heat in each global bleaching event. Each one has been bigger than the last.



How we know: NOAA Coral Reef Watch and GCRMN, 2026



What the future holds

Scientists expect reefs to bleach almost every year from now on. At 1.5°C of global warming, reefs are projected to decline by a further 70 to 90%.

But not every reef bleached, even in the worst heat. Some corals cope better, and healthy reefs recover faster. What we do locally still matters.



Bleached coral



Threats on our doorstep



Overfishing

and destructive fishing with dynamite or cyanide



Mud and sewage

washing off the land and blocking light



Plastic and ghost nets

smothering and tangling corals



Starfish outbreaks

crown-of-thorns starfish eating coral



Anchors and fins

careless boats, divers and snorkellers



Coastal building

clearing mangroves and filling in the shore



Crown-of-thorns starfish

These spiny starfish eat coral. They are native to Philippine reefs, and a few are normal. The problem is outbreaks, when thousands appear at once.

Outbreaks are linked to nutrients from farms and sewage washing into the sea, which helps more starfish larvae survive.

During outbreaks, MCP divers carefully remove the starfish by hand, with tools, because their spines are venomous.



MCP divers removing crown-of-thorns starfish. Photo: MCP

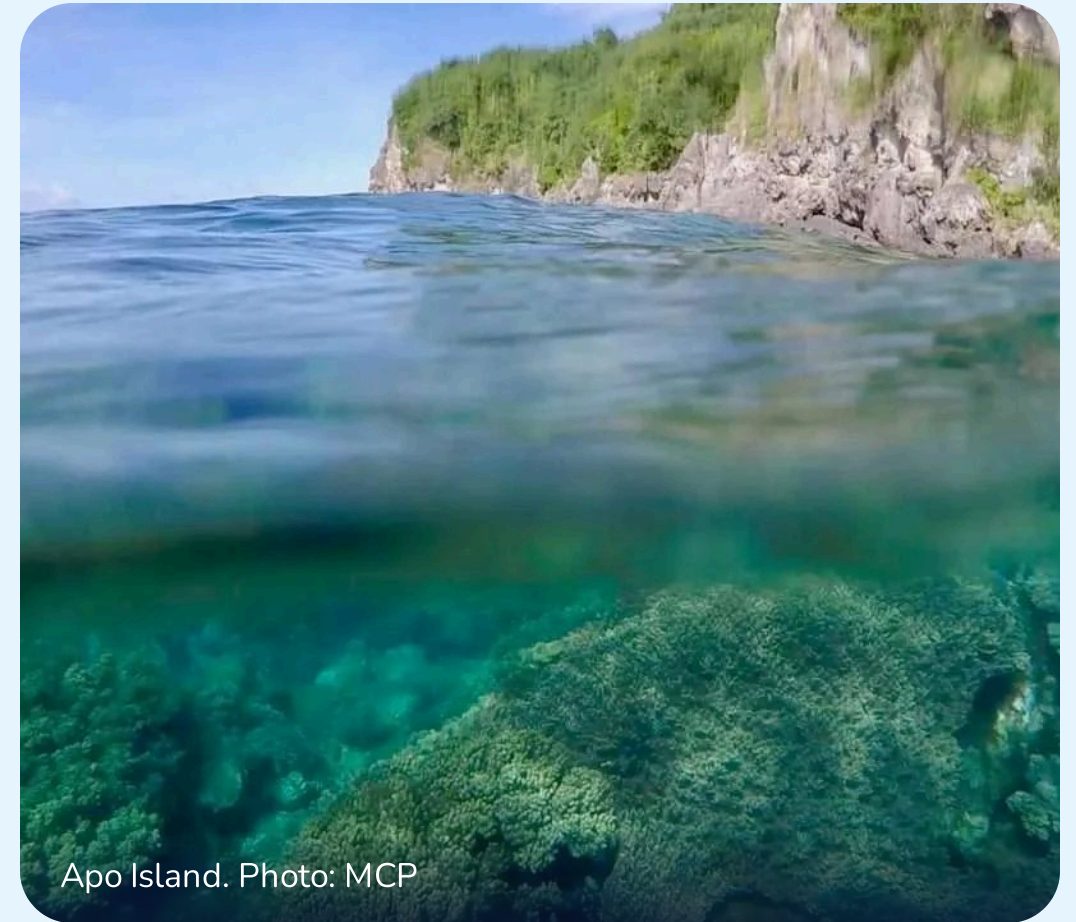


Protection works: Apo Island

In 1982, the community on Apo Island, not far from MCP, set aside part of their reef as a no-take marine reserve, where no fishing is allowed.

Over the next 18 years, the amount of surgeonfish and jacks inside the reserve tripled, and fishers caught more near its edges.

Today MCP holds a seat on the board that helps manage Apo Island's protected area.



Apo Island. Photo: MCP



Other ways people help reefs



Coral gardening

Growing coral fragments in nurseries and planting them back.



Reef surveys

Tracking reef health year after year, like MCP divers do.



Artificial reefs

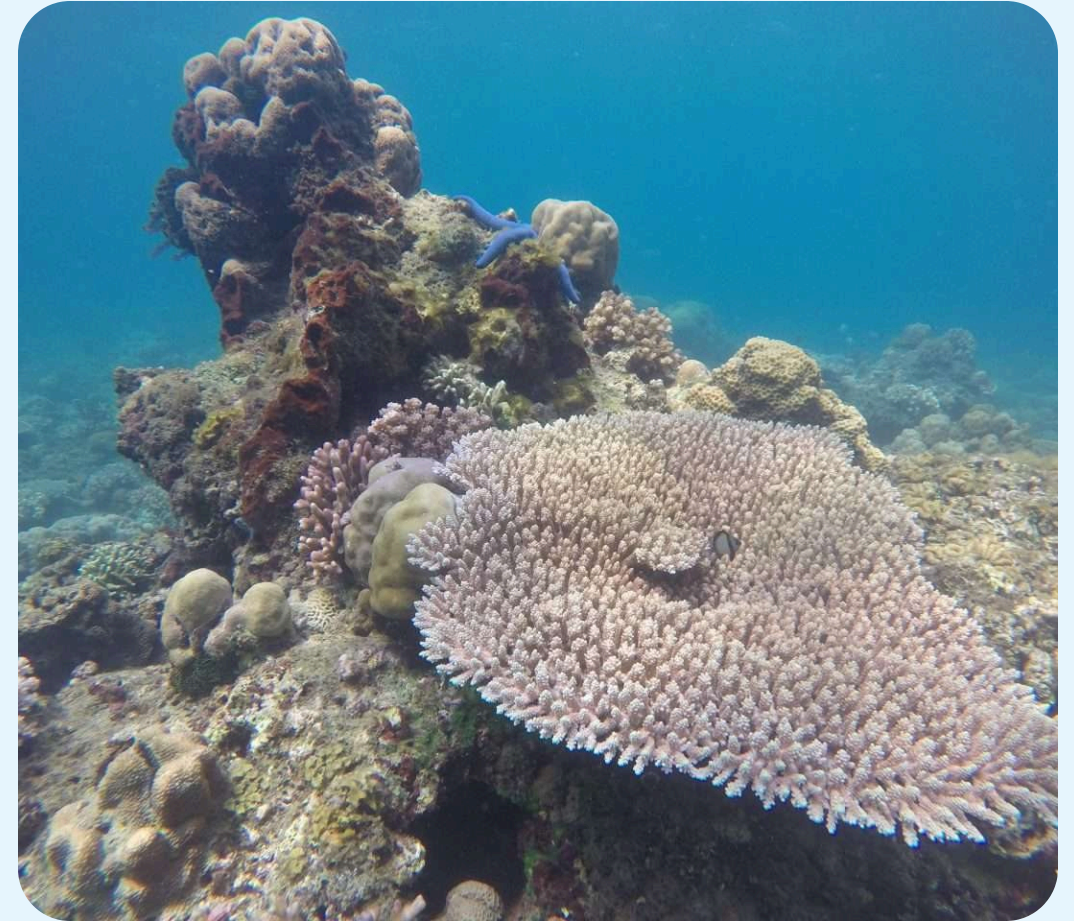
Giving corals a hard place to settle where the reef is broken.



Two futures

On your worksheet, imagine the reefs near your school in 2050. In one future, nothing changes. In the other, people take action.

For each one, write what you think will happen to the coral, the fish, the fishers, the turtles and the tourists.



Reef Explorers: the board game

1. Play in groups of two to six. Put your counters on Start.
2. Roll the dice and move.
3. Light blue: take a Benefit card and move forward.
Mid blue: take a Threat card and move back. Dark blue: answer a Question card.
4. Land on an anchor line and climb up it. Get caught in a strong current and slide back down.
5. The first to reach the healthy reef wins.

After the game

Which card helped the reef most?

Which threats could your town do something about?



Talk about it

What is the biggest threat to reefs near us?

Why did the Apo Island reserve work?

What could our school do to help the reef?

Write one promise for the reef, and share it with a partner.



Photos and sources

Photos: coral nursery, Apo Island, crown-of-thorns removal, survey divers and artificial reef by MCP, Negros Oriental. All illustrations drawn for this lesson by Marine Conservation Philippines.

Sources:

- Licuanan, A.M. and others (2017). Philippine Journal of Science.
- Licuanan, W.Y. and others (2019). Marine Pollution Bulletin.
- NOAA NESDIS (2026). Fourth global bleaching event likely ended.
- GCRMN (2026). Most intense bleaching event on record has likely ended.
- IPCC (2018). Special Report on Global Warming of 1.5°C.
- Russ, G.R. and others (2004). Ecological Applications.
- Marine Conservation Philippines.

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/

