

Coral reef ecology: lesson 3 of 3

Resilience: how reefs bounce back

Why some reefs recover and
others don't



MCP's coral nursery. Photo: MCP



A surprising recovery: Scott Reef

**about
80%**

of coral lost in the 1998
bleaching

**9% to
44%**

coral cover rose within 12
years

94% less

larvae arriving for six years
after bleaching

This remote reef in Western Australia recovered even though few new larvae arrived. Scientists linked it to the lack of local pressures: clean water and healthy fish.

How we know: Gilmour and others, Science, 2013. AIMS.



What makes a reef resilient?

Plenty of grazers

Algae kept down, space for new corals.

Clean water

Little mud, sewage or fertiliser.

Survivors and recruits

Corals left to regrow, and new larvae settling.

Connections

Other reefs nearby to supply larvae.

Time between disasters

Recovery takes years. Repeated heatwaves leave little time.

Good management

Enforced reserves and fishing rules.



Assess three reefs

1. Your group gets data cards for Reefs X, Y and Z.
2. Score each reef from 1 to 5 on each resilience factor.
3. Which reef is most likely to recover from the next heatwave? Which is most at risk?
4. Recommend one management action for each reef, with your reason.



The limits of resilience

Resilience buys time, but it is not a shield. When heatwaves come every few years, even healthy reefs may not recover fully between them.

That is why scientists say reefs need both: local care, and a global cut in greenhouse gas emissions.



Talk about it

What surprised scientists about Scott Reef?

Which resilience factor can a local community control most easily?

Which reef near you would score best? Why?

Well done! You have finished the Coral reef ecology lessons.



Photos and sources

Photos: coral nursery by MCP. Bleached coral from MCP's media library. All illustrations drawn for this lesson by Marine Conservation Philippines.

Sources:

- Gilmour, J.P. and others (2013). Science 340: 69-71.
- Australian Institute of Marine Science (2013). Remote reefs can be tougher than they look.

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/

