



**SEA****LIFE**

This resource aligns with NSW Stage 3 outcomes in Science & Technology (Living World and Working Scientifically) and Geography, with a focus on sustainability and human impact on environments

# Cauliflower Soft Coral

**TEACHER SLIDE**

Curriculum Links (Stage 3 – NSW):  
SC3-4LW-ST, SC3-5LW-T, ST3-1WS-S, ST3-2WS-S, ST3-3WS-S, ST3-4WS-S, ST3-5WT-S  
GE3-1, GE3-2, GE3-3

Cross-curriculum priority: Sustainability

**TEACHER  
USE ONLY**

SEA★LIFE

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NSW Stage 2 outcomes in  
Science & Technology  
(Living World and Working  
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Geography, with a focus on  
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impact on environments

# Cauliflower Soft Coral

Cauliflower Soft Coral (*Dendronephthya australis*)  
is a soft coral in the octocoral family

# What is cauliflower soft coral?

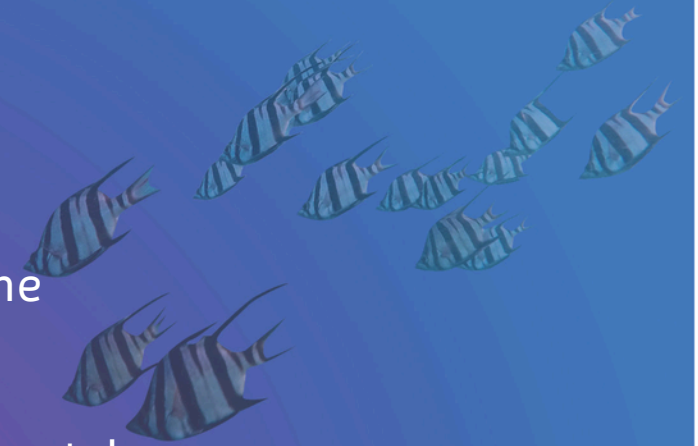
Cauliflower soft coral (*Dendronephthya australis*) is a marine animal made up of colonies of tiny polyps.

It forms soft, branching structures and lives in sheltered coastal environments such as estuaries.

This species is endemic to eastern Australia and is found mainly in areas like Sydney Harbour and Port Stephens.

## Activity:

Explain why species with a limited distribution are more vulnerable to environmental change.



# The Conservation Project

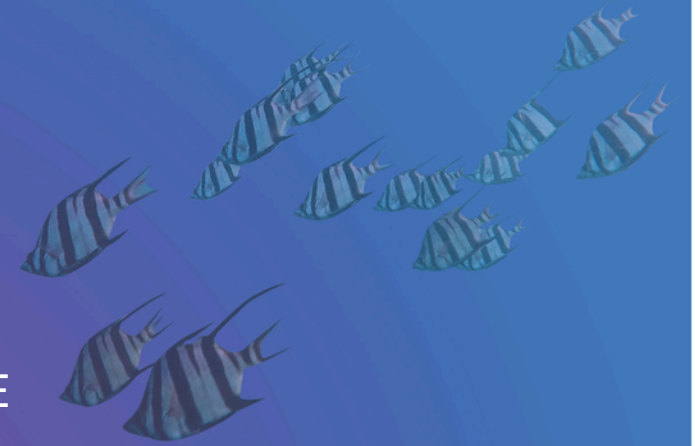
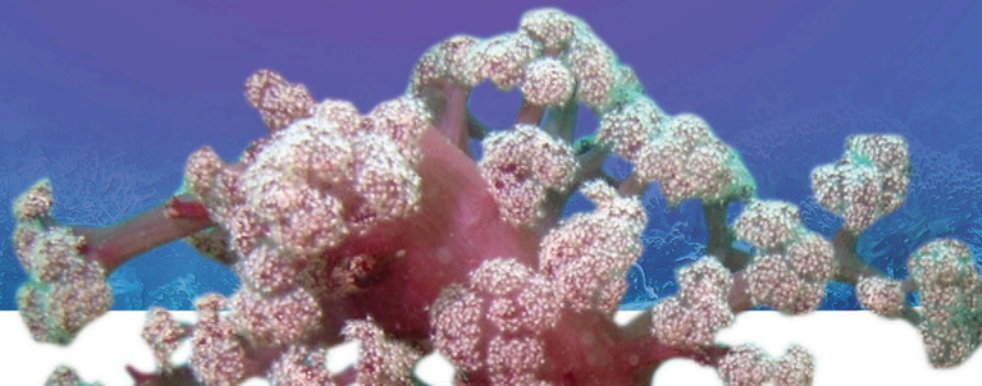
The cauliflower coral conservation project is led by SEA LIFE Sydney Aquarium in partnership with NSW DPI Fisheries.

Scientists grow coral fragments in aquariums (ex-situ conservation) and then transplant them into the ocean (in-situ restoration).

So far, around 200 coral fragments have been returned to the ocean, helping to rebuild populations.

## Activity:

Create a flow diagram: collection  
→ aquarium growth  
→ replanting →  
monitoring



# Why is this coral important?

Cauliflower coral is a habitat-forming species that supports marine biodiversity.

It provides shelter for animals such as White's seahorse and juvenile fish.

When coral habitats decline, dependent species also decline. Some seahorse populations have decreased significantly due to habitat loss.

## Activity:

Create a marine food web that includes coral and at least three other organisms.



# What is threatening the coral?

The main threat to cauliflower coral is sedimentation.

Sediment from coastal development and flood events can:

- smother coral
- reduce feeding
- increase mortality

In some areas, coral populations have declined by up to 99% in recent years, showing how rapidly ecosystems can change.

## Activity:

Create a cause-and-effect chain showing how human activity can impact coral ecosystems.

# How scientists grow new coral

Coral reproduces both asexually and sexually.

Scientists use fragmentation (asexual reproduction) to rapidly grow new coral colonies.

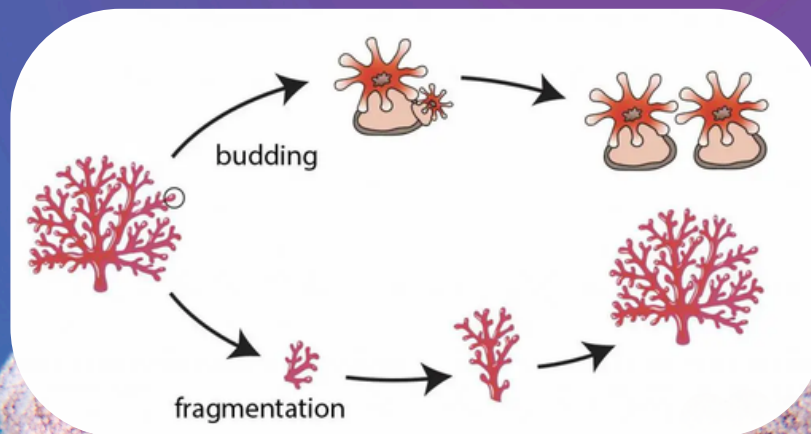
This allows many new corals to be produced from a small number of original colonies.

New research is also exploring larval rearing techniques to improve long-term recovery.



## Activity:

Explain why fragmentation is particularly useful in conservation programs.



# What does this coral need to survive?

Cauliflower soft coral is non-photosynthetic, meaning it does not rely on sunlight.

Instead, it feeds on plankton carried by water currents.

It requires:

- clean water
- steady water flow
- stable environmental conditions

Suitable habitat is limited, making this species more vulnerable.



## Activity:

Why does limited habitat increase extinction risk?



# What has the project achieved?

Scientists have successfully returned many coral fragments to the ocean in places like Sydney Harbour and Port Stephens.

A large proportion of the coral has survived, showing that conservation efforts can be successful.

Results show that about 82% of the coral survived after being reintroduced.

- Around 65% were healthy
- About 17% were still alive but needed support

These results are helping scientists improve how they protect this species.

To watch this release view video here

<https://www.visitsealife.com/sydney/conservation/local-conservation-projects/cauliflower-coral-conservation-project/>



**Create a graph showing:**

The survival categories, and explain what it shows



# Conservation actions

- Coral populations have dropped by up to 99% in some areas
- Some seahorse populations have dropped by around 90%
- Scientists have returned 200 coral fragments to the ocean
- About 82% survived after being reintroduced

Protecting this species requires both scientific and community action. This includes:

- reducing sediment runoff
- protecting marine habitats
- supporting conservation programs

Without intervention, this species faces a high risk of extinction.

Supporting scientific projects, like the cauliflower coral conservation program, helps protect marine life and restore damaged ecosystems.



## **Explain:**

How can human actions improve marine ecosystems?