

REEF Beat 7

Echinoderms



Creature Features

- There are at least 800 species of echinoderm on the Great Barrier Reef
- Echinoderm (meaning spiny skin in Greek), refers to a group of animals including feather stars, sea stars, brittle stars, crown-of-thorns starfish, sea cucumbers, and sea urchins
- They have no head or brain
- Echinoderms use a water vascular system (a hydraulic system) for locomotion, food and waste transportation, and respiration, which is composed of canals connecting hundreds of tube feet. Echinoderms move by alternately contracting muscles that forces water into the tube feet, causing them to extend and push against the ground, then relaxing to allow the feet to retract.



Brittle Star



Sea Cucumber

What might the Future Hold?

Crown-of-thorns starfish have lived on the Reef for tens of thousands of years. Today, they can occur in such great numbers that they eat corals faster than the corals can grow. I have seen hundreds of crown-of-thorns starfish on a single reef! Like I said though, the scientists don't know if outbreaks are natural or caused by human activities and my relatives can't remember that far back. What we do know is that the Reef is under more stress today than it was in the past. Increased coastal development, declining water quality, increased fishing pressure and climate change are all putting extra pressure on our Great Barrier Reef, which is less able to cope with stress than it used to be.

Thorny Outbreaks

One infamous but not very popular echinoderm is the crown-of-thorns starfish. They are attracted to the 'smell' of other starfish feeding, which can cause them to form large groups called feeding aggregations. For the past 40 years, crown-of-thorns outbreaks have regularly reached plague proportions – causing great concern in coastal communities. Scientists have been studying these thorny reef pests for more than 30 years but are still not sure what causes the outbreaks. They believe that outbreaks could simply be a natural phenomenon relating to fluctuations in the environment. Another idea is that humans have overfished the few predators of crown-of-thorns that might keep populations in check. The final theory is that crown-of-thorns larvae survive better in nutrient rich waters, like those nearby large coastal cities and agricultural areas. **Which theory do you think is right?**



Coral affected by Crown-of-thorns



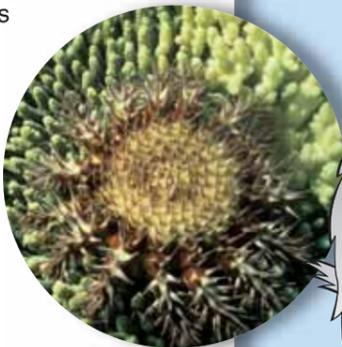
Featherstar



Sea Urchins

Interesting COTs Facts

- Crown-of-thorns (COTs) starfish are voracious coral predators and can eat up to 5-6 square metres of coral each year (the area of a small classroom)
- The crown-of-thorns starfish gets its name from the dense covering of long sharp poisonous spines covering their upper surface
- Most sea stars have five arms but the crown-of-thorns can have up to 21!
- An adult feeds by pushing its stomach through its mouth to the outside of its body, digesting living coral tissue and leaving behind the white coral skeleton
- A single female crown-of-thorns starfish can produce up to 100 million eggs per year – that's a lot of babies!



Crown-of-thorns

What you can do

We need to help ensure that our Reef is as resilient (able to withstand change) and healthy as possible in order to cope with future outbreaks of crown-of-thorns starfish. This means we all need to take action to reduce other pressures on the Reef and do what we can to help keep crown-of-thorns populations in check. Here are some things you can do to help keep our Reef healthy:

- Make sure you and your family adhere to fishing regulations including bag limits (or if you don't fish, help spread the word to people who do)
- Remember that rain washes all the chemicals we use on land into the ocean
- Use less chemicals on your lawn and in your home and help educate others about the impacts of chemicals and pollution on the Reef.

