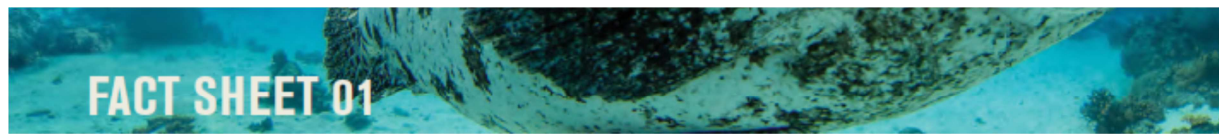


Worksheet C



The Great Barrier Reef



An underwater panorama taken as part of the test dives during the 2012 Catlin Seaview Survey.

This panorama was taken at Lady Elliot Island and features on Google Maps - maps.google.com/oceans

- One of the few biological structures visible from space, the Great Barrier Reef stretches over 2,300 km (1,430 miles) and began life about 600,000 years ago.
- It is home to more than 400 types of coral and 2,000 species of fish.
- Coral reefs globally occupy less than 1% of the ocean, but sustain 25% of all marine life.
- 30% of all reefs are estimated to be severely damaged, and close to 60% may be lost by 2030.
- Taking into account tourism, food, and jobs, tropical coral reefs are very valuable economically, yielding more than US\$30 billion annually according to the World Meteorological Society. According to the US National Oceanic Atmospheric Administration (NOAA), they are worth even more - US\$375 billion.
- Hard corals and other organisms which secrete calcium carbonate contribute most to reef building.
- Both hard and soft corals can only exist within a limited range of conditions, needing light, and an optimum temperature and salinity range. The ideal conditions for coral reef growth are water temperatures of 26-27°C, and salinity of 36 parts per thousand. If the water is clear, corals can grow to a depth of 100m. This is reduced to 8m if the water is turbid or cloudy.
- Other species living on the reef, such as clams and parrotfish, eat corals, contributing to bioerosion, so there is a natural reef cycle of production and destruction.
- This cycle can be disturbed by upsetting the ecological balance. The Great Barrier Reef has lost half its coral cover since 1985. The loss was due to storm damage (48%), crown-of-thorns starfish (42%), and bleaching (10%) according to a 2012 study by researchers from the Australian Institute of Marine Science (AIMS). Most of the threats listed below are caused directly or indirectly by human activity. These include:
 - increased frequency and duration of coral bleaching, brought about by sustained and sudden rises in sea temperature
 - increased acidity – the pH is dropping due to the amount of CO₂ absorbed from the atmosphere into the ocean
 - changes in nutrient input (increase or decrease) which favour some species over others
 - overfishing or damage to habitats by the fishing industry
 - increased sedimentation and eutrophication due to human industrial activity, including agricultural and commercial pollution and deforestation
 - littering, pollution and habitat destruction from tourism

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