

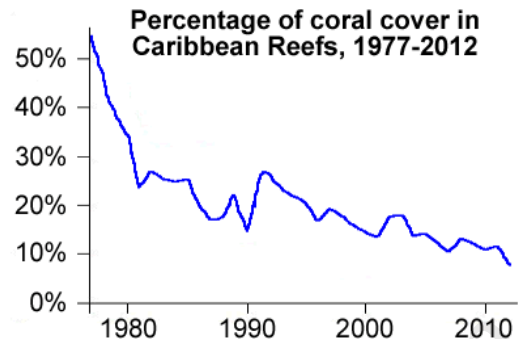
Student Exploration: Coral Reefs 1 – Abiotic Factors

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Vocabulary: consumer, coral, coral bleaching, coral reef, filter feeder, food chain, food web, grazer, nutrients, ocean acidification, pH, plankton, predator, producer, sediment, zooxanthellae

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

1. Look at the graph to the right. What does it show?
it shows a decrease in coral reefs % over time



2. Why do you think **corals** have declined since 1977? _____

They have decreased because the conditions, fishing, land use, and invasive species.

Gizmo Warm-up

Coral reefs are some of the most diverse habitats on Earth, home to over a quarter of all marine species. The *Coral Reefs* Gizmo™ provides a simplified model of interactions among 10 key species in Caribbean reefs. In the *Coral Reefs 1* exploration, you will focus on the effects of environmental factors on Caribbean reefs.



1. Click **Advance year** 10 times. Look carefully at the composition of the reef over time. Do you see any major changes?


no, not really i see the same fish/turtle.

2. Select the DATA tab. Check that **Staghorn coral**, **Star coral**, **Sponges**, and **Algae** are selected. Populations are given as a percentage of normal populations.

Click **Advance year** 15 times. What do you notice about these populations? _____
They are staying the same

3. On the right side of the Gizmo, select the SUMMARY tab. In a healthy reef, what are the values for **Nutrient load**, **Water clarity**, **Coral cover**, and the total number of fish species?
4ppt, 94% water clarity, 49% coral cover


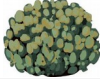


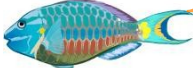
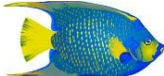




Nutrient load: _____ Water clarity: _____ Coral cover: _____ Total fish species: _

<p>Activity A: The Caribbean reef ecosystem</p>	<p>Get the Gizmo ready:</p> <ul style="list-style-type: none"> On the CONDITIONS tab, click Return to original settings. Click Restart. Select the CORAL REEF tab. 	
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Introduction: A healthy Caribbean reef is home to over 50 species of coral and over 400 fish species. In this simplified model, we only consider the interactions of ten important species.

Question: How do different species interact in a healthy coral reef?

- Describe: On the CORAL REEF tab, click on each organism shown in the table below. For each organism, give its name and what it eats (or how it obtains energy).

Picture	Name	What it eats (or how it obtains energy)
	staghorn coral	by photosynthesis
	boulder star coral	by photosynthesis
	sponges	consume plankton
	Algae	Photosynthesis
	stop light	algae and coral
	queen angelfish	sponges
	yellowtail snapper	young fish, shrimp, crabs, worms.
	Nassua Grouper	Reef Fish
	long spined sea urchin	alge
	hawksbill sea turtle	sponges