

Science Lesson 5: Waves

Hawaii DOE Content Standards: 1, 2, 6, 7, 8

Key concept:

Various energies affect reef communities

Performance indicators:

After completing this lesson, students will describe the affect of waves on coral reefs.

Note to the Student:

“When you have completed this lesson you will be able to find your place on the earth using a globe or flat map, noting your location with Cartesian longitude and latitude points.”

Activity at a glance:

Use weather data and wave modeling to explore the energy, frequency, and geographic focus of environmental impacts on coral reefs.

Time:

One class period

Prerequisite skills:

None

Skills to be introduced:

Reading the Cartesian coordinates, using charts and a globe.

Assessment:

Keep a journal on wave activity and monitor accuracy of wave forecasting.

Vocabulary:

Wave, meteorology, wind speed, forecasting

Materials:

Telephone, Internet, Newspaper or TV, Tide Chart

Activity Overview

1. Discuss the effects of storms and waves on the sesile coral organisms.
2. Explore the energy more in depth with an analysis of wave forms as traveling energy and the physics of the breaking wave.
3. Discuss storm generation and the magnitude of different storm events and the generation of waves.





Cultural Values

Kokua

Taking initiative, service, clean up maintenance

Lokahi

Unity, harmony, leadership skills

Adaptations/ Extensions

Background, teaching suggestions, resources:

<http://www.prh.noaa.gov/hnl/pages/SRF.php>
Coral Reef Ecology, Gulko

Connections to other curricula or lessons:

Drogue demonstration to follow currents at reef site
Reef survey, storms, and weather

Safety

Always check weather and surf conditions before going out on the ocean. Winds should be below 15 knots and surf below the advisory level for the relevant shore.

It is important to mark the dive area with orange floats at each pair of divers. This is to alert other boaters to the presence of divers. Also training in CPR is recommended for at least one of the staff if not everyone. A cell phone or radio should be carried on board in case there is a need for emergency support. A first aid kit with tourniquet materials is needed on board the boat. All divers should pass a swim test before the activity and divers should work in pairs in order to aid a buddy in trouble. The orange dive marker should double as a floating safety device. Staff on the boat needs to monitor the divers while in the water in case anyone needs assistance.