

Who Has The Data?

Student Worksheet

1. Obtain a map of benthic habitats for your assigned area:
 - a. Point your web browser to <http://coris.noaa.gov/>. This is the home page for NOAA's Coral Reef Information System (CoRIS), which is designed to be a single point of access to NOAA coral reef information and data products.
 - b. Click on "Discover NOAA's Data," then "Browse," then "Browse Data Descriptions."
 - c. Select "Place Keywords - Multiple Pages." Click on the letter "F," then scroll down to "Florida" and find the entry for "florida_keys_benthic_habitat_1992." Click on "FAQ" then 5.How can I download or order the data?."
 - d. Select the link to "<http://flkeysbenthicmaps.noaa.gov>" then click on the link to "Maps" on the right side of the page.
 - e. Click on "Protected Areas," then click on the name of the reef area that has been assigned to your group. A window will open with a benthic habitat map for the selected area.
 - f. Scroll down to the bottom of the page and click on "Legend" and print a copy of the map legend.
2. Return to the previous page (with the benthic habitat map) and copy the map image into an image processing program such as Adobe Photoshop. Save the image as a TIFF or JPEG file. Print a color copy of the file onto an 8.5 in x 11 in page, and calculate the area of each habitat by placing a transparent grid over the image and counting the number of grid squares contained in each habitat.
3. When the area of all habitats has been calculated, add the area measurements for each habitat type and prepare a table showing these areas.
4. Add all the measurements together, then divide this number into the total area for each habitat type to calculate the relative area (percent of total) for each habitat.
5. Construct a pie chart showing the relative areas for each type of habitat.
6. Coral bleaching events often occur in areas where the sea surface temperature is 1°C or more above the normal maximum temperature. Find out whether coral reefs in the Florida Keys have been exposed to water temperatures that could cause "bleaching." From the entries under "Florida" in step 1c, find the entry for "avhrr_cur_sst_timeseries_sombrero_reef." Click on "FAQ," then "1.How should this data set be cited?" and select the link to http://coralreefwatch.noaa.gov/satellite/current/sst_series_24reefs.html, to open the "SST/DHW Time Series and Satellite Bleaching Alerts" page.

This page contains links to sea surface temperature (SST) data for 24 selected coral reef locations beginning in the year 2000. These data are obtained from the

Advanced Very High Resolution Radiometer (AVHRR), which provides information on sea surface temperature (SST) for the entire Earth on a daily basis. The AVHRR is carried on NOAA's Polar Orbiting Environmental Satellite (POES).

"Coral bleaching HotSpots" are defined as sea surface temperatures that are greater than the normal maximum temperature. Some coral bleaching events have been noted in areas where the HotSpots are greater than 1° C. More often, coral bleaching results from thermal stress that accumulates over several days or weeks. "Degree Heating Weeks" (DHWs) indicate the accumulation of thermal stress that coral reefs have experienced over the past 12 weeks. One DHW is equivalent to one week of sea surface temperatures one stat Celsius greater than the expected summertime maximum. Two DHWs are equivalent to two weeks at one degree above the expected summertime maximum OR one week of two degrees above the expected summertime maximum.

HotSpots and DHWs are used to define a series of "alert levels" that are issued from NOAA Coral Reef Watch's Satellite Bleaching Alert System for 24 selected reef sites around the globe. Definitions of alert levels are:

No Stress = No thermal stress (no HotSpots)

Watch = Low-level thermal stress ($0 < \text{HotSpot} < 1$)

Warning = Thermal stress is accumulating ($\text{HotSpot} \geq 1$ and $0 < \text{DHW} < 4$)

Alert Level 1 = Bleaching expected ($\text{HotSpot} \geq 1$ and $4 \leq \text{DHW} < 8$)

Alert Level 2: Significant bleaching expected ($\text{HotSpot} \geq 1$ and $\text{DHW} \geq 8$)

Click on the "Data" link for the location that is in or near the Florida Keys.

During the period January 1, 2001 – December 31, 2004:

- Were corals at this location ever exposed to HotSpot > 1 conditions? When?
 - In what years was there likely to have been some bleaching as a result of thermal stress?
 - In what years was there likely to have been significant bleaching?
 - Have conditions defined as Alert Level 2 ever been measured at this site?
7. Point your web browser to <http://biogeo.nos.noaa.gov/>. This is the home page for NOAA's Biogeography Program that is responsible for developing knowledge and products on living marine resource distributions and ecology throughout the Nation's estuarine, coastal and marine environments, and to provide managers and scientists with an improved ecosystem basis for making decisions.
- . In the pull-down menus near the top of the page, click on "Ecosystems," then on "Coral Reefs." In the menu on the left side of the new page, click "Caribbean Coral Reef Ecosystem Monitoring." Now, click on the "Quick Link to Reef Fish Database" button.
 - a. Click on "Fish Queries" in the pull-down menus near the top of the page.
 - b. Set Query Parameters as follows:
 - Region = "Virgin Islands St. Croix"
 - Year = All
 - Month = All
 - Structure = All
 - Permanent/Random = All
 - Management = All

Trophic Level = All

Family = All

Species = All

Under "Query Selection," click the button next to "Full Data Download." Click "Save as Text" to download a data file containing results of fish surveys in the vicinity of St. Croix, USVI. These data are much easier to analyze if you open the file with a spreadsheet program such as Microsoft Excel®.

c. Identify:

- Which two species had the largest number individuals?
- Which two species had the largest number individuals whose length was greater than 30 cm?