Adopt a Coral Program (Disease progression monitoring)
Eyes of the Reef Network

TRACKING DISEASE PROGRESSION:

Goal: Researchers have identified several types of tissue loss syndrome (TLS) in *Porites* and *Pocilliopora* and *Pocillopora* senescence (PS), but it is still unclear how fast these diseases progress across the colony. Therefore, the primary goal of this survey will be to locate cases of TLS and PS and track lesions to calculate rate of disease progression.

This method can also be used to track other incidents on coral heads such as coral bleaching or growth anomalies.

What is a coral colony:
It can often be difficult to determine where one coral colony starts and another one ends (especially in Poritids). Here are a few simple tips that will help you.

1. Look for competitive interactions between colonies (pigmentation, swelling, discoloration).
2. Partial mortality is common, so look for the overall structure of the original skeleton. All tissue fragments from parent colony = 1 colony. Be careful, new coral recruits can settle onto old skeleton so look at the color of the fragments.
3. Look for differences in morphology and color.

Materials

Camera and housing	Underwater data sheet
Dive slate or other method to record colony #	Pencil
Scaling rod	Buddy
Clipboard	

Methods

1. Locate a colony with a lesion.

2. Record the following items on your datasheet. You only need to do this the first time to establish a baseline:

   a. Species
   b. Colony Diameter (cm) (look at entire colony, not just live tissue)
   c. % of colony alive
   d. # of lesions/colony
   e. Shape of lesion: focal (a single occurrence on the colony), multifocal (several scattered or clumped occurrences), diffuse (irregularly shaped lesion encompassing more than 25 percent of the colony surface), or linear (band of tissue loss or discoloration).
   f. Location of lesion on colony (base, middle of colony, or top/tips).

  g. Lesion diameter (cm)

  h. Margin appearance: Discrete (clean delineation between healthy tissue and freshly exposed skeleton), swollen, and/or mucusy.

  i. % of colony affected by disease

  j. Timing of lesion (how quickly is it progressing across the colony): Fast- you see a significant amount of freshly exposed skeleton next to algal covered skeleton, slow- there is a gradual progression from healthy tissue into algal covered skeleton.

  k. Assign a number or code to each colony, and note any other site information

3. Place ruler/scaling device on top of colony & next to lesion. If you forget your ruler, use any object of known size. This object will be used to create scale for image analysis.

4. Photograph the entire colony at 90° from lesion. (if you have a dive slate, have your buddy write a colony number and site on the slate and hold it next to the colony while you photograph it). Chose whatever numbering system is easiest for you.

5. Photograph several macro shots of the lesion as well.

6. Record your photo #'s on the datasheet.

7. Draw site map to locate colony over time.

8. Ideally, we would like to track at least 3 cases of tissue loss syndrome (TLS) in and 3 cases of *Pocillopora* senescence (PS) at each site.

9. Upload your photos as soon as possible to your folder.

10. Repeat steps 1-5 every month (or a schedule that works best for you) to track the rate of progression.

11. We recommend compiling the entire colony photographs of all your colonies with their colony #'s onto one page, printing and laminating it to take into the water with you each time you do these surveys. This will allow you to recognize your colonies more efficiently.

Adopt a Coral (AAC): Data Entry and Photo Uploading Instructions

We are using Google Drive, a free "cloud" sharing website where we can upload and share information. A folder specifically for you will be set up and you will receive an invitation to share the folder. Once you join the folder you will be able enter your data into the datasheet and upload photos for storage and sharing.   ***Note***: to make this easier you can also download the Google Drive application and sync your Google Drive account to it. You can then move your photos to your photo folder and update your data sheets on your computer and everything in your shared Drive account will automatically synced.

Instructions for Google Drive:

1. From Google Drive we have emailed you a link to your AAC folder. PLEASE SAVE OR BOOKMARK THIS LINK. Upon clicking on the link in the email, you will be directed to the Google Account sign in. If you do not have a Google Account, please create one by selecting the "Create an account now" and following the directions. You can use your existing email address to create this account. You do not have to have a gmail address.

2. Once you have logged in, you will be directed to your Google Drive folder. In there you will see a number of items: A DisProgDataSht and DisProg Photo folder for the "Adopt a Coral Head' method and a Transect Data worksheet and a Transect Photo Folder for the Transect method. A copy of this document and the CHS training methods is also included for your reference.

Adopt a Coral (Disease Progression Method):

Data Entry:

1. Each time you adopt a new coral head(s), go to your folder and click on the data sheet. This will open the sheet so you can enter your data. Enter your data as instructed. Once you have made changes to the data sheet, an email will be sent to us informing us of your changes.

a. Tracking Bleaching recovery: fill out everything except for lesion info. Do estimate the % of colony affected. Note that you are tracking bleaching recovery.

Photo uploading:

1. You will need to download the pictures from your camera to your computer. For easier organization, we suggest you have a folder specifically for CHS survey photos on your own computer (or use the Google Drive application that automatically syncs). If you wish, you can create subfolders for specific locations as well.

2. Please resize your photos to approximately 800kb – 1MB to reduce upload time and storage. You can do this in the basic image viewing programs such as "Preview" for Macs and "Windows Photo Viewer" for PC's. Look in the Tools menu for "Adjust Size."

3. Rename your photos. This is very important. The photo name should have the site code, coral head # that correlates to the data sheet entry, the date and a photo number, assuming you have taken more than one picture of the coral head on that day. Example: PK1-81611-1.jpg (Site code, Coral head #-date-photo#.jpg)

4. Click on your AAC photo folder in your Google Docs folder.

5. Select "Upload" (red arrow) on the left, then files or folder. This will open a File Upload window for your computer. Select the files you want to upload. (You can select more than one at a time by holding down the Ctrl key as you click on the files in the folder. (Be sure the file or folder names correlate to the data sheet information). Once they are selected, select "Okay".

7. An upload settings dialog box will open. Start upload.