

CoralNet Protocol

This guide is for using the www.coralnet.ucsd.edu website for the Division of Aquatic Resources (DAR) Aquatic Invasive Species (AIS) Team Coral Mitigation and Monitoring project.

CoralNet How To Instruction Videos

1. Go to website coralnet.ucsd.edu

Login: justin.r.goggins@hawaii.gov

Password: bfreotkqxn

2. Under the “Your Sources” label select the option labeled “**Kaneohe Bay – Removal Surveys**”

To Select Photos to Annotate:

3. Select “**Images**” from the buttons at the top of the page.

Images – View Transect as series of photos

4. Select **Year, Site, Reef number, Transect Number, Annotation Status** to specify your assigned/working photo set (All or 1 of these Metadata categories may be used to select)

5. Scroll down past the displayed images to the bottom and select “Enter Annotation Tool” for the first field and “All # image results” for the second field.

- If looking at the “**image**” view

-**Green** – Confirmed(Finished/Human has saved correct annotations)

-**Red** - Not Annotated(Not Started/ No annotations, robot or human, have been made)

-**Tan** – Unconfirmed (Robot annotations have been made but are not confirmed)

To Annotate Photos:



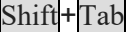

























1. Begin Annotation – See Video

- [Annotate - How To Video By CoralNet](#)

2. Shortcut Key Guide

Choosing a point to label

- Click a text field on the right

- -click on image
-  and  : next/previous
-  : first unannotated point
- **Labeling the chosen point**
- Type a label code in the field and press 
- Accept a machine suggestion (requires machine annotations setting)
- Click a label button
- **Selecting multiple points**
- -click on image
- Click the numbers next to the field list
-  ,  ,  , and 
- **Image controls**
- Left-click on image,  : zoom in
- Right-click on image,  : zoom out
-  ,  , and  : zoom buttons
-  ,  , and  : point display buttons
-  +  : Move text field off/on the image
- **Navigate to another image**
-  then  : next image needing annotation
-  then  : back in history
-  then  : forward in history
- **Miscellaneous**
-  : get out of the text field
-  : save progress

To Upload Photos:

***File uploads may be performed while annotation is in progress. Open a separate browser with CoralNet if you wish to perform both tasks simultaneously**

***Be sure to include the YEAR surveyed in the original file name, along with photo #, reef #, and transect.**

1. Select “**Upload**” from the buttons at the top of the screen

2. under the “Options” Label assure it says...

Specify image metadata: **Later (after upload)**

3. Under the “Images to Upload” Label select “**Choose Files**”

- Select photo files from source using the pop-up browser

- Once files are loaded, all images will appear in the “Ready for upload” list

-Assure all files selected are accounted for using the listed “### File(s) (###.# MB) are uploadable images” above the now populated “Ready for upload” list

4. Select “**Start upload**”

ONCE UPLOAD IS COMPLETE EASIEST TO ADD METADATA IMMEDIATELY.

To Add Metadata to Newly Uploaded Photos:

Click manage metadata button present on upload screen once upload is completed. Skip to step 10.

5. Once files are uploaded, Metadata will need to be added in order to search for the photos by **Year, Site, Reef number, Transect Number** in the “**Browse**” Section

6. Select “**Browse**” from the buttons at the top of the screen

7. Select “**Metadata**” in the “Page View Section, Leave all other categories with the term “**All**”

8. Select “**Search**”

9. Most recently uploaded photos will appear first in a new list with blank spots in all fields across the metadata table

10. Select the **small boxes** next to **ALL** image filenames whose metadata you wish to edit simultaneously

11. Edit Metadata in blank spaces as necessary. All selected boxes will copy data

12. If editing multiple transects: After you have finished your first transect (**Steps 5-11**) Select the small box at the top of the list not associated with any metadata line

-This box will select **ALL** of the photos available, Select this a **second time** to ensure you have cleared **ALL** previously selected boxes before moving on to your next transect to ensure you do not mistakenly edit your previous data entry

To Delete Uploaded photos:

13. Once photos that need to be deleted have been selected (**Step 10**), prepare to edit metadata as described in **Step 11**.

14. Instead of entering real metadata choose any line and category to create a **unique label** "Delete" "No Good" "Do not use" and assign it to the photos you wish to delete

-This label will then allow you to search for these specific photos (Step 4-6).

15. Select "**Browse**" from the buttons at the top of the screen

16. Select Metadata category with your unique label in it (**Year, Site, Reef number, Transect Number**)

- Assure that the Page View option is set to "**Images**"

17. Once the images of the photos to be deleted have shown up, Scroll to the bottom of the screen and beneath the next/previous page options you will see a section labeled "**Batch process these images**"

-Select Action: Select **Delete**

[Delete – How To Video By CoralNet](#)

To Export Data:

1. Select "**Images**" from the buttons at the top of the screen, then select the set of photos you want information about using the grey box above the photos

2. At the bottom of the screen in the grey box titled image actions select "**Export**" in the first field then "**Annotations CSV full**" from the second field and finally select "**All ## image results**" in the third field, then click "**Go**"

3. Wait for an Excel file called "**Annotaions _full.csv**" to be produced and loaded into your computer **Download** Folder (this could take >5 Min)

4. Immediately **Rename and Save** file in a new location **on the server** in order to prevent multiple files with the same name from every time the source statistics have been exported

5. Process Exported data by transect

- Select transect with data to be manipulated from the exported list which includes **ALL** uploaded photos **Confirmed**, **Annotated**, and **Not Annotated**.

- Data sets may then be placed into **Excel workbook** pages by transect

-Both **Single** and **Double** Transect percent cover may be calculated by placing relevant transect data into a skeleton already created to summarize test data or a new one should be created for final data processing

[-Test Data and Skeletons \(40/100 photos\)](#)

UPDATE ON HOW TO EXPORT DATA 12/3/2018:

1. Go to IMAGES button on top of page
2. Filter images for the data you want to export
3. At the bottom you can select export on the scroll down bar
4. An R code is used to analyse the data to produce summary statistics

To Access Source Settings (General Information/Point Generation Method/Level of Alleviation)

Within the source the General Information (Name, Visibility, Description) may be changed. Also broad information pertaining to all of the photos and how they are processed can be accessed here too.

[Create Source – How To Video By CoralNet](#)

1. Location Keys - Hierarchy of organization for transects. Currently Transects are organized by **1) Site, 2) Reef Number, and 3) Transect Number**. These Metadata categories are all searchable in the **"Browse"** category.

2. Default Image Height – This is set by the parameters of your photographs which should be standardized by use of a frame and single type of camera.

- **Our current default image height coverage** – 40 cm

3. Default Image annotation area – Area in which points are allowed to be generated for annotation. This tool can be used to compensate for a frame consistently in the photo or sampling a small portion of the image.

4. Point Generation method – Designate how the points for annotation will be generated on your photo and how many there will be.

Stratified Random – Random within a cell of the annotation area (What we use for CPC/CoralNet)

- Once selected you will be asked to designate 3 categories - The Number of **Cell Rows**, **Cell Columns**, and **Points Per Cell**.
- Place values in for **Cell Row** and **Cell Column** depending on your desired number of points
- 20 Stratified Random Points = 4 **Cell Rows**, 5 **Cell Columns**, 1 **Point Per Cell**

Simple Random – Random within the entire annotation area (**See #3**)

Uniform Grid – Simple grid pattern

Note: If you change this setting, it will **NOT** apply to images that are already uploaded and annotated.

5. Level of alleviation - This allows for you to set the trade-off between fully automated and fully manual annotation of images.

[Vision Backend – How To By CoralNet](#)

- The **Alleviation Level** refers to the percentage of points out of the **ENTIRE SAMPLE** that will be annotated automatically by the source robot. The result will relieve the user of the selected percentage of **Most Confidently Identified** points.
 - This will leave some photos with all, none, or some points left for human annotation
 - These points and photos will still need to be confirmed by the user before being labeled as **Confirmed** and accepted as data
- Alleviation levels should always be kept at **“0”** until the source has a **Calculated Recommended Alleviation Level**. This will begin to calculate once **at least 10** photos have been manually annotated. The resulting information can be found in the first dialogue box found on the **Source Homepage** (Pictured Below) but only adjusted on the **Source Settings** page.

Date Created: Sept. 24, 2015, 12:31 p.m.
Last Robot run: Thu Feb 4 18:02:16 2016

Default image height coverage(cm): 40
Default image annotation area: X: 0 - 100% / Y: 0 - 100%
Annotation point generation: Stratified random, 4 rows x 5
columns of cells, 1 points per cell (total of 20 points)
Level of alleviation: 40% [\(edit\)](#)

Transect images pre and post macro-algae removal in Kaneohe Bay, Oahu.

Current Alleviation Setting

MEMBERS

[jgoggins](#) Admin

SOURCE DETAILS

Visibility: **Private**
Latitude: **21.43421**
Longitude: **157.7888**

AUTOMATED ANNOTATION



The current robot is based on 1145 images.
Confirm 28 more to trigger a new version.

Details				Full (%)		Func. (%)		
#	Date	Time (s)	Samp (#)	Acc	K	Acc	K	ALL
1259	2016-01-20	2273	8460	71.2	61.4	74.5	60.7	49
1266	2016-01-26	4319	12760	70.7	60.9	74.5	60.3	52
1275	2016-02-04	10639	22900	74.1	65.0	77.2	63.7	60

[Full Automated Annotation history](#)

IMAGE STATUS

Not annotated: [0](#)
Unconfirmed: [4335](#)
Confirmed: [1690](#)
Total images: [6025](#)

**Calculated
Recommended
Alleviation Settings**

- The level of alleviation should be set to a level less than or equal to that of the recommended value found in the “ALL” column (**Calculated recommended Level of Alleviation**) of the photo above.

6. World Location – Latitude and Longitude of your source. This is used to integrate transects with Google Maps.