

Standard Operating Procedure (SOP) #15

Managing Photographic Images

Version 3.00 (August 22, 2019)

Change History

New Version #	Revision Date	Author	Changes Made	Reasons for Change	Previous Version #
2.00	6/30/2007	Eric Brown	See Track	Response to reviewer's comments	1.00
2.01	7/20/2007	Larry Basch	See Track	Corrections, additions	2.00
3.00	8/22/2019	Kelly Kozar, Amanda McCutcheon	Updates to folder structure, photo renaming, and file renaming software. Updated SOP #s	To accurately describe the PACN folder structure for benthic images and to provide instructions for current renaming software. Added a geospatial SOP and had to renumber subsequent SOPs.	2.01

Only changes in this specific SOP will be logged here. Version numbers increase incrementally by hundredths (e.g., version 1.01, version 1.02) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0). Record the previous version number, date of revision, author of the revision, changes made, and reason for the change along with the new version number.

Purpose

This SOP documents the downloading, storing, and naming of photographs taken during Benthic Marine Community monitoring surveys.

A master equipment list for the entire Benthic Marine Community Vital Sign Monitoring Protocol can be found in Appendix SOP 1.a of SOP #1 Before the Field Season. The master equipment list should be updated simultaneously if any SOP requiring an equipment list is revised. A list of equipment required to complete the tasks specified in this SOP has been provided in Appendix SOP 15.a.

Downloading Images

Data will be downloaded from the camera as soon as possible, following the dive. This SOP assumes that photos have been taken according to the procedures in SOP #8 Conducting Benthic Marine and Rugosity Surveys. Refer to the equipment list needed for downloading images in Appendix SOP 15.a.

Downloading Images Using Card Reader

Step 1: Turn on computer and make sure card reader is inserted into USB port.

Step 2: Open the program File Explorer from the “Start Menu” on a computer with the Microsoft Windows® system. An alternative is to press the Window + E keys to open File Explorer.

Step 3: Insert the media card from the camera into the appropriate slot on the card reader.

Step 4: The card reader will appear in File Explorer as a separate drive.

Step 5: Click on the appropriate drive in File Explorer. You will see a “DCIM” folder.

Step 6: Open the DCIM folder. Inside there will be a subfolder. The name of this subfolder depends on the camera used.

Step 7: Open the DCIM subfolder and examine the image files from the camera.

Step 8: Copy images to hard drive as in the “Storing Images” section below. Ensure that images have been copied to hard drive.

Step 9: Eject the media card by right clicking on the drive within File Explorer and selecting “Eject” from the menu. Then press OK on the button.

Step 10: Follow instructions in SOP #11 Post-Dive Procedures and Equipment Maintenance for other instructions on caring for the camera, storage media cards, and batteries.

Step 11: At the end of the field season, before deleting images on the media card, double check that all images have been copied to hard drive. Then reformat media card to minimize potential problems in file storage or transfer.

Downloading the Images Using a Cable

Step 1: Connect the camera to the computer using the USB cable.

Step 2: Turn the camera on. The computer should recognize the camera as a new drive. If it does not, go to my computer, hit refresh and the camera should appear; or, consult camera manual to troubleshoot.

Step 3: Open the program File Explorer from the “Start Menu”. An alternative is to press the Window + E keys to open File Explorer.

Step 4: Open the new drive, which appears in Microsoft Windows® File Explorer.

Step 5: Open the DCIM folder. Inside there will be a subfolder. The name of this subfolder depends on the camera used. Open this subfolder.

Step 6: Copy the images to the hard drive as below in the “Storing Images” section. Ensure that images have been copied to hard drive.

Step 7: Stop the removable drive using the “Safely Remove Hardware” icon in the system tray along the bottom of Microsoft Windows® 10.

Step 8: Turn the camera off.

Step 9: Disconnect the camera from the computer. Follow instructions in SOP #11 Post-Dive Procedures and Equipment Maintenance for other instructions on caring for the camera, memory cards, and batteries.

Step 10: At the end of the field season, before deleting images on the media card, double check that all images have been copied to hard drive. Then reformat media card to minimize potential problems in file storage or transfer.

Storing Images

Storing Photographs for Benthic Analysis

Step 1: All of the raw benthic images will reside in the Images folder on the PACN server, which is automatically backed up daily.

Step 2: Within this directory there are folders for each year, and then subfolders for each park with transect folders inside. Store original images in the “Originals” folder, and renamed images in the “Data” folder (Figure SOP 15.1).

Step 3: Use the naming convention in Figure SOP 15.2 for the folders that store raw images.

Step 4: The PACN Marine Biological Technician or Park staff should upload the transect benthic images to the year and park appropriate folder on the PACN server as soon as they are renamed. The PACN server is updated automatically daily, and this ensures that no images will be lost (see Figure SOP 15.1).

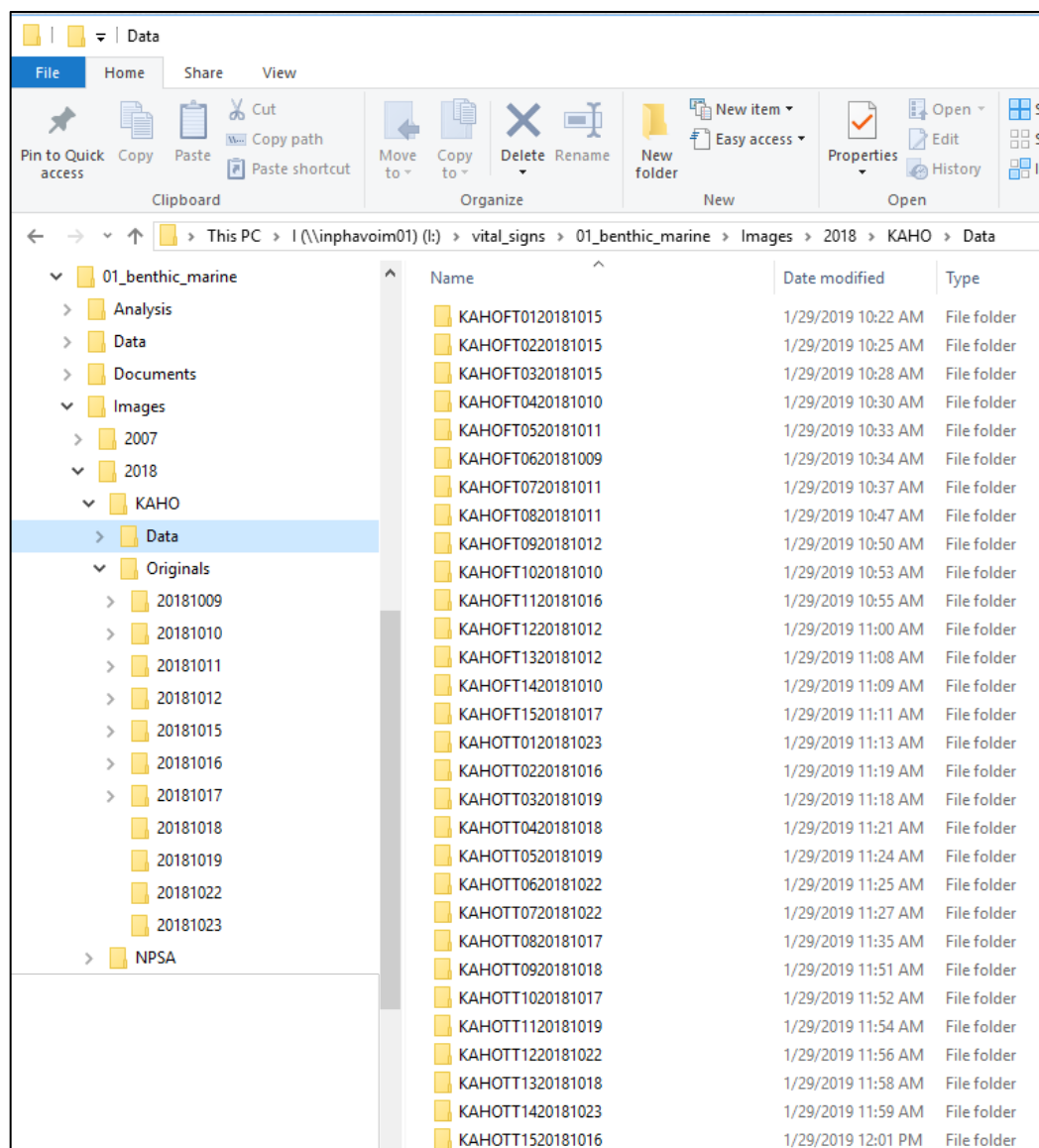


Figure SOP 15.1. Folder structure for storage of PhotoGrid® images.

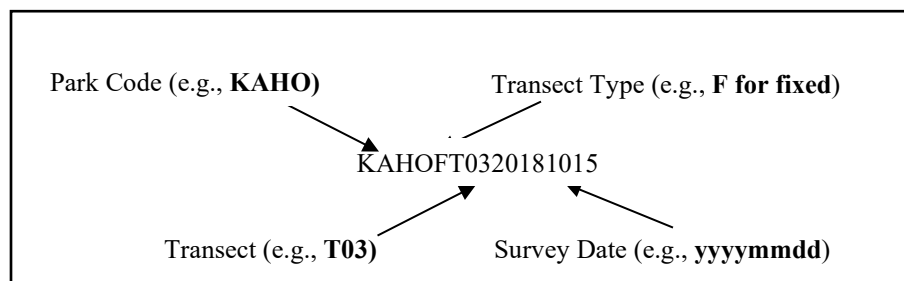


Figure SOP 15.2. Directory naming convention for storing photographs.

Storing Photographs for Settlement

These procedures assume that images of settlement plates were made following SOP #9 Conducting Coral Settlement Monitoring. Photographing coral settlement plates is presently an optional but recommended step in this SOP.

Step 1: All of the settlement images will reside in a “Settlement Image” directory that can be easily backed up.

Step 2: Within this directory, create a master folder for the year and then subfolders for each park with transect folders inside.

Step 3: Use the naming convention for the folders that store images (same as for benthic images) as given in Figure SOP 15.2.

Step 4: The PACN Marine Biological Technician or Park staff should upload the settlement tile images to the year and park appropriate folder on the PACN server as soon as they are renamed. The PACN server is updated automatically daily, and this ensures that no images will be lost.

Selecting Data Images

Step 1: During the field surveys, multiple photos (at least two) are taken at each meter mark to ensure that a quality photo is achieved. Review any field notes on how the photographs were taken before selecting the data photos.

Step 2: Under the Data folder, make a new folder for the first transect using the naming convention as given in Figure SOP 15.2.

Step 3: In the Originals folder for the first transect, select the start photo (this should be a picture indicating the transect name) and the four landscape photos from the beginning of the transect. Copy and paste these five images into the new folder within the Data folder.

Step 4: In the Originals folder for the first transect, select one photo for each meter mark. Try to choose the best quality photo for each. Avoid photos that include parts of the transect line, fish, or other items that are not part of the benthos when possible. Copy and paste each selected photo into the new folder under the Data folder.

Step 5: Repeat Steps 2-4 for each transect.

Renaming Benthic Image Files

Step 1: Use the program Bulk Rename Utility© v3.0.0.1 to rename the Data image files in a batch.

Step 2: Launch Bulk Rename Utility© by clicking on the “Start” button and typing Bulk Rename Utility©. Alternatively, click the desktop icon for the Bulk Rename Utility© program.

Step 3: Navigate to the folder with the Data images for a transect using the File Explorer type window on the left portion of the screen.

Step 4: Highlight all of the images by using the “Select All” command under the Edit menu; alternatively, you may simultaneously press the “Ctrl” and “A” keys. Selecting individual images can be done by holding down the “Ctrl” key and clicking on individual images. While holding control unselect the five start images (the transect name image and the four landscape photographs), these will be remained separately.

Step 5: Use the renaming functionality at the bottom of the user interface to rename the photos for each transect (Figure SOP 15.3).

Step 6: Files will be renamed following the template in Figure SOP 15.4.

Step 7: In the “Remove” box, remove all digits before “.JPG”. In the example in Figure SOP 15.3, this is 8 digits.

Step 8: In the “Add” box, enter the Park Code, the calendar year, T or F (temporary or fixed), an additional T for transect and the transect number (e.g., 06 for fixed transect 6). For the example in Figure SOP 15.3, fixed transect 6 at Kaloko-Honokōhau National Historical Park in 2018 would be entered as “KAHO18FT06”.

Step 9: In the “Numbering” box, enter Mode of “Suffix”, at of “0”, Start of “0”, Incr of “1” and Pad of “3”. This starts the numbering sequence with the number one corresponding to the first image and allows for up to 999 images/frames per transect.

Step 10: Click “Rename”.

Step 11: Manually rename the five start photos by clicking twice on the name in the File Explorer and typing in the new name. Use the same naming convention for the beginning of the file name (i.e. KAH018FT06) plus “Start” for the first photo and “_Hd000”, “_Hd090”, “_Hd180”, “_Hd270” as appropriate for the four landscape photos.

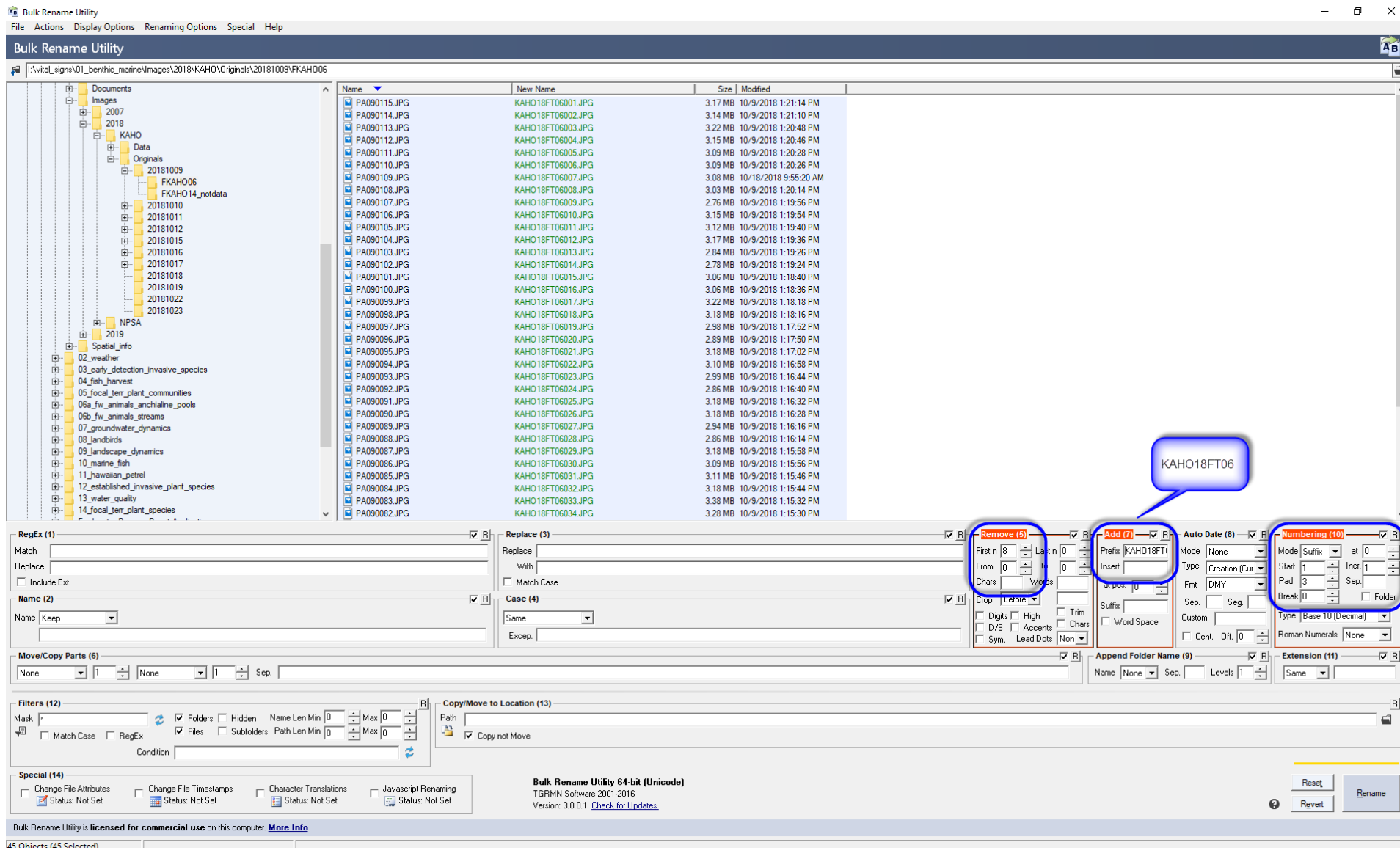


Figure SOP 15.3. Sample screen in Bulk Rename Utility© showing the file renaming options.

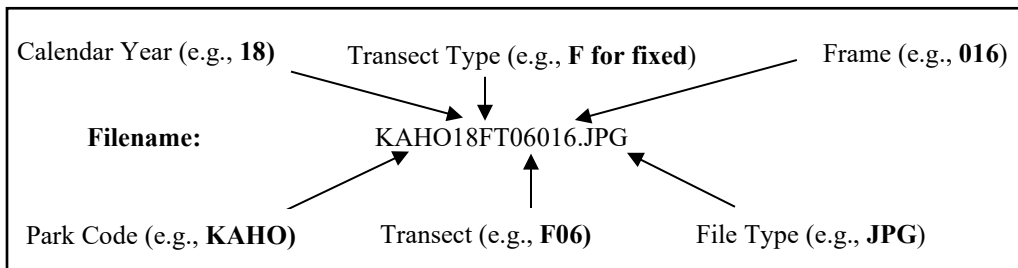


Figure SOP 15.4. Example format for renaming files for benthic image analysis.

Renaming Settlement Image Files

Step 1: Use the program Bulk Rename Utility© v3.0.0.1 to rename the image files in a batch.

Step 2: Launch Bulk Rename Utility© by clicking on the “Start” button and typing Bulk Rename Utility©. Alternatively, click the desktop icon for the Bulk Rename Utility© program.

Step 3: Navigate to the folder with the images using the File Explorer type window on the left portion of the screen.

Step 4: Click on the transect folder to display all of the images within that folder/transect.

Step 5: Highlight the first 4 images, which represent the pictures taken at the first CRA along a transect.

Step 6: Use the renaming functionality at the bottom of the user interface to rename the photos for each transect.

Step 7: In the “Remove” box, remove all digits before “.JPG”.

Step 8: In the “Add” box, enter the Park Code, the calendar year, T or F (temporary or fixed), an additional T for transect and the transect number (e.g., 06 for fixed transect 6). For the example in Figure SOP 15.5, fixed transect 3 at National Park of American Samoa in 2018 would be entered as “NPSA18FT03”.

Step 9: Click “Rename”.

Step 10: Manually update the CRA/plate pair number (01, 02, or 03), followed by a number for the surface (01, 02, 03, or 04 [for UT upper plate top surface; UB upper bottom; LT lower top, or; LB lower bottom, respectively]) (e.g., for transect 3, the first CRA and plate surface 3, enter “030103”).

Step 12: Files will be renamed following the template in Figure SOP 15.5.

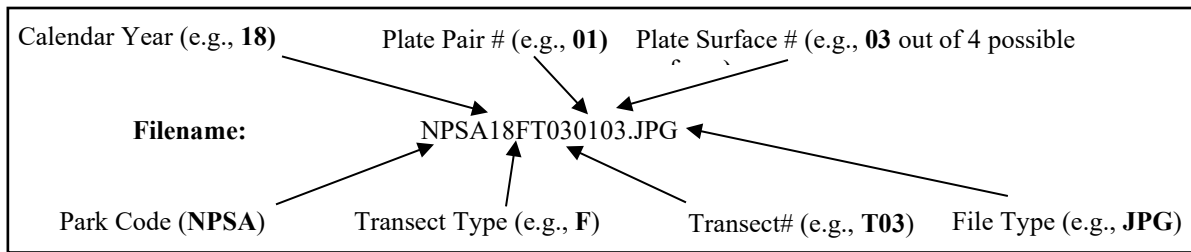


Figure SOP 15.5. Example format for renaming files for settlement image analysis.

Appendix SOP 15.a: Equipment Necessary to Download Images

Table SOP 15.1 Equipment list for downloading images.

Equipment	Quantity	Notes
Compact Flash Card reader	1	If using a card reader
USB cable	1	If using the camera and cable
Camera	1	
Computer	1	