

## Environment Setup

[illegible]

```
AttributeError: 'MessageFactory' object has no attribute
'GetPrototype'
```

```
-----
-----
AttributeError                                Traceback (most recent call
last)
```

```
AttributeError: 'MessageFactory' object has no attribute
'GetPrototype'
```

```
-----
-----
AttributeError                                Traceback (most recent call
last)
```

```
AttributeError: 'MessageFactory' object has no attribute
'GetPrototype'
```

```
-----
-----
AttributeError                                Traceback (most recent call
last)
```

```
AttributeError: 'MessageFactory' object has no attribute
'GetPrototype'
```

```
-----
-----
AttributeError                                Traceback (most recent call
last)
```

```
AttributeError: 'MessageFactory' object has no attribute
'GetPrototype'
```

```
import tensorflow as tf
print("TensorFlow version:", tf.__version__)

# Check GPU availability
gpus = tf.config.list_physical_devices('GPU')
if gpus:
    print(f"GPU Detected: {gpus[0].name}")
    print("    Type:",
tf.config.experimental.get_device_details(gpus[0]).get('device_name',
'Unknown'))
else:
    print("No GPU detected – switch to GPU runtime in Kaggle.")

# Quick GPU test (optional)
try:
    with tf.device('/GPU:0'):
        a = tf.random.normal([1000, 1000])
        b = tf.random.normal([1000, 1000])
        c = tf.matmul(a, b)
    print("GPU computation successful.")
```

```
except Exception as e:  
    print("GPU test failed:", e)
```

```
TensorFlow version: 2.18.0  
GPU Detected: /physical_device:GPU:0  
Type: Tesla T4  
GPU computation successful.
```

```
I0000 00:00:1762706635.044110      204 gpu_device.cc:2022] Created  
device /job:localhost/replica:0/task:0/device:GPU:0 with 13942 MB  
memory: -> device: 0, name: Tesla T4, pci bus id: 0000:00:04.0,  
compute capability: 7.5  
I0000 00:00:1762706635.044815      204 gpu_device.cc:2022] Created  
device /job:localhost/replica:0/task:0/device:GPU:1 with 13942 MB  
memory: -> device: 1, name: Tesla T4, pci bus id: 0000:00:05.0,  
compute capability: 7.5
```

## Data Extraction

### What is this doing here?

- This step recursively searches through the main dataset directories (like `coral_images_dry` and `coral_images_wet`) to locate all image files (`.jpg`, `.png`) present in every nested subfolder.
- It uses functions such as `rglob` to ensure that no image is missed, regardless of how deep it is inside the folder hierarchy.

### Purpose of the same?

- To confirm the total number of images in the dataset and validate that each source (dry or wet) contains the expected amount of data.
- This also helps identify structural inconsistencies like missing subfolders, misnamed files, or unbalanced sample counts.

### Why are we doing this?

- Because coral datasets are usually collected from multiple surveys or camera deployments, the directory organization can vary.
- A recursive check ensures all images are accessible and uniformly referenced before creating metadata or performing feature extraction.
- This step ensures dataset completeness and correctness before proceeding to preprocessing or training.

```
dry_root =  
Path('/kaggle/input/coral-condition-dataset/coral_images_dry')  
wet_root =  
Path('/kaggle/input/coral-condition-dataset/coral_images_wet')
```

### ***Sampling and Sanity Checking (sample\_info function):***

#### **What is this doing here?**

- The function `sample_info` recursively searches within the given `root` directory for all `.jpg` and `.png` images using `Path.rglob()`.
- It prints the total image count found under that root and returns:
  - `files`: the complete list of image file paths, and
  - `samples`: a small random subset (default 5) for quick inspection.

#### **Purpose of the same?**

- To perform a quick **integrity and sanity check** before deeper processing.
- It helps verify that:
  - Images are actually being detected,
  - The recursive search pattern works across nested folders, and
  - Paths are valid (no broken or missing references).

By reviewing the printed output or sampled file paths, we can confirm that both `dry_root` and `wet_root` are properly loaded.

#### **Why are we doing this?**

- In datasets with complex folder hierarchies (like coral imagery), verifying early that all image paths are accessible and correctly captured avoids downstream errors during feature extraction or clustering.
- It ensures our directory scanning logic works uniformly for both *dry* and *wet* image sets, even if subfolder depths differ.

#### **Additional note:**

- This function is generic - it doesn't assume any fixed folder structure.
- Because it uses `rglob()`, it can traverse arbitrary nesting levels such as:

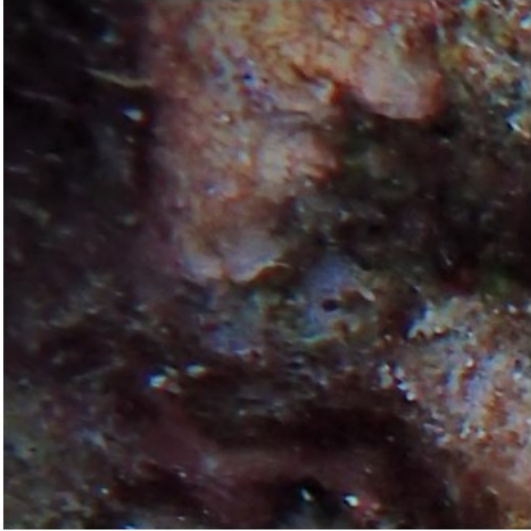
```
root/  
├── folder1/  
│   ├── 1.jpg  
│   └── 2.jpg
```

```
|— 3.jpg  
|— 4.jpg
```

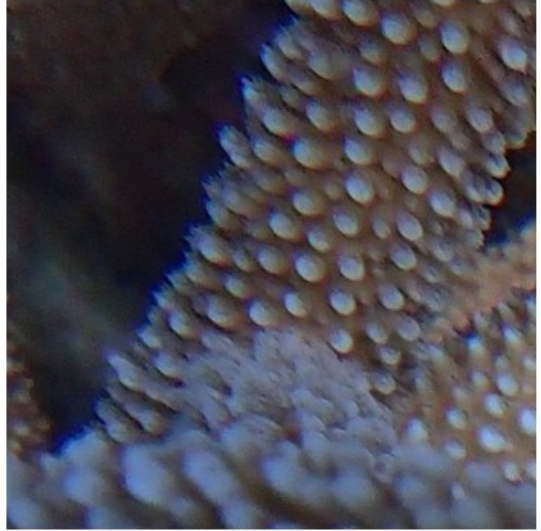
All 4 images above will be correctly detected, regardless of where they're located within `root`.

```
def sample_info(root, n=5):  
    files = list(root.rglob('*.jpg')) + list(root.rglob('*.png'))  
    print(f"{root.name}: {len(files)} images")  
    samples = random.sample(files, min(n, len(files)))  
    return files, samples  
  
dry_files, dry_samples = sample_info(dry_root)  
wet_files, wet_samples = sample_info(wet_root)  
  
coral_images_dry: 26300 images  
coral_images_wet: 12744 images  
  
# Combine a few samples  
samples = (dry_samples + wet_samples)[:6]  
  
# Plot 2 images per row  
rows = (len(samples) + 1) // 2  
plt.figure(figsize=(10, rows * 4))  
  
for i, p in enumerate(samples):  
    plt.subplot(rows, 2, i + 1)  
    img = Image.open(p).convert('RGB')  
    plt.imshow(img)  
    plt.title(f"{p.parent.name}\n{p.name[:18]}", fontsize=9)  
    plt.axis('off')  
  
plt.tight_layout()  
plt.show()
```

clipped  
SKI\_0004\_00\_202308



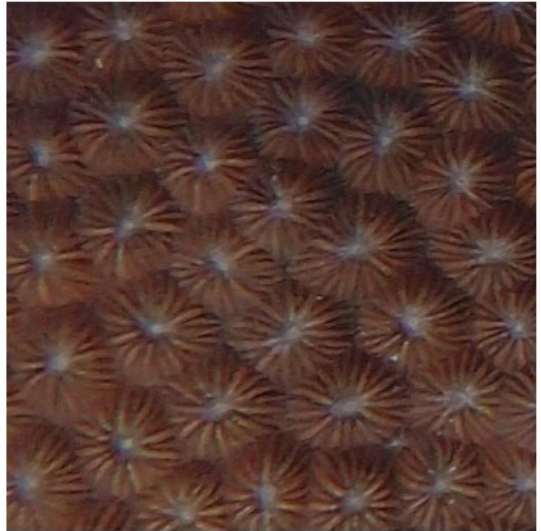
clipped  
ALK\_0030\_11\_202309



clipped  
SKI\_0004\_00\_202308



clipped  
HWB\_0029\_12\_202309



clipped  
TCB\_0003\_00\_202308



cropped  
ALK\_0035\_00\_202401





# Data Preprocessing

## *Directory Structure Inspection and Metadata Creation:*

### What is this doing here?

- The code recursively lists the folder contents up to three levels deep using nested loops with `Path.glob('*')`.
- It prints each directory and its immediate subdirectories/files in a tree-like format to visually confirm how data is organized under `dry_root` and `wet_root`.

For example:

```
coral_images_dry/  
├── coral_images/  
│   └── 20230919_SWP/  
│       ├── clipped/  
│       ├── cropped/  
│       └── *.jpg
```

### Purpose of the same?

- To inspect and understand the dataset hierarchy before programmatically building metadata.  
Coral datasets often contain nested structures like `survey_folder -> subfolder (clipped/cropped/original) -> images`.
- Seeing this helps verify that all expected categories or survey folders exist and are organized consistently.

### Why are we doing this?

- Knowing the exact folder layout ensures we extract metadata correctly — such as identifying which level corresponds to the *survey folder*, which subfolder holds *clipped* or *cropped* images, and how to tag them with their *source* (dry/wet).
- If this structure isn't confirmed, metadata generation could mislabel paths or duplicate entries.

### Metadata creation logic:

- After confirming the structure, a metadata DataFrame (`metadata.csv`) is created.
- For each image path found under dry/wet roots:
  - `image_path`: the absolute path to the image.
  - `filename`: extracted using `os.path.basename(path)`.

- **folder**: usually the survey folder (like `20230919_SWP`) or subfolder name if it's within `clipped/` or `cropped/`.
- **source**: labeled as `dry` or `wet` depending on which root it came from.

This structured metadata allows seamless merging, filtering, and grouping operations for EDA and later modeling.

#### Additional context:

- The metadata file (`metadata.csv`) becomes the backbone of the dataset — linking every image to its contextual attributes (survey, condition, and source).
- It replaces manual directory navigation and supports downstream tasks like balanced sampling, feature extraction, and visualization.

```
# show 3 levels of directory contents
for root in [dry_root, wet_root]:
    print(f"\n\n\nListing under: {root}")
    for p in list(root.glob('*')):
        print(" |—", p)
        if p.is_dir():
            for q in list(p.glob('*')):
                print(" | |—", q)
                if q.is_dir():
                    for r in list(q.glob('*')):
                        print(" | | |—", r)
```

```
Listing under: /kaggle/input/coral-condition-dataset/coral_images_dry
|—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images
| |—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230919_SWP
| |—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230919_SWP/SWP_0025_00_20230919_0020.jpg
| |—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230919_SWP/SWP_0025_00_20230919_0001.jpg
| |—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230919_SWP/SWP_0025_00_20230919_0031.jpg
| |—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230919_SWP/SWP_0025_00_20230919_0022.jpg
| |—
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```



20230919\_SWP/SWP\_0025\_00\_20230919\_0029.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0036.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0008.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0018.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0010.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0024.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0017.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0034.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0003.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0015.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0035.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0021.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0005.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0028.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0006.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0011.jpg

| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0004.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/clipped  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0023.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0025.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0009.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0016.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0027.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0012.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0019.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0002.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0026.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0032.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0013.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0030.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0014.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0033.jpg  
| |

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230919\_SWP/SWP\_0025\_00\_20230919\_0007.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0041.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0076.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0016.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0013.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0002.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0043.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0011.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0077.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0026.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0057.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0038.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0049.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0081.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0053.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

20230927\_ALK/ALK\_0030\_11\_20230927\_0068.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0069.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0071.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0042.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0032.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0020.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/transect  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0079.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0030.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0039.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0064.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0031.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0062.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0054.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0036.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0003.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0059.jpg

```
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0070.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0082.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0050.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0084.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0072.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0004.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0027.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0018.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0024.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0051.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0001.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0074.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0066.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/clipped  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0078.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0058.jpg  
| |
```

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0035.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0010.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0008.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0022.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0015.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0019.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0021.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0052.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0009.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0012.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0023.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0007.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0006.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0025.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0040.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0073.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

20230927\_ALK/ALK\_0030\_11\_20230927\_0028.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0048.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0014.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0063.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0017.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0047.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0045.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0065.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0083.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0029.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0046.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0055.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0005.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0044.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0075.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230927\_ALK/ALK\_0030\_11\_20230927\_0060.jpg



```
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0080.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0033.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0061.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0056.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0067.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230927_ALK/ALK_0030_11_20230927_0034.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0040.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0010.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0012.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0006.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0042.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0021.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0030.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0001.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230421_preliminary_survey/20230412_0033.jpg  
| |
```

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0048.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0009.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0043.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0036.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0032.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0003.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0035.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0017.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0038.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0049.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0026.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0027.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0011.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0007.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0044.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0031.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

20230421\_preliminary\_survey/20230412\_0041.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0013.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0004.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0014.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/clipped  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0025.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0005.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0019.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0008.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0039.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0034.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0018.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0029.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0024.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0045.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0022.jpg  
|  
└─

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0023.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0016.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0046.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0015.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0028.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0002.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0020.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230421\_preliminary\_survey/20230412\_0047.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0023.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0071.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0115.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0082.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0043.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0028.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0113.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

20230926\_HWB/HWB\_0029\_12\_20230926\_0003.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0065.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0006.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0016.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0010.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0057.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0086.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0022.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0062.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0107.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0061.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0081.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0098.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0017.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0024.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0033.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0096.jpg

```
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0087.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0004.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0007.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0041.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0055.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0067.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0042.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0100.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0049.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0074.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0038.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0053.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0044.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0019.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0084.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0083.jpg
| |
```

```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0077.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0036.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0054.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0101.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0093.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0114.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0021.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0012.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0015.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0056.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0034.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0102.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0095.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0089.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0110.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0075.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```



20230926\_HWB/HWB\_0029\_12\_20230926\_0008.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0029.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0001.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0079.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0073.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0091.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0032.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0051.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0058.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0088.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0050.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/clipped  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0103.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0078.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0085.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0068.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0117.jpg

```
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0080.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0092.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0099.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0031.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/P9265786.MOV
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0090.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0039.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0035.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0064.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0105.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0109.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0014.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0066.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0005.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0063.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230926_HWB/HWB_0029_12_20230926_0108.jpg
| |
```

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0045.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0059.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0048.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0047.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0052.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0002.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0097.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0025.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0069.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0116.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0111.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0094.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0040.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0072.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0026.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

20230926\_HWB/HWB\_0029\_12\_20230926\_0060.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0027.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0070.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0013.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0020.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0009.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0018.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0046.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0106.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0011.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0030.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0112.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0076.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230926\_HWB/HWB\_0029\_12\_20230926\_0104.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0041.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0047.jpg



```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0019.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0046.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0008.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0032.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0054.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0025.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0006.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0003.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0014.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0090.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0023.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0067.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0002.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0029.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0022.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0059.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```

20230928\_HNM/HNM\_0031\_00\_20230928\_0057.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0089.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0028.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0088.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0016.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0061.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0066.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0074.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0095.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0031.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0072.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0094.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0084.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0001.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0036.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0050.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0042.jpg  
|  
└─



```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0048.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0027.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0064.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/clipped
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0077.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0020.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0043.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0079.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0063.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0021.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0099.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0068.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0044.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0096.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0091.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0026.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```

20230928\_HNM/HNM\_0031\_00\_20230928\_0015.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0039.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0049.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0007.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0056.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0080.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0083.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0034.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0051.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0030.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0098.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0012.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0069.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0013.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0065.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230928\_HNM/HNM\_0031\_00\_20230928\_0005.jpg

```
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0081.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0087.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0004.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0100.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0085.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0053.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0093.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0060.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0018.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0024.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0097.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0071.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0070.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0062.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0092.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0038.jpg
| |
```

```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230928_HNM/HNM_0031_00_20230928_0033.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0007.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0005.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0016.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0001.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0009.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0003.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0002.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0010.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/clipped
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0011.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0017.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0008.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0015.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230929_AOM/AOM_0032_00_20230929_0014.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```

20230929\_AOM/AOM\_0032\_00\_20230929\_0006.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230929\_AOM/AOM\_0032\_00\_20230929\_0012.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230929\_AOM/AOM\_0032\_00\_20230929\_0004.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230929\_AOM/AOM\_0032\_00\_20230929\_0013.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0004.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0006.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0012.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0003.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0005.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0009.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0001.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0010.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/clipped  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0013.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0002.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230815\_TTB/TTB\_0002\_00\_20230815\_0008.jpg

```
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230815_TTB/TTB_0002_00_20230815_0011.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230815_TTB/TTB_0002_00_20230815_0007.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230815_TTB/TTB_0002_00_20230815_0014.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0032.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0128.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0047.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0137.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0034.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0087.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0116.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0001.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0127.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0072.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0057.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0009.jpg  
| |
```

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0106.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0086.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0026.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0131.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0014.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0056.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0143.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0042.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0064.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0063.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0099.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0023.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0025.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0018.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0082.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/



20230817\_SKI/SKI\_0004\_00\_20230817\_0098.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0074.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0044.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0058.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0109.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0096.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0070.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0059.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0136.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0061.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0123.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0126.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0094.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0125.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0122.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0090.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0084.jpg

```
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0045.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0124.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0108.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0031.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0092.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0080.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0030.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0075.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0088.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0076.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0054.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0129.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0085.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0017.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0040.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0029.jpg
| |
```

```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0139.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0133.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0066.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0113.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/clipped
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0039.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0120.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0013.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0081.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0019.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0004.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0119.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0053.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0100.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0046.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230817_SKI/SKI_0004_00_20230817_0132.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```

20230817\_SKI/SKI\_0004\_00\_20230817\_0102.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0010.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0028.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0007.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0020.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0141.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0089.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0117.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0091.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0049.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0135.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0012.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0043.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0062.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0111.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0011.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0060.jpg  
|  
└─

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0052.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0033.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0006.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0048.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0107.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0016.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0055.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0067.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0050.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0065.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0121.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0038.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0103.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0130.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0104.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0005.jpg  
|     └─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

20230817\_SKI/SKI\_0004\_00\_20230817\_0078.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0101.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0051.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0114.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0015.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0093.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0071.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0110.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0097.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0041.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0036.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0138.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0008.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0083.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0115.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0021.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0118.jpg

```
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0140.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0073.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0079.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0024.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0027.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0035.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0105.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0022.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0003.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0142.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0002.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0095.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0068.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0077.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0134.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230817_SKI/SKI_0004_00_20230817_0112.jpg  
| |
```

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230817\_SKI/SKI\_0004\_00\_20230817\_0069.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0063.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0074.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0076.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0027.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0046.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0066.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0020.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0006.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0055.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0060.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0064.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0042.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0039.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0015.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/



20230804\_CBK/CBK\_0001\_00\_20230804\_0043.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0040.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0007.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0049.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0045.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0004.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0058.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0031.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0024.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0072.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0067.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0021.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0065.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0005.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0010.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0062.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0075.jpg

```
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0044.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0014.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0025.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0008.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0034.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0038.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0079.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0036.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0050.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0041.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0077.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0017.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0037.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0073.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0030.jpg  
| |  
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/  
20230804_CBK/CBK_0001_00_20230804_0026.jpg  
| |
```

```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0001.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/clipped
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0033.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0028.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0080.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0082.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0057.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0047.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0068.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0029.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0048.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0019.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0023.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0002.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0003.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0032.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```

20230804\_CBK/CBK\_0001\_00\_20230804\_0018.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0051.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0053.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0035.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0054.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0009.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0081.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0061.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0056.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0016.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0078.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0012.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0052.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0083.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0071.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0069.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230804\_CBK/CBK\_0001\_00\_20230804\_0011.jpg

```
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0070.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0013.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0059.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230804_CBK/CBK_0001_00_20230804_0022.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0102.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0034.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0058.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0039.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0024.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0103.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0006.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0090.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0005.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0063.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0042.jpg
| |
```

```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0075.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0046.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0081.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0072.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0002.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0082.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0043.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0051.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0038.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0031.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0078.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0095.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0085.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0065.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0048.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0053.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```

20230816\_TCB/TCB\_0003\_00\_20230816\_0004.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0021.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0074.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0003.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0018.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0026.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0073.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/quadrat  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0079.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0093.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0066.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0077.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0036.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0097.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0080.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0092.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0009.jpg  
|  
└─

```
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0055.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0029.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0083.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0022.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0010.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0068.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0088.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0107.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0016.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0041.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0101.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0011.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0032.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0007.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0106.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0013.jpg
|  └─
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
```



20230816\_TCB/TCB\_0003\_00\_20230816\_0027.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0104.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0033.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0062.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0025.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0094.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0105.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0071.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0087.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/clipped  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0059.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0049.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0056.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0008.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0076.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0096.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0061.jpg

```
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0015.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0012.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0110.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0023.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0052.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0017.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0084.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0069.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0108.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0099.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0109.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0060.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0050.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0028.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0035.jpg
| |
/kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0098.jpg
| |
```

/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0014.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0037.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0030.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0044.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0040.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0057.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0086.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0100.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0070.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0045.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0001.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0047.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0020.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0019.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0064.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/  
20230816\_TCB/TCB\_0003\_00\_20230816\_0089.jpg  
|  
└─  
/kaggle/input/coral-condition-dataset/coral\_images\_dry/coral\_images/

```
20230816_TCB/TCB_0003_00_20230816_0054.jpg
|   |
|   |— /kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0067.jpg
|   |
|   |— /kaggle/input/coral-condition-dataset/coral_images_dry/coral_images/
20230816_TCB/TCB_0003_00_20230816_0091.jpg
```

```
Listing under: /kaggle/input/coral-condition-dataset/coral_images_wet
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240115_TCB_done
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240115_TCB_done/cropped
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240115_TCB_done/TCB_0034_00_20240115_0002.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240115_TCB_done/TCB_0034_00_20240115_0001.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0014.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0007.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0013.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0069.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0017.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0022.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0050.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0010.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0031.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0066.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0033.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0024.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240122_HWB_done/HWB_0037_12_20240122_0005.jpg
|   |— /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
```

[illegible]

[illegible]

[illegible]

[illegible]



[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



[illegible]

[illegible]

```

| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0015.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0020.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0006.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0017.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0013.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0014.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0002.jpg
| | | /kaggle/input/coral-condition-dataset/coral_images_wet/D-Data
Winter 2024/20240103_SKI_done/SKI_0033_00_20240103_0008.jpg

```

```

def build_metadata(root_paths,
out_csv='/kaggle/working/metadata.csv'):
    rows = []
    for source, root in root_paths.items():
        all_files = list(root.rglob('*.jpg'))
        print(f"{source}: found {len(all_files)} images under {root}")
        for p in all_files:
            rows.append({
                'image_path': str(p),
                'filename': p.name,
                'folder': p.parent.name,
                'source': source
            })
    df = pd.DataFrame(rows)
    df.to_csv(out_csv, index=False)
    print(f"Saved: {out_csv}, shape: {df.shape}")
    return df

```

```
df = build_metadata({'dry': dry_root, 'wet': wet_root})
```

```
dry: found 26300 images under
```

```
/kaggle/input/coral-condition-dataset/coral_images_dry
```

```
wet: found 12744 images under
```

```
/kaggle/input/coral-condition-dataset/coral_images_wet
```

```
Saved: /kaggle/working/metadata.csv, shape: (39044, 4)
```

```
df.sample(25)
```

```

                                     image_path \
24278 /kaggle/input/coral-condition-dataset/coral_im...
15507 /kaggle/input/coral-condition-dataset/coral_im...
31583 /kaggle/input/coral-condition-dataset/coral_im...
17421 /kaggle/input/coral-condition-dataset/coral_im...

```

```

12024 /kaggle/input/coral-condition-dataset/coral_im...
14876 /kaggle/input/coral-condition-dataset/coral_im...
22177 /kaggle/input/coral-condition-dataset/coral_im...
3722 /kaggle/input/coral-condition-dataset/coral_im...
16072 /kaggle/input/coral-condition-dataset/coral_im...
24937 /kaggle/input/coral-condition-dataset/coral_im...
27842 /kaggle/input/coral-condition-dataset/coral_im...
5943 /kaggle/input/coral-condition-dataset/coral_im...
34281 /kaggle/input/coral-condition-dataset/coral_im...
37722 /kaggle/input/coral-condition-dataset/coral_im...
33988 /kaggle/input/coral-condition-dataset/coral_im...
24116 /kaggle/input/coral-condition-dataset/coral_im...
22252 /kaggle/input/coral-condition-dataset/coral_im...
12652 /kaggle/input/coral-condition-dataset/coral_im...
18427 /kaggle/input/coral-condition-dataset/coral_im...
34665 /kaggle/input/coral-condition-dataset/coral_im...
14274 /kaggle/input/coral-condition-dataset/coral_im...
18002 /kaggle/input/coral-condition-dataset/coral_im...
23992 /kaggle/input/coral-condition-dataset/coral_im...
27124 /kaggle/input/coral-condition-dataset/coral_im...
26869 /kaggle/input/coral-condition-dataset/coral_im...

```

	filename	folder	source
24278	TCB_0003_00_20230816_0100_31.jpg	clipped	dry
15507	SKI_0004_00_20230817_0095_26.jpg	clipped	dry
31583	ALK_0035_00_20240118_0053_12.jpg	cropped	wet
17421	SKI_0004_00_20230817_0028_26.jpg	clipped	dry
12024	HNM_0031_00_20230928_0003_10.jpg	clipped	dry
14876	TTB_0002_00_20230815_0014_25.jpg	clipped	dry
22177	CBK_0001_00_20230804_0080_12.jpg	clipped	dry
3722	ALK_0030_11_20230927_0075_3.jpg	clipped	dry
16072	SKI_0004_00_20230817_0017_19.jpg	clipped	dry
24937	TCB_0003_00_20230816_0022_25.jpg	clipped	dry
27842	HWB_0037_12_20240122_0044_29.jpg	cropped	wet
5943	20230412_0018_26.jpg	clipped	dry
34281	CBK_0038_00_20240124_0018_24.jpg	cropped	wet
37722	CBK_0039_00_20240126_0028_25.jpg	cropped	wet
33988	CBK_0038_00_20240124_0042_12.jpg	cropped	wet
24116	TCB_0003_00_20230816_0044_1.jpg	clipped	dry
22252	CBK_0001_00_20230804_0056_15.jpg	clipped	dry
12652	HNM_0031_00_20230928_0049_6.jpg	clipped	dry
18427	SKI_0004_00_20230817_0079_34.jpg	clipped	dry
34665	CBK_0038_00_20240124_0062_31.jpg	cropped	wet
14274	AOM_0032_00_20230929_0003_23.jpg	clipped	dry
18002	SKI_0004_00_20230817_0025_12.jpg	clipped	dry
23992	TCB_0003_00_20230816_0048_10.jpg	clipped	dry
27124	HWB_0037_12_20240122_0029_17.jpg	cropped	wet
26869	HWB_0037_12_20240122_0024_24.jpg	cropped	wet

```
df['source'].value_counts()
```

```

source
dry      26300
wet      12744
Name: count, dtype: int64

df['folder'].value_counts()

folder
clipped      25546
cropped      12390
20230817_SKI      143
20230926_HWB      117
20230816_TCB      110
20230928_HNM      100
20230927_ALK       84
20230804_CBK       83
20240118_ALK_done   74
20240122_HWB_done   71
20240124_CBK_done   69
20240129_SIN_done   58
20230421_preliminary_survey  49
20240126_CBK_done   41
20230919_SWP       37
20240103_SKI_done   27
20230929_AOM       17
20230815_TTB       14
20240119_SKI_done   12
20240115_TCB_done    2
Name: count, dtype: int64

```

## Build Labels for data

### Collect all the Dry and Wet Image Paths

```

# Collect all image paths
image_paths = list(dry_root.rglob('*.jpg')) +
list(dry_root.rglob('*.png')) \
    + list(wet_root.rglob('*.jpg')) +
list(wet_root.rglob('*.png'))

print(f"Total images found: {len(image_paths):,}")

Total images found: 39,044

```

### Extract Deep Features with EfficientNetB0

```

device_name = tf.test.gpu_device_name()
print("Using device:", device_name if device_name else "CPU")

```

```
Using device: /device:GPU:0
```

```
I0000 00:00:1762706783.380910      204 gpu_device.cc:2022] Created  
device /device:GPU:0 with 13942 MB memory:  -> device: 0, name: Tesla  
T4, pci bus id: 0000:00:04.0, compute capability: 7.5  
I0000 00:00:1762706783.381170      204 gpu_device.cc:2022] Created  
device /device:GPU:1 with 13942 MB memory:  -> device: 1, name: Tesla  
T4, pci bus id: 0000:00:05.0, compute capability: 7.5
```

### ***Feature Extraction using EfficientNetB0:***

#### **What is this doing here?**

- In this step, a **pre-trained EfficientNetB0** model (from ImageNet weights) is loaded to generate compact feature embeddings for each coral image.
- Instead of training from scratch, the model acts as a **feature extractor** — it converts each input image into a high-dimensional vector (for example, a 1280-length embedding).
- This is typically done by removing the final classification layer and using the output of the last global pooling layer as the feature representation.

#### **Purpose of the same?**

- To numerically represent each coral image in a way that captures its **texture, color, and structural patterns**.
- These embeddings allow downstream unsupervised methods (like clustering or visualization) to understand image similarities without labels.
- It effectively transforms raw pixel data into semantically meaningful numerical features.

#### **Why are we doing this?**

- Coral images are complex - differences between *healthy*, *bleached*, or *diseased* coral are subtle and spatially distributed.
- Manually extracting these differences through handcrafted features (color histograms, SIFT, etc.) would be inefficient and less accurate.
- By using a pre-trained EfficientNet, we leverage deep visual features learned from millions of natural images, which generalize well to coral textures.
- This approach reduces computation, improves representation quality, and prepares the dataset for dimensionality reduction or clustering.

#### **Additional details:**

- Each image is resized (usually to 224×224 pixels) and normalized before passing into the model.
- The embeddings are often stored in a DataFrame or NumPy array alongside metadata (image\_path, folder, source).
- These features serve as input for later steps such as **PCA**, **t-SNE**, or **K-Means** for pattern discovery and visualization.

```
# Load pretrained EfficientNetB0 without top
model = EfficientNetB0(weights=None, include_top=False, pooling="avg")

# Feature Extraction Function
def extract_features(img_path, target_size=(224, 224)):
    try:
        img = image.load_img(img_path, target_size=target_size)
        img_array = image.img_to_array(img)
        img_array = np.expand_dims(img_array, axis=0)
        img_array = preprocess_input(img_array)
        features = model.predict(img_array, verbose=0)
        return features.flatten()
    except Exception as e:
        print(f"Error processing {img_path}: {e}")
        return None

# Feature Extraction via Parallel Execution
def extract_features_parallel(image_paths, max_workers=8):
    features, valid_paths = [], []
    with ThreadPoolExecutor(max_workers=max_workers) as executor:
        future_to_path = {executor.submit(extract_features, path):
                           path for path in image_paths}
        for future in tqdm(as_completed(future_to_path),
                           total=len(future_to_path), desc="Extracting features"):
            path = future_to_path[future]
            feat = future.result()
            if feat is not None:
                features.append(feat)
                valid_paths.append(str(path))
    return np.array(features), valid_paths

# Run the actual Feature Extraction in parallel
image_paths = df['image_path'].tolist()

features, valid_paths = extract_features_parallel(image_paths,
max_workers=8)
print(f"Extracted feature vectors: {features.shape}")

{"model_id": "b089e9811f8e429c9fd891d659fc1cc6", "version_major": 2, "version_minor": 0}
```

```
WARNING: All log messages before absl::InitializeLog() is called are
written to STDERR
I0000 00:00:1762706789.472577      255 service.cc:148] XLA service
0x7d9a0809be50 initialized for platform CUDA (this does not guarantee
that XLA will be used). Devices:
I0000 00:00:1762706789.475086      255 service.cc:156]   StreamExecutor
device (0): Tesla T4, Compute Capability 7.5
I0000 00:00:1762706789.475107      255 service.cc:156]   StreamExecutor
device (1): Tesla T4, Compute Capability 7.5
I0000 00:00:1762706790.476896      255 cuda_dnn.cc:529] Loaded cuDNN
version 90300
```

```
WARNING:tensorflow:5 out of the last 5 calls to <function
TensorFlowTrainer.make_predict_function.<locals>.one_step_on_data_dist
ributed at 0x7d99e102d940> triggered tf.function retracing. Tracing is
expensive and the excessive number of tracings could be due to (1)
creating @tf.function repeatedly in a loop, (2) passing tensors with
different shapes, (3) passing Python objects instead of tensors. For
(1), please define your @tf.function outside of the loop. For (2),
@tf.function has reduce_retracing=True option that can avoid
unnecessary retracing. For (3), please refer to
https://www.tensorflow.org/guide/function#controlling\_retracing and
https://www.tensorflow.org/api\_docs/python/tf/function for more
details.
```

```
WARNING:tensorflow:6 out of the last 6 calls to <function
TensorFlowTrainer.make_predict_function.<locals>.one_step_on_data_dist
ributed at 0x7d99e102d940> triggered tf.function retracing. Tracing is
expensive and the excessive number of tracings could be due to (1)
creating @tf.function repeatedly in a loop, (2) passing tensors with
different shapes, (3) passing Python objects instead of tensors. For
(1), please define your @tf.function outside of the loop. For (2),
@tf.function has reduce_retracing=True option that can avoid
unnecessary retracing. For (3), please refer to
https://www.tensorflow.org/guide/function#controlling\_retracing and
https://www.tensorflow.org/api\_docs/python/tf/function for more
details.
```

```
I0000 00:00:1762706794.642253      255 device_compiler.h:188] Compiled
cluster using XLA! This line is logged at most once for the lifetime
of the process.
```

```
Extracted feature vectors: (39044, 1280)
```

```
np.save('coral_features.npy', features)
pd.DataFrame({'image_path': valid_paths}).to_csv('valid_paths.csv',
index=False)
print("Saved feature arrays and valid paths.")
```

```
Saved feature arrays and valid paths.
```



# Dimensionality Reduction

## *Dimensionality Reduction using PCA and t-SNE:*

### What is this doing here?

- After generating high-dimensional feature embeddings (e.g., 1280 dimensions per image from EfficientNetB0), this step applies **Principal Component Analysis (PCA)** and **t-distributed Stochastic Neighbor Embedding (t-SNE)** to reduce these features into lower dimensions — typically 50D with PCA first, then 2D or 3D with t-SNE for visualization.

### Purpose of the same?

- To make complex, high-dimensional image data **interpretable and visualizable**.
- PCA captures the most important variance directions in the data, while t-SNE emphasizes **local neighborhood structure**, revealing hidden clusters or relationships between coral images.
- These plots help visually inspect if images group naturally based on coral type, health condition, or capture environment (dry vs. wet).

### Why are we doing this?

- High-dimensional embeddings are hard to interpret directly.
- Reducing them to 2D/3D helps understand whether similar images (e.g., healthy vs. diseased coral) form distinct regions in feature space.
- It validates if the extracted features contain enough discriminative information before training classification models.
- Detecting outliers or overlapping clusters early can guide further data cleaning or model tuning.

### Additional details:

- PCA also helps **denoise** the embeddings by removing minor variance components.
- t-SNE is computationally intensive, so PCA pre-reduction improves speed and stability.
- The resulting 2D embeddings are usually visualized with seaborn or matplotlib scatter plots, colored by attributes like "folder", "source", or "cluster\_id".

```
# Standardize and apply PCA
scaler = StandardScaler()
features_scaled = scaler.fit_transform(features)

pca = PCA(n_components=50, random_state=42)
features_pca = pca.fit_transform(features_scaled)
```

```
print(f"PCA-reduced shape: {features_pca.shape}")
```

```
PCA-reduced shape: (39044, 50)
```

# Cluster the Images using K-Means Clustering

## *Clustering and Unsupervised Pattern Discovery:*

### What is this doing here?

- After reducing the image embeddings (using PCA/t-SNE), this step applies **K-Means clustering** on the 50-dimensional PCA-reduced features to group similar coral images together.

Example:

```
k = 5
kmeans = KMeans(n_clusters=k, random_state=42, n_init=10)
clusters = kmeans.fit_predict(features_pca)
```

- This assigns each image a **cluster** label (0–4) based on feature similarity.

### Purpose of the same?

- To uncover **distinct coral image groups** with similar visual and statistical properties — like color tone, lighting condition, texture, or coral health state — without manual labeling.
- The model groups the data purely based on its learned embedding distribution from EfficientNet.

### Why are we doing this?

- It allows us to understand the **structure and diversity** of the coral dataset.
- Identifies **patterns or categories** (e.g., bright healthy coral, dark stressed coral, algae-covered coral, etc.).
- Helps detect **data imbalance or bias**, by showing which visual conditions dominate.
- Enables **downstream labeling**, where clusters can later be mapped to coral health classes or conditions.

### What do the clusters represent?

Each cluster represents a **group of images sharing similar visual and feature characteristics**:

- **Cluster 0** – Corals with medium brightness and moderate saturation, possibly healthy or neutral lighting.
- **Cluster 1** – Slightly brighter corals, potentially indicating lighter textures or clearer water conditions.
- **Cluster 2** – Very bright, low-saturation corals — could correspond to bleached or overexposed regions.
- **Cluster 3** – Moderately bright, low-saturation corals — possibly transitional or shaded corals.
- **Cluster 4** – Dark and high-saturation images — could represent deeper, shadowed, or low-light coral images.

These inferences are drawn from both **feature space grouping** and **color-statistical analysis** in later steps.

### Why only 5 clusters (variables) if we have 8 originally?

- Although the **PCA reduced features** to 50 dimensions, K-Means only requires us to specify the number of **clusters**, not the number of variables.
- Here, **k=5** means we expect **five visually distinct groups** in the data — a design choice based on:
  - Observed dataset variability.
  - Practical interpretability (too many clusters cause redundancy).
  - Empirical testing (the elbow or silhouette method may show that 5 is optimal).

In summary, while PCA compressed the *features* to 50 components, **K-Means with 5 clusters** divides the dataset into **five meaningful coral condition groups**.

```
k = 5
kmeans = KMeans(n_clusters=k, random_state=42, n_init=10)
clusters = kmeans.fit_predict(features_pca)

# Build DataFrame
df_clusters = pd.DataFrame({
    'image_path': valid_paths,
    'cluster': clusters
})

df_clusters.to_csv('coral_clusters.csv', index=False)
print(df_clusters['cluster'].value_counts())

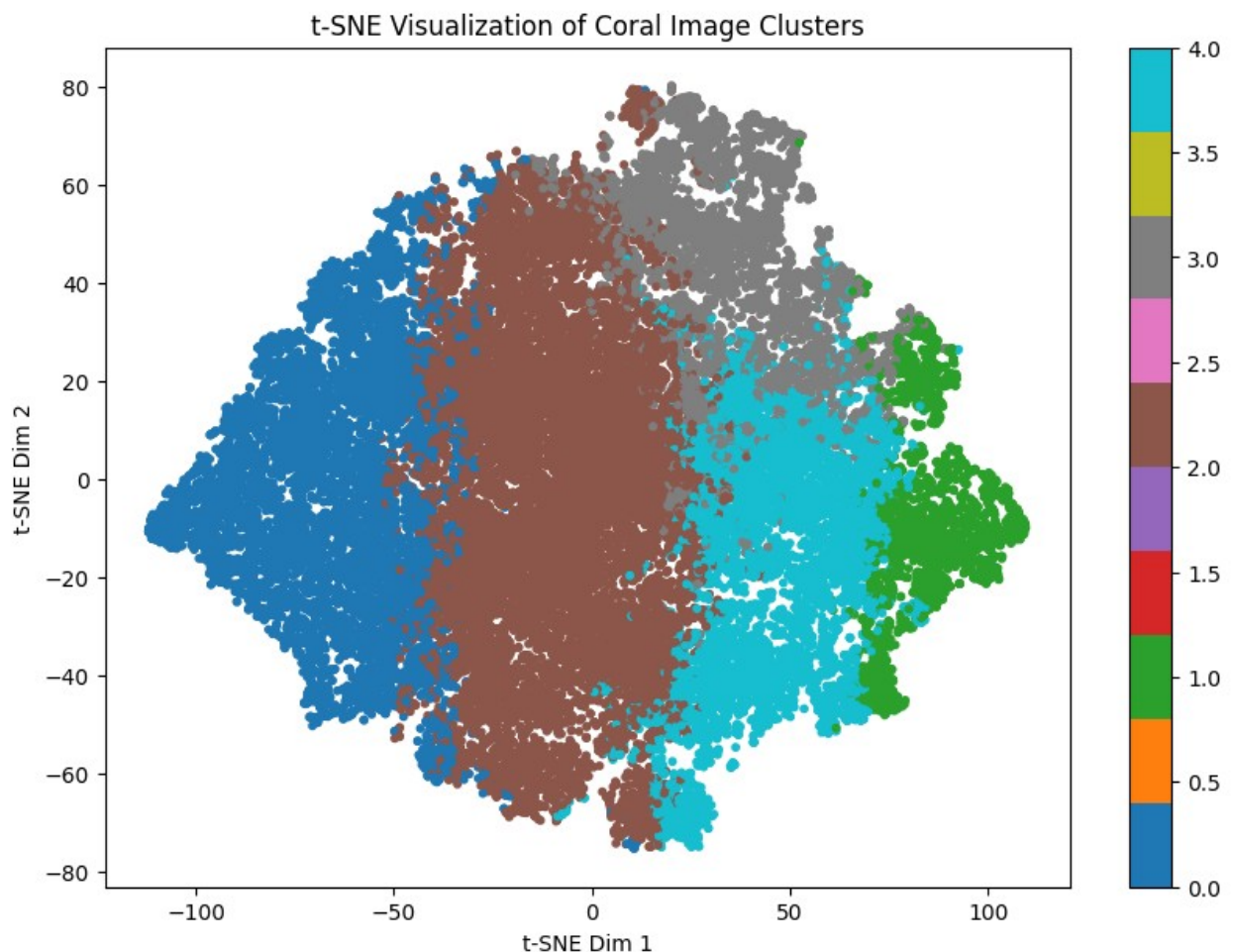
cluster
2      14780
```

```
0      9379
4      6925
3      5175
1      2785
Name: count, dtype: int64
```

## Visualize the formed Clusters using t-SNE

```
# TSNE visualization (may take time for large data)
tsne = TSNE(n_components=2, random_state=42, perplexity=30)
tsne_results = tsne.fit_transform(features_pca) # Limit for speed

plt.figure(figsize=(10, 7))
scatter = plt.scatter(tsne_results[:,0], tsne_results[:,1],
                      c=clusters, cmap='tab10', s=10)
plt.title('t-SNE Visualization of Coral Image Clusters')
plt.xlabel('t-SNE Dim 1')
plt.ylabel('t-SNE Dim 2')
plt.colorbar(scatter)
plt.show()
```

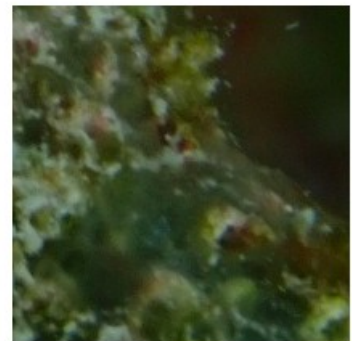
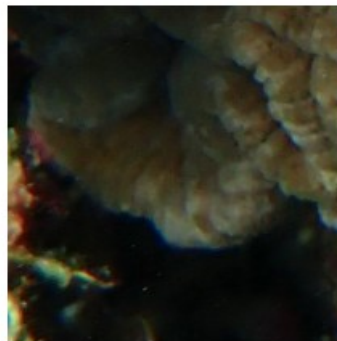
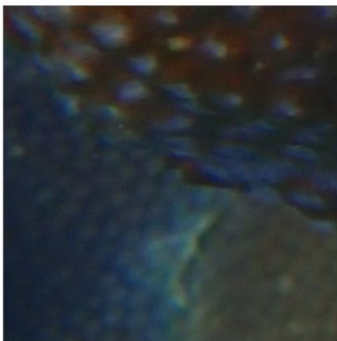
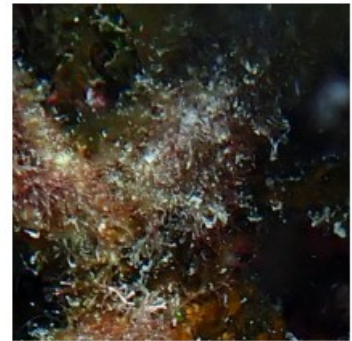
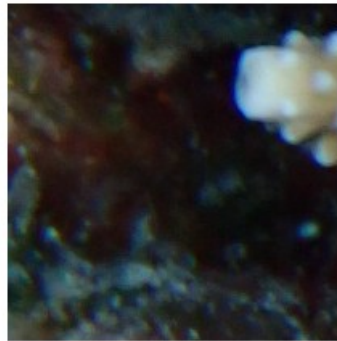
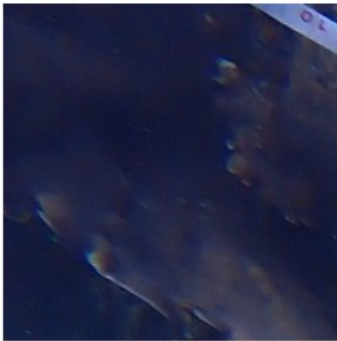


## Display samples from each cluster

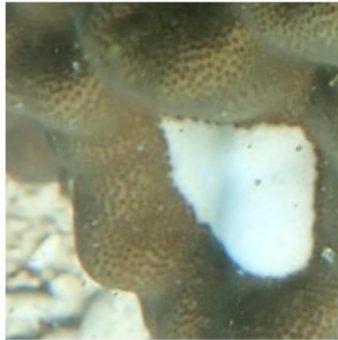
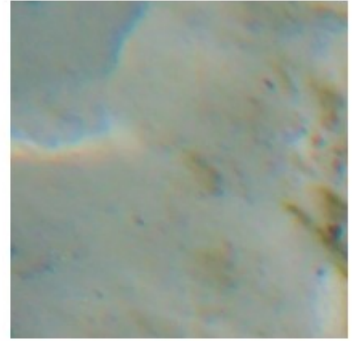
```
def show_cluster_samples(df, cluster_id, n=6):
    cluster_paths = df[df['cluster'] == cluster_id]
    ['image_path'].sample(n, random_state=42).values
    plt.figure(figsize=(10, 6))
    for i, path in enumerate(cluster_paths):
        plt.subplot(2, 3, i+1)
        img = Image.open(path).convert('RGB')
        plt.imshow(img)
        plt.axis('off')
    plt.suptitle(f"Cluster {cluster_id} - Sample Images")
    plt.show()

# Show 6 random images from each cluster
for c in sorted(df_clusters['cluster'].unique()):
    show_cluster_samples(df_clusters, c)
```

Cluster 0 - Sample Images

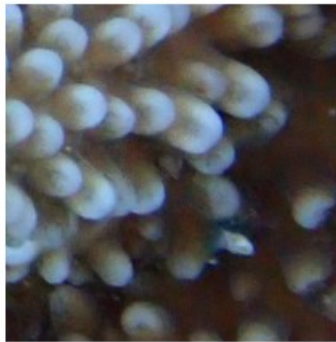
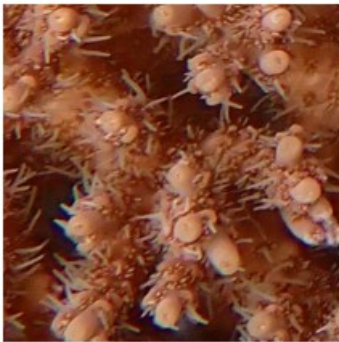
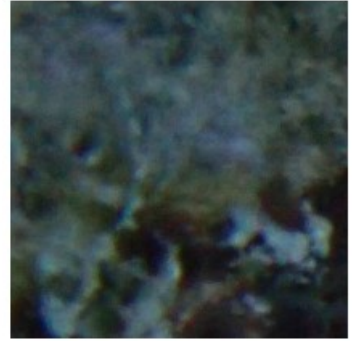
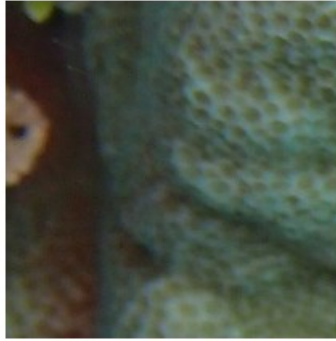


### Cluster 1 - Sample Images

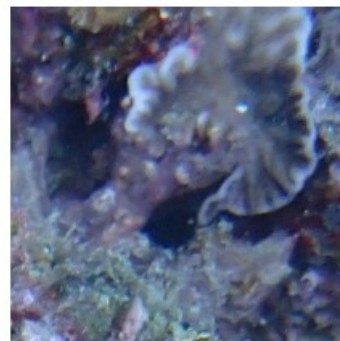
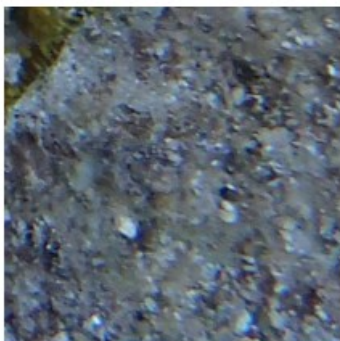




## Cluster 2 - Sample Images

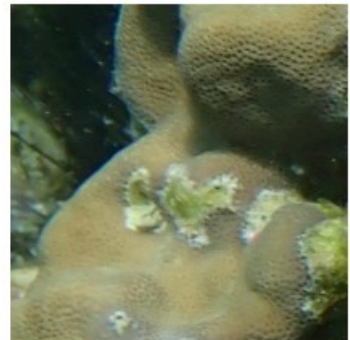
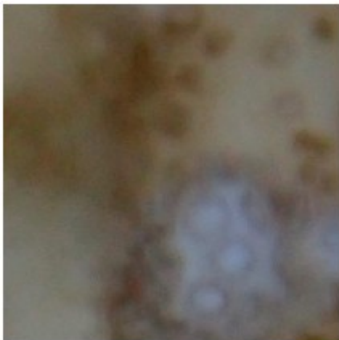
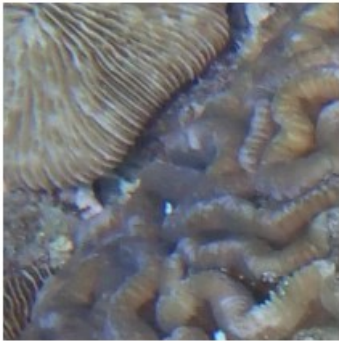


### Cluster 3 - Sample Images





#### Cluster 4 - Sample Images



```
# Collect one random image per cluster
sample_images = []
for c in sorted(df_clusters['cluster'].unique()):
    path = df_clusters[df_clusters['cluster'] == c]
    ['image_path'].sample(1, random_state=42).values[0]
    sample_images.append((c, path))

# Plot horizontally
plt.figure(figsize=(4 * len(sample_images), 4))
for i, (cluster_id, path) in enumerate(sample_images):
    img = Image.open(path).convert('RGB')
    plt.subplot(1, len(sample_images), i + 1)
    plt.imshow(img)
    plt.axis('off')
    plt.title(f"Cluster {cluster_id}", fontsize=12)

plt.tight_layout()
plt.show()
```



```
# Function to compute image color/texture statistics
def image_stats(path):
    try:
        img = Image.open(path).convert('RGB')
        arr = np.array(img) / 255.0 # normalize to [0, 1]

        # Convert to HSV (OpenCV expects BGR)
        bgr = (arr[..., ::-1] * 255).astype('uint8')
        hsv = cv2.cvtColor(bgr, cv2.COLOR_BGR2HSV)
        h, s, v = hsv[..., 0], hsv[..., 1], hsv[..., 2]

        # Compute brightness, saturation, and texture metrics
        mean_brightness = v.mean() / 255.0
        mean_saturation = s.mean() / 255.0
        lum = 0.2126 * arr[..., 0] + 0.7152 * arr[..., 1] + 0.0722 *
arr[..., 2]
        lum_std = lum.std()

        return mean_brightness, mean_saturation, lum_std

    except Exception:
        # Skip unreadable images
        return np.nan, np.nan, np.nan

# Compute stats for *all images* in each cluster
cluster_metrics = []
for c in sorted(df_clusters['cluster'].unique()):
    print(f"\nProcessing Cluster {c} ...")
    paths = df_clusters[df_clusters['cluster'] == c]
    ['image_path'].values

    brightness_list, sat_list, lumstd_list = [], [], []

    # tqdm progress bar for all images
    for p in tqdm(paths, desc=f"Cluster {c}", ncols=100):
        b, s, ls = image_stats(p)
        if not np.isnan(b):
            brightness_list.append(b)
            sat_list.append(s)
            lumstd_list.append(ls)
```

```

# Calculate per-cluster averages
cluster_metrics.append({
    'cluster': c,
    'n_images': len(brightness_list),
    'mean_brightness': np.mean(brightness_list),
    'mean_saturation': np.mean(sat_list),
    'mean_luminance_std': np.mean(lumstd_list)
})

```

Processing Cluster 0 ...

```

{"model_id": "61e96a0a0c6641379dcff8cd7264f230", "version_major": 2, "version_minor": 0}

```

Processing Cluster 1 ...

```

{"model_id": "a7384ab80ba343879bda670603eb1056", "version_major": 2, "version_minor": 0}

```

Processing Cluster 2 ...

```

{"model_id": "0aebf04b612142a991e574c7b69dc46e", "version_major": 2, "version_minor": 0}

```

Processing Cluster 3 ...

```

{"model_id": "1aecb810c30f471aa6dcadd2018423ff", "version_major": 2, "version_minor": 0}

```

Processing Cluster 4 ...

```

{"model_id": "2fdffb63b11f44aa8cb791d139aabfeb", "version_major": 2, "version_minor": 0}

```

```

# Create summary DataFrame
metrics_df = pd.DataFrame(cluster_metrics).sort_values('cluster')
print("\n=== Cluster Metrics Summary ===")
metrics_df

```

```

=== Cluster Metrics Summary ===
   cluster  n_images  mean_brightness  mean_saturation  mean_luminance_std
0         0      9379           0.213652           0.430153           0.107641
1         1      2785           0.666041           0.214853           0.140396

```

2	2	14780	0.346147	0.331251
0.143388				
3	3	5175	0.439220	0.337231
0.129777				
4	4	6925	0.498285	0.275200
0.147476				

*# Save for report/reference*

```
metrics_df.to_csv('/kaggle/working/cluster_color_metrics.csv',
index=False)
print("\nSaved to /kaggle/working/cluster_color_metrics.csv")
```

Saved to /kaggle/working/cluster\_color\_metrics.csv

*# Paths*

```
working = Path('/kaggle/working')
print("Files in /kaggle/working:")
print(list(working.glob('*')))
```

*# Load saved outputs*

```
clusters_fp = working / 'coral_clusters.csv'
metrics_fp = working / 'cluster_color_metrics.csv'
valid_paths_fp = working / 'valid_paths.csv'
features_fp = working / 'coral_features.npy'
```

```
print("Exists:", {str(p.name): p.exists() for p in [clusters_fp,
metrics_fp, valid_paths_fp, features_fp]})
```

*# Load key objects (if present)*

```
if clusters_fp.exists():
    df_clusters = pd.read_csv(clusters_fp)
    print("df_clusters shape:", df_clusters.shape)
if metrics_fp.exists():
    metrics_df = pd.read_csv(metrics_fp)
    print("metrics_df:\n", metrics_df)
if valid_paths_fp.exists():
    valid_paths = pd.read_csv(valid_paths_fp)['image_path'].tolist()
    print("Valid paths:", len(valid_paths))
if features_fp.exists():
    features = np.load(features_fp)
    print("features shape:", features.shape)
```

Files in /kaggle/working:

```
[PosixPath('/kaggle/working/.virtual_documents'),
PosixPath('/kaggle/working/metadata.csv'),
PosixPath('/kaggle/working/coral_features.npy'),
PosixPath('/kaggle/working/valid_paths.csv'),
PosixPath('/kaggle/working/cluster_color_metrics.csv'),
PosixPath('/kaggle/working/coral_clusters.csv')]
Exists: {'coral_clusters.csv': True, 'cluster_color_metrics.csv':
```

```
True, 'valid_paths.csv': True, 'coral_features.npy': True}
df_clusters shape: (39044, 2)
metrics_df:
  cluster  n_images  mean_brightness  mean_saturation
mean_luminance_std
0        0      9379          0.213652          0.430153
0.107641
1        1      2785          0.666041          0.214853
0.140396
2        2     14780          0.346147          0.331251
0.143388
3        3      5175          0.439220          0.337231
0.129777
4        4      6925          0.498285          0.275200
0.147476
Valid paths: 39044
features shape: (39044, 1280)
```

## EDA

```
import seaborn as sns
sns.set(style="whitegrid")

meta_fp = '/kaggle/working/metadata.csv'

if Path(meta_fp).exists():
    df_meta = pd.read_csv(meta_fp)
    total_images = len(df_meta)
    n_folders = df_meta['folder'].nunique()
    print(f"Total images: {total_images}")
    print(f"Unique immediate folders: {n_folders}")

    # Extract survey folder and subfolder (e.g., clipped, cropped, or
    main)
    def extract_folders(path):
        parts = Path(path).parts
        if len(parts) >= 3 and parts[-2] in ['clipped', 'cropped']:
            return parts[-3], parts[-2]
        else:
            return parts[-2], 'main'

    df_meta[['survey_folder', 'subfolder']] =
df_meta['image_path'].apply(
    lambda x: pd.Series(extract_folders(x))
)

# Group counts
df_counts = (
```

```

df_meta.groupby(['survey_folder', 'subfolder'])
.size()
.reset_index(name='count')
.sort_values(by='count', ascending=False)
.head(30)
)

# Plot
plt.figure(figsize=(14, 8))
ax = sns.barplot(
    data=df_counts,
    x='survey_folder',
    y='count',
    hue='subfolder',
    palette='crest'
)
plt.xticks(rotation=90, fontsize=8)
plt.title("Top 30 Survey Folders by Image Count (Main / Clipped /
Cropped)")
plt.ylabel("Image count")
plt.xlabel("Survey Folder")

# Add count labels on each bar (safely)
for p in ax.patches:
    height = p.get_height()
    if not pd.isna(height) and height > 0:
        ax.annotate(
            f'{int(height)}',
            (p.get_x() + p.get_width() / 2., height),
            ha='center', va='bottom',
            fontsize=7, color='black', xytext=(0, 3),
            textcoords='offset points'
        )

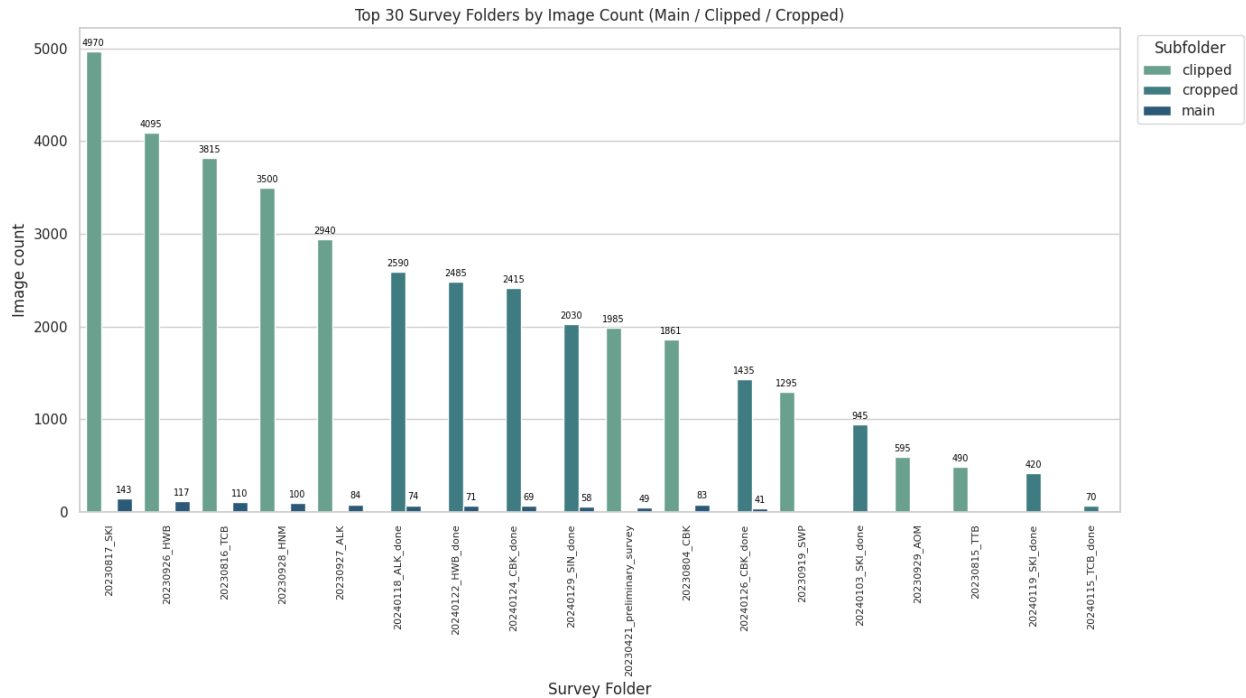
plt.legend(title='Subfolder', bbox_to_anchor=(1.01, 1), loc='upper
left')
plt.tight_layout()
plt.savefig('/kaggle/working/eda_folder_counts_with_clipped.png',
dpi=200)
plt.show()

else:
    print("metadata.csv not found. Please provide it to visualize
folder distributions.")

```

Total images: 39044

Unique immediate folders: 20

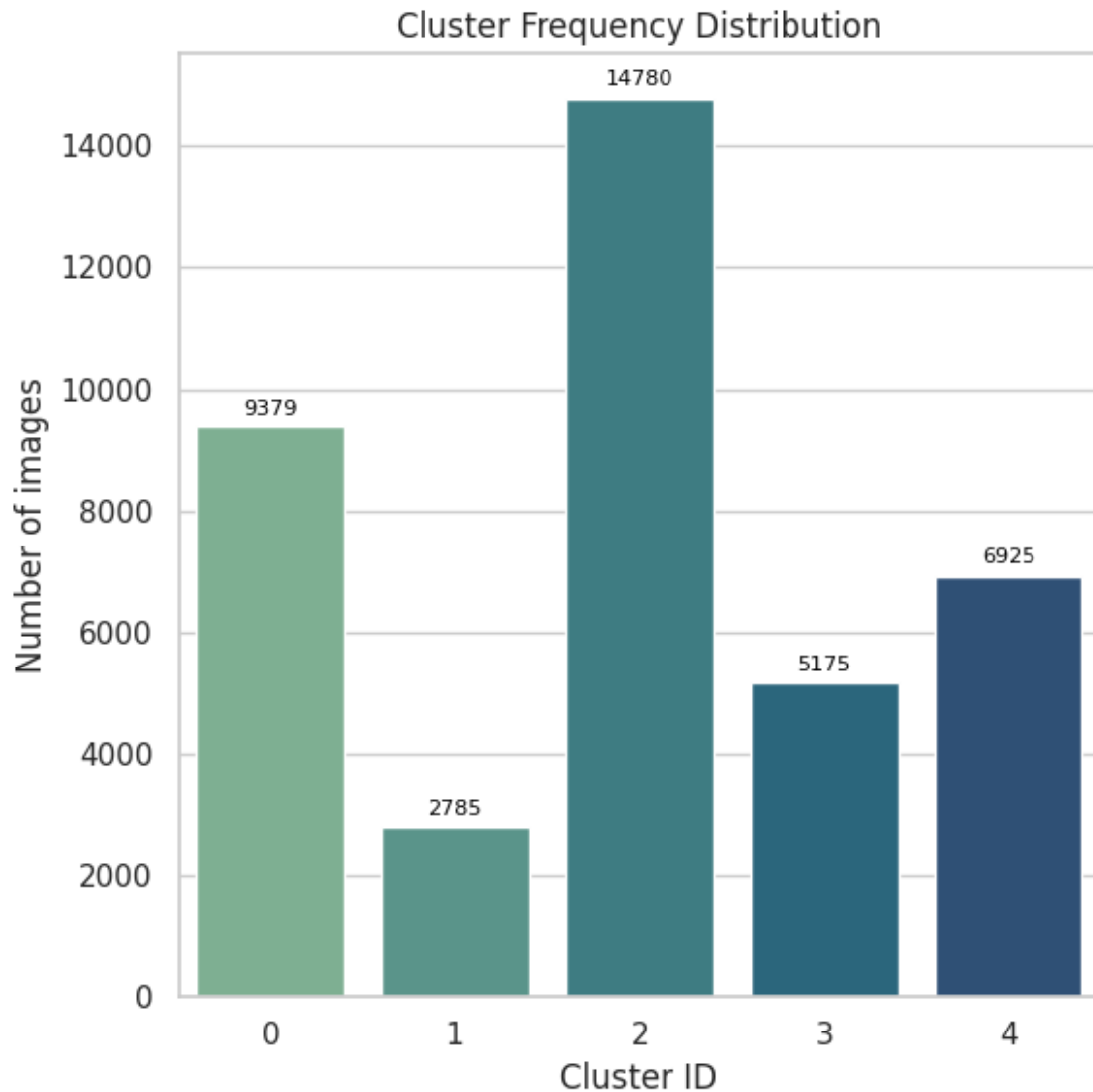


```
# Cluster size distribution
plt.figure(figsize=(6,6))
cluster_counts = df_clusters['cluster'].value_counts().sort_index()
ax = sns.barplot(x=cluster_counts.index.astype(str),
y=cluster_counts.values, palette="crest")

plt.title("Cluster Frequency Distribution")
plt.xlabel("Cluster ID")
plt.ylabel("Number of images")

# Add value labels on each bar
for p in ax.patches:
    height = p.get_height()
    if not pd.isna(height) and height > 0:
        ax.annotate(f'{int(height)}',
                    (p.get_x() + p.get_width()/2., height),
                    ha='center', va='bottom', fontsize=8,
                    color='black', xytext=(0,3),
                    textcoords='offset points')

plt.tight_layout()
plt.savefig('/kaggle/working/eda_cluster_counts.png', dpi=200)
plt.show()
```



```
# Color/texture metrics per cluster
metrics_df = pd.read_csv('/kaggle/working/cluster_color_metrics.csv')
metrics_df = metrics_df.sort_values('cluster')

ax = metrics_df.plot(
    x='cluster', y=['mean_brightness', 'mean_saturation'], kind='bar',
    figsize=(10,6), title="Mean Brightness & Saturation by Cluster",
    colormap='crest'
)

plt.xlabel("Cluster")
plt.xticks(rotation=0)
plt.tight_layout()

# Add value labels for both bars
for container in ax.containers:
```

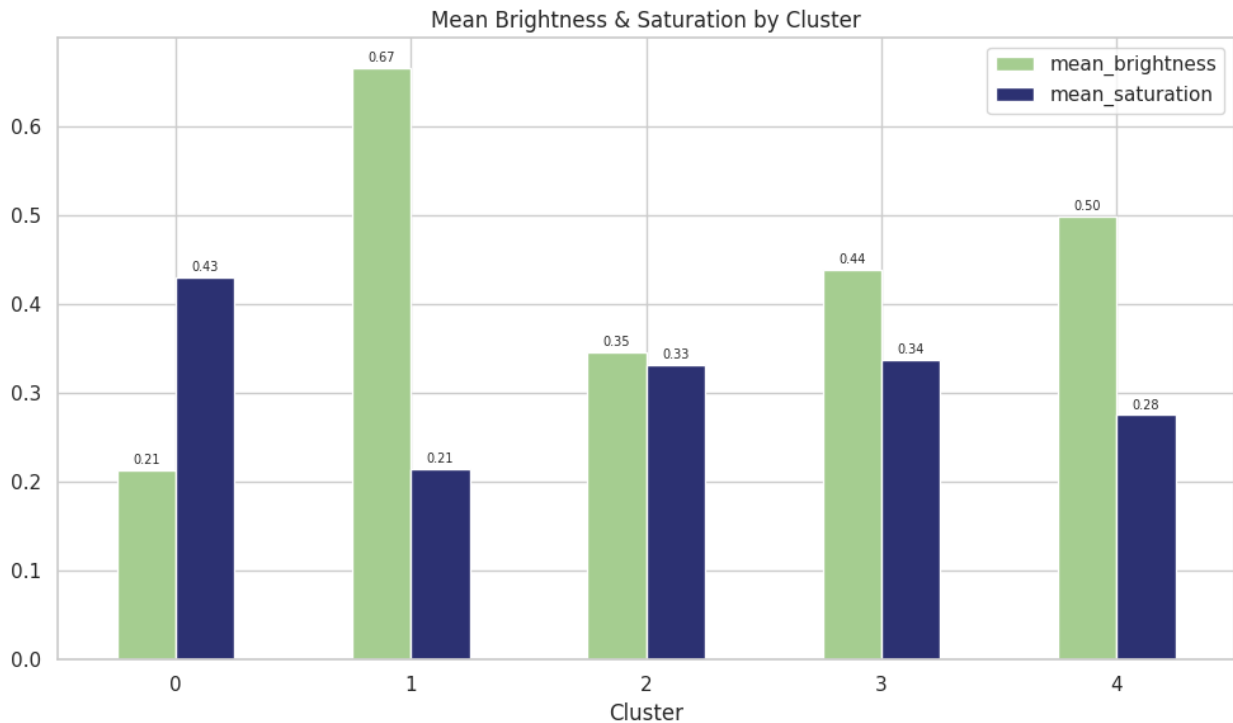


```

    ax.bar_label(container, fmt='%.2f', label_type='edge', fontsize=7,
padding=2)

plt.savefig('/kaggle/working/eda_brightness_saturation_by_cluster.png'
, dpi=200)
plt.show()

```



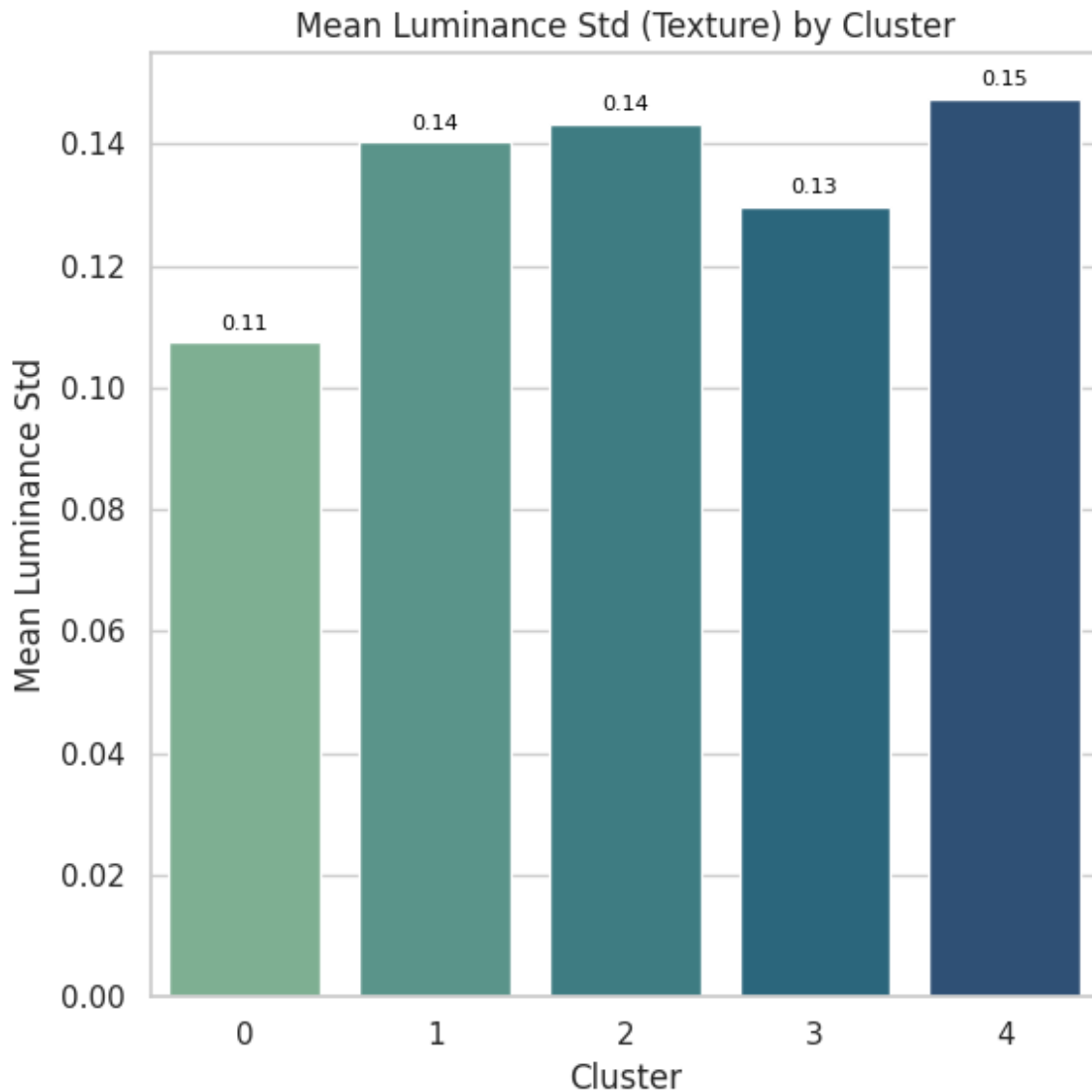
```

plt.figure(figsize=(6,6))
ax = sns.barplot(x='cluster', y='mean_luminance_std', data=metrics_df,
palette='crest')
plt.title("Mean Luminance Std (Texture) by Cluster")
plt.xlabel("Cluster")
plt.ylabel("Mean Luminance Std")

# Add value labels on each bar
for p in ax.patches:
    height = p.get_height()
    if not pd.isna(height) and height > 0:
        ax.annotate(f'{height:.2f}',
                    (p.get_x() + p.get_width()/2., height),
                    ha='center', va='bottom', fontsize=8,
                    color='black', xytext=(0,3),
                    textcoords='offset points')

plt.tight_layout()
plt.savefig('/kaggle/working/eda_texture_by_cluster.png', dpi=200)
plt.show()

```



```
# t-SNE scatter with cluster coloring

# If you don't have tsne_results saved, compute for up to N points (or
# all if you want)
from sklearn.manifold import TSNE
import numpy as np

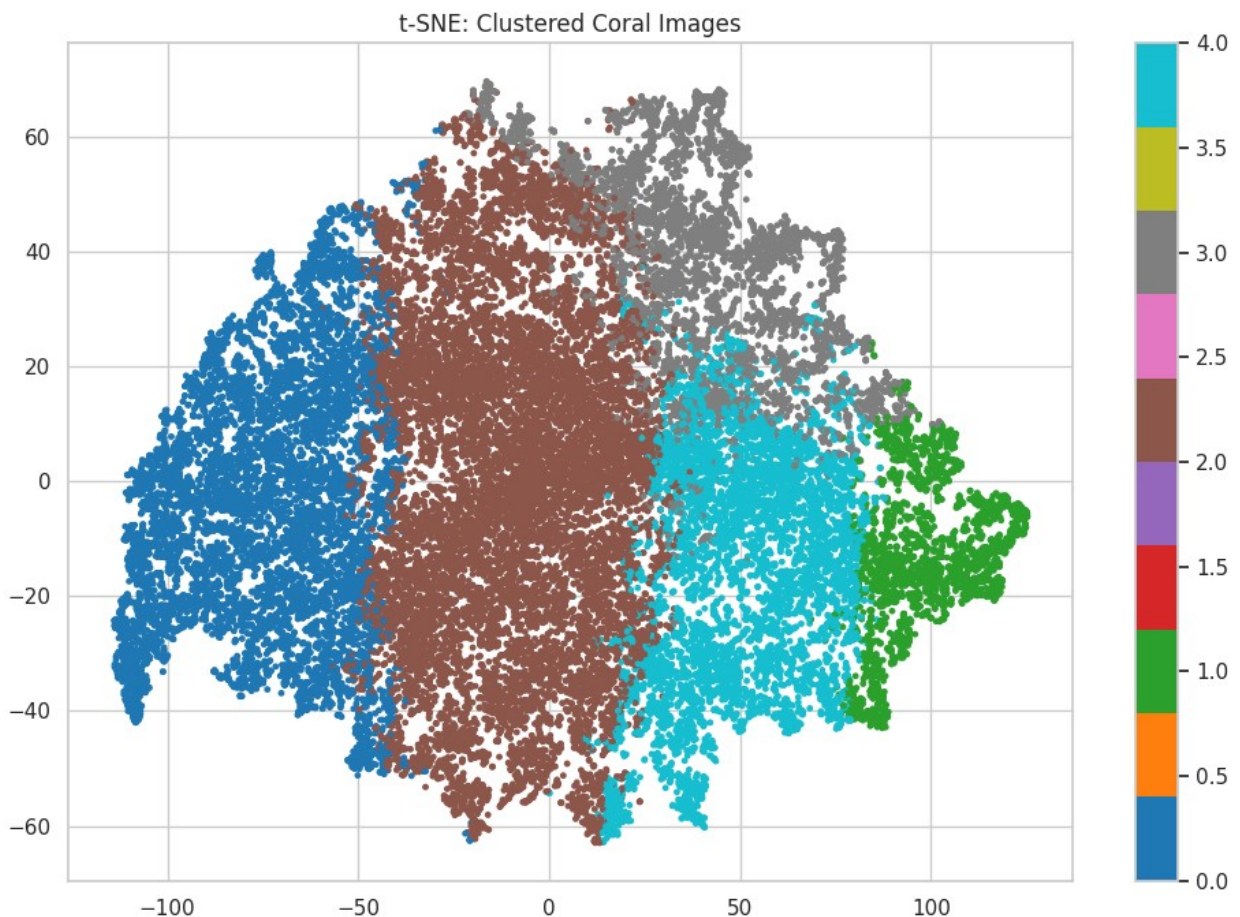
# choose limit if very large; but you said use all
X = np.load('/kaggle/working/coral_features.npy') # or features_pca
if saved
# If X is raw deep features, apply PCA first (you have features_pca
# earlier)
# For speed, reduce to 5000 if needed: X_vis = X if X.shape[0] <= 5000
# else X[np.random.choice(X.shape[0], 5000, replace=False)]
X_vis = X
tsne = TSNE(n_components=2, random_state=42, perplexity=30)
```

```

tsne_results = tsne.fit_transform(X_vis)
# Save for future
np.save('/kaggle/working/tsne_results.npy', tsne_results)

plt.figure(figsize=(10,7))
plt.scatter(tsne_results[:,0], tsne_results[:,1],
c=df_clusters['cluster'].astype(int), cmap='tab10', s=6)
plt.title('t-SNE: Clustered Coral Images')
plt.colorbar()
plt.tight_layout()
plt.savefig('/kaggle/working/eda_tsne_clusters.png', dpi=200)
plt.show()

```



### ***Representative Images per Cluster (Visual Interpretation):***

#### **What is this doing here?**

For each cluster generated by K-Means, the code selects the **most representative image (medoid)** — the one whose deep features are closest to the cluster centroid. These representative images are then plotted side by side as a **montage**.

#### **Purpose of the same?**

To visually inspect what each cluster “looks like” in terms of **color, brightness, and texture** and

to validate that clustering actually captured meaningful visual differences rather than random groupings.

### **Why are we doing this?**

Because clustering is unsupervised, we need visual confirmation to interpret what patterns each group corresponds to — for example:

- Cluster 0: mid-tone corals under natural light
- Cluster 1: bright, clear corals
- Cluster 2: overexposed or bleached corals
- Cluster 3: shadowed or muted tones
- Cluster 4: dark, saturated corals or deeper environments

This step transforms abstract feature-space clusters into **interpretable visual concepts** of coral health or habitat conditions.

---

### ***Cluster-Level Statistics (Source-Based Analysis):***

#### **What is this doing here?**

This step computes **summary metrics per cluster** — such as mean brightness, mean saturation, and luminance variability (texture) — for all images belonging to each cluster. It also allows analyzing how clusters differ between **dry** and **wet** image sources.

#### **Purpose of the same?**

To quantify visual differences across clusters and to understand whether certain clusters are dominated by specific conditions (e.g., wet underwater images being darker or less saturated).

#### **Why are we doing this?**

It helps identify:

- Environmental patterns (e.g., dry corals appearing more vivid).
- Lighting or acquisition biases in the dataset.
- How natural variability aligns with unsupervised clusters.

Such quantitative insights complement the visual interpretations, confirming whether clusters indeed separate based on physical or ecological differences.

---

### ***Folder-Level Image Distribution (Metadata-Based Analysis):***

#### **What is this doing here?**

The `metadata.csv` was analyzed to count images per folder, revealing that folders like **"clipped"** and **"cropped"** dominate image counts.

### Purpose of the same?

To understand **data origin and preprocessing patterns** — why certain subsets have more images and whether this skews training balance.

### Why are we doing this?

Folders like “clipped” and “cropped” often result from **image preprocessing or augmentation**, where large coral photos are divided into tiles or cropped patches.

This means the dataset has **many derived images from fewer unique locations**, creating an imbalance that must be managed in downstream modeling to avoid bias.

---

## *Dataset Integrity and Readiness Validation:*

### What is this doing here?

This final analysis step combines the cluster, statistical, and metadata evaluations to ensure the dataset is **balanced, diverse, and consistent** before building the supervised model.

### Purpose of the same?

To validate that the dataset structure aligns with modeling goals — i.e., representing different coral health conditions, lighting variations, and acquisition environments fairly.

### Why are we doing this?

- To ensure **no artificial bias** dominates (e.g., cropped or dry images overwhelming natural samples).
- To confirm **visual diversity** and feature stability across clusters.
- To prepare for **multi-label supervised learning**, where coral health/stressor labels can be learned reliably.

Collectively, these steps verify dataset integrity, reveal structural imbalances, and establish a **scientifically interpretable foundation** for building classification and anomaly detection models on coral condition and stress.

```
# Representative montage per cluster (central image) – pick cluster  
centroid image (most central)
```

```
from sklearn.metrics import pairwise_distances_argmin_min
```

```
# Load data
```

```
features = np.load('/kaggle/working/coral_features.npy')  
df_clusters = pd.read_csv('/kaggle/working/coral_clusters.csv')  
valid_paths = pd.read_csv('/kaggle/working/valid_paths.csv')  
['image_path'].tolist()
```

```
# Create dataframe linking image_path → feature index
```

```
df_features = pd.DataFrame({'image_path': valid_paths})  
df_features['feat_index'] = df_features.index
```

```

# Merge to attach cluster to each feature index
df_merged = df_clusters.merge(df_features, on='image_path',
how='inner')

sample_images = []

for c in sorted(df_merged['cluster'].unique()):
    cluster_group = df_merged[df_merged['cluster'] == c]
    feat_indices = cluster_group['feat_index'].values

    sub_feats = features[feat_indices]

    # Compute cluster medoid (most representative image)
    center = sub_feats.mean(axis=0, keepdims=True)
    _, min_idx = pairwise_distances_argmin_min(center, sub_feats)

    chosen_index = feat_indices[int(min_idx[0])] # ensure integer
    chosen_path = valid_paths[chosen_index]

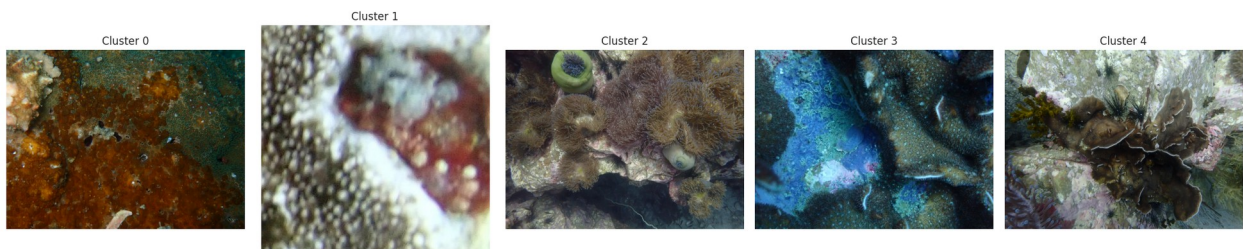
    sample_images.append((c, chosen_path))

# --- PLOT ---
plt.figure(figsize=(4 * len(sample_images), 4))

for i, (cluster_id, path) in enumerate(sample_images):
    img = Image.open(path).convert('RGB')
    plt.subplot(1, len(sample_images), i+1)
    plt.imshow(img)
    plt.axis('off')
    plt.title(f"Cluster {cluster_id}", fontsize=12)

plt.tight_layout()
plt.savefig('/kaggle/working/eda_cluster_representatives.png',
dpi=200)
plt.show()

```



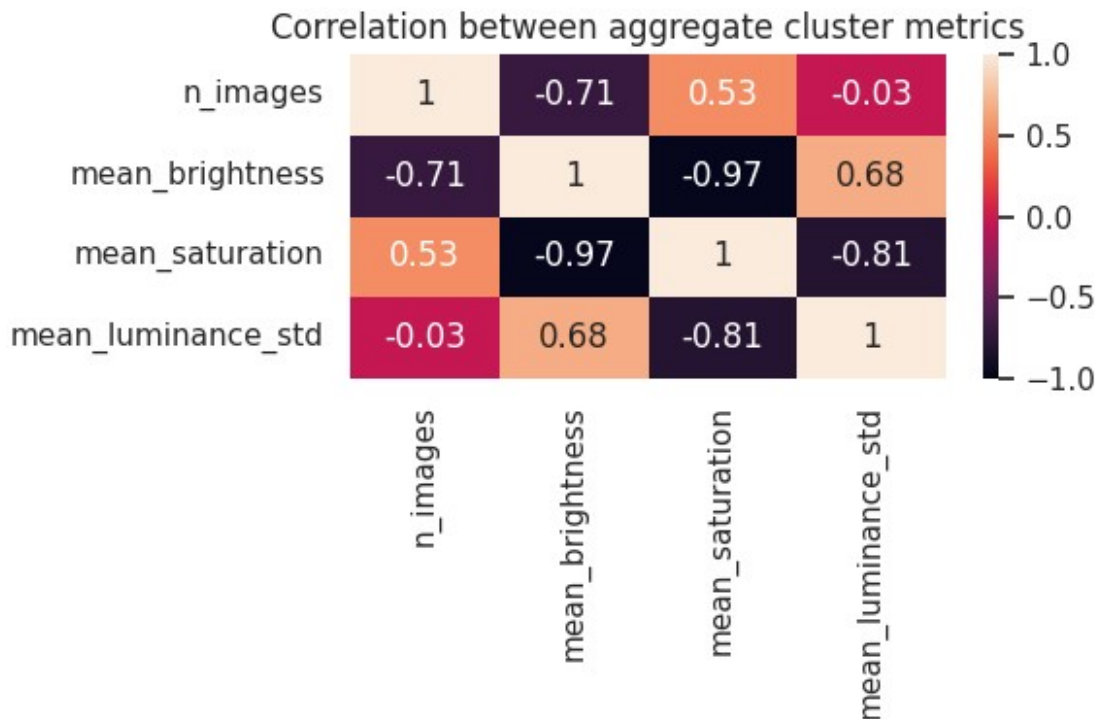
```

# Correlation matrix for numeric metrics

metrics_df = pd.read_csv('/kaggle/working/cluster_color_metrics.csv')
# If you have per-image metrics (not only per-cluster), compute
correlation; otherwise use cluster-averages

```

```
# Suppose you saved per-image brightness/sat values earlier; else show
correlations between cluster aggregate metrics:
plt.figure(figsize=(6,4))
sns.heatmap(metrics_df.set_index('cluster').corr(), annot=True, vmin=-
1, vmax=1)
plt.title("Correlation between aggregate cluster metrics")
plt.tight_layout()
plt.savefig('/kaggle/working/eda_metrics_corr.png', dpi=200)
plt.show()
```



## Check for any missing values

```
# Assuming df is your main dataframe containing metadata + features
missing_summary = df.isnull().sum()
missing_summary = missing_summary[missing_summary > 0]

if not missing_summary.empty:
    print("Missing Values Detected:")
    display(missing_summary)
else:
    print("No missing values detected in the dataset.")

No missing values detected in the dataset.
```



# Download all the files from Output (/kaggle/working)

```
!pwd

/kaggle/working

!zip -r eda_and_preprocessing_results.zip /kaggle/working

  adding: kaggle/working/ (stored 0%)
  adding: kaggle/working/.virtual_documents/ (stored 0%)
  adding: kaggle/working/eda_cluster_representatives.png (deflated 0%)
  adding: kaggle/working/metadata.csv (deflated 96%)
  adding: kaggle/working/coral_features.npy (deflated 7%)
  adding: kaggle/working/valid_paths.csv (deflated 97%)
  adding: kaggle/working/eda_metrics_corr.png (deflated 10%)
  adding: kaggle/working/eda_brightness_saturation_by_cluster.png
(deflated 27%)
  adding: kaggle/working/eda_cluster_counts.png (deflated 25%)
  adding: kaggle/working/eda_texture_by_cluster.png (deflated 24%)
  adding: kaggle/working/eda_folder_counts_with_clipped.png (deflated
23%)
  adding: kaggle/working/tsne_results.npy (deflated 8%)
  adding: kaggle/working/cluster_color_metrics.csv (deflated 40%)
  adding: kaggle/working/eda_folder_counts.png (deflated 18%)
  adding: kaggle/working/coral_clusters.csv (deflated 97%)
  adding: kaggle/working/eda_tsne_clusters.png (deflated 2%)

!ls -lrth

total 395M
-rw-r--r-- 1 root root 6.4M Nov  9 16:46 metadata.csv
-rw-r--r-- 1 root root 191M Nov  9 17:11 coral_features.npy
-rw-r--r-- 1 root root 4.7M Nov  9 17:11 valid_paths.csv
-rw-r--r-- 1 root root 4.8M Nov  9 17:11 coral_clusters.csv
-rw-r--r-- 1 root root 395 Nov  9 17:39 cluster_color_metrics.csv
-rw-r--r-- 1 root root 111K Nov  9 17:42 eda_folder_counts.png
-rw-r--r-- 1 root root 173K Nov  9 17:46
eda_folder_counts_with_clipped.png
-rw-r--r-- 1 root root 306K Nov  9 17:53 tsne_results.npy
-rw-r--r-- 1 root root 757K Nov  9 17:53 eda_tsne_clusters.png
-rw-r--r-- 1 root root 4.1M Nov  9 17:53
eda_cluster_representatives.png
-rw-r--r-- 1 root root 90K Nov  9 17:53 eda_metrics_corr.png
-rw-r--r-- 1 root root 60K Nov  9 17:56 eda_cluster_counts.png
-rw-r--r-- 1 root root 63K Nov  9 17:56
eda_brightness_saturation_by_cluster.png
-rw-r--r-- 1 root root 53K Nov  9 17:57 eda_texture_by_cluster.png
```



```
-rw-r--r-- 1 root root 183M Nov  9 17:59  
eda_and_preprocessing_results.zip
```

```
from IPython.display import FileLink  
FileLink(r'eda_and_preprocessing_results.zip')  
  
/kaggle/working/eda_and_preprocessing_results.zip
```