

# Epibenthic community sampling locations from Aleutian Island kelp forest community study, June 2016 and July 2017 (Kelp Forest Ecosystem Engineer Loss)

**Website:** <https://www.bco-dmo.org/dataset/727172>

**Data Type:** Other Field Results

**Version:** 1

**Version Date:** 2018-02-14

## Project

» [Collaborative Research: Changes in ecosystem production and benthic biodiversity following the widespread loss of an ecosystem engineer](#) (Kelp Forest Ecosystem Engineer Loss)

| Contributors                      | Affiliation   | Role                      |
|-----------------------------------|---|---------------------------|
| <a href="#">Edwards, Matthew</a>  | San Diego State University (SDSU)                   | Principal Investigator    |
| <a href="#">Konar, Brenda</a>     | University of Alaska Fairbanks (UAF)                | Co-Principal Investigator |
| <a href="#">Metzger, Jacob R.</a> | University of Alaska Fairbanks (UAF)                | Contact                   |
| <a href="#">Copley, Nancy</a>     | Woods Hole Oceanographic Institution (WHOI BCO-DMO) | BCO-DMO Data Manager      |

## Abstract

This dataset includes epibenthic community sampling locations from Aleutian Island kelp forest community study, June 2016 and July 2017: site name, island name, habitat, location, and depth.

## Table of Contents

- [Coverage](#)
- [Dataset Description](#)
  - [Methods & Sampling](#)
  - [Data Processing Description](#)
- [Data Files](#)
- [Related Publications](#)
- [Parameters](#)
- [Instruments](#)
- [Deployments](#)
- [Project Information](#)
- [Funding](#)

## Coverage

**Spatial Extent:** N:53.39239 E:-167.62222 S:51.40996 W:-179.30663

**Temporal Extent:** 2016-06-17 - 2017-07-23

## Dataset Description

This dataset includes epibenthic community sampling locations from Aleutian Island kelp forest community study, June 2016 and July 2017: site name, island name, habitat, location, and depth. These data are presented in Metzger et al, 2019.

## Methods & Sampling

Sampling locations were from the Aleutian Archipelago nearshore between longitude 173.9 and -167.6 in June 2016 and July 2017. The average depth 17.5 ft.

## Data Processing Description

### BCO-DMO Processing Notes:

- added conventional header with dataset name, PI name, version date
- modified parameter names to conform with BCO-DMO naming conventions
- reduced decimal precision of depth and depth\_stdev from 13 decimal places to 1.

[ [table of contents](#) | [back to top](#) ]

---

## Data Files

| File  |
|---|
| <b>sites.csv</b> (Comma Separated Values (.csv), 4.52 KB)<br>MD5:a82b3dddc57cec6ac8e2fc9ac7b75645 |
| Primary data file for dataset ID 727172   |

[ [table of contents](#) | [back to top](#) ]

---

## Related Publications

Konar, B., Edwards, M. S., Bland, A., Metzger, J., Ravelo, A., Traiger, S., & Weitzman, B. (2017). A swath across the great divide: Kelp forests across the Samalga Pass biogeographic break. *Continental Shelf Research*, 143, 78–88. doi:[10.1016/j.csr.2017.06.007](https://doi.org/10.1016/j.csr.2017.06.007)  
*Methods*

Metzger, J. R., Konar, B., & Edwards, M. S. (2019). Assessing a macroalgal foundation species: community variation with shifting algal assemblages. *Marine Biology*, 166(12). doi:[10.1007/s00227-019-3606-1](https://doi.org/10.1007/s00227-019-3606-1)  
*Results*

[ [table of contents](#) | [back to top](#) ]

---

## Parameters

| Parameter    | Description                               | Units           |
|--------------|---|-----------------|
| Site         | sampling site identifier                  | unitless        |
| Island       | island name                               | unitless        |
| Habitat      | type of habitat: kelp; barren; transition | unitless        |
| date         | collection date formatted as yyyy-mm-dd   | unitless        |
| Lat          | latitude; north is positive               | decimal degrees |
| Long         | longitude; east is positive               | decimal degrees |
| Depth_avg_ft | average sampling depth                    | feet            |
| Depth_stdev  | sampling depth standard deviation         | feet            |
| Region       | East-west sampling region                 | unitless        |

[ [table of contents](#) | [back to top](#) ]

---

## Instruments

|   |  |
|---|--|
| <b>Dataset-specific Instrument Name</b> | Garmin eTrex GPS unit  |
| <b>Generic Instrument Name</b>          | GPS receiver   |
| <b>Dataset-specific Description</b>     | Used to obtain location information of sampling sites.   |
| <b>Generic Instrument Description</b>   | Acquires satellite signals and tracks your location. This term has been deprecated. Use instead: <a href="https://www.bco-dmo.org/instrument/560">https://www.bco-dmo.org/instrument/560</a> |

[ [table of contents](#) | [back to top](#) ]

---

## Deployments

### OC1606A

|                    |   |
|--------------------|---|
| <b>Website</b>     | <a href="https://www.bco-dmo.org/deployment/727190">https://www.bco-dmo.org/deployment/727190</a> |
| <b>Platform</b>    | R/V Oceanus   |
| <b>Start Date</b>  | 2016-06-17  |
| <b>End Date</b>    | 2016-07-02  |
| <b>Description</b> | Project: Changes in Ecosystem Production and Benthic Biodiversity                                 |

### OC1707A

|                    |   |
|--------------------|---|
| <b>Website</b>     | <a href="https://www.bco-dmo.org/deployment/729428">https://www.bco-dmo.org/deployment/729428</a> |
| <b>Platform</b>    | R/V Oceanus   |
| <b>Start Date</b>  | 2017-07-18  |
| <b>End Date</b>    | 2017-07-25  |
| <b>Description</b> | Project: Changes in Ecosystem Production and Benthic Biodiversity                                 |

[ [table of contents](#) | [back to top](#) ]

---

## Project Information

**Collaborative Research: Changes in ecosystem production and benthic biodiversity following the widespread loss of an ecosystem engineer (Kelp Forest Ecosystem Engineer Loss)**

**Website:** <http://sdsukelp.weebly.com/blog>

**Coverage:** Aleutian Islands Alaska (Attu Island to Unalaska)

### NSF abstract:

In many ecosystems the presence of a single dominant species can modify the physical conditions of the environment and alter patterns of biodiversity, nutrient cycling, and primary production. Losses of these "ecosystem engineers" can have profound impacts to how ecosystems function. Coastal kelps provide excellent examples of organisms whose structure modifies the physical characteristics of their habitats (light, nutrients, water motion) and supports enhanced biodiversity. The kelp forests in the coastal waters of the Aleutian Archipelago have suffered large-scale declines over the past several decades. This project will examine how these losses impact patterns of ecosystem production and biodiversity using a combination of techniques ranging from in situ benthic chambers and shipboard incubations to remote sensing using satellite imagery.

The results will provide an understanding of how such events may impact this and other ecosystems. This project will support graduate students and will introduce the public to the Aleutian ecosystems in a series of videos. The investigators will also work with a San Diego high school teacher to integrate project findings into classroom activities, and they expect to involve a teacher in their field program.

The investigators will ask two highly integrated questions: 1) How do the widespread losses of kelp forests impact benthic productivity across the Aleutian Archipelago? 2) How do the widespread losses of kelp forests impact benthic biodiversity and community structure across the archipelago? To address these, the investigators will estimate changes to productivity at ten islands where they have historic data on seaweed community composition and estimates of kelp canopy cover. They will use in situ benthic chambers placed in both kelp forests and urchin barrens to measure plot-scale patterns of net ecosystem productivity (NEP), and shipboard incubations to examine net primary productivity (NPP) for the dominant macroalgae. Data for individual species rates of NPP will be scaled by their biomass and combined with in situ plot-scale benthic chamber experiments of whole communities to estimate NEP at the islands visited. These estimates will be scaled up to calculate NEP across the entire archipelago by first extrapolating results from the study sites to entire islands, and then across the archipelago. They will also estimate broad-scale patterns in production by characterizing water column irradiances across the archipelago and modeling NPP using species-level relationships between irradiance and photosynthesis. Coupling these with estimates of water column irradiance and community respiration will allow modeling of NEP across this region. Benthic biodiversity will be assessed using diver surveys and shipboard benthic trawls. Following these activities, satellite remote sensing of the kelp canopies dating back to the 1980s and the investigators' own historical data on benthic macroalgal abundances at these and other islands will be used to estimate the temporal and spatial patterns of change across the archipelago.

**For more information see:**

Project blog: <http://sdsukelp.weebly.com/blog>

Project website: <http://www.uaf.edu/cfos/research/projects/collaborative-research--/>

[ [table of contents](#) | [back to top](#) ]

---

## Funding

| Funding Source   | Award                       |
|--|-----------------------------|
| <a href="#">NSF Division of Ocean Sciences (NSF OCE)</a> | <a href="#">OCE-1435205</a> |
| <a href="#">NSF Division of Ocean Sciences (NSF OCE)</a> | <a href="#">OCE-1435194</a> |

[ [table of contents](#) | [back to top](#) ]