# Species list from a fish survey conducted at five sites in the Galapagos Islands in March of 2018

**Website**: https://www.bco-dmo.org/dataset/740929
**Version**: 1
**Version Date**: 2018-07-19

**Project**
» The Role of Temperature in Regulating Herbivory and Algal Biomass in Upwelling Systems (Temperature and Herbivory)

| Contributors | Affiliation | Role |
|---|---|---|
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## Coverage

**Spatial Extent**: **N**:0.54438 **E**:-90.422 **S**:-1.28307 **W**:-91.431
**Temporal Extent**: 2018-03-25 - 2018-03-30

## Dataset Description

These data have been submitted to BCO-DMO and are in the process of being served.

### Methods & Sampling

SCUBA surveys were used to quantify the composition and diversity of fishes at five sites. We performed four 50x10x5 m (length, width, height) transects at each site (2 per dive, 1 per diver). This protocol was based on the ecological monitoring protocol used by the Charles Darwin Foundation and the Galapagos National Park. The diver swam along one side of the 50m long transect (the right side first, the left side second) and identified and recorded every fish present in a projected 5x5x5 m3 volume (width, height, depth forward). At the end, the diver surveyed the other side of the transect.

The survey results can be found in the dataset "2018 Galapagos Fish Survey: observations and temperature" https://www.bco-dmo.org/dataset/740321 which uses the species codes in this species list.

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## Parameters

*Parameters for this dataset have not yet been identified*

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## Project Information

**The Role of Temperature in Regulating Herbivory and Algal Biomass in Upwelling Systems (Temperature and Herbivory)**

**Website**: http://github.com/johnfbruno/Galapagos_NSF.git

*NSF Award Abstract:*
A well-known pattern in coastal marine systems is a positive association between the biomass of primary producers and the occurrence or intensity of upwelling. This is assumed to be caused by the increase in nutrient concentration associated with upwelling, enabling higher primary production and thus greater standing algal biomass. However, upwelling also causes large, rapid declines in water temperature. Because the metabolism of fish and invertebrate herbivores is temperature-dependent, cooler upwelled water could reduce consumer metabolism and grazing intensity. This could in turn lead to increased standing algal biomass. Thus upwelling could influence both bottom-up and top-down control of populations and communities of primary producers. The purpose of this study is to test the hypothesis that grazing intensity and algal biomass are, in part, regulated by temperature via the temperature-dependence of metabolic rates. Broader impacts include the training and retention of minority students through UNC's Course Based Undergraduate Research program, support of undergraduate research, teacher training, and various outreach activities.

The investigators will take advantage of the uniquely strong spatiotemporal variance in water temperature in the Galápagos Islands to compare grazing intensity and primary production across a natural temperature gradient. They will combine field monitoring, statistical modeling, grazing assays, populations-specific metabolic measurements, and in situ herbivore exclusion and nutrient addition to measure the effects of temperature on pattern and process in shallow subtidal communities. The researchers will also test the hypothesis that grazer populations at warmer sites and/or during warmer seasons are less thermally sensitive, potentially due to acclimatization or adaptation. Finally, the investigators will perform a series of mesocosm experiments to measure the effect of near-future temperatures on herbivores, algae, and herbivory. This work could change the way we view upwelling systems, particularly how primary production is regulated and the temperature-dependence of energy transfer across trophic levels.

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## Funding


| Funding Source | Award |
|---|---|
| NSF Division of Ocean Sciences (NSF OCE) | OCE-1737071 |


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