

## **iTrack Oysters February 2023 Experiment - Environmental and Oyster Health Data - v1.0.0**

### **Data use:**

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In light of the effort required to obtain these data and create data packages, we request all data users that, in addition to following the CC-BY license terms, they give attribution to the data providers and follow fair use guidelines: 1) respect the data providers, and provide helpful feedback on data quality, and 2) communicate and/or collaborate with Hakai Marna Wet Lab researchers and collaborators if you are considering using this dataset for manuscripts or other forms of reporting.

### **Overview:**

This data package is a component of the Hakai Institute's Marna Wet Lab and Caren Helbing (University of Victoria, UVic) collaborative iTrack project investigating environmental effects on eDNA and eRNA. Hakai Institute's Marna Wet Lab experimental research program uses laboratory experiments to evaluate marine organisms' responses to simulated current and future ocean environmental conditions. The overarching objective of Hakai Wet Lab experimental research is to investigate the mechanisms of vulnerability and resilience of a variety of marine species and communities under static or dynamic future environmental conditions, and understand how organisms are responding phenotypically, physiologically and/or genomically to thermal and acidification stress.

The iTrackDNA project aligns well with the Wet Lab experimental goals of advancing our capability of using eDNA and eRNA as reliable molecular tools to capture community shifts and organismal stress, with broader applications within Hakai's Marine Ecology program.

This experiment was part one to a larger experiment that took place in September of the same year. It took place from February 22 - 27, 2023 in the Marna Wet Lab at Hakai's Quadra Island Ecological Observatory. Adult Pacific oysters were exposed to various pCO<sub>2</sub> treatments (see protocols doc) and eDNA and eRNA was measured during production (oysters in tanks) and degradation (oysters out of tanks) phases. A subsample of oysters from each tank were

destructively sampled for weight, size, condition/health and gill and gonad RNA at the end of the experiment.

### **Data package:**

This data package collects data and information relating to protocols, data collection, processing and analysis of data collected by the Marna Wet Lab team. Files included are as follows:

- Environmental (tank condition) data:
  - ◆ Tank temperature and pH data continuously collected and recorded on the sensor network throughout the experiment from the Walchem and Honeywell probes on individual tanks (**itrackfeb2023\_pH\_temps\_QC.csv**)
  - ◆ Tank pCO<sub>2</sub>, TCO<sub>2</sub>, total alkalinity, aragonite saturation, calcite saturation and salinity collected from discrete bottle samples at the beginning and end of the experiment and analyzed using a Burke-o-Lator (**iTrack Feb 2023 PCO2 METADATA\_CP.csv**)
- Oyster health data:
  - ◆ Destructive sampling with health assessments of oysters at the end of the experiment (**iTrack Feb 2023 - HealthAssess\_METADATA\_QC.csv**)
- Protocols: See protocol for a detailed description of lab setup, sampling, analysis and data QA/QC protocols. (**PROTOCOLS.pdf**)
- Variables: See attached Data Dictionary for a description of all variables contained in this package. (**DATA DICTIONARY.csv**)
- Package Changes: See attached Changelog for additions and changes to this data package. (**CHANGELOG.txt**)
- Licensing: For information on package licensing see attached license. (**LICENSE.txt**)

*Please contact Iria Gimenez (Iria.Gimenez@hakai.org), Kate Rolheiser (Kate.Rolheiser@hakai.org) or Brenna Collicutt (Brenna.Collicutt@hakai.org) with any questions.*