

# Jason sample event log from the R/V Atlantis (Alvin AT26-15) cruise in the Gulf of Mexico and Florida Escarpment during June 2012 (SEEPc project)

Website: <https://www.bco-dmo.org/dataset/615017>

Version: 2015-10-06

Version Date: 2016-09-22

## Project

» [Connectivity in western Atlantic seep populations: Oceanographic and life-history processes underlying genetic structure](#) (SEEPc)

| Contributors                     | Affiliation   | Role                   |
|----------------------------------|---|------------------------|
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## Dataset Description

Related Dataset: **AT26-15: sample log - GoM-FL**: <http://www.bco-dmo.org/dataset/615488>

## Methods & Sampling

Sampling was performed by HOV Alvin in the Gulf of Mexico using the following methods:

- Grab - using the claw of either port or starboard manipulator to pick up the sample
- Push core - used to collect sediment core samples, or invertebrates residing in the sediment
- Slurp - use of a vacuum system to collect sample from the seafloor or water column

## Data Processing Description

### BCO-DMO Processing:

- replaced blanks with underscores, except for comments column
- removed/replaced special symbols (#, ?), trailing blanks
- changed NA to nd for A4726

version: 2016-09-22 replaces v:2015-10-02. Two latitude points corrected.

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## Data Files

**File**

**AT2615\_dive\_log.csv**(Comma Separated Values (.csv), 22.07 KB)  
 MD5:644a0a358c1d230c60f32fcedb84edcd

Primary data file for dataset ID 615017

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## Parameters

| Parameter        | Description  | Units                                |
|------------------|--|--------------------------------------|
| dive_id          | unique ID for each HOV Alvin dive                        | unitless                             |
| date             | sampling date  | YYYYMMDD                             |
| sampling_method  | method used by ROV to collect sample                     | unitless                             |
| site             | ID associated with particular geographic location/region | unitless                             |
| time             | 24 hour clock  | HH:MM                                |
| ISO_DateTime_UTC | Date/Time (UTC) ISO formatted                            | YYYY-mm-ddTHH:MM:SS[.xx]Z (UTC time) |
| lat              | latitude (North is positive; South is negative)          | decimal degrees                      |
| lon              | longitude (East is positive; West is negative)           | decimal degrees                      |
| depth            | depth below surface in meters                            | meters                               |
| comments         | free text comments                                       | unitless                             |

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## Deployments

### AT26-15

|                    |   |
|--------------------|---|
| <b>Website</b>     | <a href="https://www.bco-dmo.org/deployment/517377">https://www.bco-dmo.org/deployment/517377</a>   |
| <b>Platform</b>    | R/V Atlantis  |
| <b>Start Date</b>  | 2014-05-21  |
| <b>End Date</b>    | 2014-06-14  |
| <b>Description</b> | <p>Start: Depart Gulfport, MS 05/21/2014 End: Arrive St. Petersburg, FL 06/14/2014 The AT26-15 cruise was conducted as part of the project "Connectivity in western Atlantic seep populations: Oceanographic and life-history processes underlying genetic structure" (SeepC) funded by NSF OCE-1031050. The cruise included coordinated deployments of DSV Alvin and AUV Sentry. Science objectives (from the WHOI Cruise Planning Synopsis): The primary objective of the SeepC Project is to advance our general knowledge of connectivity in the deep sea using taxa found at seeps as model systems. The focus is on species and processes occurring in the Intra-American Sea (including the Caribbean, Gulf of Mexico, and eastern seaboard of the US), with attention to oceanographic circulation, life histories, and genetics. Our efforts include improving the oceanographic model for the IAS near the seabed using current data from moorings at several depths and locations and coupling this model to a Lagrangian larval transport model. We stress the importance of iterative interactions among the science teams to advance our understanding of connectivity in the deep sea through descriptive and hypothesis-driven research. We will develop effective and best methods for hypothesis testing under the constraints of working in a relatively inaccessible environment and will build capacity in understanding connectivity in deep-sea systems.</p> |

## AT26-15 Alvin Dives

|                    |   |
|--------------------|---|
| <b>Website</b>     | <a href="https://www.bco-dmo.org/deployment/615110">https://www.bco-dmo.org/deployment/615110</a> |
| <b>Platform</b>    | Alvin   |
| <b>Start Date</b>  | 2014-05-22  |
| <b>End Date</b>    | 2014-06-14  |
| <b>Description</b> | Listing of Alvin dives on AT26-15 (pdf) for SEEPC project - with links to further metadata.       |

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## Project Information

### Connectivity in western Atlantic seep populations: Oceanographic and life-history processes underlying genetic structure (SEEPC)

**Coverage:** Western Atlantic, Gulf of Mexico, Intra-American Sea

This project will evaluate connectivity on spatial scales that match those at which vent systems are being studied (3500 km), with a set of nested seeps (within the Barbados system) within which connectivity can be explored at more local spatial scales (30 to 130 km), and with species that span depth (600 m to 3600 m) and geographic ranges (30 km to 3500 km) and that have diverse life-history characteristics. Five deep-sea seep systems in the Intra- American Sea (IAS) are targeted: Blake Ridge, Florida Escarpment, Alaminos Canyon, Brine Pool, Barbados (El Pilar, Orenoque A, Orenoque B). The primary objective is to advance our general knowledge of connectivity in the deep sea. The focus is on species and processes occurring in the IAS, with attention to oceanographic circulation, life histories, and genetics. Questions that apply in shallow-water systems motivate this study:

1. What phylogeographic breaks occur in the system? It is important to distinguish between phylogeographic history and connectivity. A phylogeographic break with no shared alleles between populations implies a long history of isolation or possibly cryptic speciation.
2. Are populations connected by ongoing migration? This is the fundamental question about connectivity and the scale of genetic variation in marine species with planktonic larvae.
3. What biophysical processes underlie observed connectivities? Biological processes (e.g., larval distributions in the water column, timing of reproduction, and planktonic larval duration) and physical processes of transport and dispersion interact to determine connectivity.

The oceanographic model for the IAS will be improved and coupled to a Lagrangian larval transport model. The field program includes time-series sampling of larvae at seeps with records of current velocities, water column sampling to determine larval distribution potential, shipboard studies of larval biology and behavior, and sampling of benthic target species. Phylogenetic and population genetic tools will be used to explore historical and contemporary gene flow. Iterative interactions among the science teams will advance our understanding of connectivity in the deep sea and to develop effective and best methods for hypothesis testing under the constraints of working in a relatively inaccessible environment. Since their discovery, deep-sea chemosynthetic ecosystems have been novel systems within which to test the generality of paradigms developed for shallow-water species. This study will explore scale-dependent biodiversity and recruitment dynamics in deep-sea seep communities, and will identify key factors underlying population persistence and maintenance of biodiversity in these patchy systems.

[Google Earth map](#) showing positions of stations, CTD, XBT, multibeam locations (KMZ file download)

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## Funding

| Funding Source   | Award                       |
|--|-----------------------------|
| <a href="#">NSF Division of Ocean Sciences (NSF OCE)</a> | <a href="#">OCE-1031050</a> |

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