

# Metadata describing mooring deployment and recovery from R/V Oceanus cruises OC1304A and OC1406B off the Coast of Oregon from 2013-2014 (BOWLS project)

**Website:** <https://www.bco-dmo.org/dataset/568713>

**Data Type:** Cruise Results

**Version:** 1

**Version Date:** 2015-09-24

## Project

» [Biodiversity, connectivity and ecosystem function in organic-rich whale-bone and wood-fall habitats in the deep sea](#) (BOWLS)

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## Abstract

Metadata describing mooring deployment and recovery from R/V Oceanus cruises OC1304A and OC1406B off the Coast of Oregon from 2013-2014 (BOWLS project)

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## Coverage

**Spatial Extent:** N:47.9577 E:-125.17063 S:43.8784 W:-127.59288

**Temporal Extent:** 2013-04-05 - 2014-06-27

## Dataset Description

Locations of BOWLS moorings and dates of deployment and recovery.

## Acquisition Description

The investigators deployed four free-vehicle Bone-Wood Landers (BOWLs) as moorings that (1) sink autonomously to the deep-sea floor, (2) expose 9 controlled experimental substrates of whale bone, wood, or inert materials at the seafloor for months to years, and (3) upon acoustic command, enclose each experimental substrate in a sealed 500-micrometer mesh bag and returns to the ocean surface. This new

BOWL technology allows controlled quantitative study of biotic colonization, biodiversity, ecosystem function and connectivity for bone, wood and other experimental substrates in the deep sea at relatively low fabrication and ship-time costs.

See a [PDF image](#) of the mooring deployment sites.

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## Parameters

Parameter	Description	Units
mooring	Mooring ID number.	dimensionless
date_deployed	Date of mooring deployment.	mm/dd/yyyy
date_recovered	Date mooring was recovered.	mm/dd/yyyy
lat	Latitude of mooring.	decimal degrees
lon	Longitude of mooring.	decimal degrees
depth	Depth of water at mooring location.	meters
cruise_deploy	ID of cruise during which moorings were deployed.	dimensionless
cruise_recover	ID of cruise during which moorings were recovered.	dimensionless

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## Deployments

### OC1304A

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/568472">https://www.bco-dmo.org/deployment/568472</a>
<b>Platform</b>	R/V Oceanus
<b>Start Date</b>	2013-04-03
<b>End Date</b>	2013-04-15

### OC1406B

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/568626">https://www.bco-dmo.org/deployment/568626</a>
<b>Platform</b>	R/V Oceanus
<b>Start Date</b>	2014-06-22
<b>End Date</b>	2014-07-05

### CRS-1464

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/568709">https://www.bco-dmo.org/deployment/568709</a>
<b>Platform</b>	CRS-1464
<b>Start Date</b>	2013-04-05
<b>End Date</b>	2014-06-27
<b>Description</b>	The investigators deployed four free-vehicle Bone-Wood Landers (BOWLs) as moorings that (1) sink autonomously to the deep-sea floor, (2) expose 9 controlled experimental substrates of whale bone, wood, or inert materials at the seafloor for months to years, and (3) upon acoustic command, enclose each experimental substrate in a sealed 500-micrometer mesh bag and returns to the ocean surface. This new BOWL technology allows controlled quantitative study of biotic colonization, biodiversity, ecosystem function and connectivity for bone, wood and other experimental substrates in the deep sea at relatively low fabrication and ship-time costs. See a PDF image of the mooring deployment sites.

#### CRS-1467

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/568710">https://www.bco-dmo.org/deployment/568710</a>
<b>Platform</b>	CRS-1467
<b>Start Date</b>	2013-04-06
<b>End Date</b>	2014-06-26
<b>Description</b>	The investigators deployed four free-vehicle Bone-Wood Landers (BOWLs) as moorings that (1) sink autonomously to the deep-sea floor, (2) expose 9 controlled experimental substrates of whale bone, wood, or inert materials at the seafloor for months to years, and (3) upon acoustic command, enclose each experimental substrate in a sealed 500-micrometer mesh bag and returns to the ocean surface. This new BOWL technology allows controlled quantitative study of biotic colonization, biodiversity, ecosystem function and connectivity for bone, wood and other experimental substrates in the deep sea at relatively low fabrication and ship-time costs. See a PDF image of the mooring deployment sites.

#### CRS-1471

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/568711">https://www.bco-dmo.org/deployment/568711</a>
<b>Platform</b>	CRS-1471
<b>Start Date</b>	2013-04-08
<b>End Date</b>	2014-06-23
<b>Description</b>	The investigators deployed four free-vehicle Bone-Wood Landers (BOWLs) as moorings that (1) sink autonomously to the deep-sea floor, (2) expose 9 controlled experimental substrates of whale bone, wood, or inert materials at the seafloor for months to years, and (3) upon acoustic command, enclose each experimental substrate in a sealed 500-micrometer mesh bag and returns to the ocean surface. This new BOWL technology allows controlled quantitative study of biotic colonization, biodiversity, ecosystem function and connectivity for bone, wood and other experimental substrates in the deep sea at relatively low fabrication and ship-time costs. See a PDF image of the mooring deployment sites.

#### CRS-1472

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/568712">https://www.bco-dmo.org/deployment/568712</a>
<b>Platform</b>	CRS-1472
<b>Start Date</b>	2013-04-09
<b>End Date</b>	2014-06-22
<b>Description</b>	The investigators deployed four free-vehicle Bone-Wood Landers (BOWLs) as moorings that (1) sink autonomously to the deep-sea floor, (2) expose 9 controlled experimental substrates of whale bone, wood, or inert materials at the seafloor for months to years, and (3) upon acoustic command, enclose each experimental substrate in a sealed 500-micrometer mesh bag and returns to the ocean surface. This new BOWL technology allows controlled quantitative study of biotic colonization, biodiversity, ecosystem function and connectivity for bone, wood and other experimental substrates in the deep sea at relatively low fabrication and ship-time costs. See a PDF image of the mooring deployment sites.

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## Project Information

### **Biodiversity, connectivity and ecosystem function in organic-rich whale-bone and wood-fall habitats in the deep sea (BOWLS)**

**Website:** <http://craigsmithlab.com/bowls-project/>

**Coverage:** Off the Oregon and Washington State coast; roughly 43.833N, 127.5W to 47.3N, 127.4W

*Description from NSF award abstract:*

Organic-rich habitat islands support specialized communities throughout natural ecosystems and often play fundamental roles in maintaining alpha and beta diversity, thus facilitating adaptive radiation and evolutionary novelty. Whale-bone and wood falls occur widely in the deep-sea and contribute fundamentally to biodiversity and evolutionary novelty; nonetheless, large-scale patterns of biodiversity, connectivity, and ecosystem function in these organic-rich metacommunity systems remain essentially unexplored.

The PIs propose a novel comparative experimental approach to evaluate bathymetric, regional, and inter-basin variations in biodiversity and connectivity, as well as interactions between biodiversity and ecosystem function, in whale-bone and wood-fall habitats at the deep-sea floor. Their experiments will use bottom landers to carry and hold samples of bone and wood and a control substrate (basalt) at two depths (1500 and 3000 m), 250-500 km apart, in the NE Pacific and SW Atlantic basins, with quantitative recovery of the colonizing assemblages 15 month later. Each depth will have three replicates. Their experiments will test fundamental hypotheses concerning biodiversity (genetic and taxonomic) and biogeography of macrofaunal and microbial organisms exploiting these resource-rich habitats in energy limited deep-sea environments, and will explore the utility of whale-bone and wood falls as model experimental systems to address patterns of connectivity and decomposer function in the deep sea.

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## Funding

<b>Funding Source</b>	<b>Award</b>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1155188</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1155703</a>

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