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)

Contributors	Affiliation	Role
Smith, Craig R.	University of Hawai'i at Mānoa (SOEST)	Chief Scientist
Halanych, Kenneth M.	Auburn University	Co-Chief Scientist
Rauch, Shannon	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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)

Table of Contents

- Coverage
- Dataset Description
  - Methods & Sampling
- Data Files
- Supplemental Files
- Parameters
- Deployments
- Project Information
- Funding

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.

Methods & Sampling

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.

[table of contents | back to top]

Data Files

File
mooring_deployments.csv (Comma Separated Values (.csv), 368 bytes) MD5:9cefa4d284789782436485a1c51c7982 Primary data file for dataset ID 568713

[table of contents | back to top]

Supplemental Files

File
BOWL mooring deployment locations map filename: NE_Pacific_Bone-wood_lander_deployment_sites.pdf (Portable Document Format (.pdf), 175.16 KB) MD5:31fb978903448e951f6fb88c3d3eebd4 Location of BOWL mooring deployments, recovered after ~15 month during cruise OC1406B

[table of contents | back to top]

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

[table of contents | back to top]

Deployments

OC1304A

Website	https://www.bco-dmo.org/deployment/568472
Platform	R/V Oceanus
Start Date	2013-04-03
End Date	2013-04-15

OC1406B

Website	https://www.bco-dmo.org/deployment/568626
Platform	R/V Oceanus
Start Date	2014-06-22
End Date	2014-07-05

CRS-1464

Website	https://www.bco-dmo.org/deployment/568709
Platform	CRS-1464
Start Date	2013-04-05
End Date	2014-06-27
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.

CRS-1467

Website	https://www.bco-dmo.org/deployment/568710
Platform	CRS-1467
Start Date	2013-04-06
End Date	2014-06-26
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.

CRS-1471

Website	https://www.bco-dmo.org/deployment/568711
Platform	CRS-1471
Start Date	2013-04-08
End Date	2014-06-23
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.

CRS-1472

Website	https://www.bco-dmo.org/deployment/568712
Platform	CRS-1472
Start Date	2013-04-09
End Date	2014-06-22
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.

[table of contents | back to top]

Project Information

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

Website: http://craigrsmithlab.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.

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1155188
NSF Division of Ocean Sciences (NSF OCE)	OCE-1155703

[table of contents | back to top]