Field surveys for sea star wasting disease in the Salish Sea from from January to March 2014 (Sea Star Wasting Disease project)

Website: https://www.bco-dmo.org/dataset/700757
Version:

Project
» Investigation of microbial roles in Pacific Asteroidea wasting disease (Sea Star Wasting Disease)

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Coverage

Spatial Extent: **Lat**:0 **Lon**:0
Temporal Extent: 2014-01-07 - 2014-03-10

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Parameters

Parameter	Description	Units
DiseaseCategory	Brief description of disease state.	unitless

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Project Information

Investigation of microbial roles in Pacific Asteroidea wasting disease (Sea Star Wasting Disease)

Coverage: Northeastern Pacific Ocean

Sea stars are keystone predator species in many coastal environments, where they consume dominant invertebrate taxa, e.g. bivalve mollusks and sea urchins. A very significant echinoderm disease, Sea-Star Wasting Disease (SSWD) appears to be having a dramatic, and negative, effect on sea-star populations on the Pacific Coast of the United States. This RAPID response project seeks to identify causative agents of SSWD in the outbreak that is currently occurring on the Pacific Coast, in concert with observations on the extent of the event with respect to species affected, prevalence, virulence, spatial distribution, and geographic extent. Viruses, bacteria, and protozoa will be examined in healthy and diseased tissues of sea-stars using molecular approaches and comparisons of the microbial flora between healthy and diseased tissues will permit identification of candidate pathogens. The project represents a coordinated ecological and microbiological study into the role of pathogenic microorganisms in sea star disease. This study will provide new information on the diversity of viruses, bacteria, and eukaryotic microorganisms inhabiting echinoderms, and the outcomes of this project will include: 1) identification of microorganisms (viruses, bacteria, and protozoa) associated with the disease; 2) analysis of geographical extent of the disease, its progression, and impact on sea star population size; and 3) linking the identified microorganisms with their prevalence in SSWD-affected populations. The net result will be an understanding of the cause of disease, how it relates to environmental conditions, and subsequent impacts of the disease on wider coastal ecology.

These data, along with survey data from other groups using similar sampling methods, will be uploaded to a database and used to populate the Sea Star Wasting Disease Map, which provides information on SSWD presence at sites along the entire west coast of North America. By directly combining ecological and microbiological studies of SSWD, these studies will provide a more complete understanding of SSWD, which will benefit researchers globally, and assist managers in mitigating risk of future outbreaks.

Nucleotide sequence information from this project has been submitted to genbank under accession PRJNA253121.

Publications resulting from this project:
Hewson et al. 2014. Densovirus associated with sea-star wasting disease and mass mortality. PNAS 111(48), pp. 17278 - 17283. www.pnas.org/cgi/doi/10.1073/pnas.1416625111

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1401844

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