Dorvilleid polychaetes dominate Eel R. microbial mats

Eel R. microbial mat sediments are among the most toxic marine habitats, with sulfide concentrations up to 15 to 20 mM.
These sediments are inhabited mainly (83%) by a complex of dorvilleid polychaete species. Isotopic data suggest these species exhibit a variety of trophic pathways.

	$\delta^{13}C$		$\delta^{15}N$
Anchidorvillea sp. A	-20.2	No data	
Exallopus sp. A	-30.5		No data
Ophryotrocha sp. A	-22.9	10.9	
Ophryotrocha sp. D	-36.9	8.38	
Ophryotrocha sp. F	-22.8		No data
Parougia sp. A.	-26.56		-1.49

2000-2001

Interdisciplinary Studies of the Eel R. Methane Seeps

Joris Gieskes, Chris Mahn, Jon Martin - Porewater Geochemistry

Lisa Levin - Benthic Biology

Anthony Rathburn - Foraminiferal Ecology

Wiebke Ziebis - Biogeochemistry

Kevin Brown & Mike Tryon - Hydrogeology

Robert Michener - Stable Isotopic Analyses

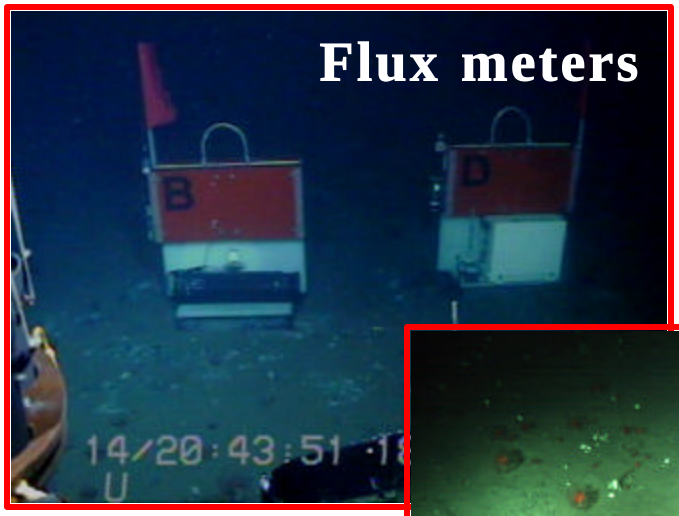
Staff and Students:

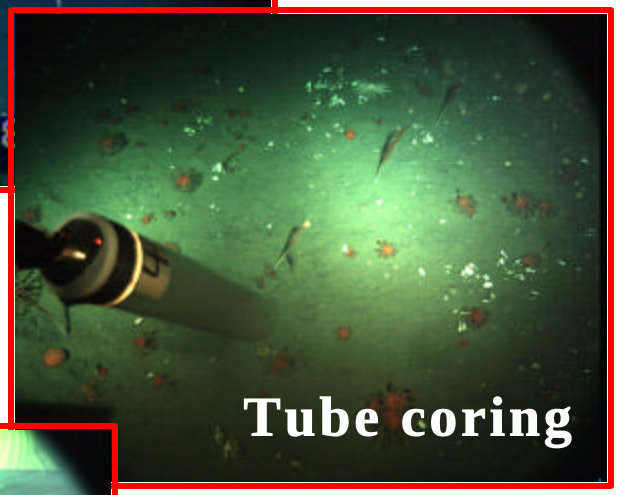
C. Martin, D. James, S. Walther,
G. Mendoza, V. Growney, Larry Lovell

RESEARCH SUPPORT:

NOAA West Coast & Polar
National Undersea Research Center


Jason
Oct. 2000

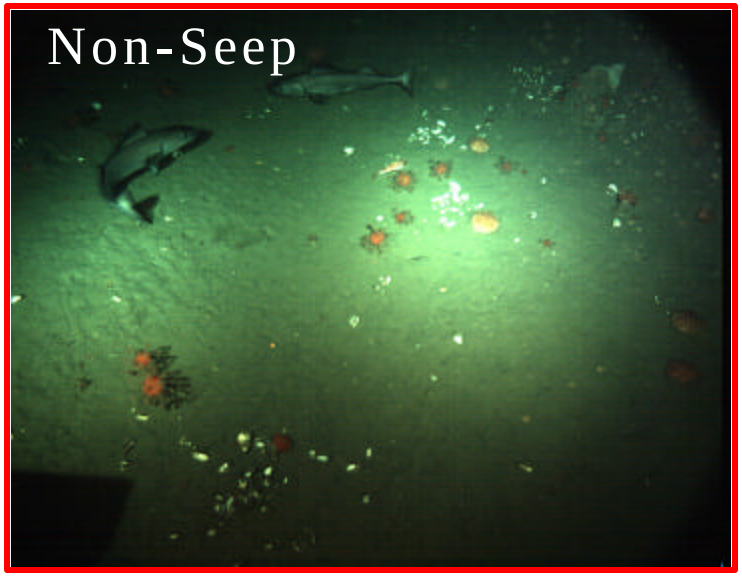

Flux meters
14/20:43:51


Tube coring

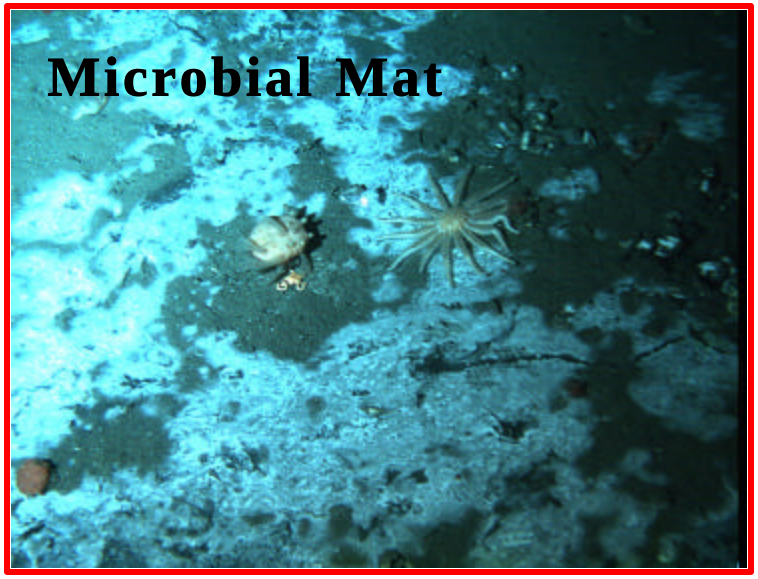

Oceanic Explorer
April 2001
EXPLORER


Gear Elevator


Colonization Tray
13/06:16:04 026/0520

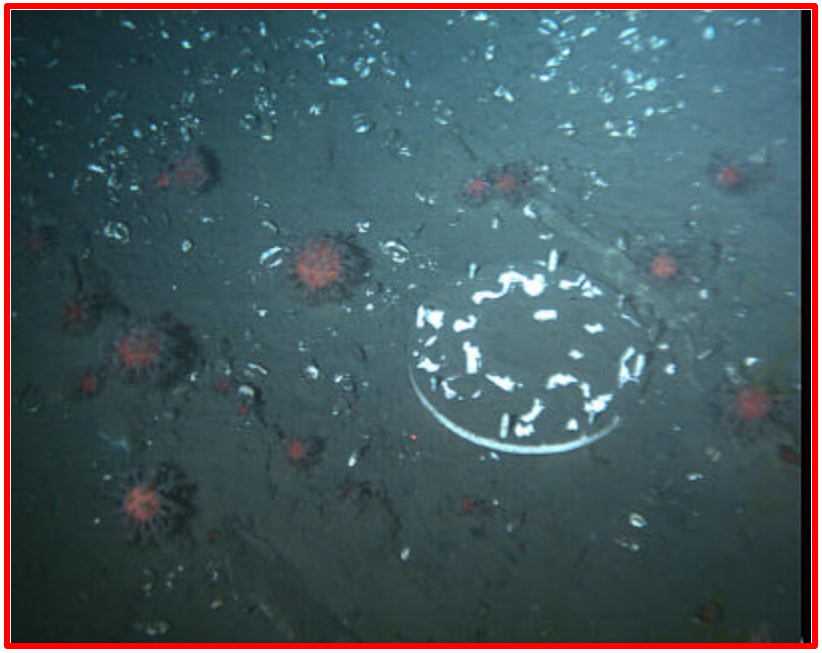

Non-Seep

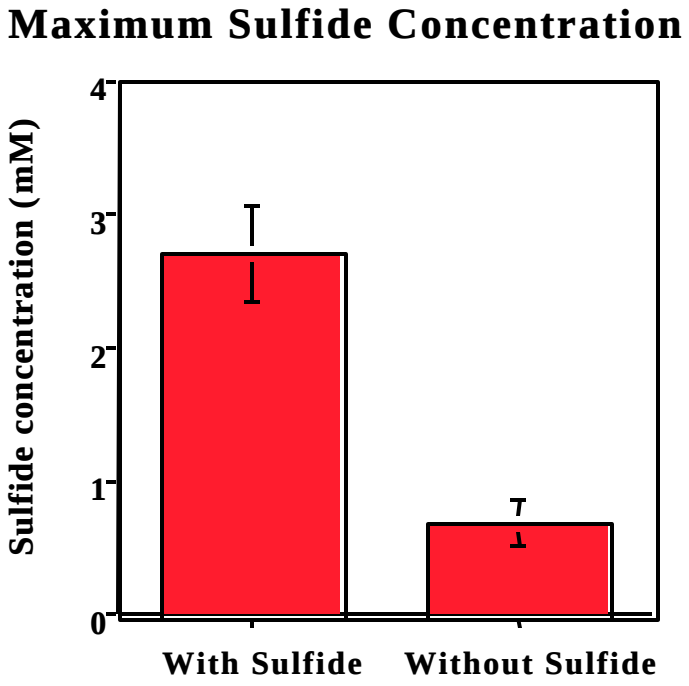

Clam Bed

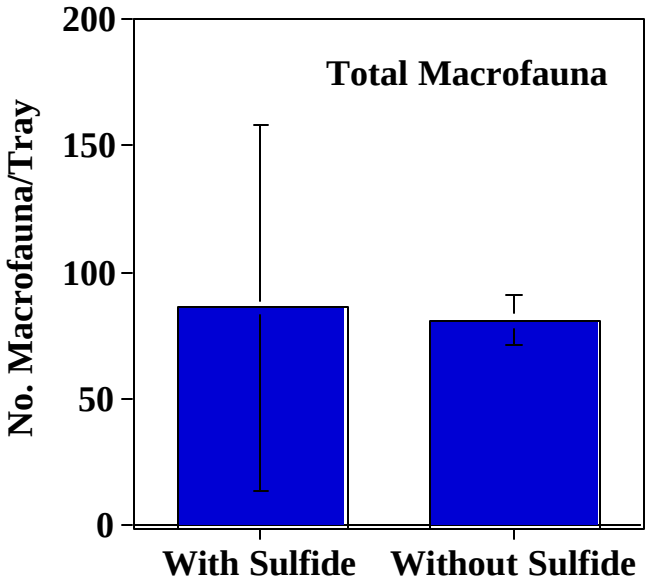

Microbial Mat


Carbonates

Colonization trays after 6 mo.







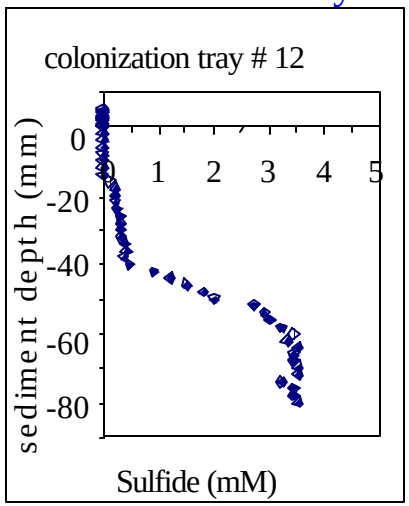
Taxa Attracted to Sulfides

Nerillidae
Maldanidae

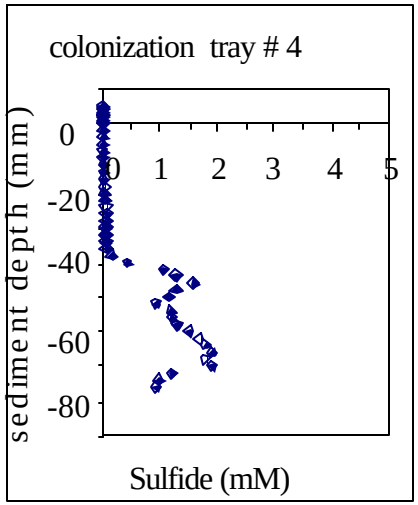
> 2 cm	**w/S vs no S**
Dorvilleids	**(11 vs 2)**
Capitellids	**(7 vs 0)**
Ampharetids	**(3 vs 0)**
Oligochaetes	**(5 vs 0)**
Phyllodocids	**(3 vs 0)**

Vertical micro-profiles of sulfide concentrations measured in the colonization trays

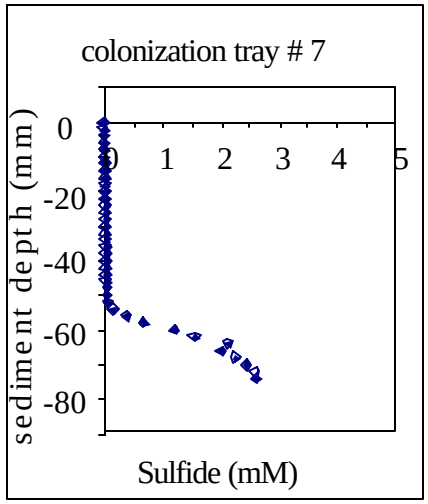
Colonization trays with sulfide added



Non-seep

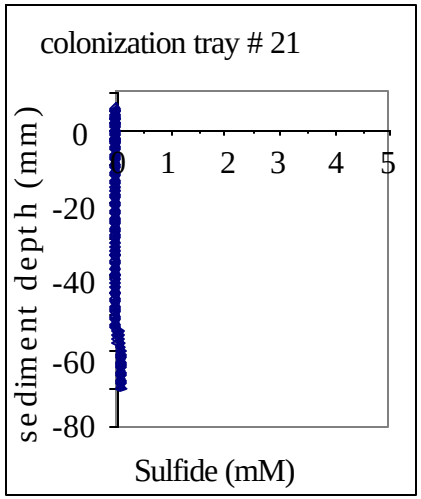


Clam bed

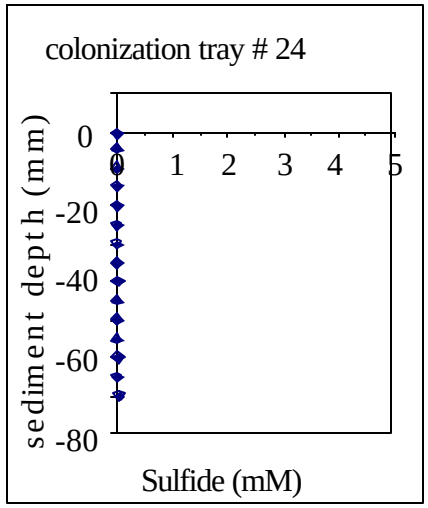


Bacterial mat

Colonization trays without sulfide



Non-seep



Non-seep

High-resolution vertical profiles of sulfide concentrations were measured in the colonization trays immediately after recovery using H_2S micro-electrodes

Data by Wiebke Ziebis

Key Findings - Eel R. Methane Seeps

*Patchy distribution of seep microhabitats

*Extreme microhabitat variability in porewater geochemistry, animal assemblage composition & distribution

*Variable nutritional sources for macrofauna;
limited contribution of methane-derived C relative to other sites

*High sulfide tolerance and possible habitat partitioning among a complex of dorvilleid polychaete species.