were not detected in healthy oysters cultured nearby at that site, nor in *C. virginica* maintained simultaneously in a non-JOD enzootic area. These results provide further evidence that a bacterium, specifically a novel species of alpha-proteobacteria, is involved in JOD mortalities.

THE ASSOCIATION BETWEEN THE TURBELLARIAN *URASTOMA CYPRINAE* AND THE EASTERN OYSTER *CRASSOSTREA VIRGINICA*. Andrew D. Boghen, Nicole T. Brun, and **Erick Bataller,** Department of Biology, Université de Moncton, Moncton, NB, Canada, E1A 3E9.

Turbellarian flatworms are primarily free-living. Many are also facultative commensals and occasionally parasitic. Such is the case for *Urastoma cyprinae,* a common gill-worm of bivalves that induces serious damage to gill tissue in mussels. In Atlantic Canada the worm is widespread in the Eastern Oyster, *Crassostrea virginica.* Given the importance of the oyster industry on Canada's east coast, studies were initiated to shed light on the nature of the host-symbiont relationship between this worm and the oyster. While initial histological and biochemical studies provide inconclusive evidence of pathology, our work confirms that *U. cyprinae* is strongly attracted to the mucus secreted by the gills. The distribution of the worms in different areas of the gills, coupled with specific behavioral activities as revealed by in-vivo endoscopic observations, support the likelihood that the worms may be actively feeding on mucus. Such findings are further reinforced by studies employing zymographic techniques that demonstrate higher levels of protease activity in mucus for parasitized compared to non-parasitized oysters. Because of the visible presence of worms on the gills, investigations are currently underway to eliminate the worms prior to marketing using short-term depuration methods based on salinity tolerance.

EFFECT OF COLD WATER ON LIMITING OR EXACERBATING SOME OYSTER DISEASES. Susan M. Bower and **Gary R. Meyer,** Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, British Columbia, V9R 5K6, Canada.

Like most other pathogens, agents of oyster diseases are influenced by environmental conditions. Information accumulated to date indicates that some parasites are only pathogenic when water temperatures are cold for extended periods while others do not produce disease when temperatures are low. For example, controlled laboratory studies revealed that *Mikrocytos mackini,* the agent of Denman Island disease in *Crassostrea gigas,* did not develop in oysters held at >15°C and temperatures <10°C were required for at least 3 months for the development of disease and associated mortalities. This temperature requirement explains the occurrence of the disease only in the spring of the year and its absence in oysters south of British Columbia despite the extensive historic relocation of potentially infected oysters to the Pacific United States. Conversely, other oyster diseases seem to be curtailed by cold temperatures. For example, *Nocardia* sp. has been detected in *C. gigas* in British Columbia throughout the year. However, nocardiosis occurs only towards the end of exceptionally warm summers. The literature also indicates that *Ostracoblabe implexa,* the agent of oyster shell disease, requires >22°C for more than two weeks to proliferate and optimum growth occurs at 30°C (Alderman & Jones 1971, Trans. Br. Mycol. Soc. 57:213–225). This requirement for warm temperatures probably explains why this fungus is not a problem in British Columbia although we have detected it in a few oysters. Diseases caused by *Perkinsus marinus* and *Bonamia ostreae* have not been detected in Canada possibly because these parasites require warm temperatures to replicate. The question that research must now address is how long can these pathogens survive in hosts held at temperatures not suitable for their pathogenic expression before potential carriers can be certified as free of infection.

IMPACT OF *BONAMIA OSTREAE* ON CULTURED *OSTREA EDULIS* AT TWO SITES ON THE DAMARISCOTTA RIVER, MAINE. Ryan B. Carnegie and **Bruce J. Barber,** School of Marine Sciences, University of Maine, Orono, ME 04469.

The oyster parasite, *Bonamia ostreae,* persists in *Ostrea edulis* populations at several locations in Maine. However, *B. ostreae* prevalence is always low, and heavy infections are rare. To assess the potential role of temperature on growth and prevalence of *B. ostreae,* we deployed 2000 *O. edulis* seed in July 1997 among eight surface trays at each of two sites on the Damariscotta River. One location (Little Point) was in a warm (>21°C in summer) area in the upper river, and the other (Lowes Cove) was a cooler (<18°C), mid-river site. Shell height, mortality, and prevalence of *B. ostreae* were measured bimonthly beginning in May 1998. Temperature was measured 4× daily and salinity weekly. Growth was significantly greater at the warmer Little Point site, where the oysters had reached 70.1 ± 2.8 mm in shell height by September 1998. At Lowes Cove, average shell height was 48.8 ± 3.0 mm. However, cumulative mortality was also greater at Little Point: 41.4 ± 11.6% in September 1998, vs. 21.8 ± 6.8% at Lowes Cove. Instantaneous mortality was 31.8% at Little Point in July 1998 following a significant mid-June rain event that reduced salinity below 22‰. *B. ostreae* was observed only in animals reared at Little Point. Prevalence of *B. ostreae* was 3.1% in May 1998, and 9.4% in July 1998, and infection intensity in all cases was low. Thus, it is more likely that the mortality was due to a sharp decrease in salinity than to *B. ostreae.*