

## 5.2.8 Hexamitiasis of Oysters

Ralph Elston

Battelle Marine Sciences Laboratory  
439 W Sequim Bay Rd  
Sequim, WA 98382  
206/683-4151  
[aquatech@olypen.com](mailto:aquatech@olypen.com)

### A. Name of Disease and Etiological Agent

*Hexamita nelsoni* of the phylum Sarcomastigophora is the reputed etiological agent, frequently referred to as *Hexamita* sp. in the literature. Hexamitiasis is also referred to as pit disease.

### B. Known Geographical Range and Host Species of the Disease

Some controversy exists concerning whether or not this parasite, often found systemically in dying oysters, is a pathogen. It is reported to have been responsible for mortalities of *Ostrea edulis* in recirculating seawater basins (pits) in Holland. Experimental water-borne transmission of *Hexamita* has been demonstrated for *Ostrea lurida* (*Ostreola conchaphila*). In the *Crassostrea* species, evidence shows that injected organisms will kill oysters but the pathogenicity under field conditions is equivocal. The causative agent is considered to be cosmopolitan. The following species at the locations indicated have been reported to be infected:

1. *Saccostrea commercialis* (Australian rock oyster), Australia
2. *Crassostrea gigas* (Pacific oyster), Pacific Northwestern United States
3. *Crassostrea virginica* (American oyster), Prince Edward Island, Canada
4. *Ostrea edulis* (European flat oyster), Holland; Maritime region, Eastern Canada
5. *Ostrea lurida* (*Ostreola conchaphila*), (Olympia oyster), Puget Sound, Washington

### C. Epizootiology

Mortality rates have not been precisely recorded, but in certain years, oyster farmers have estimated mortalities of *Ostrea lurida* at about 75% over a two-month period. This is definitely a cold temperature disease in this species. Experiments show that infection and debilitating disease occur at 6°C and lower but not at 12°C or higher. Mortalities associated with this disease are usually reported in winter, but in northern zones such as Alaska, the disease has been found at other times of the year.

## D. Disease Signs

Infected oysters may appear “fat” but both gaping and apparently healthy individuals may harbor large numbers of the organism systemically.

## E. Disease Diagnostic Procedures

### 1. Presumptive Diagnosis

Observation of the motile flagellates in microscopic wet preparations of blood from *Ostrea lurida* during cold water periods.

### 2. Confirmatory Diagnosis

Observation of the histological signs of the disease. These include hemocytosis around blood vessels and sinuses and occlusion of blood vessels by trophozoites in heavy infections, necrosis of intestinal epithelium when the flagellates are observed in the digestive lumen, and degeneration of connective tissue and branchial tissue in the presence of trophozoites. Intracellular forms of the parasite can, in some cases, be observed in hemocytes. These forms display a characteristic macronucleus.

## References

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