

## 5.2.3 Oyster Seaside Haplosporidiosis

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### **A. Name of Disease and Etiological Agent**

Oyster seaside haplosporidiosis is caused by *Haplosporidium costale* (*Minchinia costalis*). The agent associated with the disease was first known as seaside organism and the acronym SSO is still used in reference to the disease.

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

#### **1. Geographical Range**

The disease occurs from Virginia north to Massachusetts in high salinity coastal waters.

#### **2. Host Species**

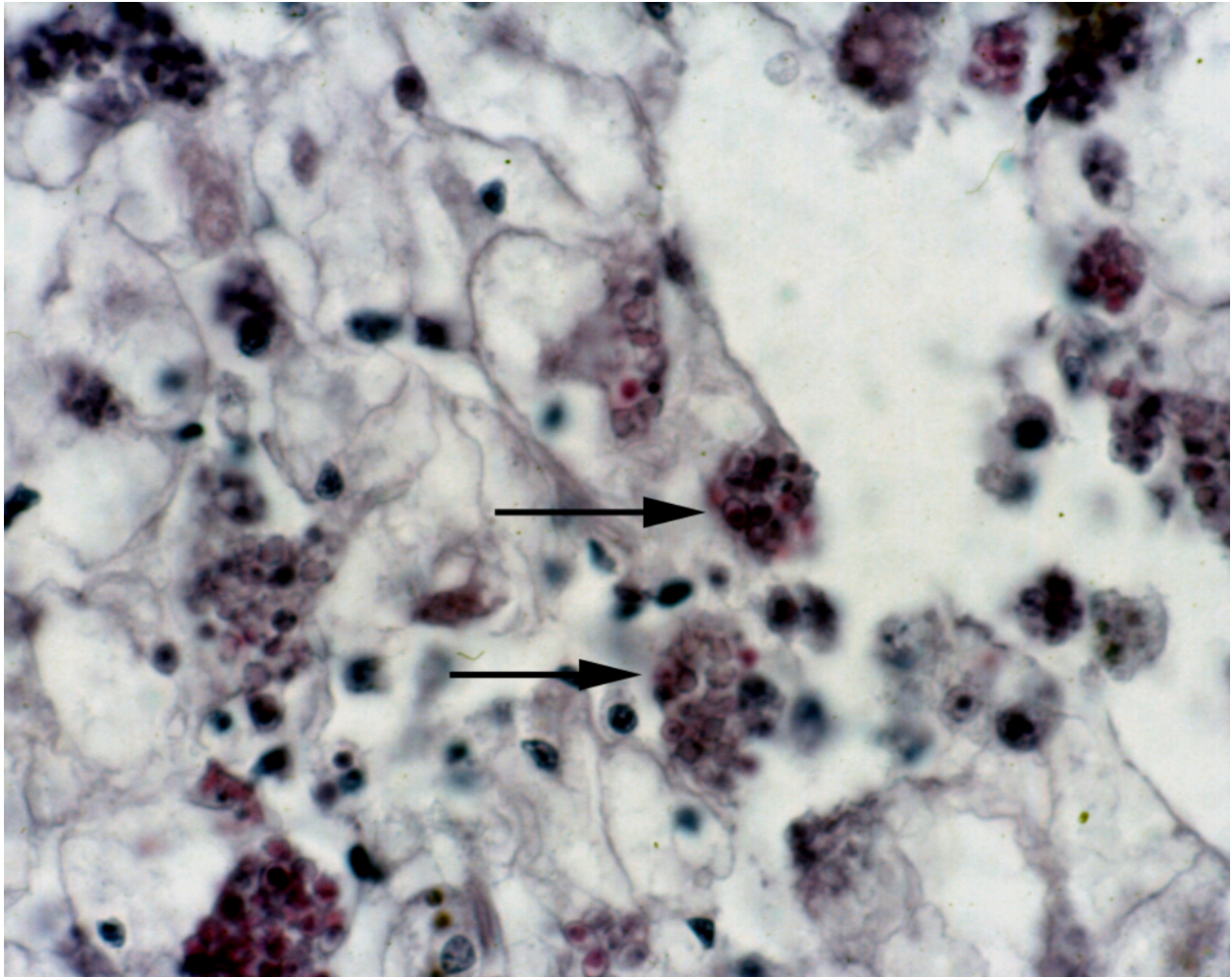
Found in the American oyster *Crassostrea virginica*.

### **C. Epizootiology**

The disease is detectable only from March through June of each year and is associated with mortalities in May and June. Infections acquired in the spring of one year may not cause death until the following spring when the mortality rate can reach 50%. Oysters may also be infected with MSX disease, which often kills the oyster before *Haplosporidium costale*. Thus, the apparent rate of mortality due to *Haplosporidium costale* is lower than if the MSX organism were not present. The fact that this disease occurs only on seaside coasts rather than in the more inland embayments apparently results from its high salinity requirement.

### **D. Disease Signs**

1. Extremely rapid onset and course of disease to mortality (occurring in June in Chincoteague Bay, Virginia) of oysters exposed the previous year.
2. Non-specific signs of gaping, discoloration, lack of shell growth, and mantle recession may occur in oysters affected by this disease.



**Figure 1.** Sporulation of *Haplosporidium costale* in an American oyster (arrows), 1125X.

## E. Disease Diagnostic Procedures

### 1. Confirmatory Diagnosis

Diagnosis is based on histological examination: All three stages of the organism occur only in the months of March through June. Plasmodia are not readily distinguishable from *Haplosporidium nelsoni* plasmodia, although all observed stages of *Haplosporidium costale* occur systemically in March and April, contain several nuclei, and are smaller (less than 10  $\mu\text{m}$ ) in diameter. Sporonts are between 10 and 20  $\mu\text{m}$  in diameter. Spores (Figure 1) (4  $\mu\text{m}$  length) are commonly found in connective tissue in terminally sick oysters. *Haplosporidium costale* spores are not found in digestive epithelium while *Haplosporidium nelsoni* spores, when present, are found only in digestive epithelium. Microscopically, sporonts and spores cause the typical curdled appearance in connective tissue, which is considered diagnostic for this disease.

## F. Procedures for Detecting Subclinical Infections

No methods are known for detection of the disease outside of the March through June time frame when the stages described above are histologically observable.

## References

- Andrews, J. D., J. L. Wood, and H. D. Hoese. 1962. Oyster mortality studies in Virginia: III. Epizootiology of a disease caused by *Haplosporidium costale*, Wood and Andrews. *Journal of Insect Pathology* 4:327-343.
- Andrews, J. D., and M. Castagna. 1978. Epizootiology of *Minchinia costalis* in susceptible oysters in seaside bays of Virginia's eastern shore, 1959-1976. *Journal of Invertebrate Pathology* 32:124-138.