

## Diseases of molluscs

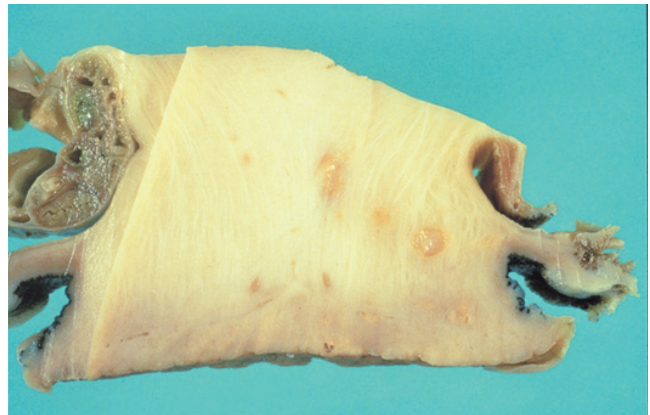
### Parasitic diseases—**Infection with *Perkinsus olseni***

#### Signs of disease

Important: animals with disease may show one or more of the signs below, but disease may still be present in the absence of any signs.

#### Clinical signs of disease in an infected animal

- in blacklip and greenlip abalone, may produce pustules (spherical brown abscesses up to 8 mm in diameter containing a caseous creamy-brown deposit) in the foot and mantle
- lesions appear as pale brown circles in processed abalone
- 30–40% mortality in greenlip abalone  
3–4 cm long



**Perkinsosis in abalone. Note blisters on body tissue**

Source: New South Wales Department of Primary Industries

#### Disease agent

Several species of the genus *Perkinsus* are responsible for causing perkinsosis in molluscs such as oysters, mussels, clams and abalone worldwide. *Perkinsus olseni* is the only species known to cause this disease in the Asia–Pacific region and is responsible for perkinsosis in abalone, clams and pearl oysters.

#### Host range

Molluscs known to be susceptible to infection with *Perkinsus olseni*:

pearl oyster	( <i>Pinctada sugillata</i> , <i>Pinctada maxima</i> )
blacklip abalone*	( <i>Haliotis rubra</i> )
greenlip abalone*	( <i>Haliotis laevigata</i> )
staircase abalone*	( <i>Haliotis scalaris</i> )
whirling abalone*	( <i>Haliotis cyclobates</i> )
Asian littleneck clam*	( <i>Venerupis philippinarum</i> )
crocus clam*	( <i>Tridacna crocea</i> )
elongated or rugose giant clam*	( <i>Tridacna maxima</i> )
European aurora venus clam*	( <i>Venerupis aurea</i> , <i>V. pullastra</i> )
giant clam*	( <i>Tridacna gigas</i> )
groove-shelled clam*	( <i>Ruditapes decussatus</i> , <i>R. pullastra</i> , <i>R. semidecussatus</i> )
New Zealand cockle*	( <i>Austrovenus stutchburyi</i> , <i>Macomona liliana</i> , <i>Barbatia novae-zelandiae</i> )
sand cockle	( <i>Katelysia rhytiphora</i> )
Sydney cockle	( <i>Anadara trapezia</i> )

\* naturally susceptible (other species have been shown to be experimentally susceptible)



## Infection with *Perkinsus olseni* continued

### Presence in Asia–Pacific

*Perkinsus olseni* has been officially reported from Australia and the Republic of Korea.



### Epidemiology

- Disease caused by infection with *Perkinsus olseni* affects the marketability of abalone.
- The disease is also suspected of causing mortalities in abalone. It has been associated with mass mortality of *H. laevigata* in St. Vincent Gulf, South Australia and coastal New South Wales.
- Transmission of this parasite occurs directly between individual molluscs.
- Prezoosporangia that escape from necrotic pustules or decaying dead abalone undergo further development to zoosporangia in seawater.
- Within nine days at 20°C and three days at 28°C, hundreds of motile, biflagellated zoospores (about 3 µm by 5 µm) exit from the zoosporangium. The zoospores are infective to abalone as well as to other molluscs
- *P. olseni* can survive for several weeks at –20°C, but freshwater is lethal for the pathogen.

### Differential diagnosis

The differential diagnostic table and the list of similar diseases appearing at the bottom of each disease page refer only to the diseases covered by this field guide. Gross signs observed might well be representative of a wider range of diseases not included here. Therefore, these diagnostic aids should not be read as a guide to a definitive diagnosis, but rather as a tool to help identify the listed diseases that most closely account for the gross signs.

The clinical signs of infection with *P.olseni* are similar to those of infection with other *Perkinsus* spp (ie occasional pustules in soft tissue, pale digestive gland, poor condition, emaciation, shrinkage of mantle and retarded growth). Because it is difficult to make a presumptive diagnosis based on gross signs alone, any presumptive diagnosis requires further laboratory examination.

### Sample collection

Because of uncertainty in differentiating diseases using only gross signs, and because some aquatic animal disease agents might pose a risk to humans, you should not try to collect samples unless you have been trained. Instead, you should phone your national hotline number and report your observations. If samples have to be collected, the agency taking the call will advise you on what you need to do. Local or district fisheries/veterinary authorities could advise you on sampling.



## Infection with *Perkinsus olseni* continued

### Emergency disease hotline

For your national emergency disease hotline number, see Whom to contact if you suspect a disease.

### Further reading

[http://www.oie.int/aac/eng/cards/en\\_diseasecard.htm](http://www.oie.int/aac/eng/cards/en_diseasecard.htm)

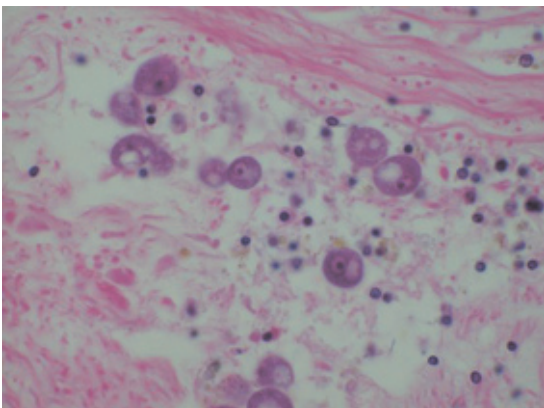
[http://www.pac.dfo-mpo.gc.ca/sci/shelldis/pages/perkolab\\_e.htm](http://www.pac.dfo-mpo.gc.ca/sci/shelldis/pages/perkolab_e.htm)

[http://www.pac.dfo-mpo.gc.ca/sci/shelldis/pages/perkincc\\_e.htm](http://www.pac.dfo-mpo.gc.ca/sci/shelldis/pages/perkincc_e.htm)

The currently accepted procedures for a conclusive diagnosis of infection with *Perkinsus olseni/atlanticus* are summarised at [http://www.oie.int/eng/normes/fmanual/A\\_00043.htm](http://www.oie.int/eng/normes/fmanual/A_00043.htm)

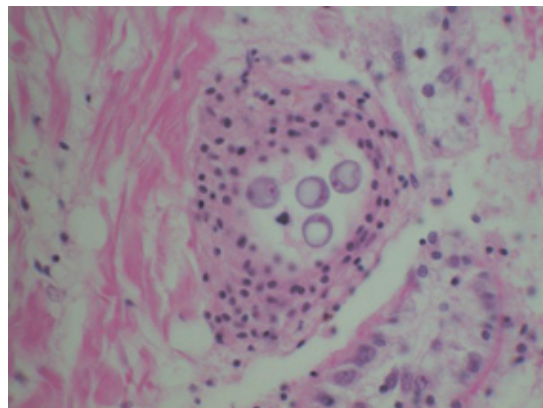
These hyperlinks were correct and functioning at the time of publication.

### Histological images



***Perkinsus olseni* in greenlip abalone (*Haliotis laevisgata*)**

Source: E Burreson



***P. olseni* in clam (*Ruditapes* sp)**

Source: E Burreson

