

## Infection with *Bonamia* spp (Also known as bonamiosis)

Infection with *Bonamia* sp. in Australian flat oysters (*Ostrea angasi*); note the smaller size of infected oysters on right compared with normal ones on left



Source: CSIRO Australian Animal Health Laboratory

### Signs of disease

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

Diseases caused by any of the microcell species are similar, with few or no clinical or gross signs present with light infection. Identification of the *Bonamia* or *Mikrocytos* species requires histological laboratory examination and molecular diagnostic techniques.

#### Disease signs at the farm, tank or pond level are:

- increased mortality.

#### Gross pathological signs are:

- stunted growth and poor condition
- weakened shell closure, leading to slight gaping
- watery flesh
- algae-covered shell lips after the mantle shrinks and no longer reaches the edges
- deformities to the gill margins.

Infection with *Bonamia* spp. rarely results in gross pathological signs of disease in oysters; often the only visual cue is increased mortality.

**Microscopic pathological signs are:**

- microcell parasites in or near epithelia—may be in very low numbers
- in Australian flat oyster (*Ostrea angasi*) apparently low numbers of parasites causing, massive focal haemocyte aggregation with necrotic foci.

**Disease agent**

Bonamia species are intrahaemocytic protists in the phylum Haplosporidia that cause lethal infection of certain oysters. This disease listing includes *B. perspora* and unidentified *Bonamia* spp., but excludes *B. exitiosa* and *B. ostreae*, which are addressed in separate disease listings.

**Host range**

Species known to be susceptible to infection with *Bonamia* spp. are listed below.

Common name	Scientific name
Argentinian flat oyster <sup>a</sup>	<i>Ostrea puelchana</i>
Crested oyster <sup>a</sup>	<i>Ostrea equestris</i>
New Zealand dredge oyster <sup>a</sup>	<i>Ostrea chilensis</i>
Southern mud oyster or Australian flat oyster <sup>a</sup>	<i>Ostrea angasi</i>
Suminoe oyster <sup>a</sup>	<i>Crassostrea ariakensis</i>

<sup>a</sup> Naturally susceptible

**Presence in Australia**

Infection with *Bonamia* spp. has been officially reported from New South Wales, South Australia, Tasmania, Victoria and Western Australia in flat oysters.

## Epidemiology

- Mortalities can occur all year but usually happen in spring and summer.
- Significant mortalities usually occur at water temperatures of 12–20 °C.
- Animals may be infected without mortalities; the factors that contribute to outbreaks are unclear.

## Differential diagnosis

The list of similar diseases below refers only to the diseases covered by this field guide. Gross pathological signs may be representative of a number of diseases not included in this guide, which therefore should not be used to provide a definitive diagnosis, but rather as a tool to help identify the listed diseases that most closely account for the gross signs.

## Similar diseases

Infection with *B. ostreae*, *B. exitiosa* and *Mikrocytos mackini*

There are few or no visual cues to the presence of this disease other than poor condition, shell gaping and increased mortality. Consequently, it is impossible to differentiate between *Bonamia* and *Mikrocytos* species based on gross signs alone; any presumptive diagnosis requires further laboratory examination.

Light microscopy can contribute diagnostic information, but further laboratory examination and molecular diagnostic techniques are required for a definitive diagnosis.

## Sample collection

Due to the uncertainty in differentiating diseases using only gross pathological signs, and because some aquatic animal disease agents might pose a risk to humans, only trained personnel should collect samples. You should phone your state or territory hotline number and report your observations if you are not appropriately trained. If samples have to be collected, the state or territory agency taking your call will provide advice on the appropriate course of action. Local or district fisheries or veterinary authorities may also provide advice regarding sampling.

## Emergency disease hotline

The national disease hotline number is 1800 675 888. This number will put you in contact with the appropriate state or territory agency.

## Further reading

Further information can be found at the following websites:

Centre for Environment, Fisheries and Aquaculture Science (Cefas) International Database on Aquatic Animal Disease (IDAAD): [www.cefas.defra.gov.uk/idaad/disocclist.aspx](http://www.cefas.defra.gov.uk/idaad/disocclist.aspx)

disease pages of Fisheries and Oceans Canada: [www.pac.dfo-mpo.gc.ca/science/species-especes/shellfish-coquillages/diseases-maladies/index-eng.htm](http://www.pac.dfo-mpo.gc.ca/science/species-especes/shellfish-coquillages/diseases-maladies/index-eng.htm)

Sub-Committee on Animal Health Laboratory Standards: [www.scahls.org.au/procedures/anzsdps2](http://www.scahls.org.au/procedures/anzsdps2).

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