

# Ergasilus briani

National Fisheries Services

## What is Ergasilus briani?

*Ergasilus briani* is a non-native crustacean (copepod) parasite. It measures approximately 1mm in length and has two pointed antennae that it uses for attachment.

*E. briani* infects the gill filaments of a wide range of freshwater fish species, however it favours smaller species. It has a life cycle with many stages, but only the adult females are parasitic.



**Ergasilus briani with its two antennae that are used for attachment (arrows)**

## What does Ergasilus briani do?

*Ergasilus briani* attaches between the gill filaments of its host, using its specialised antennae. Once attached, it uses its serrated mouth-parts (situated on the underside of the body) to feed on mucus, blood and epithelial cells within the gill tissue.

High numbers of parasites can cause damage to the gills leading to respiratory distress and loss of normal gill function. Affected fish can become less tolerant of environmental change. This can lead to condition loss, reduced growth and even mortality of juvenile fish. Studies have revealed that over 90 per cent of common bream fry may be infected by *E. briani* when it is present in a fishery. This could have serious consequences on fry survival and recruitment.



**Common bream fry with gill cover removed to show parasites in the gills (arrows)**



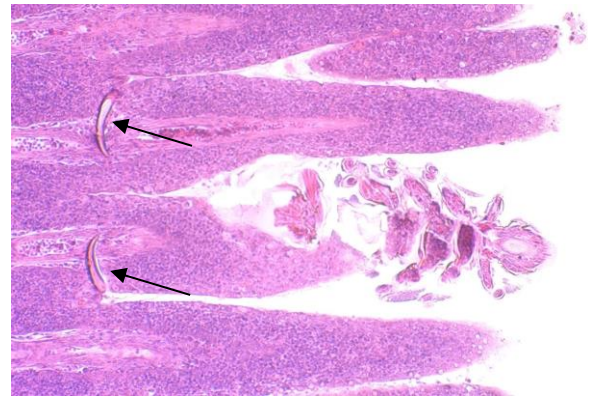
**Loss of condition in infected tench (bottom) compared with an uninfected fish (top)**

## Pathology caused by *Ergasilus briani*

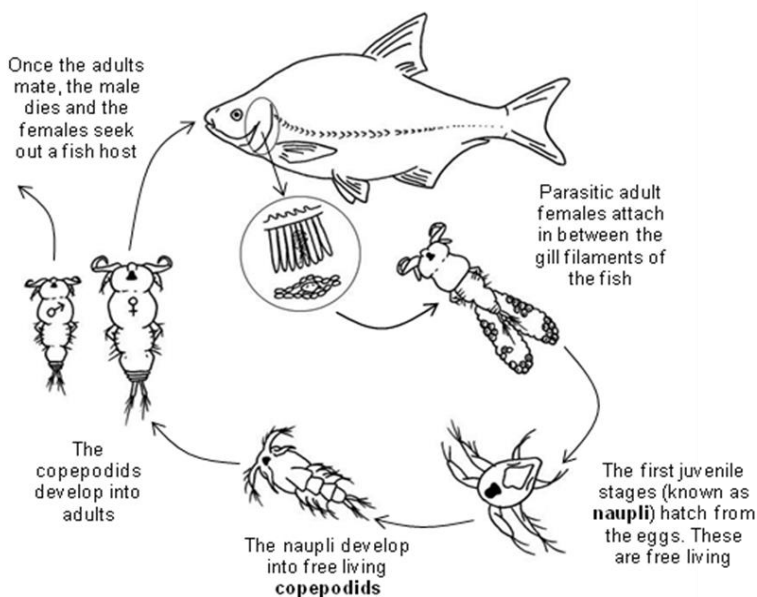
The attachment and feeding behaviour of *Ergasilus briani* causes damage to the delicate gill tissue. This includes hyperplasia (cell multiplication) and necrosis. The insertion of the parasites antennae deep into the gill tissue can also constrict and rupture the blood vessels.

## Epidemiology

*Ergasilus briani* infects a wide range of freshwater fish species. However, common bream (*Abramis brama*), tench (*Tinca tinca*), and crucian carp (*Carassius carassius*) are most susceptible. *E. briani* has a preference for small fish, in particular those less than 10cm in length. However, larger fish can be infected leading to parasite transfer with fish movements. Infections of *E. briani* are seasonal and are generally highest during the summer and late autumn.



A histology image of *Ergasilus briani* showing insertion of the antennae into the gill filaments (arrows)



The life cycle of *Ergasilus briani*

## The life cycle of *Ergasilus briani*

The life cycle of *Ergasilus briani* involves a number of free-living stages before the adult females become parasitic. These larval stages can live for many weeks in the water and feed on algae. The parasitic females live for approximately one year and can over-winter on the fish. The life cycle of *E. briani* is temperature dependant, with reproduction starting in spring (at around 8°C). This continues into late autumn and stops in winter. The eggs are visible as long white strings trailing from the body.

## Protecting your fishery from *Ergasilus briani*

As *Ergasilus briani* can cause serious disease problems in fish, we will not allow movements from infected waters. The best way to protect your fishery from the introduction of non-native parasites is to limit fish stocking activity. If you do decide to stock, then you should get your fish health checked before stocking to help minimise the disease risks.

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Once established in a fishery, there will be millions of free living stages of the parasite within the water. *E. brianii* can therefore be spread with infected water, plants and angler's equipment. It is therefore important that you maintain good biosecurity to reduce disease risks.

If *E. brianii* is already present in your fishery, there are a number of measures that you should consider to limit disease problems. The most effective way of reducing the impact of the parasite is through good fisheries management. Chemical treatments cannot be used to remove the parasite and its free living stages. The only way to eradicate it would be to de-stock, drain and lime the fishery. This is often very costly, undesirable and impractical. Fishery management measures include:

### **Reducing the number of juvenile fish**

Small fish are more susceptible to *Ergasilus brianii*. By reducing the number of small fish species in your fishery, you will minimise the disease risks by making sure there are fewer hosts for *E. brianii* to infect.

### **Keeping the stock density low**

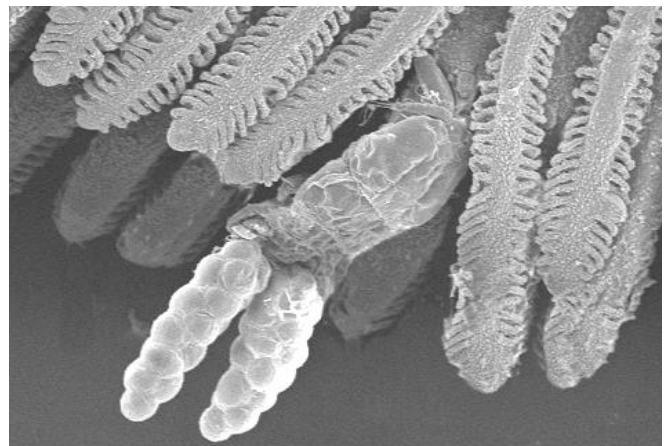
The fewer fish there are in the fishery, the harder it is for the parasite to find a host and reproduce. In the long term this can help to reduce infection levels.

### **Regularly monitoring water quality**

As *Ergasilus brianii* infects the gills, infected fish will be more sensitive to changes in water quality and low dissolved oxygen levels. It is therefore very important that water quality is regularly monitored and dissolved oxygen levels are kept high. This will make it easier for the fish to respire and help reduce the impact of infections.



**Good biosecurity and care over fish stocking are essential to protect healthy fisheries**



***Ergasilus brianii* attached to the gill. The egg strings are clearly visible (arrows)**

For more information on Category 2 and novel parasites, as well as general advice on how to prevent disease outbreaks in your fishery and fishery biosecurity, refer to the 'Non-native and novel parasites' and 'Fish health and fisheries management' fact sheets.

## **This fact sheet has been produced by:**

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