

As the presence of the parasite in *O. lutaria*, in particular from Foveaux Strait, was not detected until 1963 by Millar, no comparative figures from previous years are available.

The incidence of bucephalid infections previously reported from bivalve molluscs ranges between 0.1% for *Bucephalus mytili* infecting *Mytilus edulis* from North Wales (Cole, 1935), and greater than 50% for *B. haimeanus* infecting *Tapes aureus* from the Mediterranean (Palombi, 1934). The majority of authors have recorded a 10% incidence or less which is comparable with the incidence in oysters from Tasman Bay, Wellington Harbour and Hauraki Gulf. The incidence from areas A and B in Foveaux Strait is thus among the highest recorded for a bucephalid infection.

2. THE EFFECT OF THE PARASITE ON THE OYSTER

HISTORICAL ACCOUNT OF OBSERVATIONS OF THE EFFECTS OF BUCEPHALIDS ON BIVALVES:

Many investigators have given details of the effects that bucephalid parasites have on their bivalve molluscan hosts. In general they have noted the absence of sexual products in infected hosts.

Lacaze-Duthiers (1854) recorded the unhealthy appearance of *Ostrea edulis* and *Cardium rusticum* when infected with *Bucephalus haimeanus*. He observed that the gonads were shrunken and sterile and the tissue surrounding the sporocysts was watery and transparent.

McCrary (1874), who reported *B. cuculus* in *Crassostrea virginica*, observed, in infected oysters, the transparency of the visceral mass through which the sporocysts could be seen. The sporocysts were confined to the gonad region. Sperm and eggs were absent. McCrary stated that infected oysters did not appear sick or weak and that an infected oyster was probably freed from the parasite with the onset of winter.

Huet (1889) reported *B. haimeanus* in *Cardium edule*. He observed the unhealthy appearance of the visceral mass of infected specimens, and concluded that the parasites probably caused the death of the hosts and then escaped into the water.

Kelly (1899) described gonad destruction in freshwater clams infected with sporocysts of *B. polymorphus*. He also noted changes in shell form, and damage to the kidney in heavily infected specimens. His general conclusion was that bucephalid infections caused parasitic castration.

Cary (1907) noted that the appearance of the visceral mass in an infected oyster from the Louisiana oyster beds is similar in appearance to that of an oyster laden with well-developed sexual products. However, he pointed out that the milky appearance was due to the sporocyst ramifying throughout the visceral mass and not to sexual products.

Tennent (1906) made observations on experimental oyster beds in Newport River, North Carolina, U.S.A. A high mortality of oysters occurred following a summer of freshets in the river and Tennent concluded (p. 682), ". . . that the presence of the cercaria seems to render the oyster less capable of withstanding adverse conditions. While conditions conducive to the well-being of the oyster prevail, the presence of the cercaria does not seem to cause any great mortality. . . . Even during the best of conditions the parasite must be considered as injurious, since it prevents the formation of sexual products."