

Pilchard Orthomyxovirus (POMV) and Brown trout



POMV was first discovered in Australia in 1998 in pilchards in South Australia. At that time, there were largescale deaths of pilchards caused by a herpes virus and POMV was also found in these fish but was only an incidental finding (i.e. the pilchards were not dying from POMV).

POMV has probably been in pilchards for a very long time. The only reason it was eventually found in pilchards was because they were dying from something else (i.e. herpes virus). There are many potential disease agents in wild fish populations that go undetected until fish are tested for some unrelated reason like a mass mortality due to an algae bloom or other disease. It is also the case that diagnostic tests are rapidly improving which means that disease agents previously not detected are now being found using advanced DNA methods.

There haven't been any reports of pilchards dying from POMV anywhere in Australia.

POMV has only been found in pilchards and Atlantic salmon in Australia—we are not aware of any reports of POMV being detected in any other species

POMV wasn't found in Tasmania until 2006 in Atlantic salmon on the Tamar River as an incidental finding. The first outbreak of POMV in Atlantic salmon in the south east of Tasmania occurred in 2012.

POMV is a virus that is naturally occurring in wild pilchards in Tasmania's waters. As pilchards are small enough to swim through the nets on salmon farms, and salmon are susceptible to the virus, it can be passed from pilchards to salmon, salmon to salmon, and potentially salmon to pilchards.

The available science indicates that POMV is transferred from wild pilchards to salmon with pilchards being the original source of the virus. It is likely that infection could also transmit from salmon to pilchards, but there is no evidence of POMV in other wild fish species. It is commonly the case that infectious agents are very species specific. Given that pilchards are widely distributed in Tasmanian waters and are the original source of POMV, wild fish populations (including Brown trout) are potentially exposed to this endemic disease wherever pilchards are also present, particularly where they are eaten by other fish species.

There is however, no evidence that POMV can be transferred to trout. While recently there has been significant mortality in farmed Atlantic salmon in Macquarie Harbour, there was no disease in farmed Rainbow trout held close by. Despite this, Huon tested trout in all trout pens to see if they were carrying the POMV virus, even at low levels. The testing was undertaken at the Department for Primary Industries, Parks, Water and Environment (DPIPWE) Centre for Aquatic Animal Health and Vaccines in Launceston, using a very sensitive molecular DNA test known as "polymerase chain reaction or PCR". All samples were negative. Therefore, there is no evidence that the POMV virus transfers to or is even carried by Rainbow trout as asymptomatic carriers.

POMV is closely related to the Infectious Salmon Anaemia virus (ISA) which causes disease in Atlantic salmon overseas (i.e. orthomyxoviruses). ISA has been studied for decades with many reports in the literature. As with POMV, ISA causes disease in Atlantic salmon but does not cause disease in herring, brown trout, or other fish species. See links to references below.

In fact, for ISA, Brown trout are believed to be an asymptomatic carrier in the same way as pilchards that can be the source of infection for Atlantic salmon that contract the disease.

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Given that there have been no reports of any sick or dead Brown trout in Tasmania, and Brown trout would be exposed to wild pilchard populations, there is nothing to indicate that Brown trout are susceptible to POMV. It is more likely that they will, in some cases, carry the POMV virus in the same way as pilchards, so be a wild reservoir of the virus without any disease evident, but even this may not be the case as POMV has never been found in Brown trout in Tasmania.

References:

https://en.wikipedia.org/wiki/Infectious_salmon_anemia_virus

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http://www.cfsph.iastate.edu/Factsheets/pdfs/infectious_salmon_anemia.pdf