Finnish Food Safety Authority Evira

Clustering of infection, temporal fluctuation and mixed infections affect the detection of *Gyrodactylus salaris* at rainbow trout farms

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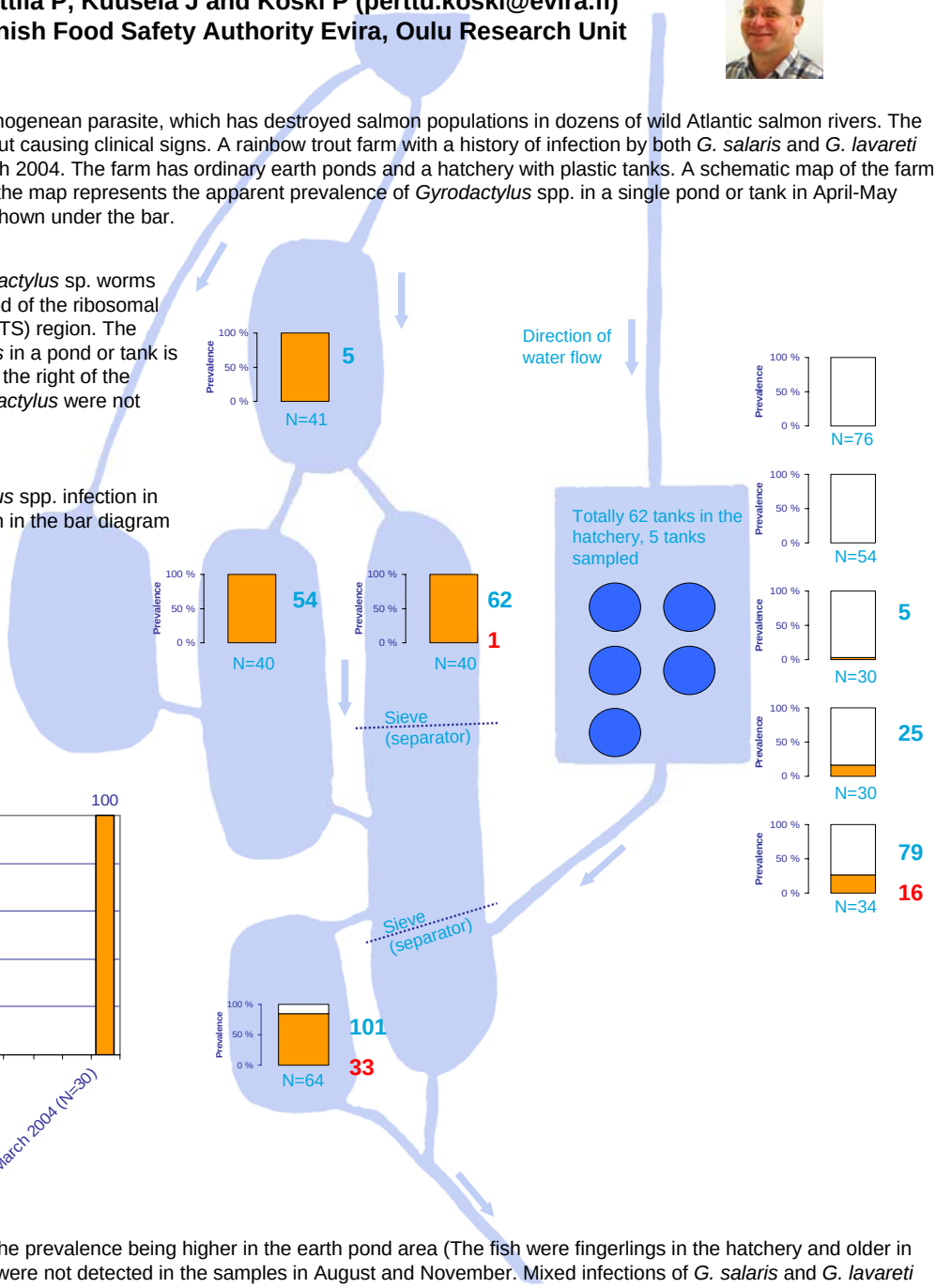
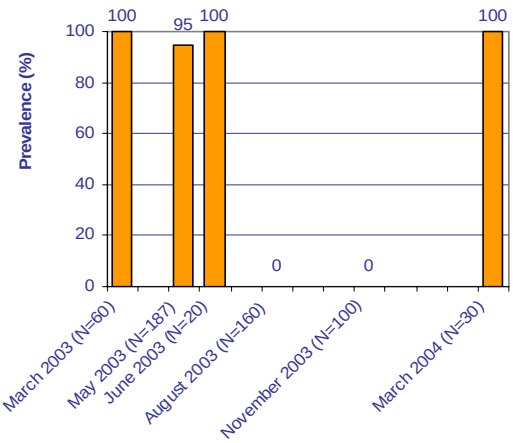
Gyrodactylus salaris is a viviparous monogenean parasite, which has destroyed salmon populations in dozens of wild Atlantic salmon rivers. The parasite also infects rainbow trout without causing clinical signs. A rainbow trout farm with a history of infection by both *G. salaris* and *G. lavareti* was examined during March 2003-March 2004. The farm has ordinary earth ponds and a hatchery with plastic tanks. A schematic map of the farm is presented below. The orange bar on the map represents the apparent prevalence of *Gyrodactylus* spp. in a single pond or tank in April-May 2003. The number of fish examined is shown under the bar.

The species determination of the *Gyrodactylus* sp. worms was performed by multiplex-PCR method of the ribosomal RNA gene internal transcribed spacer (ITS) region. The number of worms identified as *G. salaris* in a pond or tank is in blue, that of *G. lavareti* in red, both to the right of the prevalence bar. Other species of *Gyrodactylus* were not found.

The apparent prevalence of *Gyrodactylus* spp. infection in the earth ponds during one year is given in the bar diagram below left.





The infection was clustered at the farm, the prevalence being higher in the earth pond area (The fish were fingerlings in the hatchery and older in the earth pond area). *Gyrodactylus* spp. were not detected in the samples in August and November. Mixed infections of *G. salaris* and *G. lavareti* occurred.

In the screening of *G. salaris* the sampling should be focused to the earth ponds and done preferably at the end of the winter time or in the spring. The possibility of mixed infections should be taken into consideration, when the number of species determinations of *Gyrodactylus* sp. worms is decided in a *G salaris* screening programme.