

# Alaska Department of Fish and Game

## Division of Commercial Fisheries Professional Paper

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Meyers, T. R., S. Short, C. Farrington, K. Lipson, H. J. Geiger, and R. Gates. 1993. Comparison of the enzyme-linked immunosorbent assay (ELISA) and the fluorescent antibody test (FAT) for measuring the prevalences and levels of *Renibacterium salmoninarum* in wild and hatchery stocks of salmonid fishes in Alaska, USA. *Diseases of Aquatic Organisms* 16:181-189.

**Abstract:** The enzyme-linked immunosorbent assay (ELISA) and the fluorescent antibody test (FAT) were compared for their sensitivity in detection of *Renibacterium salmoninarum* (Rs) in kidney tissues of Alaskan salmonids. The ELISA appeared to be more sensitive in detecting Rs infections. The FAT did not detect Rs in 80% of the ELISA-positive samples but was positive for Rs in 28%, of the samples that were ELISA-negative. This contradiction may have been due to low-level washover of Rs cells from smears containing large numbers of Rs cells when slides containing multiple samples were rinsed in a common vessel during the FAT procedures. The FAT routinely did not detect infections in Rs-positive fish, the tissues of which produced a mean ELISA optical density value 50.173, and inconsistently detected infections in fish with ELISA values  $> 0.173$  but  $< 0.978$ . The 0.978 optical density was the mean ELISA value at which the FAT routinely detected Rs-positive fish. Based on the ELISA results, Rs occurred in only 9% of the Alaskan Pacific salmon tested in both wild (85%) and hatchery (81%) stocks. The very high stock prevalences and levels of Rs antigen detected in wild trout *Oncorhynchus char* *Salvelinus* spp., and grayling *Thymallus arcticus* having no clinical signs of bacterial kidney disease suggest these species may be somewhat resistant hosts and important freshwater reservoirs of Rs.

**Keywords:** None.

**URL:** [www.int-res.com/articles/dao/16/d016p181.pdf](http://www.int-res.com/articles/dao/16/d016p181.pdf)

**DOI:** [10.3354/dao016181](https://doi.org/10.3354/dao016181)

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**Paper No.** NA