An unidentified *Vibrio* sp. was first isolated from dead salmon on July 21, 1989 (L. Hutchin and L. Holt, personal communication); **subsequently, it was positively identified as *V. salmonicida* in similar losses on August 8, 1989** (B. Zwicker, personal communication). Extensive monitoring programs with specific isolation techniques were then established to search for *V. salmonicida* throughout the region. During the last three years of monitoring, only one other case of *V. salmonicida* infection has been found.

We believe that good husbandry, including government density regulations, prevented the agent from spreading and causing mass losses, such as those that occurred in Norway in the 1970's and 1980's, when 80% of insurance claims due to diseases on fish farms in Norway were attributed to this problem (1). Diagnosticians should keep Hitra disease in mind as a possible differential diagnosis for hemorrhagic septicemia in fast growing fish.

*Refers to the island of Hitra, Norway, and the losses that occurred in salmon in adjacent waters.

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Western Canada

Pseudopositive ELISA results for infectious bovine rhinotracheitis IgG reactors in three artificial insemination studs

To comply with international trade regulations, artificial insemination (AI) studs in Canada attempt to prevent the infection of bulls on their premises with the virus (BHV1), causing infectious bovine rhinotracheitis (IBR) disease. Serum samples from bulls are tested several times a year for antibodies to BHV1, and those with proven antibodies are removed from contact with the rest of the stud. The test, involves a screening procedure using an enzyme-linked immunosorbent assay (ELISA) (1), to detect animals carrying antibodies to BHV1. Reactions suggesting the presence of antibodies are verified using a test for the recognition of virus neutralizing antibodies (SVNA) (2). This test is made more sensitive by the addition of guinea pig complement to the tissue culture medium.

In 1991, Palliser Animal Health Laboratories received 1065 serum samples in several submissions from AI studs. On the basis of the ELISA screen, 129 samples were retested for SVNA, and 18 were found to have such antibodies. Thus, 111 animals could be considered to be false positive reactors as a result of an oversensitivity of the ELISA. Alternatively, they may have been correctly diagnosed, but the determination of SVNA was not sufficiently sensitive.

In studies financed by the Canadian Association of Animal Breeders, we have been able to show in 22 of the later submissions from these 111 bulls, that the correct explanation for the false positives was due to absorption of nonspecific immunoglobulin to the polystyrene of the ELISA test plates. In spite of the possibility of false positives, we believe that the screening ELISA used here is very useful in situations where samples are expected to be negative. However, the presence of antibodies must be verified by the demonstration of SVNA or by doing a modified ELISA that would include additional controls.

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British Columbia

Septicemia suspected to be caused by a rickettsia-like agent in farmed Atlantic salmon

In November 1991, the daily mortality rate increased from 0.01 to 0.06% in two netpen-reared Atlantic salmon cages at a fish farm located in coastal waters off British Columbia. Many dark, anorectic, lethargic slowswimmers were found at the surface, along the sides of pens, and in the corners. External lesions in affected fish included bilateral exophthalmos, necrotic stomatitis, raised firm erythematous masses extending from the pseudobranch into the branchial cavity, and 1-cm-shallow dermal ulcers on the lateral caudal peduncle. Internal lesions included petechiae on serosa;

fibrous adhesions in the peritoneal cavity; mild splenoand hepatomegaly, with patchy areas of hepatic fibrosis; and multiple, pale, umbilicate, hepatic capsular foci that extended into the paranchyma.

Histopathological changes included marked necrosis and pyogranulomatous inflammation in liver, kidney, spleen, heart, skeletal muscle, and meninges. Vasculitis and thromboses were found in association with multifocal hepatic infarctions. Small, slightly pleomorphic, basophilic inclusions were found singly or in large numbers within the cytoplasm of macrophages. These inclusions were Gram negative, acid-fast, periodic acid-Schiff negative, Giemsa positive, Macchiavello negative (particle stained dark blue) and stained blue with toluidine blue.

Clinical signs and postmortem findings were consistent with those of a disease associated with a rickettsia-like organism (1) in farmed Chilean Coho salmon. This condition has not been reported previously from British Columbia. A similar, probably identical condition, has been recognized in British Columbia since 1970 in wild-run Pink salmon cultured in seawater tanks for experimental purposes, and in farmed Coho and Chinook salmon in the 1980's. Rickettsial infections have also been observed in crustacea and Pacific coast molluscs (2). Chilean workers (1) suggested that the organism may have orginated from a local marine source, with severe stress or inadequate nutrition as necessary contributing factors.

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