

## **Emerging New Genetic Variants of Infectious Hematopoietic Necrosis Virus in Rivers and Lakes of the Olympic Peninsula, Washington**

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Natural resource management agencies (e.g.: Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Northwest Indian Fish Commission) have monitored returning salmon and steelhead hatchery broodstocks for the presence of viral pathogens on the Olympic Peninsula since the early 1970's. Initially, Hematopoietic Necrosis Virus (IHNV) was only isolated from adult sockeye salmon in the Quinault and Ozette River systems. During that time period, widely scattered isolations of IHNV were reported in other salmonid species but the virus has failed to establish itself in any river basin. While conducting routine monitoring for viral pathogens in 2007, IHNV was detected for the first time from adult steelhead and salmon at four (4) hatcheries in the Chehalis River basin and at one hatchery in the Quinault River basin. Since that time detections of IHNV have increased and in 2010 the virus was isolated from both wild and cultured steelhead broodstocks as far north as the Quileute River. Evidence indicates that adult steelhead are the species responsible for the pioneering of IHNV into these river systems. However, genetic typing of the viral isolates has indicated that in most instances there are different genetic variants present in different years. For example, the genetic variants isolated in 2007 from the Chehalis, Humptulips and Quinault river basins were genotyped as mG110M. In 2009-10 the genotype isolated from adult and juvenile steelhead in the Quinault River basin was the mG139M genetic variant. However, the 2010 genetic variant isolated from adult steelhead at the Humptulips Hatchery was mG110M, the same as was isolated in 2007. The vast majority of the isolates from the Bogachiel Hatchery have been the mG139M genetic variant with individual isolations of two other genetic variants (mG186M and mG188M) that are a nucleotide different. This is an indicator the virus has not yet become established in these watersheds. Previously, many of the genetic variants found in salmonids of the western side of the Olympic Peninsula have been isolated from adult and juvenile salmonids in the Columbia River. This evidence leads us to believe that IHNV is emerging out of the Columbia River. This talk will focus on the IHNV isolations along the Olympic Peninsula, the different genetic variants, and the work being done to understand the geographic expansion along the Olympic Peninsula and methods to stop the spread of IHNV.

Short Bio:

John Kerwin has been employed by the Washington Department of Fish and Wildlife since 1987. He currently serves as the Conservation Biology Unit Leader in the Science Division of the Fish Program. He has a Bachelor of Science degree in Biology and is a graduate of the US Fish and Wildlife Service Leetown's Fish Health Long Course. As a portion of his responsibilities he supervises the Fish Health Unit.