

MEMORANDUM

DATE: August 7, 2015

TO: Nick Hetrick, Arcata FWO

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SUBJECT: 2015 Klamath River Juvenile Chinook Salmon Health Monitoring,
Ceratonova shasta and *Parvicapsula minibicornis* Prevalence Data

As a component of Klamath River fish health assessment, the California-Nevada Fish Health Center is examining juvenile Klamath River Chinook salmon to monitor the prevalence of *Ceratonova shasta* and *Parvicapsula minibicornis* infection. Fish are collected by biologists with the Karuk Tribe, Yurok Tribe, and US Fish and Wildlife Service. The CA-NV Fish Health Center is coordinating disease monitoring efforts and providing laboratory support for the project.

To date, QPCR testing has been performed for fish collected the weeks of 29 March through 27 July for the majority of reaches. Collection and testing of coded wire tagged (CWT) juvenile Chinook commenced the week of 21 June for the Salmon to Trinity River (K2) reach and 7 June for the Trinity to Estuary (K1) reach: sampling concluded the week of 26 July for these two reaches. Fish collected from the Klamath River Estuary (K0) concluded the week of 2 August: all estuary samples are pending analysis.

Ceratonova shasta has been detected in 83.1% (667/803) of fish tested to date. *Parvicapsula minibicornis* has been detected in 95.7% (730/763) of fish tested. Clinical disease due to *C. shasta* (enteronecrosis) occurred in early to mid-June in the lower reaches (K3, K2 and K1). Clinical disease due to *Parvicapsula minibicornis* was evident by QPCR and histology in K2 and K1 reaches in late June and throughout July. All data are preliminary and may be subject to final revision prior to an annual report for the juvenile disease monitoring program.

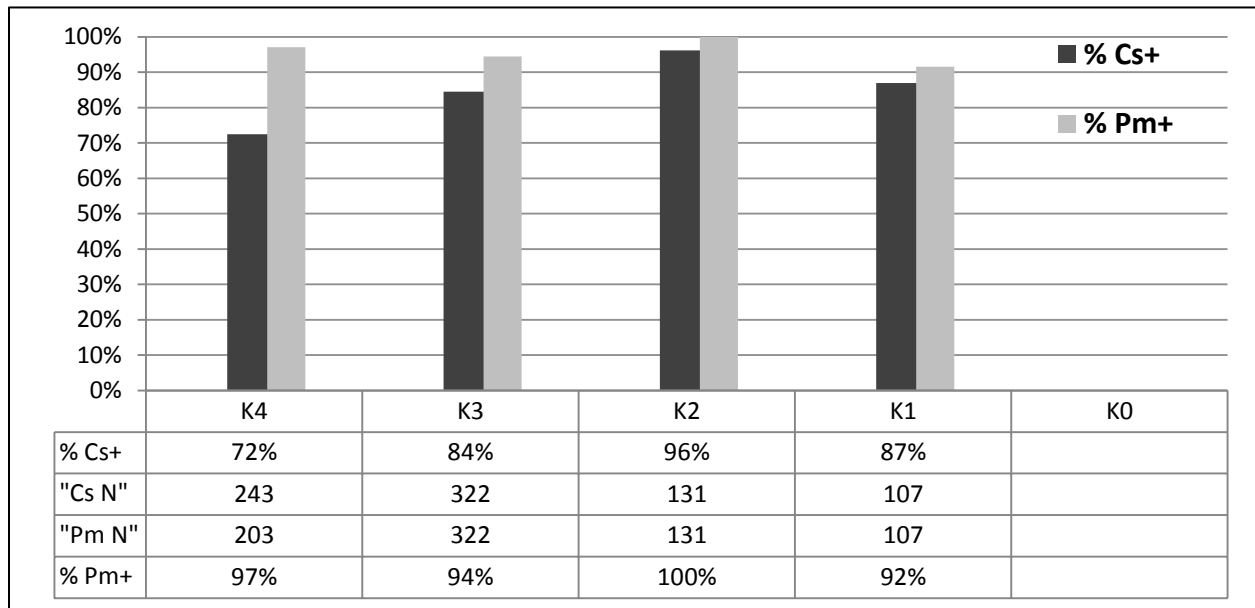


Figure 1. *Ceratonova shasta* and *Parvicapsula minibicornis* prevalence of infection (POI) by sampling reach. Percent positive by Quantitative Polymerase Chain Reaction (QPCR) testing.

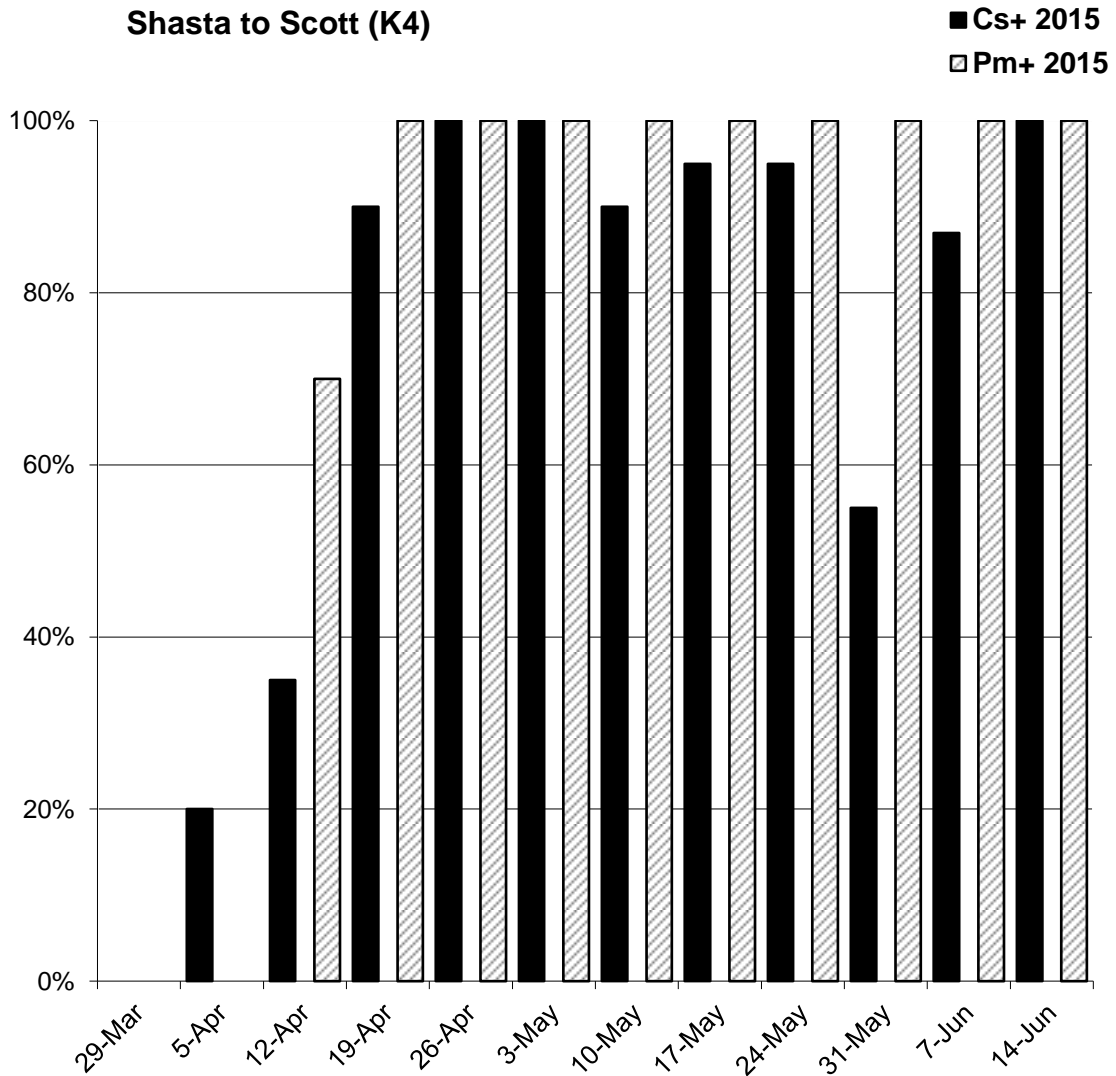


Figure 2. Weekly prevalence of *Ceratonova shasta* and *Parvicapsula minibicornis* infection in juvenile Chinook salmon captured in the Shasta to Scott (K4) reach on the Klamath River. Twenty fish were sampled on 29 March, but tested negative for *C. shasta*. Testing for *P. minibicornis* was not done 29 March and 12 April due to small kidney tissue volume.

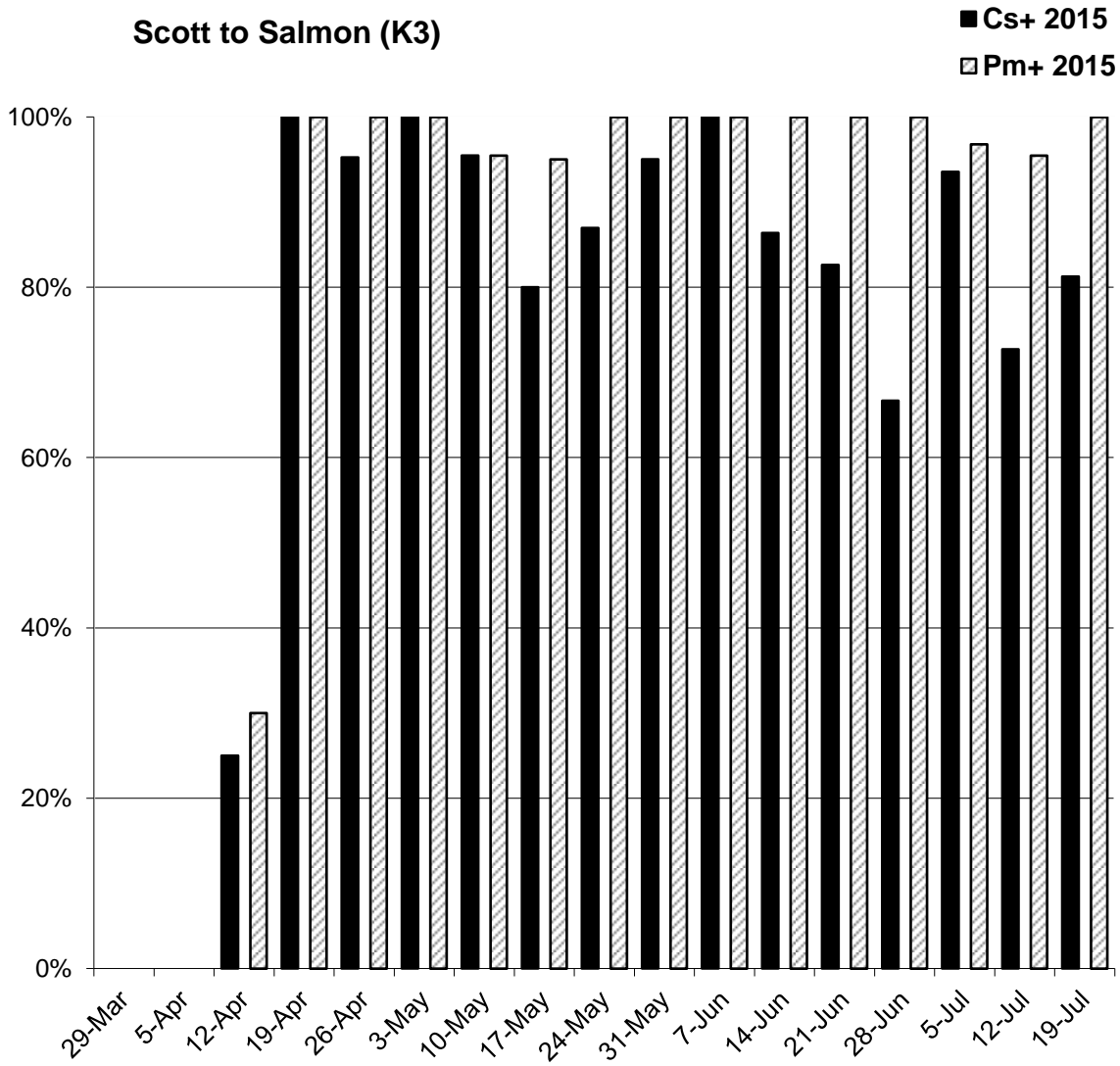


Figure 3. Weekly prevalence of *Ceratonova shasta* and *Parvicapsula minibicornis* infection in juvenile Chinook salmon captured in the Scott to Salmon (K3) reach on the Klamath River. Sampling of this reach commenced the week of 12 April.

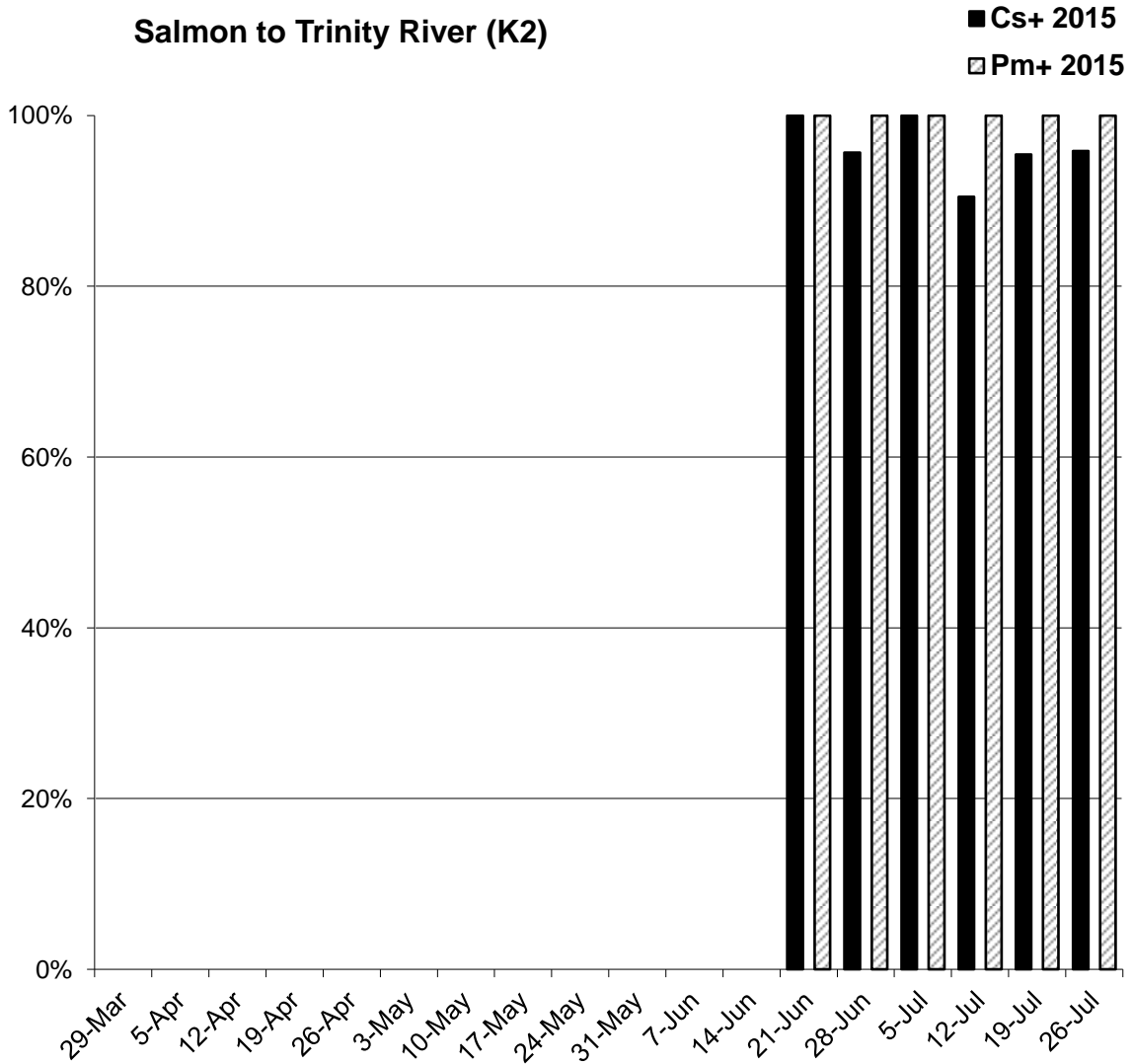


Figure 4. Weekly prevalence of *Ceratonova shasta* and *Parvicapsula minibicornis* infection in juvenile Chinook salmon captured in the Salmon to Trinity (K2) reach on the Klamath River. Sampling of this reach commenced the week of 21 June.

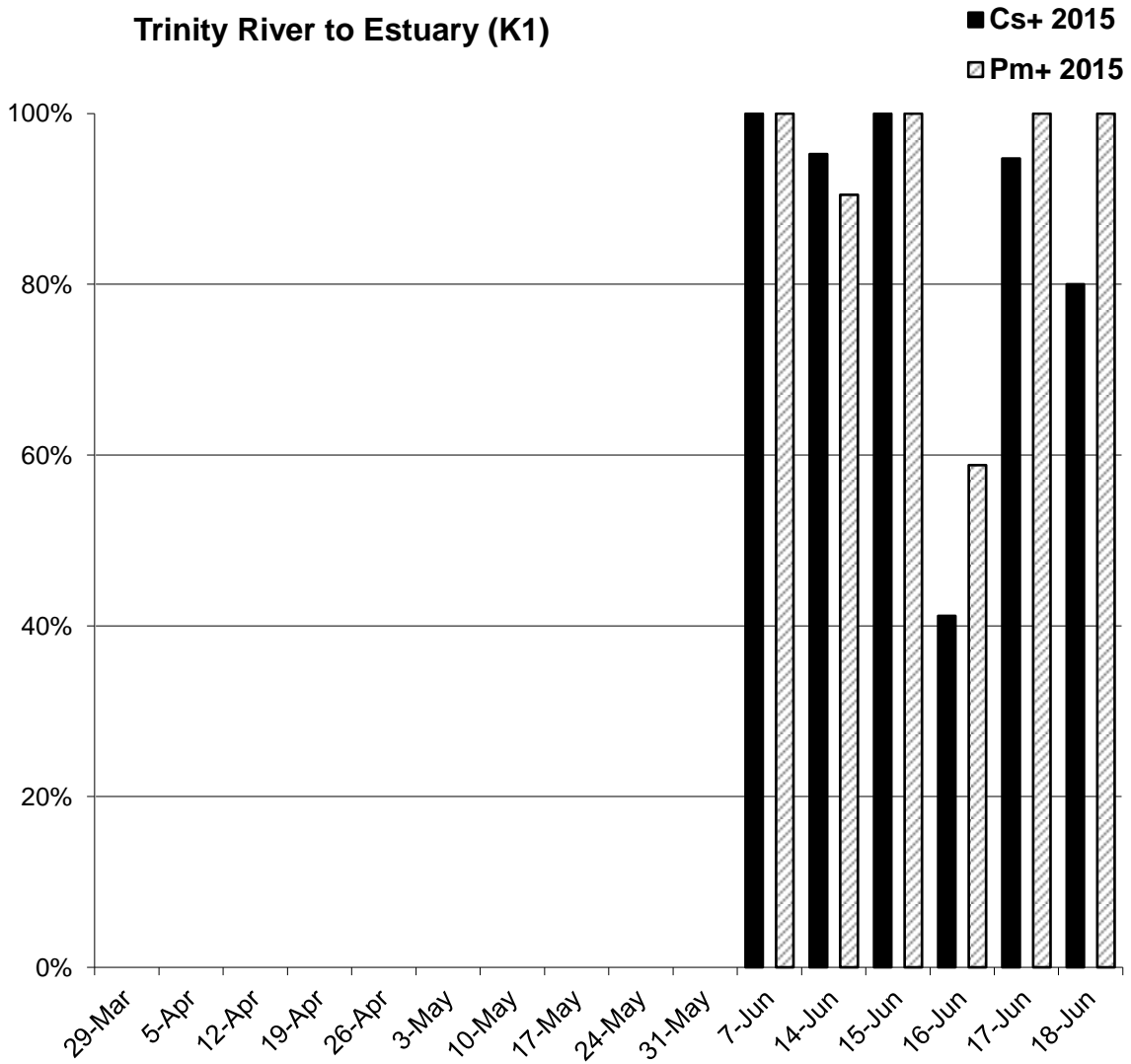


Figure 5. Weekly prevalence of *Ceratonova shasta* and *Parvicapsula minibicornis* infection in juvenile Chinook salmon captured in the Trinity to Estuary (K1) reach on the Klamath River. Sampling of this reach commenced the week of 7 June.