MEMORANDUM

DATE: **September 16, 2016**

TO: **Nick Hetrick, Arcata FWO, KFHAT**

FROM: **Kimberly True**
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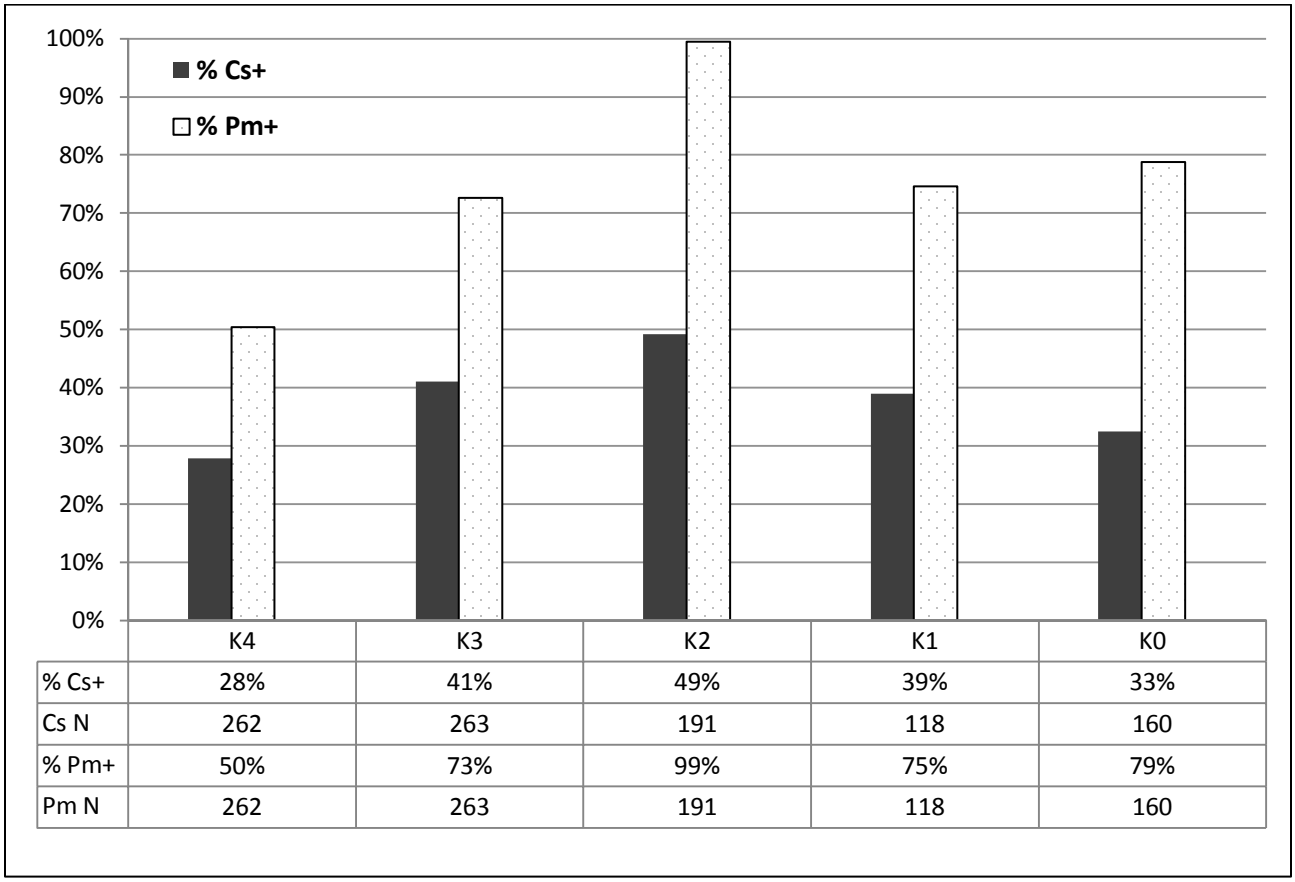
SUBJECT: **2016 Klamath River Juvenile Chinook Salmon Health Monitoring, *Ceratonova shasta* and *Parvicapsula minibicornis* Prevalence Data**

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.

Testing by QPCR has been performed for natural and coded-wire tagged fish collected from 31 March through 10 August. Natural fish tested negative for *C. shasta* the first 5 weeks of monitoring in K4, with the first parasite detection by QPCR occurring May 5th. Field crews reported approximately 15% of juvenile chinook at Kinsman rotary screw trap had external clinical disease signs (distended abdomen) the week of May 8th.

Iron Gate Hatchery juvenile Chinook releases occurred from mid- May (17th and 27th) through early-June (3rd and 9th). Monitoring effort shifted to collection of coded wire tagged (CWT) fish after hatchery releases, when adequate numbers were present in each reach. Field crews reported difficulty collecting fish in June possibly due to cooler river temperatures and greater dispersion of juvenile Chinook salmon. Crews also reported having trouble in July collecting twenty CWT Chinook salmon over a one or two day period. This difficulty occurred again in late August in the estuary when higher flows made it challenging to sample.

Ceratonova shasta has been detected in 38% (373/94) of fish tested to date. *Parvicapsula minibicornis* has been detected in 73% (727/994) of fish tested. Mild to moderate clinical disease signs for *C. shasta* were observed late June in both K4 and K2 reaches and in August in the K0 reach. Moderate to severe clinical disease signs for *P. minibicornis* (swollen kidney tissue) were observed in both K3 and K2 reaches in mid-June and early July during necropsy. All QPCR testing is completed for the 2016 monitoring season, but data should be considered preliminary and subject to revision until the final report is completed in December.



	K4	K3	K2	K1	K0
% Cs+	28%	41%	49%	39%	33%
Cs N	262	263	191	118	160
% Pm+	50%	73%	99%	75%	79%
Pm N	262	263	191	118	160

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