MEMORANDUM

DATE: **September 28, 2011**

TO: **Nick Hetrick, Arcata FWO**

FROM: **Kimberly True**
CA-NV Fish Health Center
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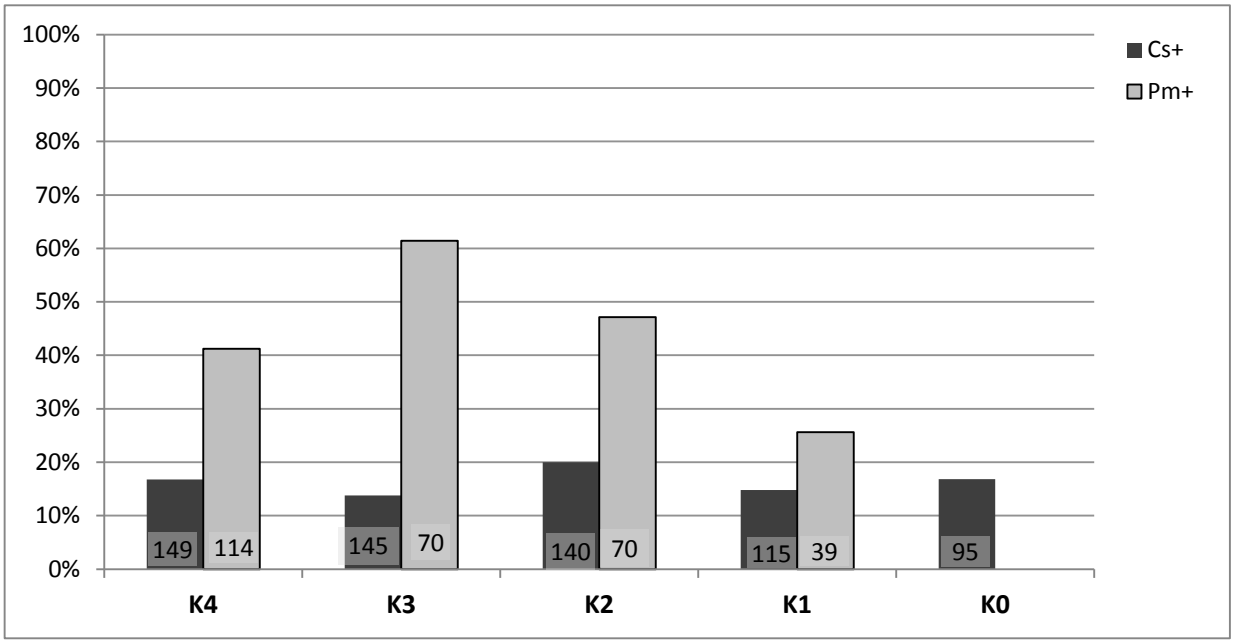
SUBJECT: **2011 Klamath River Salmonid Health Monitoring**

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 *Ceratomyxa shasta* and *Parvicapsula minibicornis* infection. Fish are collected by biologists with the Karuk Tribe, Yurok Tribe, Hoopa 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.

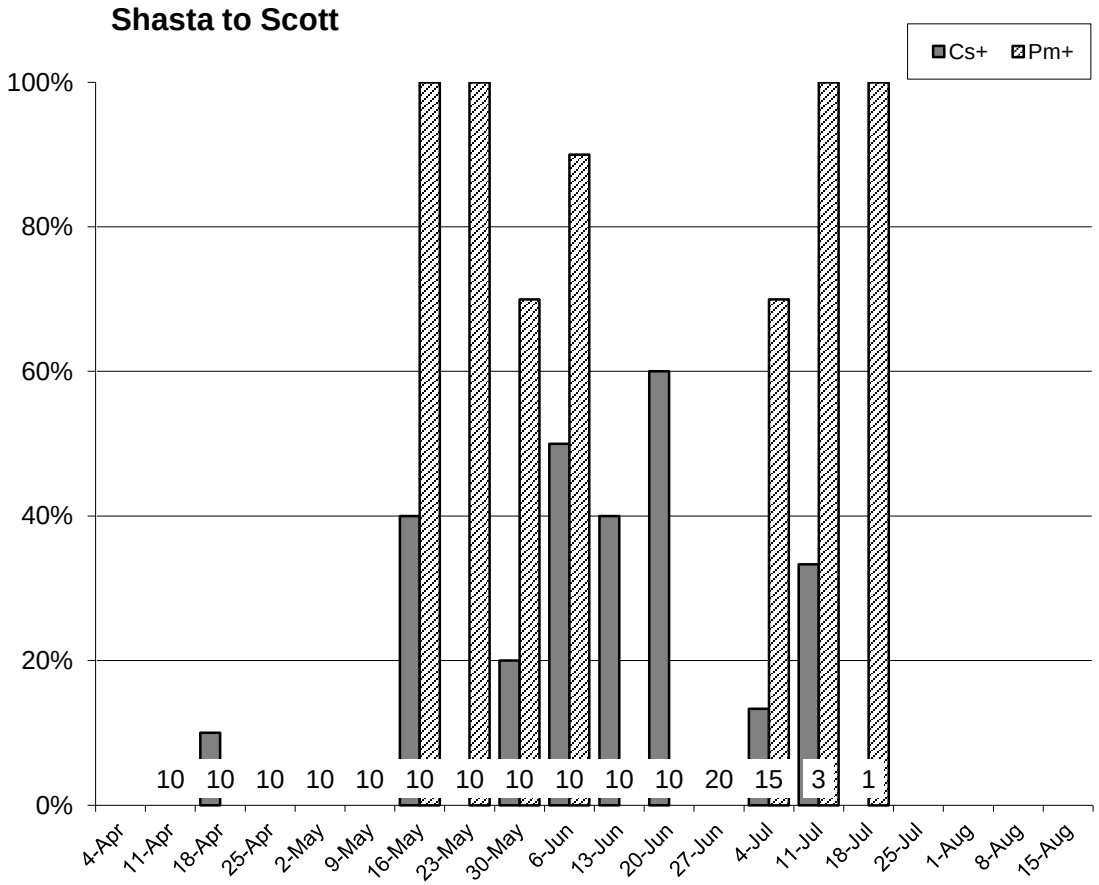
QPCR testing has been performed for fish collected from 4 Apr through 15 Aug for all main stem reaches. QPCR testing for *Ceratomyxa shasta* was performed on all fish, and testing for *Parvicapsula minibicornis* was performed on a subset of fish. Iron Gate Hatchery initiated Fall Chinook releases on June 23rd therefore subsequent sampling and testing has been directed towards recovery of coded-wire tagged juveniles in main stem reaches and the estuary. Prevalence data prior to hatchery release corresponds to naturally produced juvenile Chinook collected in the Klamath reaches above the Trinity River confluence. Data is summarized for all fish by reach in Figure 1, and then by weekly sample period for each reach in Figures 2-6.

Ceratomyxa shasta has been detected in 16.5% (106/644) and *Parvicapsula minibicornis* has been detected in 45.4% (133/293) Klamath Chinook juveniles. All data are preliminary and subject to revision.



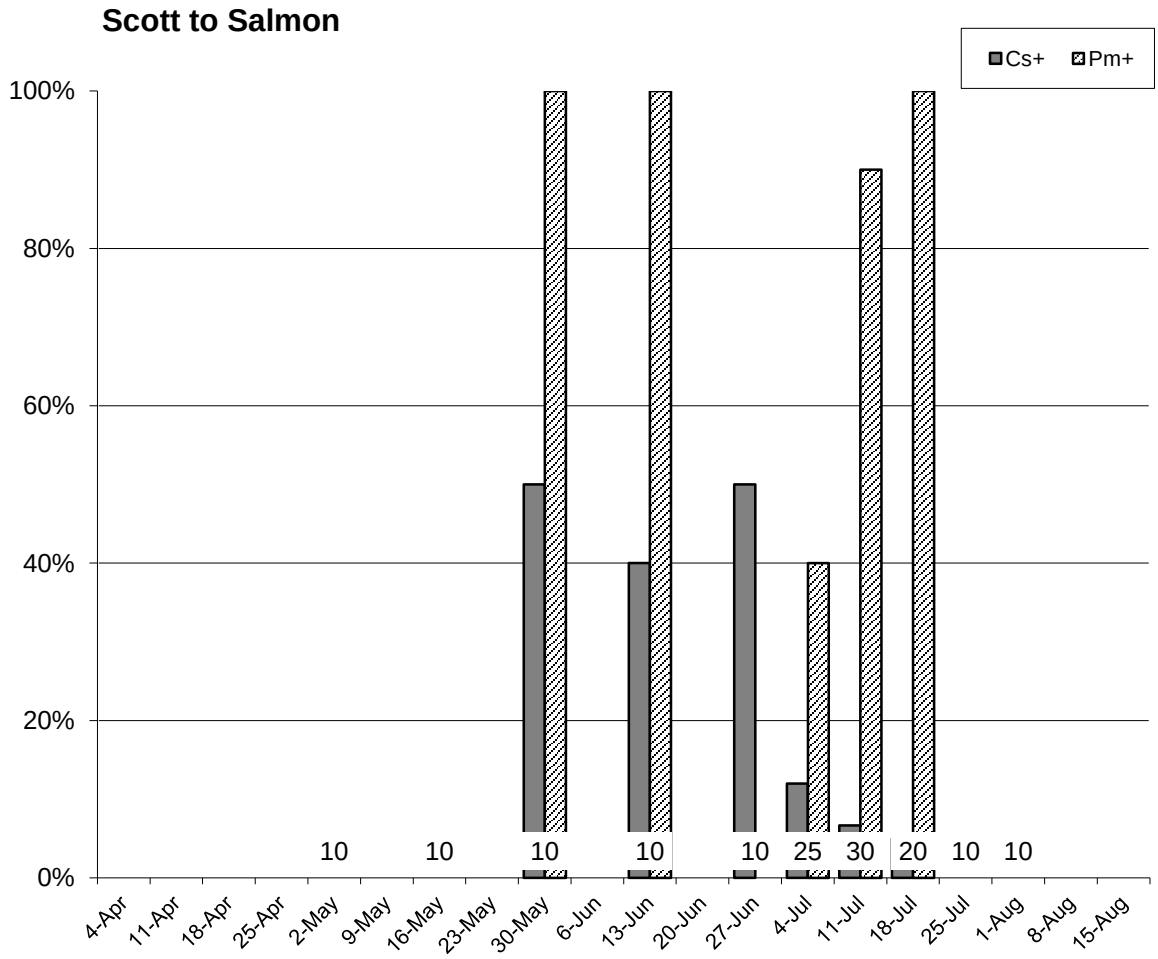
Reach	Total Number of Cs Samples (N)	Number *Cs* Positive	Total Number of Pm Samples (N)	Number *Pm* Positive
K4	149	25	114	47
K3	145	20	70	43
K2	140	28	70	33
K1	115	17	39	10
K0	95	16	P	P

Figure 1/Table 1. Prevalence of *Ceratomyxa shasta* (Cs+) and *Parvicapsula minibicornis* (Pm+) infection in juvenile Klamath River Chinook salmon by capture reach. Sample numbers collected in each reach are displayed at the bottom of each column. P = Pending test results. All data are preliminary and subject to revision.



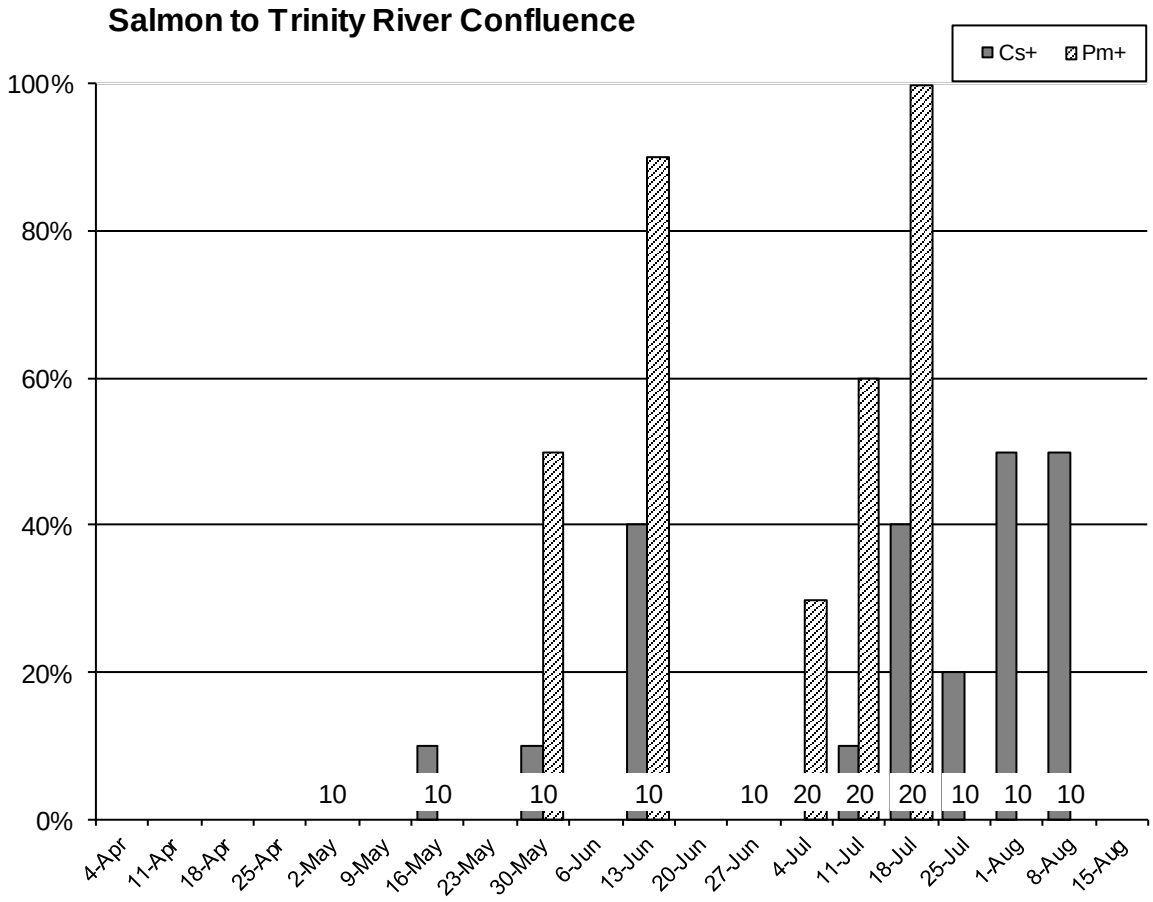
Weekly Date	Total Number of Cs Samples (N)	Number *Cs* Positive	Total Number of Pm Samples (N)	Number *Pm* Positive
11-Apr	10	0	10	0
18-Apr	10	1	10	0
25-Apr	10	0	10	0
2-May	10	0	10	0
9-May	10	0	10	0
16-May	10	4	10	10
23-May	10	0	10	10
30-May	10	2	10	7
6-Jun	10	5	10	9
13-Jun	10	4	NT	NT
20-Jun	10	6	NT	NT
27-Jun	20	0	10	0
4-Jul	15	2	10	7
11-Jul	3	1	3	3
18-Jul	1	0	1	1

Figure 2/Table 2. Weekly prevalence of *Ceratomyxa shasta* (Cs+) and *Parvicapsula minibicornis* (Pm+) infection in juvenile Chinook salmon captured in the Shasta to Scott (K4) reach on the Klamath River. Sample numbers collected and tested for *Ceratomyxa shasta* are displayed at the bottom of each column, while sub-sample numbers for *Parvicapsula minibicornis* are listed in the table. NT= Not Tested. All data are preliminary and subject to revision.



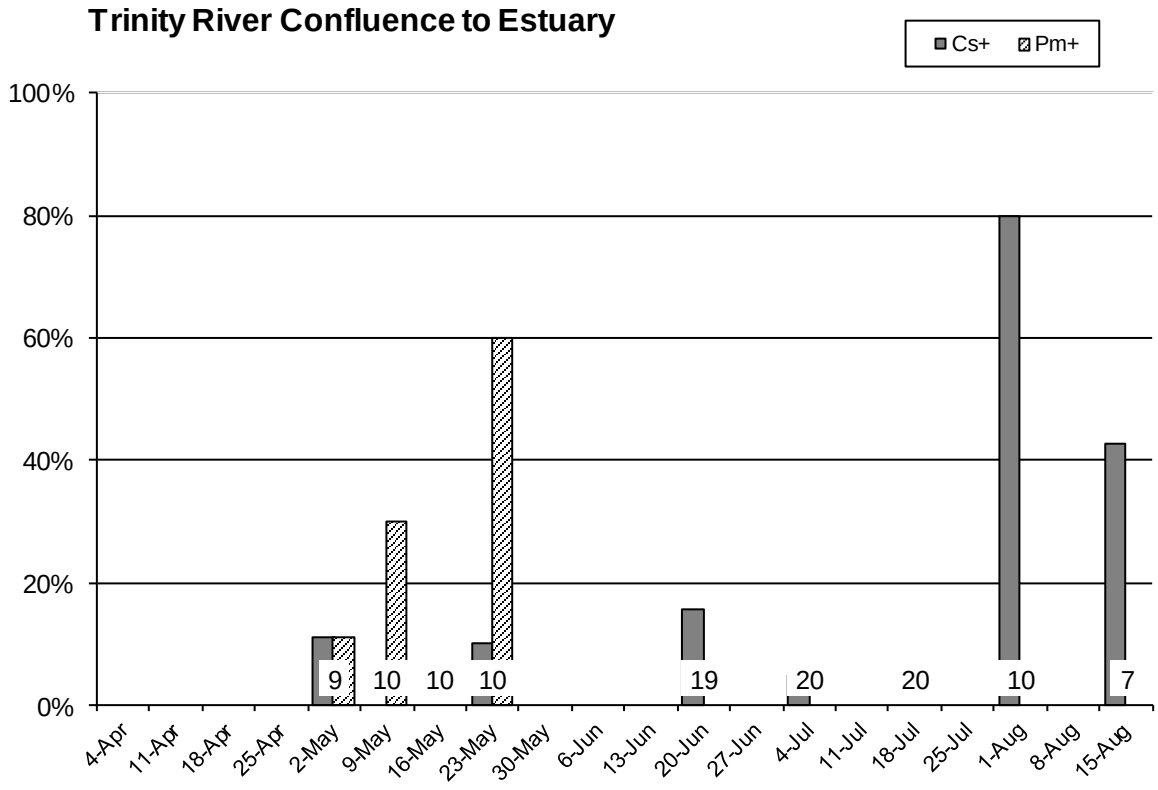
Weekly Date	Total Number of Cs Samples (N)	Number *Cs* Positive	Total Number of Pm Samples (N)	Number *Pm* Positive
2-May	10	0	10	0
16-May	10	0	10	0
30-May	10	5	10	10
13-Jun	10	4	10	10
27-Jun	10	5	NT	NT
4-Jul	25	3	10	4
11-Jul	30	2	10	9
18-Jul	20	1	10	10
25-Jul	10	0	NT	NT
1-Aug	10	0	NT	NT

Figure 3/Table3. Weekly prevalence of *Ceratomyxa shasta* (Cs+) and *Parvicapsula minibicornis* (Pm+) infection in juvenile Fall Chinook salmon captured in the Scott to Salmon (K3) reach on the Klamath River. Sample numbers collected and tested for *Ceratomyxa shasta* are displayed at the bottom of each column, while sub-sample numbers for *Parvicapsula minibicornis* are listed in the table. NT= Not Tested. All data are preliminary and subject to revision.



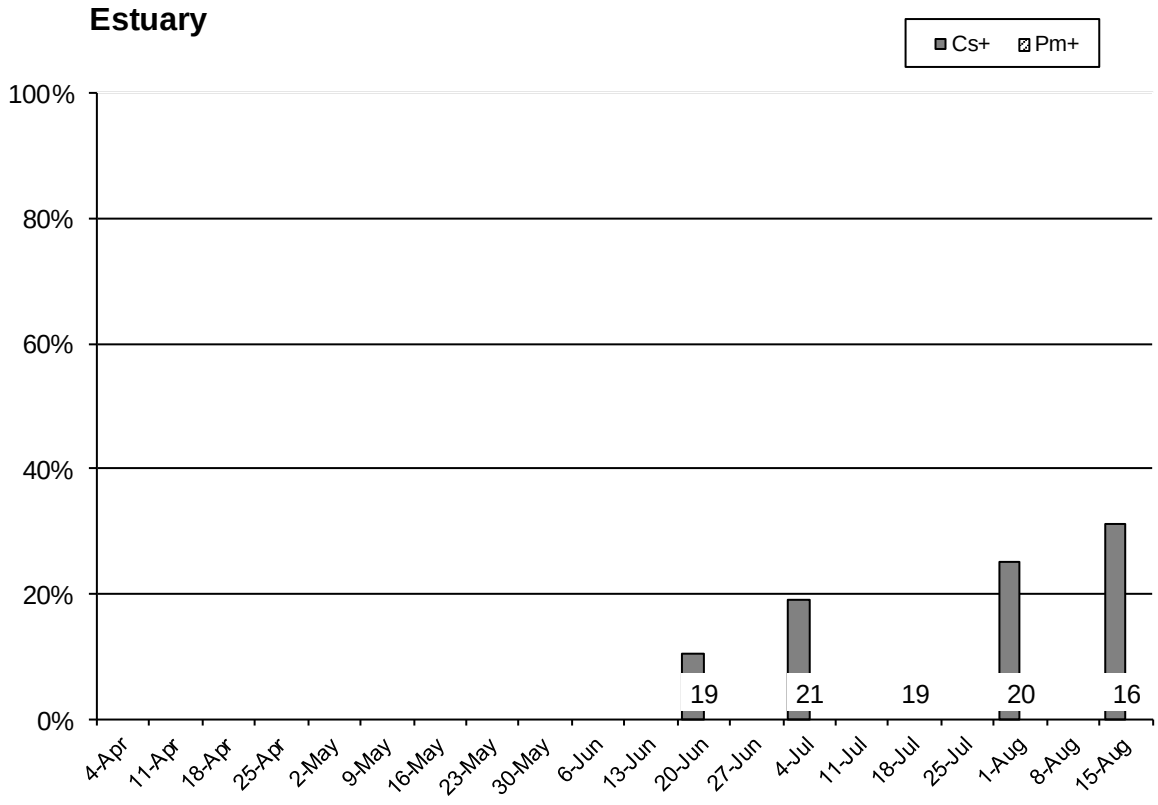
Weekly Date	Total Number of Cs Samples (N)	Number *Cs* Positive	Total Number of Pm Samples (N)	Number *Pm* Positive
2-May	10	0	10	0
16-May	10	1	10	0
30-May	10	1	10	5
13-Jun	10	4	10	9
27-Jun	10	0	NT	NT
4-Jul	20	0	10	3
11-Jul	20	2	10	6
18-Jul	20	8	10	10
25-Jul	10	2	NT	NT
1-Aug	10	5	NT	NT
8-Aug	10	5	NT	NT

Figure 4/Table 4. Weekly prevalence of *Ceratomyxa shasta* (Cs+) and *Parvicapsula minibicornis* (Pm+) infection in juvenile Fall Chinook salmon captured in the Salmon to Trinity confluence (K2) reach on the Klamath River. Sample numbers collected and tested for *Ceratomyxa shasta* are displayed at the bottom of each column, while sub-sample numbers for *Parvicapsula minibicornis* are listed in the table. NT= Not Tested. All data are preliminary and subject to revision.



Weekly Date	Total Number of Cs Samples (N)	Number *Cs* Positive	Total Number of Pm Samples (N)	Number *Pm* Positive
2-May	9	1	9	1
9-May	10	0	10	3
16-May	10	0	10	0
23-May	10	1	10	6
20-Jun	19	3	NT	NT
4-Jul	20	1	NT	NT
18-Jul	20	0	NT	NT
1-Aug	10	8	NT	NT
15-Aug	7	3	NT	NT

Figure 5/Table 5. Weekly prevalence of *Ceratomyxa shasta* (Cs+) and *Parvicapsula minibicornis* (Pm+) infection in juvenile Fall Chinook salmon captured in the Trinity to Estuary (K1) reach on the Klamath River. Sample numbers collected and tested for *Ceratomyxa shasta* are displayed at the bottom of each column, while sub-sample numbers for *Parvicapsula minibicornis* are listed in the table. NT= Not Tested. All data are preliminary and subject to revision.



Weekly Date	Total Number of Cs Samples (N)	Number *Cs* Positive	Total Number of Pm Samples (N)	Number *Pm* Positive
20-Jun	19	2	P	P
4-Jul	21	4	P	P
18-Jul	19	0	P	P
1-Aug	20	5	P	P
15-Aug	16	5	P	P

Figure 6/Table 6. Weekly prevalence of *Ceratomyxa shasta* (Cs+) and *Parvicapsula minibicornis* (Pm+) infection in juvenile Fall Chinook salmon captured in the Estuary (K0) reach on the Klamath River. Sample numbers collected and tested for *Ceratomyxa shasta* are displayed at the bottom of each column. P = Pending test results. All data are preliminary and subject to revision.