***CERATOMYXA SHASTA*:**
PRELIMINARY STUDY RESULTS
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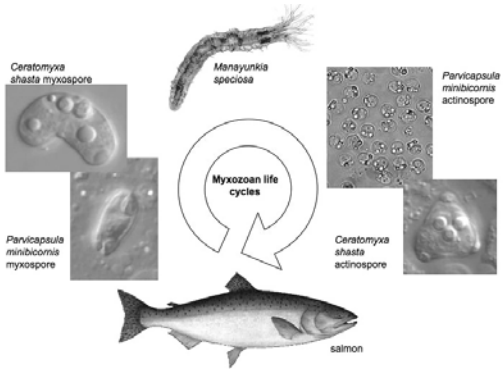


SENTINEL FISH EXPOSURES:
Sentinel exposures are being conducted to determine:

1. How infection levels this year compare with levels in previous years.
2. How temperature affects disease rate.
3. If the distribution of the parasite has changed.
4. The relative susceptibility of Chinook and coho salmon
5. The relationship between parasite numbers measured in water samples and biological effects in the different fish species.

Exposures were conducted May 15-18 and June 18-21 for ~72 hrs at locations in the upper and lower river as listed in the tables of results below. Rainbow trout and Chinook salmon were held at all sites; coho salmon (Iron Gate strains) were held only at the site above Beaver Creek. In June, Trinity River steelhead were also held at the Beaver Creek site. **Difference in protocol in 2007: fish were held at average Klamath River temperature as well as at the normal laboratory water temperature of 13˚C. In May ambient water temperatures averaged 18˚C, in June 20˚C.**

These data are preliminary; mortality is continuing to occur and all groups will be held for 70 d post-exposure before fish are assayed for infection and final % mortality is determined.

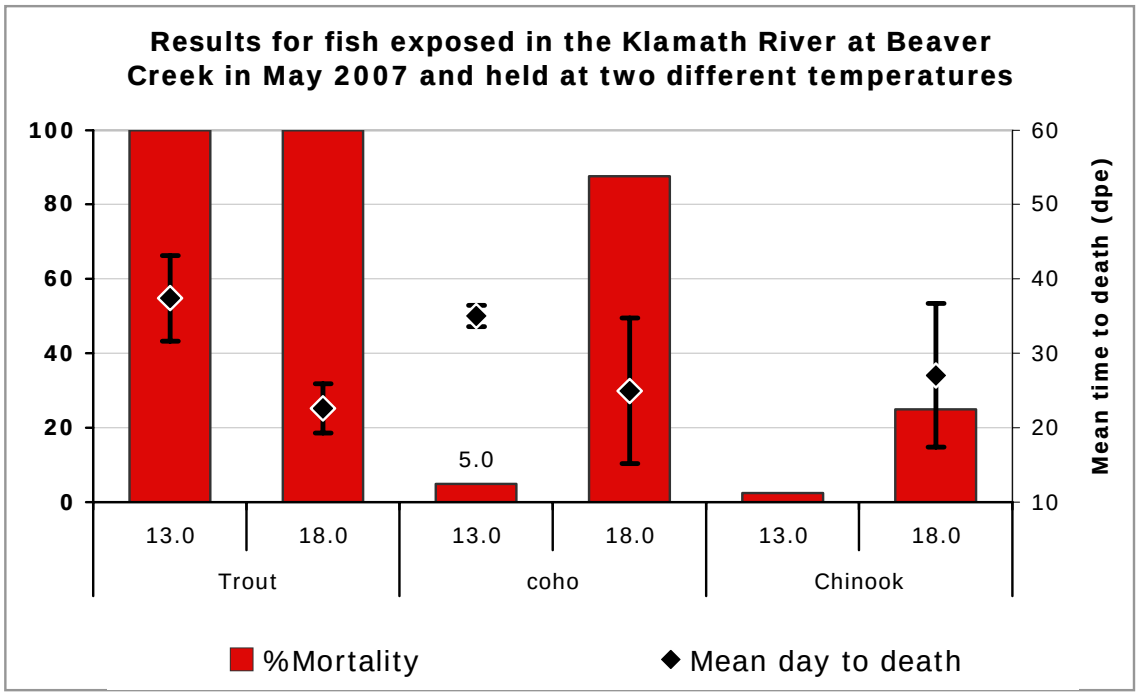
Current data for all May exposure groups is presented in Table 1. The general pattern of mortality in rainbow trout is similar to previous years, with the Williamson River and Beaver Creek having the highest exposure. Mortality in rainbow trout held just below Iron Gate dam at R-Ranch is low, but still occurring. As in previous years, sites downriver from Beaver Creek show decreasing clinical disease. Chinook salmon were held at two temperatures at all sites. No mortality has occurred in any Chinook held in the upper river. Mortality was highest at Beaver Creek, again decreasing with distance downriver. Coho salmon were held only at Beaver Creek and mortality at 18˚C was significantly higher than Chinook held at the same temperature (87.5 versus 25%, respectively), and deaths began to occur rapidly.

The cumulative mortality for all groups held at Beaver Creek in May is compared in Figure 1. For rainbow trout, although mortality is 100% at either temperature, the mean day to death was lower for the fish held at 18˚C (22 d versus 37 d at 13˚C). Mortality in coho salmon occurred earlier but was not as concentrated and the mean day to death was 25 d at 18˚C.

Table 1. Percent *Ceratomyxa shasta* mortality for fish held at exposure sites May 15-18, 2007. Certain groups were held at two holding temperatures: 13˚C or 18˚C.

Site	Species	Holding Temperature	% Mortality	Avg Exposure Temp ˚C
Williamson River				16.2
	Trout	13˚C	100	
	Chinook	13˚C	0	
		18˚C	0	
Keno Eddy				18.2
	Trout	13˚C	12.5	
		18˚C	31	
	Chinook	13˚C	0	
		18˚C	0	
R-Ranch				16.4
	Trout	13˚C	2.5	
	Chinook	13˚C	0	
		18˚C	0	
Beaver Creek				17.6
	Trout	13˚C	100	
		18˚C	100	
	Chinook	13˚C	2.5	
		18˚C	25	
	Coho	13˚C	5.0	
		18˚C	87.5	
Seiad Valley				16.8
	Trout	13˚C	100	
	Chinook	13˚C	0	
		18˚C	7.5	
Orleans				15.5
	Trout	13˚C	22.5	
	Chinook	13˚C	0	
		18˚C	2.5	
Tully Creek				15.1
	Trout	13˚C	10	
	Chinook	13˚C	0	
		18˚C	0	

Figure 1.



POLYCHAETE SURVEY:

Surveys of polychaete populations are being conducted to determine:

1. If polychaete populations have changed significantly at certain locations compared with previous study years
2. If infection prevalence in the populations has changed.

Collections of polychaetes were made from the mainstem Klamath River near the following locations in June: Tully Creek, Seiad Valley, Tree of Heaven and I-5. Sorting and analysis of these samples is in progress.

WATER SAMPLING AND QPCR ANALYSIS

Water samples have been collected to determine:

1. The relative abundance of both parasites in the river at index sites over time
2. Numbers of parasites in water samples that result in infection in fish.

Water samples have been collected at all sentinel sites both at the beginning and end of each exposure period. Water samples have also been collected every other week at index sites in the lower river in conjunction with water quality samples (Karuk and Yurok tribes). Continuous water samplers were also used to collect water samples in May and June at Beaver Creek and Orleans sites during the sentinel exposure period to develop a better estimate for exposure during that time. Analysis of these samples is in progress.