



Clear Lake Fish Cyanotoxin Study

The CalEPA Environmental Justice grant funded the Big Valley Rancheria to test Tribally important fish for cyanotoxins. BVR EPA staff worked with Tribal members from Big Valley as well as other Tribes who use Clear Lake to determine the fish and shellfish to collect. Eight fish and two shellfish species were previously and newly collected over several years had tissue and livers removed and those samples were sent to Bend Genetics Lab in Sacramento for microcystin (a liver toxin) analysis. A variety of samples were sent to test if there were any differences in toxin levels between fish species, location they were caught, time of year they were caught or year they were caught. Summaries are below.

Of the 32 liver samples that were submitted, 23 had microcystin toxin detects.

Of the 91 tissue samples that were submitted, 54 had microcystin toxin detects.

The Action Level for fish consumption recommended by CalEPA's Office of Environmental Health Hazard Assessment (OEHHA) is 10 ng/g, and this is if a person were eating at the Sportsfish consumption level of 1 fish per week. Because Tribal fish consumption particularly if eaten for subsistence is more than 1 fish per week, the Action Level will drop, meaning that even lower toxin levels would be of concern. These new levels are currently being calculated by OEHHA.

Summaries of the average microcystin toxin levels per fish species, season caught, arm of lake caught, and year caught are below. The yellow highlights are those items that are above the Action Levels.

FISH	AVERAGE MICROCYSTIN IN TISSUE NG/G	COUNT
CRAPPIE	4.15	7
BLACKFISH	6.91	1
BLUEGILL	ND	2
CARP	13.60	2
CATFISH	2.02	6
CRAYFISH	4.19	23
HITCH	9.81	8
BASS	1.85	7
MUSSEL	10.33	26
TULE PERCH	ND	4

SEASON	AVERAGE MICROCYSTIN NG/G	COUNT
FALL	12.10	27
SPRING	6.88	35
SUMMER	2.84	15
WINTER	3.51	14

YEAR OF SAMPLE	AVERAGE MICROCYSTIN NG/G	COUNT
2010	11.85	4
2015	5.34	32
2017	10.69	41
2018	3.51	14

ARM OF LAKE	AVERAGE MICROCYSTIN NG/G	COUNT
LOWER	2.02	7
OAK	2.85	10
UPPER	8.21	74