

Efficiency of Pollution Tolerance Index (PTI) of macroinvertebrates in detecting aquatic pollution in an oxbow lake in India

Table 5. Seasonal relative abundance and pollution tolerance level of macroinvertebrate families in the Chhariganga oxbow lake. MD = Mean density (No/m³), SD = Standard deviation, RA = Relative abundance (%).

GROUP's COMMON NAME	FAMILY	TOLERANCE LEVEL	Pre-monsoon			Monsoon			Post-monsoon			YEAR		
			MD	SD	RA	MD	SD	RA	MD	SD	RA	MD	SD	RA
PHYLUM ARTHROPODA – CLASS INSECTA														
Riffle beetle/ larvae and Beetle	Elmidae	Intolerant	11	2.08	8.53	-	-	-	5	1.73	2.62	8	3.46	3.29
Dragonfly larvae	Macromiidae	Moderately Tolerant	1	1.00	0.78	3	2.08	0.84	2	0.58	1.05	2	0.82	0.82
Non-biting midge larvae/ blood worm	Chironomidae	Moderately Tolerant	-	-	-	5	2.08	1.39	1	1.53	0.52	3	2.31	1.23
Biting midge larvae	Ceratopogonidae	Moderately Tolerant	3	1.73	2.33	19	3.79	5.29	9	1.53	4.71	10	6.63	4.25
Damselfly larvae	Platycnemididae	Moderately Tolerant	-	-	-	3	2.52	0.84	-	-	-	3	0.00	1.23
Water boatmen	Corixidae	Tolerant	6	2.08	4.65	17	3.06	4.74	15	5.29	7.85	13	4.92	5.21
Water scorpion	Nepidae	Tolerant	32	3.21	24.81	126	7.02	35.10	76	3.21	39.79	78	38.41	32.10
Water measurer	Hydrometridae	Tolerant	11	4.04	8.53	56	10.54	15.60	22	3.21	11.52	30	19.53	12.21
Water strider	Gerridae	Tolerant	1	1.53	0.78	13	3.79	3.62	5	3.79	2.62	6	5.03	2.61
Water scavenger beetle adult/ larvae	Hydrophilidae	Tolerant	15	3.06	11.63	89	16.86	24.79	21	9.17	10.99	42	35.11	17.15
Mosquito larvae and pupae	Culicidae	Tolerant	3	2.08	2.33	7	2.08	1.95	2	1.53	1.05	4	2.38	1.65
Average phylum sub total			83	20.82	64.34	338	53.81	94.15	158	31.56	82.72	199	118.62	81.76

GROUP's COMMON NAME	FAMILY	TOLERANCE LEVEL	Pre-monsoon			Monsoon			Post-monsoon			YEAR		
			MD	SD	RA	MD	SD	RA	MD	SD	RA	MD	SD	RA
PHYLUM ARTHROPODA - CLASS CRUSTACEA														
Freshwater prawn	Palaemonidae	Moderately Tolerant	1	0.58	0.78	3	2.52	0.84	2	1.53	1.05	2	0.82	0.82
Freshwater crab	Potamidae	Moderately Tolerant	-	-	-	2	1.53	0.56	12	3.06	6.28	7	5.77	2.88
Average phylum sub total			1	0.58	0.78	5	4.04	1.39	14	4.58	7.33	9	6.59	3.70
PHYLUM ARTHROPODA - CLASS ARACHNIDA														
Fresh water mite	Hydrachnidae	Intolerant							1	0.58	0.52	1	0.00	0.52
PHYLUM MOLLUSCA														
Freshwater mussel	Unionidae	Intolerant	9	2.08	6.98	-	-	-	2	1.00	1.05	6	4.04	2.26
Freshwater snail (right handed, gilled)	Viviparidae	Intolerant	32	2.89	24.81	-	-	-	6	3.00	3.14	19	15.01	7.82
Freshwater snail (Left handed, pouch)	Physidae	Tolerant	3	1.15	2.33	7	2.52	1.95	6	2.65	3.14	5	1.73	2.19
Average phylum sub total			44	6.12	34.11	7	2.52	1.95	14	6.65	7.33	30	20.78	12.28
PHYLUM ANNELIDA														
Leeches	Hirudinidae	Tolerant	-	-	-	-	-	-	1	0.00	0.52	1	0.00	0.41
Segmented worm (aquatic earthworm)	Lumbricidae	Tolerant	1	1.00	0.78	9	2.52	2.51	3	0.58	1.57	4	3.46	1.78
Average phylum sub total			1	1.00	0.78	9	2.52	2.51	4	0.58	2.09	5	3.46	2.19
Total macroinvertebrates			129	28.52	100	359	62.89	100	191	43.95	100	243	149.46	100