

Standardized Lake Survey (2011)

The Standardized Lake Survey is a combination boat electrofishing, gill netting, and fyke netting survey conducted periodically (once, every 3-5 years) to provide a representative picture of the overall fish community in Box Canyon Reservoir. This survey provides biologists with a precise representation of size structure, condition, growth rates, and relative abundance of the majority of all fish populations in the reservoir. This survey methodology is used to assess fish communities within lakes across Washington ([Link to Standardized Sampling Manual](#); Bonar et al. 2000).

The first Standardized Survey was conducted on Box Canyon Reservoir in 2004. The results of that survey showed very little change in the fish community when compared with the results of similar survey efforts conducted in the late 1980's and early 1990's ([Link to 2004 WDFW Survey Report](#); Divens and Osborne 2010). The second Standardized Survey was conducted in 2009 and results showed a significant increase in the relative abundance of northern pike and a decrease in the relative abundance of many of the other fish species in the reservoir, both native fish and non-native game-fish, including peamouth, northern pikeminnow, largemouth bass, crappie, and sunfish ([Link to 2009 KNRD Survey Report](#); Olson and Connor 2011).

In 2011, the Standardized Survey was conducted May 16th – 20th. WDFW, KNRD, and EWU electrofished 90 sites, made 41 gill net and 9 fyke net sets throughout Box Canyon Reservoir and its sloughs, sampling 4,181 fish of 23 species (Table 1). Six species, yellow perch, tench, northern pikeminnow, pumpkinseed sunfish, largescale sucker, and northern pike comprised 85% of the catch by number. Four species, tench, northern pike, largescale sucker, and northern pikeminnow comprised 86% of the catch by weight. Similar to the 2009 standard survey, the relative abundance (Catch per Unit of Effort; CPUE) of northern pike, smallmouth bass, and tench was significantly higher than observed in 2004, whereas relative abundance of peamouth northern pikeminnow, largemouth bass, black crappie, yellow perch, and pumpkinseed sunfish was significantly lower (Figures 1 and 2). The results of this survey indicate a significant change in the fish community makeup within Box Canyon Reservoir over the period between 2004 and 2011. The changes coincide with the expansion of the northern pike population within the reservoir during that time period.

Table 1. Species composition by weight (kg) and number for all fish sampled in Box Canyon Reservoir, May 2011.

Species	Species Composition					
	By Weight		By Number		Size Range (mm TL)	
	KG	% by W	#	% by #	Min	Max
Tench	511.664	35.74	819	19.59	42	518
Northern Pike	343.355	23.98	201	4.81	265	1050
Largescale Sucker	268.823	18.78	297	7.10	122	565
Northern Pikeminnow	97.149	6.79	444	10.62	52	598
Largemouth Bass	44.836	3.13	148	3.54	50	601
Brown Trout	40.711	2.84	82	1.96	90	564
Yellow Perch	38.678	2.70	1425	34.08	52	234
Brown Bullhead	23.346	1.63	101	2.42	90	340
Peamouth	13.93	0.97	68	1.63	74	337
Smallmouth Bass	13.569	0.95	68	1.63	54	419
Pumpkinseed Sunfish	10.453	0.73	335	8.01	57	160
Black Crappie	9.514	0.66	144	3.44	49	298
Longnose Sucker	4.939	0.34	16	0.38	87	435
Lake Whitefish	4.569	0.32	3	0.07	430	585
Mountain Whitefish	2.731	0.19	9	0.22	242	442
Walleye	2.341	0.16	7	0.17	257	423
Westslope Cutthroat	0.453	0.03	1	0.02	345	345
Kokanee	0.28	0.02	4	0.10	144	232
Brook Trout	0.245	0.02	2	0.05	205	252
Grass Pickerel	0.094	0.01	1	0.02	247	247
Rainbow Trout	0.044	0.00	2	0.05	97	148
Cutthroat Trout	0.041	0.00	1	0.02	165	165
Sculpin Spp.	0.008	0.00	2	0.05	71	72
Unidentified Sucker	0.001	0.00	1	0.02	57	57

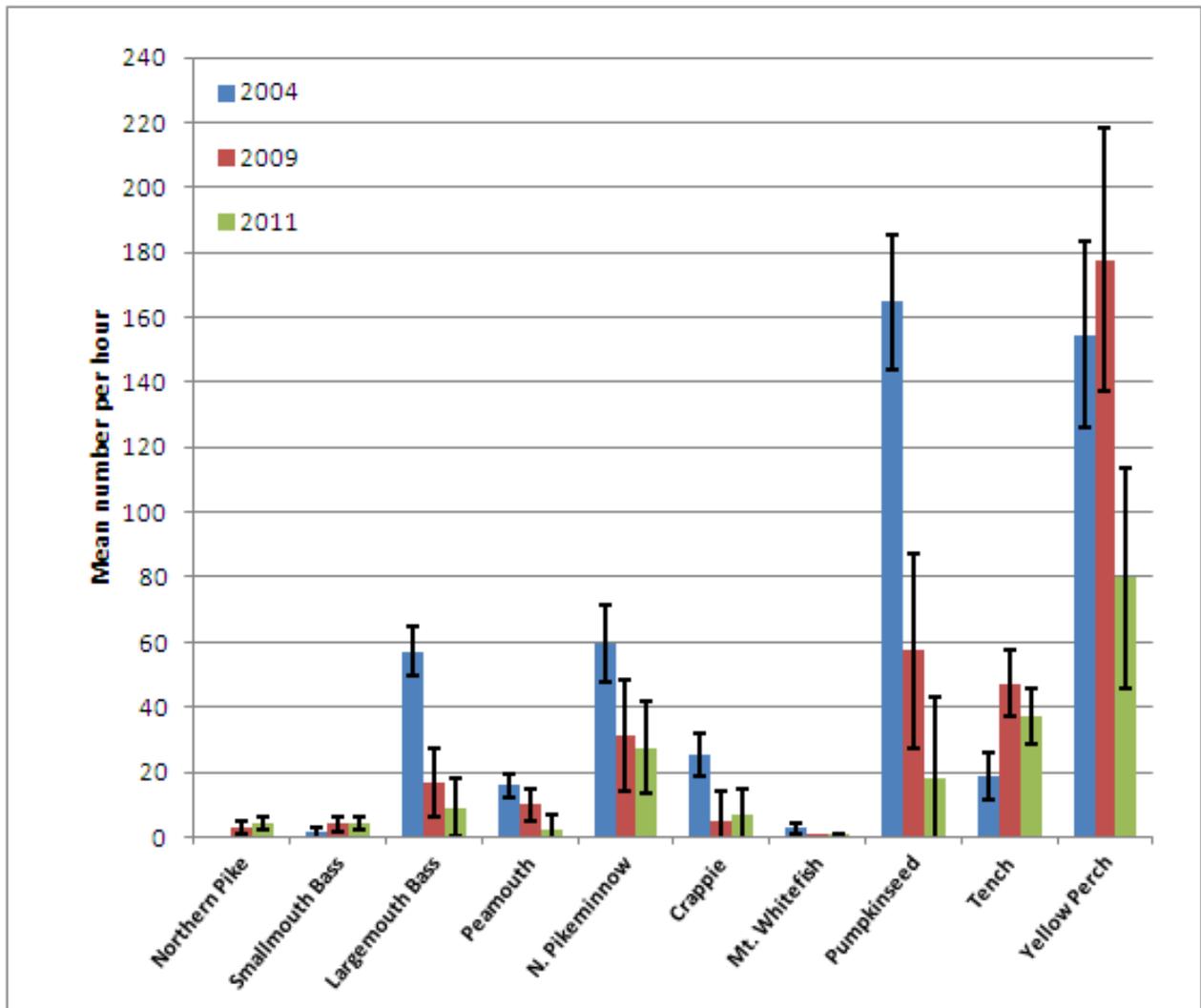


Figure 1. Electrofishing catch per hour Box Canyon Reservoir, May 2011.

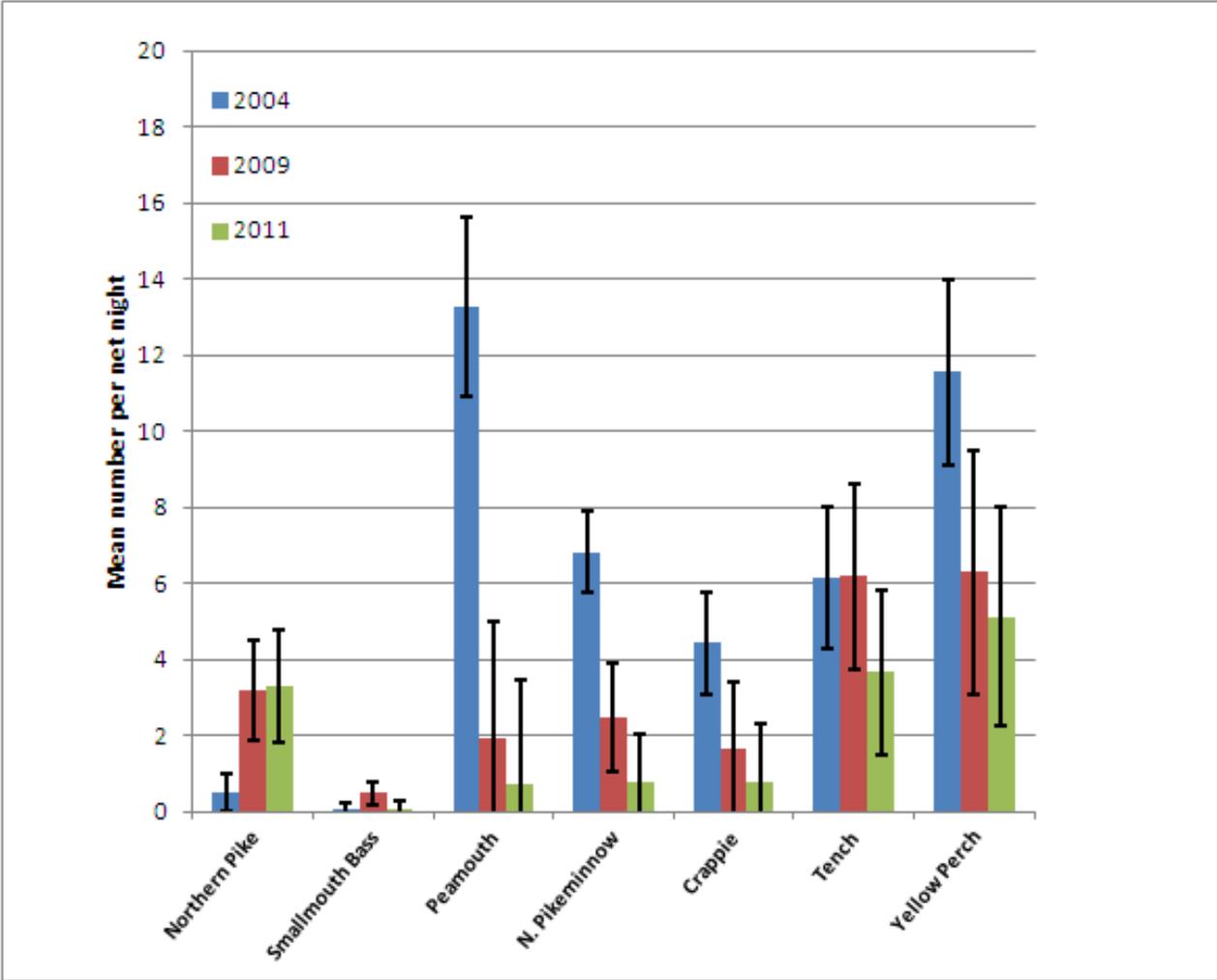


Figure 2. Gill net catch per net night Box Canyon Reservoir, May 2011.