



Summary of 2015 Northern Pike Suppression Results on Box Canyon Reservoir, Pend Oreille River, WA.

During the fourth year of mechanical suppression of Northern Pike (NP) in Box Canyon Reservoir, crews deployed 854 nets and removed 751 northern pike between March 2 and April 28, with a final catch-per-unit-effort (CPUE) of 0.88 NP/net-night. The Kalispel Natural Resources Department and Washington Department of Fish and Wildlife collected 35 Northern Pike during the 2015 Spring Pike Index Netting (SPIN) Survey conducted May 4 through May 8. The resulting CPUE of 0.18 NP/ net-night (95% CI: \pm 0.085), in sloughs and mainstem river between Riverbend and Pioneer Park Campground met the abundance target of \leq 1.73 NP/net-night for these sections of the reservoir. The CPUE north of Riverbend was 0.12 NP/ net-night and was below the target of \leq 0.50 NP/net-night (95% CI \pm 0.11). There was no Phase 2 (post SPIN) mechanical suppression effort planned or implemented in 2015.

In total, 16,978 NP were removed in 3,964 overnight gillnet sets during the initial four years of suppression in Box Canyon Reservoir (5,808 NP in 2012; 6,452 NP in 2013; 3,967 NP in 2014; 751 NP in 2015). Based on 2015 SPIN results, the adult population in the core area south of Riverbend (including sloughs) was reduced by more than 98% following four years of mechanical suppression.

Phase 1 - Mechanical Removal March 2-April 28:

- Netting took place in known spawning locations throughout the reservoir
- Two 2-3 man crews worked 4-5 days per week deploying 17-35 nets per day
- Collected biological information such as weight, length, sex and maturity on ~25% of net hauls
- Total nets deployed: 854 (39.0 Km/24.3 mi)
- Overall Phase 1 CPUE: 0.88 NP/ net-night

Phase 1 northern pike catch summary (Table 1):

- Total catch: 751 NP, 0.938 mT (2,067 lbs)
- Overall size range: 241 mm to 820 mm TL (10-32 inches), weight: 155 to 4,298 g (0.34 to 9.5 lbs.)
- Males averaged 514 mm TL (20 inches)
- Females averaged 537 mm TL (21 inches)
- Females made up an estimated 53% of the total catch for Phase 1, of which an estimated 43% were mature, ripe or spawned out (Table 2)
- Removed an estimated 173 mature pre-spawn females and 247 immature females
- 43% of NP catch was less than 450 mm TL (18 inches)

Spring Pike Index Netting May 4-May 8

- Net placement sites were selected using a reservoir-wide spatially balanced random sampling design
- Five 3 person crews deployed up to 50 nets/day
- Collected biological information such as weight, length, sex and maturity, as well as growth structures for later analysis on all NP collected
- Total nets deployed: 202 (9.2 Km/5.7 mi)
- CPUE for the mainstem river north of Riverbend was 0.12 NP/net-night (target ≤ 0.5); CPUE for all sloughs and mainstem river south of Riverbend was 0.18 NP/net-night (target ≤ 1.73)

SPIN catch summary (Table 1, Figures 1 and 2)

- Total catch: 35 NP, 0.0313 mT (69 lbs)
- Overall size range: 367 mm to 790 mm TL (14-31 inches), 313 g to 4,085 g (0.7-9.0 lbs.)
- Males averaged 513 mm TL (20 inches), 521 g (2.0 lb)
- Females averaged 533 mm TL (21 inches), 1053 g (2.3 lbs)
- Females made up 71% of the NP collected, of which 40% were either mature, ripe or spawned out
- 51% of the NP total catch were less than 450 mm TL (18 inches)

Mechanical Suppression Bycatch Summary:

- 21 fish species, 8,820 individuals, >90% survival (Table 3)

Tables and Figures

Table 1. Data summary and statistics for the 2015 Box Canyon Reservoir Northern Pike mechanical suppression effort and SPIN survey.

	Suppression Phase I	SPIN Survey
Sampling Dates:	March 2 to April 28	May 4 to May 8
Days per Week:	4-5	5
Nets/Day:	17-35	50
Total Nets:	854	202
NP Catch-Per-Unit-Effort (CPUE):		
Weekly Mean CPUE Range:	0.18 to 1.97	N/A
Overall CPUE:	0.88	North: 0.12 Slough and South: 0.18
Percent Positive Catch:	40%	12.4%
Most northern pike in one net:	22	3
NP Catch Statistics:		
Total Number:	751	35
Total Weight:	0.938 mT (2,067 pounds)	0.031 mT (69 pounds)
Total Length Range:	241 mm to 820 mm	367 mm to 790 mm
Weight Range:	155 g to 4,298 g	313 g to 4,085 g
Mean TL Males:	514 mm	419 mm
Mean TL Females:	537 mm	499 mm
Sex Ratio (% female):	54%	71%
Juvenile Catch (<450 mm):	43%	51%

Table 2. Estimated maturity rates of all Northern Pike removed during 2015 mechanical suppression efforts in Box Canyon Reservoir.

Sex	Immature	Mature	Ripe	Spawned Out
Female	57%	36%	4%	3%
Male	29%	39%	30%	2%

Table 3. Summary of fish bycatch captured during the 2015 Northern Pike mechanical suppression efforts. Observed bycatch survival rates were >90 % for the project.

Common Name	Species Name	Number	% of Total
Salmonidae			
Rainbow Trout	<i>Oncorhynchus mykiss</i>	45	0.51
Lake Whitefish	<i>Coregonus clupeaformis</i>	48	0.54
Mountain Whitefish	<i>Prosopium williamsoni</i>	3	0.03
Eastern Brook Trout	<i>Salvelinus fontinalis</i>	65	0.74
Brown Trout	<i>Salmo trutta</i>	138	1.56
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i>	7	0.08
Bull Trout	<i>Salvelinus confluentus</i>	1	0.01
Lake Trout	<i>Salvelinus namaycush</i>	3	0.03
Esocidae			
Grass Pickerel	<i>Esox americanus vermiculatus</i>	4	0.05
Cyprinidae			
Peamouth	<i>Mylocheilus caurinus</i>	362	4.10
Northern Pikeminnow	<i>Ptychocheilus oregonensis</i>	155	1.76
Tench	<i>Tinca tinca</i>	2,042	23.15
Catostomidae			
Longnose Sucker	<i>Catostomus catostomus</i>	52	0.59
Largescale Sucker	<i>Catostomus macrocheilus</i>	219	2.48
Ictaluridae			
Brown Bullhead	<i>Ameiurus nebulosus</i>	479	5.43
Centrarchidae			
Pumpkinseed	<i>Lepomis gibbosis</i>	1,226	13.90
Smallmouth Bass	<i>Micropterus dolomieu</i>	49	0.56
Largemouth Bass	<i>Micropterus salmoides</i>	374	4.24
Black Crappie	<i>Pomoxis nigromaculatus</i>	673	7.63
Percidae			
Yellow Perch	<i>Perca flavescens</i>	2,788	31.61
Walleye	<i>Stizostedion vitreum</i>	87	0.99
Grand Total (all species)		8,820	100

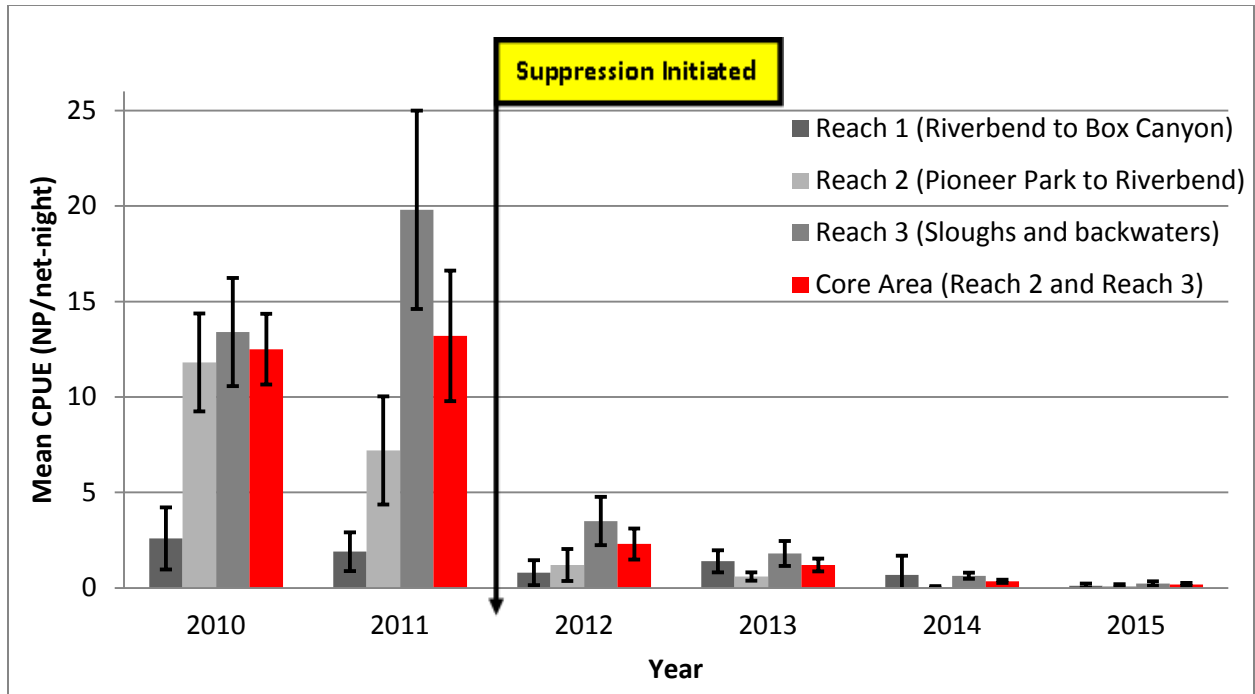


Figure 1. Northern Pike Spring Pike Index Netting Survey (SPIN) results for 2010-2015. Note that Northern Pike suppression was initiated in 2012 prior to the SPIN Survey that year and the Core Area includes Reach 3 (sloughs and backwaters) and Reach 2 (Riverbend-Pioneer Park).

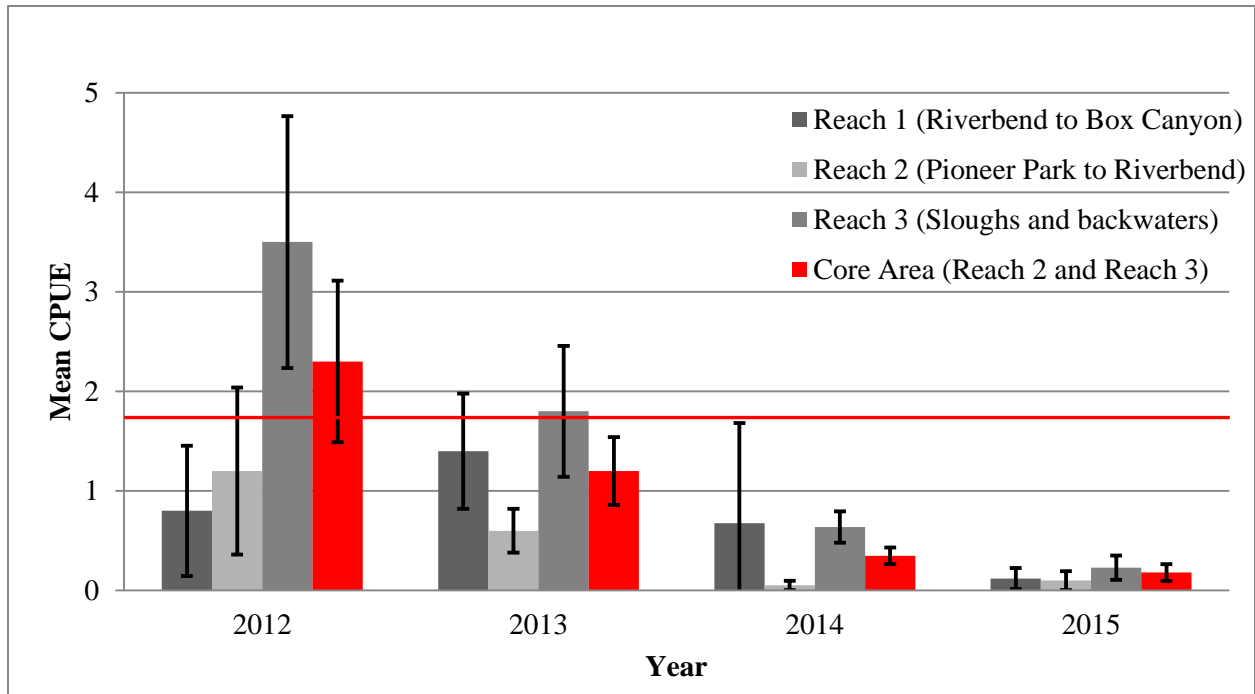


Figure 2. Northern Pike Spring Pike Index Netting Survey (SPIN) results during suppression years only (2012-2015). Red line indicates target Core Area population abundance of ≤ 1.73 NP/net-night. Note that Northern Pike suppression was initiated in 2012 prior to the SPIN Survey that year and the Core Area includes Reach 3 (sloughs and backwaters) and Reach 2 (Riverbend-Pioneer Park).