



Summary of 2016 Northern Pike Suppression Results on Box Canyon Reservoir, Pend Oreille River, WA.

During the fifth year of mechanical suppression of Northern Pike (NP) in Box Canyon Reservoir, crews deployed 419 nets and removed 181 northern pike between February 29 and April 28, with a final catch-per-unit-effort (CPUE) of 0.43 NP/net-night. The Kalispel Natural Resources Department and Washington Department of Fish and Wildlife collected 4 Northern Pike during the 2016 Spring Pike Index Netting (SPIN) Survey conducted May 2 through May 5. The resulting CPUE of 0.05 NP/ net-night (95% CI: \pm 0.08), 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 0.04 NP/net-night and was below the target of \leq 0.50 NP/net-night. There was no Phase 2 (post SPIN) mechanical suppression effort planned or implemented in 2016.

In total, 17,159 NP were removed in 4,383 overnight gillnet sets during the five 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; 181 NP in 2016).

Phase 1 - Mechanical Removal February 29-April 28:

- Netting took place in known spawning locations throughout the reservoir
- Two 2-3 man crews worked 4 days per week deploying 15-30 nets per day
- Collected biological information such as weight, length, sex and maturity on all Northern Pike caught
- Total nets deployed: 419 (19.2 Km/11.9 mi)
- Overall Phase 1 CPUE: 0.43 NP/ net-night

Phase 1 northern pike catch summary (Table 1):

- Total catch: 181 NP, 0.413 mT (910 lbs)
- Overall size range: 305 mm to 1009 mm TL (12-40 inches), weight: 183 g to 9,500 g (0.40 to 21 lbs.)
- Males averaged 631 mm TL (25 inches)
- Females averaged 670 mm TL (26 inches)
- Females made up an estimated 44% of the total catch for Phase 1, of which an estimated 89% were mature, ripe or spawned out (Table 2)
- Removed an 71 mature pre-spawn females and 8 immature females
- 8% of NP catch was less than 450 mm TL (18 inches)

Spring Pike Index Netting May 2-May 5

- Net placement sites were selected using a reservoir-wide spatially balanced random sampling design
- Five 3 person crews deployed up to 15-17 nets/day (19-37 total 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: 91 (4.1 Km/2.6 mi)
- CPUE for the mainstem river north of Riverbend was 0.04 NP/net-night (target ≤ 0.5); CPUE for all sloughs and mainstem river south of Riverbend was 0.04 NP/net-night (target ≤ 1.73)

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

- Total catch: 4 NP, 0.01 mT (26.5 lbs)
- Overall size range: 644 mm to 731 mm TL (25-29 inches), 1,832 g to 5,752 g (4.0-12.68 lbs.)
- Males averaged 687 mm TL (27 inches), 3,005 g (6.6 lb)
- No females were caught
- No NP were less than 450 mm TL (18 inches)

Mechanical Suppression Bycatch Summary:

- 19 fish species, 7,741 individuals, >90% survival (Table 3)

Tables and Figures

Table 1. Data summary and statistics for the 2016 Box Canyon Reservoir Northern Pike mechanical suppression effort and SPIN survey.

	Suppression Phase I	SPIN Survey
Sampling Dates:	February 29 to April 28	May 2 to May 5
Days per Week:	4	4
Nets/Day:	15-30	19-37
Total Nets:	419	91
NP Catch-Per-Unit-Effort (CPUE):		
Weekly Mean CPUE Range:	0.0 to 1.02	N/A
Overall CPUE:	0.43	North: 0.04 Slough and South: 0.07
Percent Positive Catch:	24%	0.04%
Most northern pike in one net:	6	1
NP Catch Statistics:		
Total Number:	181	4
Total Weight:	0.413 mT (910 pounds)	0.01 mT (26.5 pounds)
Total Length Range:	305 mm to 1,009 mm	644 mm to 731 mm
Weight Range:	183 g to 9,500 g	1,832 g to 5,752 g
Mean TL Males:	631 mm	687 mm
Mean TL Females:	670 mm	0 mm
Sex Ratio (% female):	44%	0%
Juvenile Catch (<450 mm):	8%	0%

Table 2. Estimated maturity rates of all Northern Pike removed during 2016 mechanical suppression efforts in Box Canyon Reservoir.

Sex	Immature	Mature	Ripe	Spawned Out
Female	10%	86%	0%	4%
Male	5%	29%	66%	0%

Table 3. Summary of fish bycatch captured during the 2016 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>	16	0.21
Lake Whitefish	<i>Coregonus clupeaformis</i>	10	0.13
Eastern Brook Trout	<i>Salvelinus fontinalis</i>	18	0.23
Brown Trout	<i>Salmo trutta</i>	47	0.61
Westslope Cutthroat Trout	<i>Oncorhynchus clarki lewisi</i>	2	0.03
Lake Trout	<i>Salvelinus namaycush</i>	2	0.03
Esocidae			
Grass Pickerel	<i>Esox americanus vermiculatus</i>	6	0.08
Cyprinidae			
Peamouth	<i>Mylocheilus caurinus</i>	90	1.16
Northern Pikeminnow	<i>Ptychocheilus oregonensis</i>	119	1.54
Tench	<i>Tinca tinca</i>	1,665	21.51
Catostomidae			
Longnose Sucker	<i>Catostomus catostomus</i>	34	0.44
Largescale Sucker	<i>Catostomus macrocheilus</i>	139	1.79
Ictaluridae			
Brown Bullhead	<i>Ameiurus nebulosus</i>	1,075	13.89
Centrarchidae			
Pumpkinseed	<i>Lepomis gibbosus</i>	1,411	18.23
Smallmouth Bass	<i>Micropterus dolomieu</i>	45	0.58
Largemouth Bass	<i>Micropterus salmoides</i>	365	4.71
Black Crappie	<i>Pomoxis nigromaculatus</i>	871	11.25
Percidae			
Yellow Perch	<i>Perca flavescens</i>	1,725	22.28
Walleye	<i>Sander vitreus</i>	101	1.30
Grand Total (all species)		7,741	100

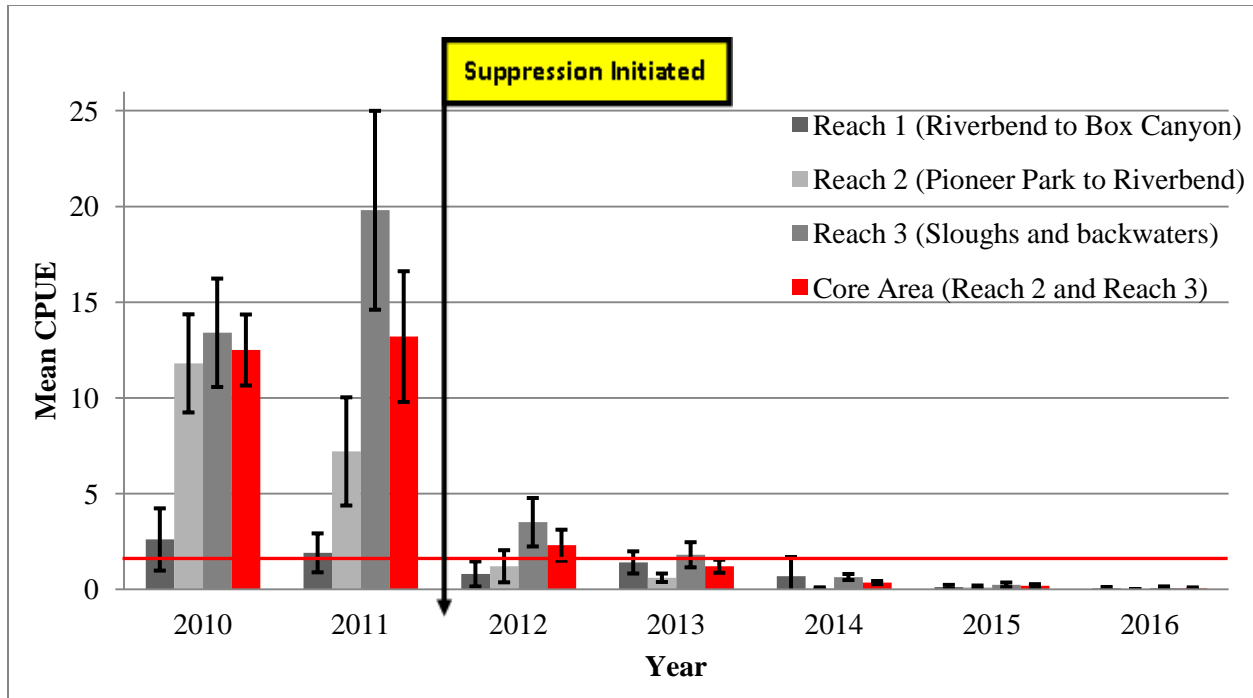


Figure 1. Northern Pike Spring Pike Index Netting Survey (SPIN) results for 2010-2016. Note that Northern Pike suppression was initiated in 2012 prior to the SPIN Survey that year and the Core Area includes Reach 3 (sloughs and backwaters) and Reach 2 (Riverbend-Pioneer Park).

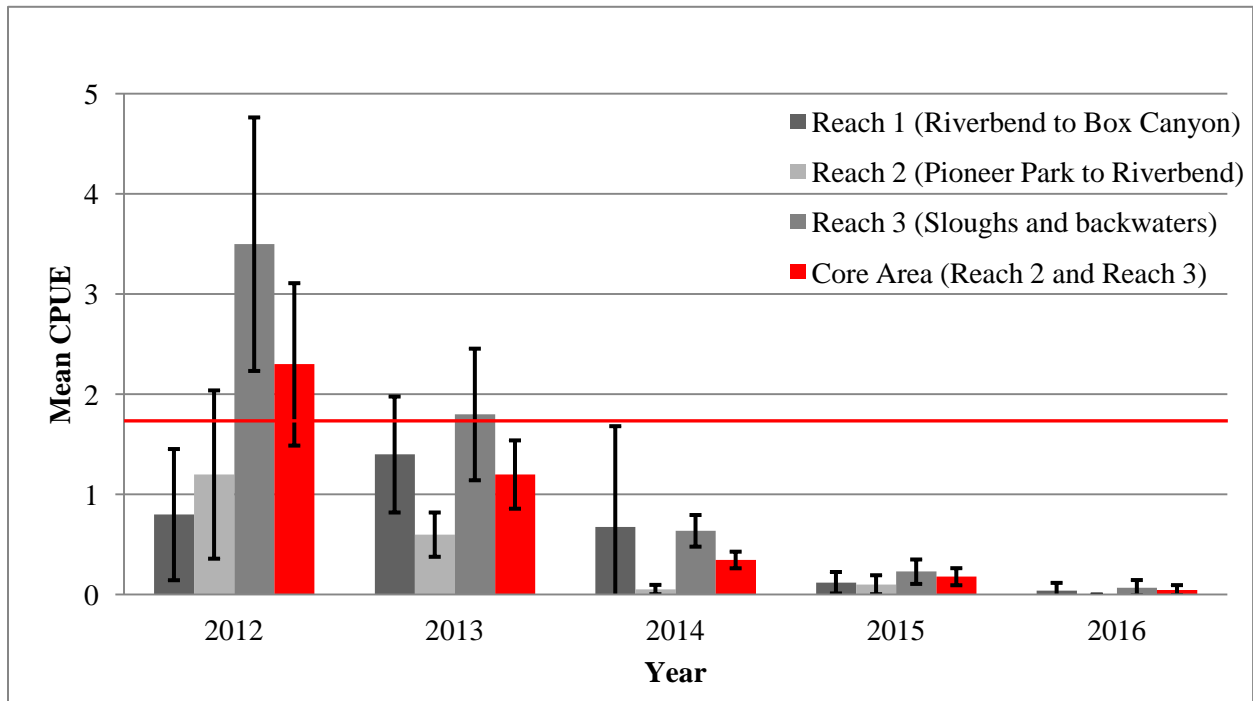


Figure 2. Northern Pike Spring Pike Index Netting Survey (SPIN) results during suppression years only (2012-2016). Red line indicates target Core Area population abundance of ≤ 1.73 NP/net-night. Note that Northern Pike suppression was initiated in 2012 prior to the SPIN Survey that year and the Core Area includes Reach 3 (sloughs and backwaters) and Reach 2 (Riverbend-Pioneer Park).