

Augustana WPA

Site Description

Location

Water designation number (WDN)	22-0059-00
Legal description	T124N-R56W-Sec. 19,25,29,30
County (ies)	Day
Location from nearest town	6.0 miles west, 2.0 miles north, and 0.5 miles east of Roslyn, SD

Survey Dates and Sampling Information

Survey dates	September 20, 2013 (GN)
Gill net sets (n)	2

Morphometry (Figure 1)

Watershed area (acres)	37,978
Surface area (acres)	≈250
Maximum depth (ft)	≈13
Mean depth (ft)	unknown

Ownership and Public Access

The waterbody referred to as Augustana WPA is a non-meandered lake that covers both public (e.g., Waterfowl Production Area) and private lands. The fishery is managed by the SDGFP. Public access to the lake is available along 128th Street and foot traffic across federally-owned lands. Boat access to the lake is difficult, as no boat ramp exists.

Watershed and Land Use

The 37,978 acre Lynn Lake sub-watershed (HUC-12), which encompasses the waterbody referred to as Augustana WPA, is located within the larger Pierpont Lake (HUC-10) watershed. Land use within the watershed is primarily agricultural with a mix of pasture or grassland, cropland, and scattered shelterbelts.

Water Level Observations

Water levels on Augustana WPA are not monitored by SDDENR.

Fish Management Information

Primary species	Walleye, Yellow Perch
Other species	Black Bullhead
Lake-specific regulations	none
Management classification	none
Fish consumption advisories	none

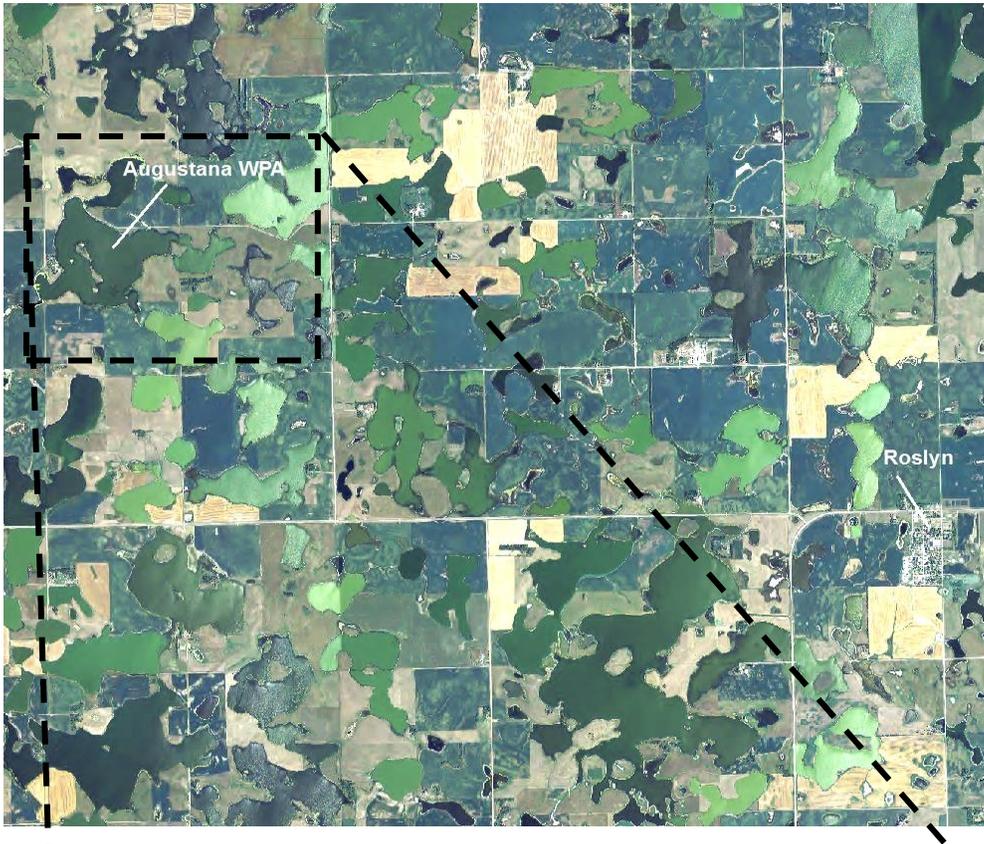


Figure 1. Map depicting geographic location of Augustana WPA from Roslyn, South Dakota (top). Also noted are the approximate net locations utilized during the 2013 fish community survey (bottom). AGGN= gill nets

Management Objectives

- 1) Maintain a mean gill net CPUE of stock-length Walleye ≥ 10 , a PSD of 30-60 and a PSD-P of 5-10.
- 2) Maintain a mean gill net CPUE of stock-length Yellow Perch ≥ 30 , a PSD of 30-60 and a PSD-P of 5-10.

Results and Discussion

In 2004, Augustana WPA was utilized as a natural rearing pond for Walleye by SDGFP. Natural rearing ponds are stocked with Walleye fry in the spring, stocked fish grow throughout the summer months then a portion are harvested as large fingerlings in the fall. Harvested Walleye are stocked into area lakes to augment the population. If winterkill does not occur in the natural rearing pond, often a substantial year class remains and can provide angling opportunities, as was the case in the Augustana WPA. In recent years, anglers targeting both Walleye and Yellow Perch have utilized the lake.

Primary Species

Walleye: Walleye have been stocked into Augustana WPA on three occasions (2004, 2005, and 2012; Table 1). In 2013, Two gill net nights captured 15 Walleye that ranged from 12 to 58 cm (4.7 to 22.8 in; Figure 2). The mean gill net CPUE of stock-length Walleye was 7.0 (Table 2) and below the minimum objective (≥ 10 stock-length Walleye/net night). Currently, relative abundance appears to be moderate.

Due to the limited netting effort, sample size was low and few inferences can be made concerning size structure and condition. No age and growth information was collected.

Yellow Perch: The mean gill net CPUE of stock-length Yellow Perch was 28.5 (Table 2) and slightly below the minimum objective (≥ 30 stock-length Yellow Perch/net night). Based on the 2013 gill net CPUE, relative abundance is considered moderate.

Gill net captured Yellow Perch ranged in TL from 8 to 31 cm (3.1 to 12.2 in; Figure 3). The PSD and PSD-P values of 32 and 7 were within management objectives and indicated a relatively balanced population, defined as a PSD of 30-60 and a PSD-P of 5-10 (Table 2; Figure 3).

No age and growth information was collected. Gill net captured Yellow Perch exhibited a slight decreasing trend in condition as TL increased. However, mean W_r values were ≥ 92 all length categories (e.g., stock to quality) sampled.

Other Species

Black Bullhead: Black Bullhead populations are typically assessed using frame net data from northeast South Dakota lakes; however, frame nets were not utilized during the 2013 fish community survey at Augustana WPA. Black Bullheads were the most abundant species in the gill net catch, with a mean gill net CPUE for stock-length individuals of 38.5 (Table 2).

Gill net captured Black Bullheads ranged in TL from 8 to 31 cm (3.1 to 12.2 in). The PSD was 45 and the PSD-P was 8 (Table 2). No age and growth information was collected. Mean W_r values ranged from 90 to 97 for all length categories (e.g., stock to quality) represented in the gill net catch. The mean W_r of stock-length Black Bullheads was 91 (Table 2) and no length-related trends in condition were apparent.

Management Recommendations

- 1) Conduct fish community assessment surveys periodically to monitor fish relative abundance, fish population size structures, fish growth, and stocking success.
- 2) Collect otoliths from Walleye and Yellow Perch to assess age structure and growth rates of each population.
- 3) Stock Walleye (≈ 500 fry/acre) on a biennial basis to establish additional year classes, provided water levels are sufficient.
- 4) Evaluate the potential of installing a primitive boat ramp (i.e., constructed using oversized rock and gravel) and parking area to improve boat access to the lake.
- 5) Monitor winter and summer kill events. In cases of substantial winter/summer kill the need to re-establish a fishery in Augustana WPA should be evaluated. If water levels are sufficient, Walleye and Yellow Perch should be stocked to re-establish a fish community.

Table 1. Stocking history including size and number for fishes stocked into Augustana WPA, 2004-2013. WAE= Walleye

Year	Species	Size	Number
2004	WAE	fry	900,000
2005	WAE	fry	900,000
2012	WAE	fry	900,000

Table 2. Mean catch rate (CPUE; catch/net night) of stock-length fish, proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P), and mean relative weight (Wr) of stock-length fish for various fish species captured in experimental gill nets from Augustana WPA, 2013. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). BLB= Black Bullhead; WAE= Walleye; YEP= Yellow Perch

Species	Abundance		Stock Density Indices				Condition	
	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
<i>Gill Nets</i>								
BLB	38.5	1.5	45	9	8	5	91	1
WAE	7.0	0.0	93	13	14	17	94	3
YEP	28.5	13.9	32	10	7	6	96	1

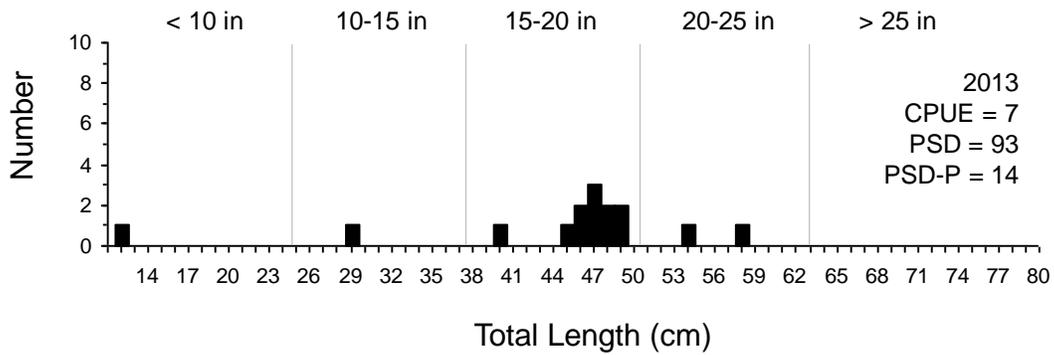


Figure 2. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Walleye captured using experimental gill nets in Augustana WPA, 2013.

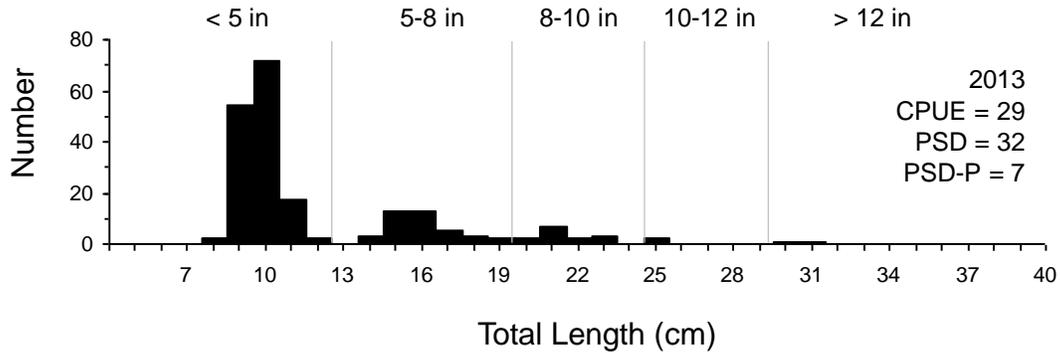


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Yellow Perch captured using experimental gill nets in Augustana WPA, 2013.