

Anderson Slough

Site Description

Location

Water designation number (WDN)	26-0012-00
Legal description	T127N-R70W-Sec 1,2,12
County (ies)	Edmunds
Location from nearest town	7.5 miles west, 8.0 miles south, 2.0 miles west, and 1.5 miles south of Ipswich

Survey Dates and Sampling Information

Survey dates	September 17, 2015 (GN)
Gill net sets (n)	3

Morphometry (Figure 1)

Watershed area (acres)	29,907
Surface area (acres)	240
Maximum depth (ft)	---
Mean depth (ft)	----

Ownership and Public Access

Anderson Slough covers both public and private property; the fishery is managed by SDGFP. No formal boat ramp exists; public access has been limited to the road right-of-way along 348th Ave (Figure 1) and foot traffic across federally-owned lands. Lands adjacent to the Anderson Slough are owned by the U. S. Fish and Wildlife Service and private individuals.

Watershed and Land Use

The 29,907 acre Stafford Lake (HUC-12) sub-watershed encompasses Anderson Slough and is located within the larger Hamak 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 Anderson Slough are not monitored by SDDENR.

Fish Management Information

Primary species	walleye, yellow perch
Other species	none
Lake-specific regulations	none
Management classification	none
Fish consumption advisories	none

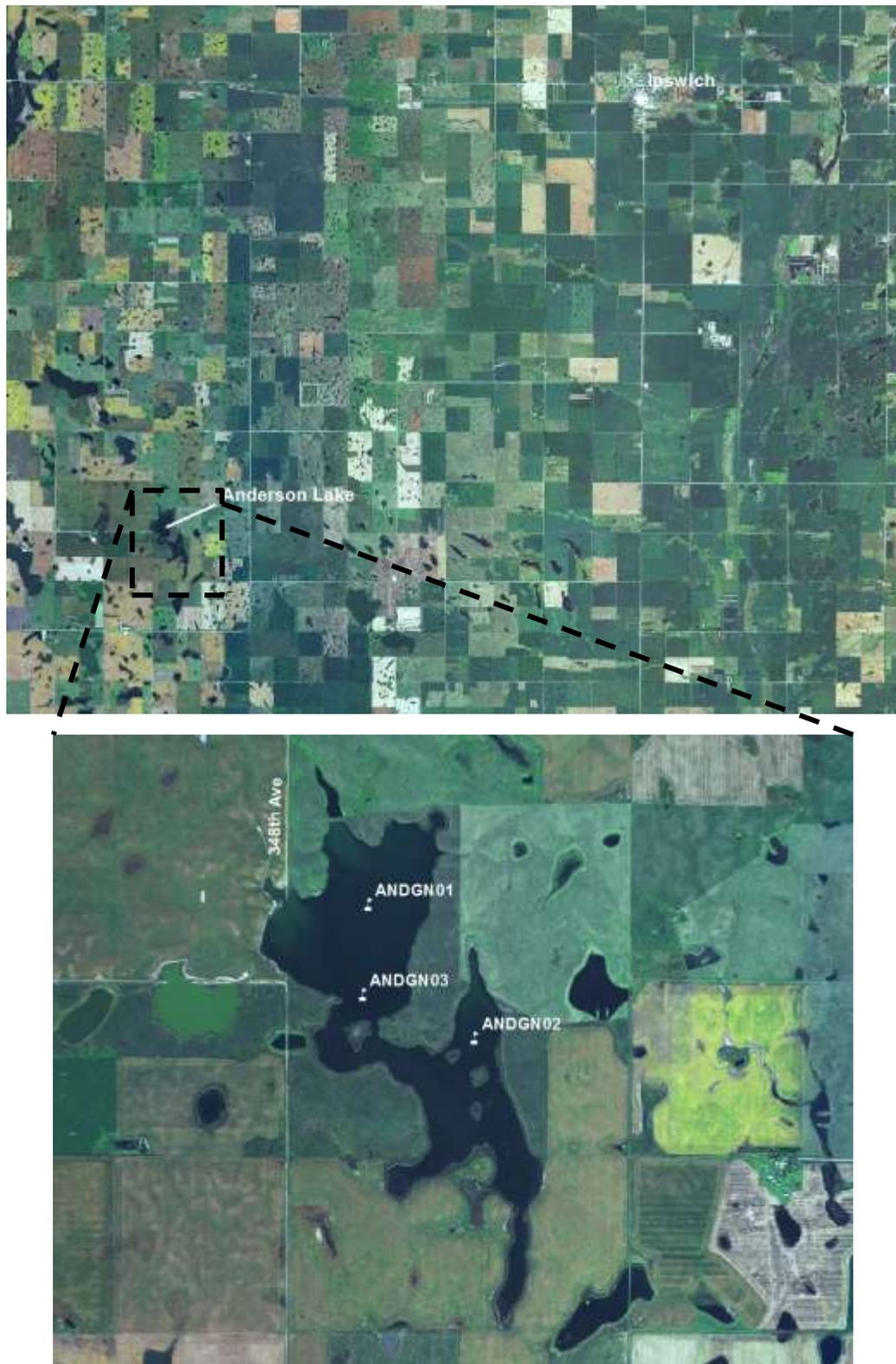


Figure 1. Map depicting geographic location of Anderson Slough from Ipswich, South Dakota (top). Also noted are net locations used to sample Anderson Slough in 2015 (bottom). ANDGN= gill nets

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

Anderson Slough is a natural lake located southwest of Ipswich, South Dakota. The lake, a relatively new fishery, provides fishing opportunity in an area with limited fisheries resources when compared to areas of the management district farther east (e.g., Day County). The first stocking by SDGFP took place in 2012, when both walleye and yellow perch were stocked; a subsequent walleye stocking was made in 2014. The fishery will be managed as a walleye and yellow perch fishery.

Primary Species

Walleye: Gill nets captured 15 walleye that ranged in TL from 24 to 51 cm (9.4 to 20.1 in; Figure 3). The mean gill net CPUE of stock-length walleye was 4.6 (Table 2) and well below the minimum objective (≥ 10 stock-length walleye/net night). Currently, relative abundance appears to be low to moderate.

Otoliths collected from a sub-sample of walleye in the gill net catch suggested that cohorts produced in 2012 and 2014, both of which coincided with fry stockings, comprised the entire sample (Table 1; Table 3). Although sample size is low, it appears that walleye growth in Anderson Slough is relatively fast; the weighted mean TL at capture age-3 walleye was 469 mm (18.5 in; Table 4). Mean W_r values ranged from 81 to 108 for all 10-mm length groups represented. The mean W_r of stock-length individuals was 95 (Table 2) and no discernable length-related trends in condition were apparent.

Yellow Perch: The mean gill net CPUE of stock-length yellow perch was 113.6 (Table 2) and above the minimum objective (≥ 30 stock-length yellow perch/net night). Currently, relative abundance is high.

Gill net captured yellow perch ranged in TL from 9 to 30 cm (3.5 to 11.8 in), had a PSD of 69, and a PSD-P of 19 (Table 2; Figure 3). Both the PSD and PSD-P were above the management objectives of 30-60 and 5-10, respectively.

Otoliths collected from a sub-sample of gill net captured yellow perch indicated that four consecutive year classes (2012-2015) were present. The 2013 and 2015 year classes were the most represented and collectively comprised 96% of yellow perch in the gill net catch (Table 5).

The weighted mean TL at capture for age-2 yellow perch was 231 mm (9.1 in; Table 6). Gill net captured yellow perch exhibited a declining trend in condition as TL increased. Mean W_r values ranged from 89 to 107 for all length categories (e.g., stock to quality) sampled.

Management Recommendations

- 1) Conduct fish community assessment surveys on an every fifth year basis (next surveyed scheduled for summer 2020) 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) Establish a public boat ramp and parking on Anderson Slough.
- 4) Monitor winter and summer kill events. In cases of substantial winter or summer kill the need to re-establish a fishery in the Anderson Slough 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 Anderson Slough, 2012-2015. WAE= Walleye; YEP= yellow perch

Year	Species	Size	Number
2012	WAE	fry	200,000
	YEP	adult	5,100
2014	WAE	fry	100,000

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 Anderson Slough, 2015. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). 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>								
WAE	4.6	7.0	71	23	7	13	95	3
YEP	113.6	92.3	69	5	19	4	102	1

Table 3. Year class distribution based on the expanded age/length summary for walleye sampled in gill nets from Anderson Slough, 2015.

Survey Year	Year Class			
	2015	2014	2013	2012
2015		5		10

Table 4. Weighted mean TL (mm) at capture for walleye captured in experimental gill nets (expanded sample size) from Anderson Slough, 2015.

Survey Year	Age				
	0	1	2	3	4
2015	---	309(5)	---	469(10)	---

Table 5. Year class distribution based on the expanded age/length summary for yellow perch sampled in gill nets from Anderson Slough, 2015.

Survey Year	Year Class			
	2015	2014	2013	2012
2015	582	14	242	16

Table 6. Weighted mean TL (mm) at capture for yellow perch captured in experimental gill nets (expanded sample size) from Anderson Slough, 2015.

Survey Year	Age				
	0	1	2	3	4
2015	113(582)	191(14)	231(242)	274(16)	---

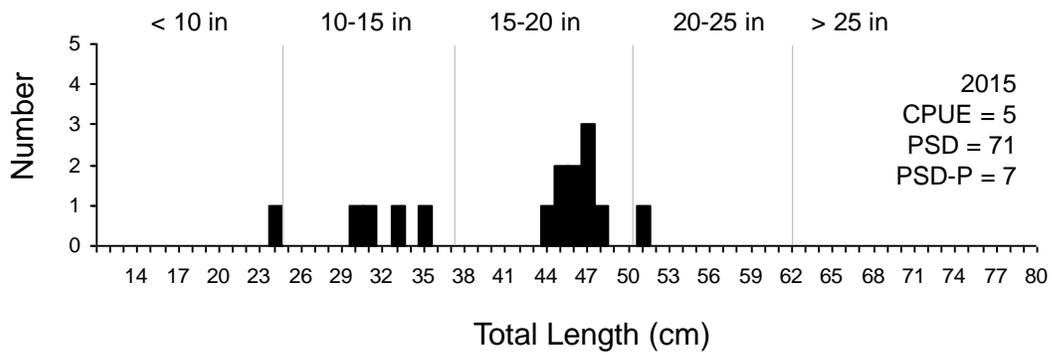


Figure 2. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for walleye captured using experimental gill nets in Anderson Slough, 2015.

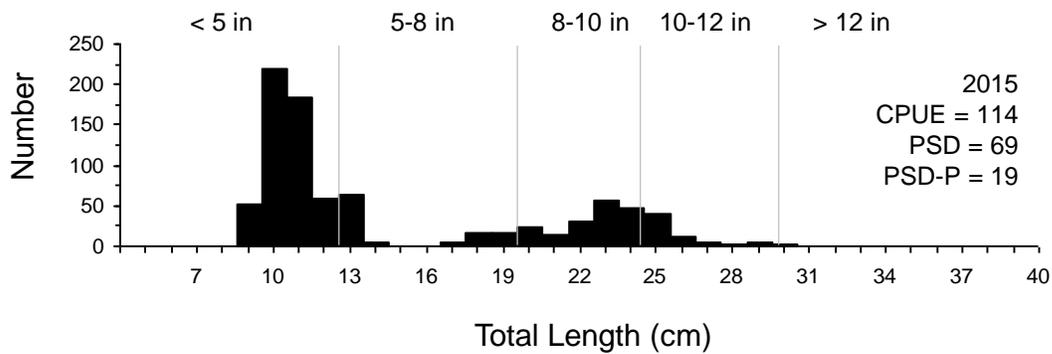


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for yellow perch captured using experimental gill nets in Anderson Slough, 2015.