

Lily GPA

Site Description

Location

Water designation number (WDN)	22-0061-00
Legal description	T119N-R58W-Sec. 1,2 T120N-R58W-Sec. 25,26,27,35,36
County (ies)	Day, Clark
Location from nearest town	5 miles west of Lily, SD.

Survey Dates and Sampling Information

Dates of current survey	August 5-7, 2008 (FN, GN)
Dates of most recent survey	none
Gill net sets (n)	6
Frame net sets (n)	18

Morphometry (Figure 1)

Watershed area (acres)	unknown
Surface area (acres)	≈1125
Maximum depth (ft)	≈18
Mean depth (ft)	unknown

Ownership and Public Access

The waterbody referred to as Lily GPA is a non-meandered lake managed by the SDGFP. A large tract of Game Production Area, much of which is flooded, is located in the east-central portion of the lake (Figure 1). Lands adjacent to Lily GPA are owned by the State of South Dakota and private individuals.

Watershed and Land Use

Land use within the Lily GPA watershed is primarily agricultural.

Water Level Observations

Water levels of Lily GPA are below those observed during the late 1990's but remain sufficient to support a sport fishery.

Aquatic Vegetation and Exotics

Emergent and submergent vegetation was present in Lily GPA; however, the type and extent has not been documented. No exotic species have been reported in the Lily GPA.

Fish Management Information

Primary species	walleye, yellow perch
Other species	northern pike
Lake-Specific regulations	NE Panfish Management Area: 10 daily; 50 possession
Management classification	none
Fish consumption advisories	none

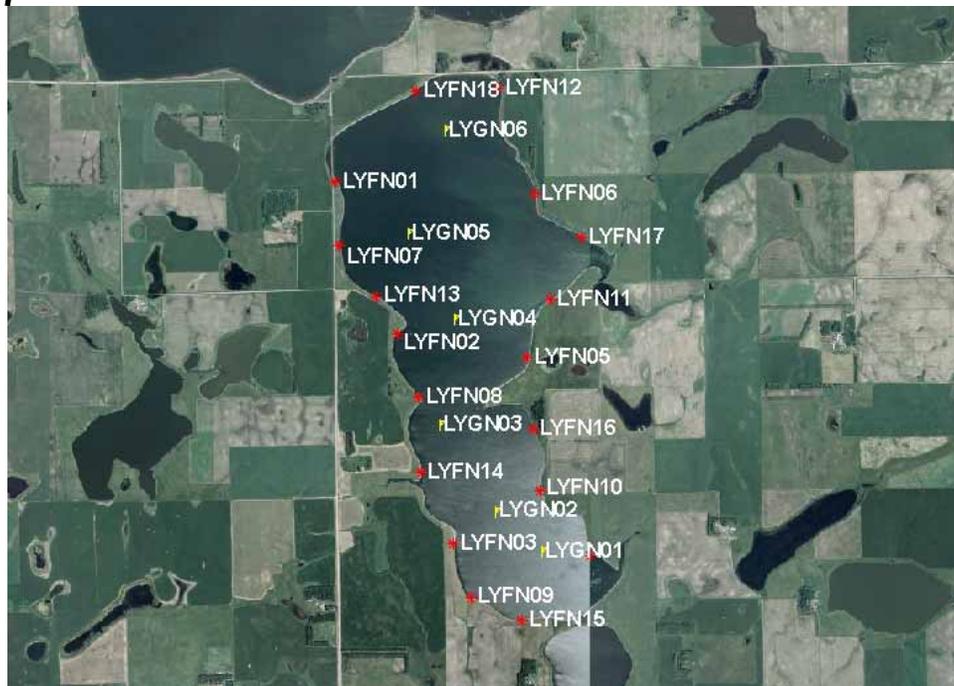
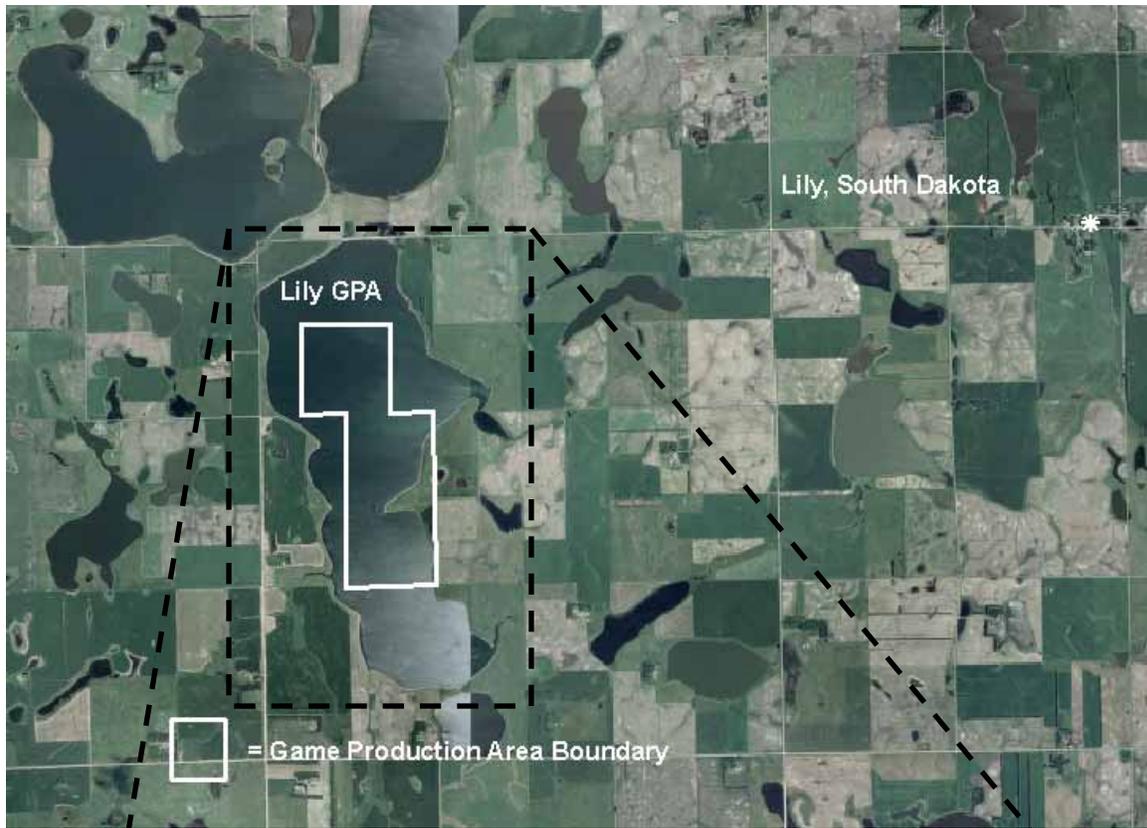


Figure 1. Map depicting geographic location of Lily GPA (Day County) from Lily, South Dakota (top). Also noted are standardized net locations for Lily GPA (Day County). LYFN= frame net; LYGN= gill net

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 ≥ 25 , a PSD of 30-60, and a PSD-P of 5-10.

Results and Discussion

Prior to 1990's, Lily GPA was a shallow slough unable to support a sport fishery. Increased precipitation during the mid- to late-1990's provided an increase in surface area and depth of Lily GPA. Both surface area and depth remain sufficient to sustain a sport fishery. Therefore, Lily GPA is managed as a walleye and yellow perch fishery; however, northern pike also contribute to the fishery.

Primary Species

Walleye: The mean gill net CPUE of stock-length walleye during 2008 was 0.2, and below the minimum objective (≥ 10 stock-length fish/net night; Table 1). Based on the 2008 walleye gill net catch, relative abundance appears to be low.

Age structure information from gill net captured walleye in 2008 suggests poor survival of 2002 and 2003 fry stockings and poor natural reproduction (Table 4). No walleyes were captured from the 2002 and 2003 stockings. However, one age-1 walleye was captured and likely represents natural reproduction. Most (96%) walleye caught in the gill nets were from the 2008 year-class which corresponds with a fry stocking (Table 4).

Walleye captured in gill nets during 2008 ranged in total length from 10 to 31 cm (3.9 to 12.2 inches; Figure 2). All walleye captured were less than quality-length resulting in a PSD and PSD-P of 0 (Table 1, Figure 2).

Yellow Perch: The mean gill net CPUE of stock-length yellow perch in 2008 was 1.3, and below the minimum objective (≥ 25 fish/net night). Current yellow perch relative abundance appears to be low. Yellow perch sampled in gill nets during 2008 ranged in total length from 14 to 33 cm (5.5 to 13.0 inches). No growth data was available from 2008. Condition of yellow perch was excellent with a mean relative weight of 107 for the 2008 gill net sample (Table 1).

Other Species

Northern Pike: The mean gill net CPUE of stock-length northern pike in 2008 was 2.8 (Table 1). Relative abundance is moderate. However, northern pike are typically not sampled effectively during standard surveys; therefore collected data may not accurately represent the at-large population. No growth information was available for 2008. Condition of northern pike caught by gill nets in Lily GPA during 2008 was good with a mean relative weight of 95 (Table 1).

Management Recommendations

- 1) Conduct fish community surveys utilizing gill nets and frame nets every fourth year (next survey scheduled in summer 2012) 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 on a biennial basis (1,000 fry/acre scheduled for spring 2009) to create additional year classes.
- 4) Develop access site.

Table 1. 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 and frame nets in Lily GPA, August 2008. Confidence intervals include 80 percent (\pm CI-80) or 90 percent (\pm CI-90). NOP= northern pike; 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>Frame nets</i>								
NOP	1.9	0.4	74	13	23	12	89	3
WAE	0.2	0.1	0	---	0	---	99	4
YEP	0.1	0.0	0	---	0	---	94	---
<i>Gill nets</i>								
NOP	2.8	1.0	76	19	18	16	95	6
WAE	0.2	0.2	0	---	0	---	85	---
YEP	1.3	0.9	38	34	38	34	107	5

Table 2. Weighted mean length at capture (mm) by age for walleye captured in experimental gill nets in Lily GPA, August 2008.

Year	N	Age					
		0	1	2	3	4	5
2008	26	111	318	---	---	---	---

Table 3. Stocking history including size and number for fishes stocked into Lily GPA Lake, 2002-2008. WAE= walleye

Year	Species	Size	Number
2002	WAE	fry	1,200,000
2003	WAE	fry	1,500,000
2008	WAE	fry	1,200,000

Table 4. Numbers of walleye sampled (n) by year class, and associated stocking history (Number stocked x 1,000) for walleye in Lily GPA.

Survey Year	Year Class						
	2008	2007	2006	2005	2004	2003	2002
2008	25	1					
Number stocked							
fry	1,200					1,500	1,200
small fingerling							
large fingerling							

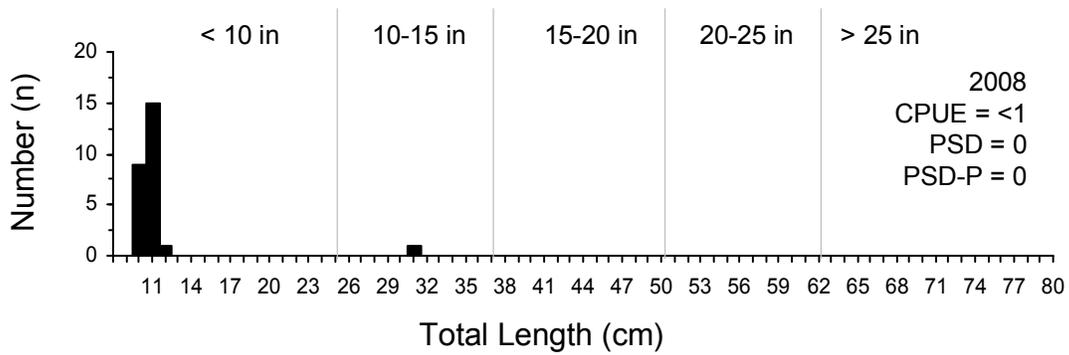


Figure 2. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P) for walleye captured in gill nets in Lily GPA, August 2008.

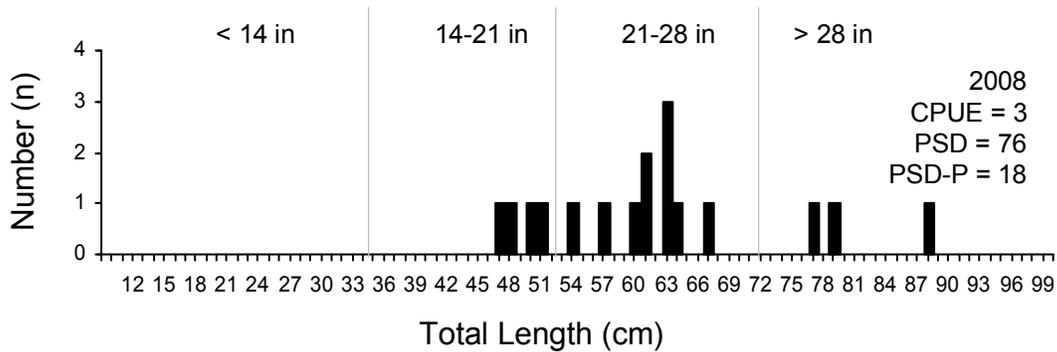


Figure 3. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P) for northern pike captured in gill nets in Lily GPA, August 2008.