Twin Lake

Site Description

Location

Water designation number (WDN)	47-0009-00
Legal description	T127N-R70W-Sec. 13, 23, 24
County (ies)	McPherson
Location from nearest town	3 miles west and 3 miles south of Long Lake, SD

Survey Dates and Sampling Information

Survey dates	July 24, 2012 (GN)
Gill net sets (n)	3

Morphometry (Figure 1)

Watershed area (acres)	29,097
Surface area (acres)	≈240
Maximum depth (ft)	≈13
Mean depth (ft)	unknown

Ownership and Public Access

Twin Lake is a meandered lake owned by the State of South Dakota and the fish community is managed by the SDGFP. No access site is located on Twin Lake; however, much of the shoreline surrounding the lake is owned by US Fish and Wildlife Service and the State of South Dakota.

Watershed and Land Use

The 29,097 acre Long Lake sub-watershed (HUC-12) encompasses Twin Lake and is located within the larger Long Lake (HUC-10) watershed. Land use within the watershed is primarily agricultural including a mix of pasture or grassland and cropland.

Water Level Observations

Water levels on Twin Lake are not currently monitored by SDDENR.

Fish Management Information

Primary species	Walleye
Other species	none
Lake-specific regulations	none
Management classification	warm-water marginal
Fish consumption advisories	none

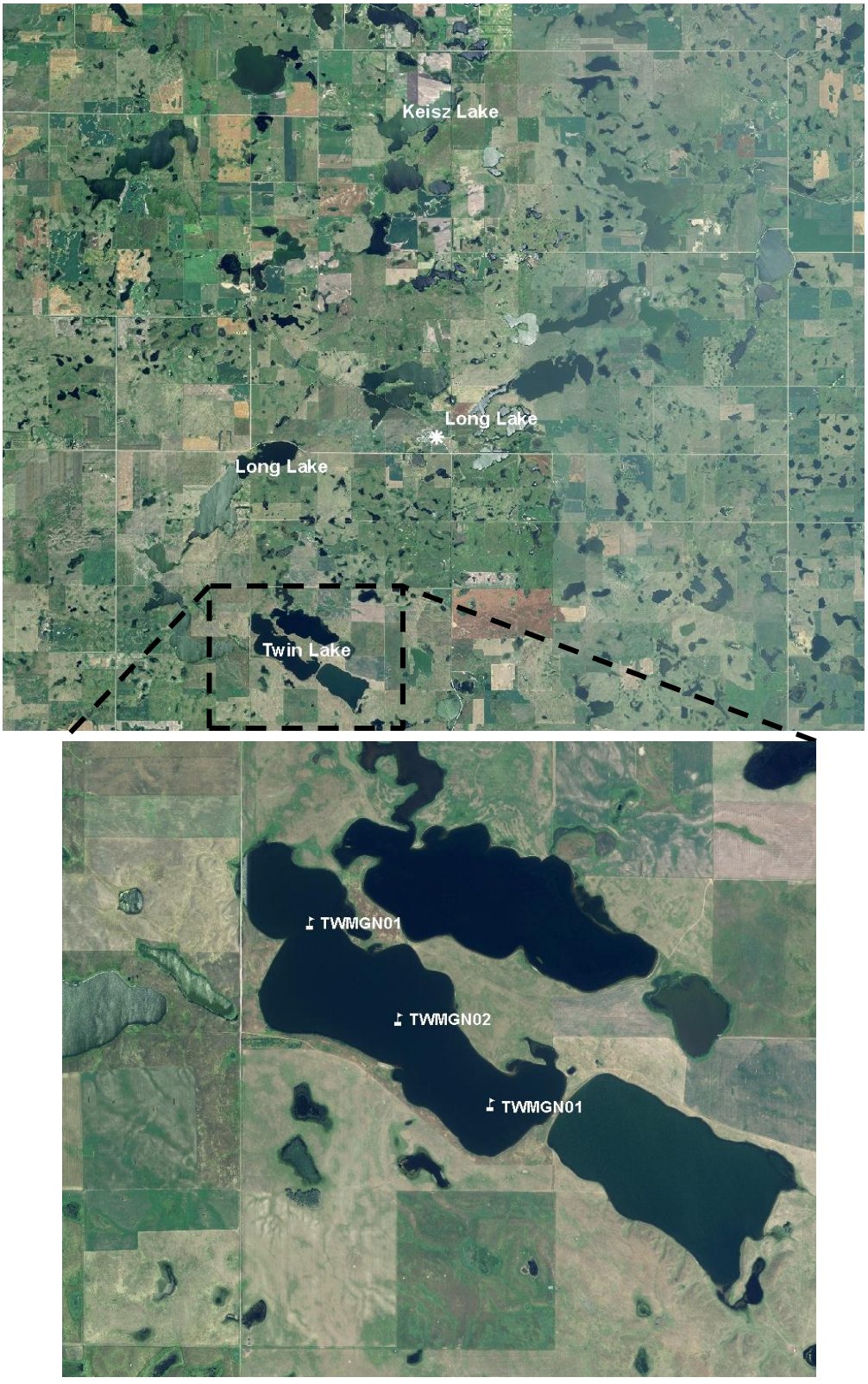

Figure 1. Map depicting geographic locations of several, McPherson County, lakes from Long Lake, South Dakota (top). Also noted are standardized net locations for Twin Lake (bottom). TWMGN= gill net

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) Establish and 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

Twin Lake is a shallow-natural lake located near the city of Long Lake in McPherson County, South Dakota. Past surveys conducted in the 1970's indicated that Twin Lake was a shallow lake with relatively poor access and recommended classification as a waterfowl production area. However, heavy precipitation in the mid to late 1990's and the resulting run-off increased water depths to levels potentially capable of supporting a sport fishery.

Initial walleye stockings were made from 2004-2006 (Table 4); however, three overnight gill nets on September 19, 2007 resulted in only five walleye being captured. Subsequent stockings to bolster the walleye population were conducted 2008, 2010, and 2012 (Table 4). Pre-spawn adult yellow perch were introduced in 2008 (Table 4), but apparently survival was poor as no yellow perch were captured during the 2012 survey (Table 1). Provided water levels remain sufficient and a yellow perch population can be established, Twin Lake will be managed as a walleye and yellow perch fishery.

Primary Species

Walleye: The mean gill net CPUE of stock-length Walleye was 12.0 (Table 1) and above the minimum objective (≥ 10 stock-length Walleye/net night). Based on the 2012 gill net CPUE, relative abundance is considered high.

Otoliths were collected from a sub-sample of gill net captured Walleye and suggested the presence of three year classes (2005, 2006, and 2010; Table 2). The abundant 2010 cohort, which ranged in TL from 22 to 33 cm (8.7 to 12.6 in), dominated the gill net catch and coincided with a fry stocking (Table 3; Table 4). Walleye from the 2010 (age-2) year class had a weighted mean TL at capture of 265 mm (10.4 in) and most were in the stock-quality length category which had a mean Wr of 112.

Management Recommendations

1) Conduct fish community assessment surveys on an every fifth year basis (next surveyed scheduled in summer 2017) to monitor fish relative abundance, fish population size structures, fish growth, and stocking success.

2) Stock Walleye (≈500 fry/ acre) on a biennial basis (even years) to establish additional year classes.

3) Stock adult pre-spawn Yellow Perch to establish a population.

4) Collect otoliths from Walleye and Yellow Perch to assess age structure and growth rates of each population.

5) Establish a public boat ramp and parking on Twin Lake.

6) Monitor winter and summer kill events. In cases of substantial winter/summer kill the need to re-establish a fishery in Twin Lake should be evaluated. If water levels are sufficient, Walleye and Yellow Perch should be stocked to re-establish a fish community.

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 from Twin Lake, 2012. Confidence intervals include 80 percent (± CI-80) or 90 percent (± CI-90). WAE= Walleye

	Abundance		Stock Density Indices				Condition	
Species	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
Gill Nets								
WAE	12.0	9.7	6	7	0	---	110	2

Table 2. Year class distribution based on the expanded age/length summary for Walleye sampled in gill nets and associated stocking history (# stocked x 1,000) from Twin Lake, 2012.

	Year Class							
Survey Year	2012	2011	2010	2009	2008	2007	2006	2005
2012			46				1	1
# stocked								
fry	100		200		200		200	200
sm. fingerling								
lg. fingerling								

Table 3. Weighted mean TL at capture (mm) for Walleye sampled in experimental gill nets (expanded sample size) from Twin Lake, 2012.

Year	1	2	3	4	5	6	7
2012	---	265(46)	---	---	---	489(1)	501(1)

Table 4. Stocking history including size and number for fishes stocked into Twin Lake, 2004-2012. WAE= Walleye; YEP= Yellow Perch

Year	Species	Size	Number
2004	WAE	fry	200,000
2005	WAE	fry	200,000
2006	WAE	fry	200,000
2008	WAE	fry	200,000
	YEP	adult	1,792
2010	WAE	fry	200,000
2012	WAE	fry	100,000

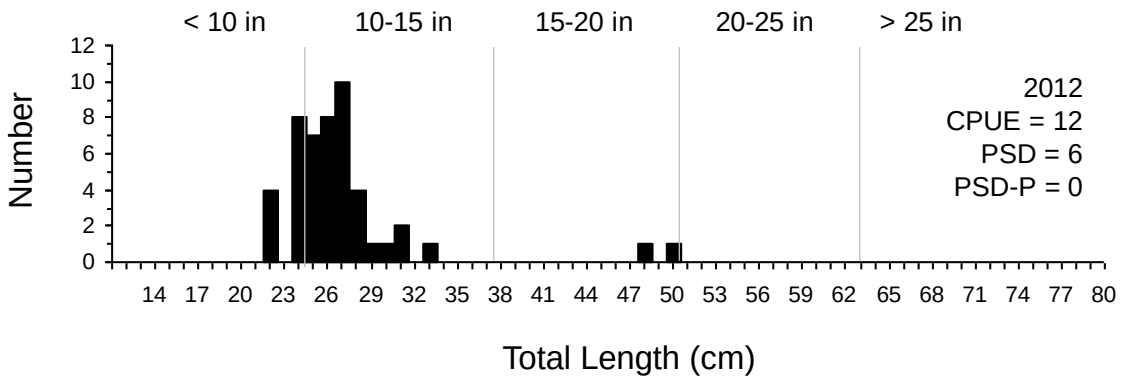

Figure 2. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length (PSD-P) fish for Walleye captured using experimental gill nets in Twin Lake, 2012.