West Stink Lake

Site Description

Location

Water designation number (WDN)	48-0039-00
Legal description	T125N-R55W-Sec. 3,4,9,10
County (ies)	Marshall
Location from nearest town	3 miles north of Eden, South Dakota

Survey Dates and Sampling Information

Dates of current survey	June 5-6, 2008 (GN)
Dates of most recent survey	none
Gill net sets (n)	4

Morphometry (Figure 1)

Watershed area (acres)	unknown
Surface area (acres)	580
Maximum depth (ft)	≈15
Mean depth (ft)	unknown

Ownership and Public Access

West Stink Lake is a meandered lake owned by the State of South Dakota and managed by the SDGFP. No boat ramp exists on West Stink Lake and public access is limited to flooded road rights-of-way which enter the lake. Lands adjacent to West Stink Lake are primarily owned by private individuals.

Watershed and Land Use

Land-use within the West Stink Lake watershed is primarily agricultural including grassland (i.e., hay land, rangeland, and CRP) and cropland.

Water Level Observations

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

Aquatic Vegetation and Exotics

Emergent and submersed vegetation is present in West Stink Lake; however, no aquatic vegetation surveys have been completed. No exotic species have been reported in West Stink Lake.

Fish Management Information

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

Figure 1. Map depicting location of West Stink Lake from Eden, Day County, South Dakota.

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

Results and Discussion

In 2004, West Stink Lake was utilized as a natural walleye rearing pond by SDGFP. Natural walleye rearing ponds are stocked with walleye fry in the spring. The walleye fry grow during the summer months and a portion are harvested as large fingerlings in the fall. If winterkill does not occur, often a substantial year-class remains and can provide angling opportunities as was the case in West Stink Lake. Provided water levels remain sufficient to support a sport fishery West Stink Lake will be managed as a walleye/yellow perch fishery.

Primary Species

Walleye: The mean gill net CPUE of stock-length walleye was 5.8 (Table 1), and below the minimum objective (≤10 per net night). Based on the 2008 gill net catch, relative abundance of walleye in West Stink Lake appeared to be moderate-low. The only year-class caught in 2008 was the result of the 2004 fry stocking.

Walleye captured in gill nets during 2008 ranged in total length from 31 to 39 cm (12.2 to 15.4 inches; Figure 2). Walleye growth was fair with the mean length at capture at age-4 being 352 mm (13.8 inches; Table 2). Condition of walleye in 2008 was good with a mean relative weight of 88 (Table 1).

Management Recommendations

1) Conduct fish community surveys utilizing gill nets on an every fourth year basis (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 to assess age structure and growth rates of the population.

3) Stock mature pre-spawn yellow perch to develop a walleye/yellow perch sport fishery.

4) Stock walleye (≈1000 fry/ acre) in 2009 and 2010 to establish multiple year classes, then stock biennially to maintain the sport fishery.

5) 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 walleye (WAE) captured in experimental gill nets from West Stink Lake, 2008. Confidence intervals include 80 percent (± CI-80) or 90 percent (± CI-90).

	Abundance		Stock Density Indices				Condition	
Species	CPUE	CI-80	PSD	CI-90	PSD-P	CI-90	Wr	CI-90
Gill nets								
WAE	5.8	2.9	9	10	0	---	88	1

Table 2. Weighted mean length at capture (mm) by age for walleye captured in experimental gill nets in West Stink Lake, 2008.

		Age										
Year	N	0	1	2	3	4	5	6	7	8	9	10
2008[1]	23	---	---	---	---	352	---	---	---	---	---	---

[1]Age assignments made using otoliths.

Table 3. Stocking history including size and number for fishes stocked into West Stink Lake, 2000-2008.

Year	Species	Size	Number
2004	WAE	fry	2,500,000

Table 4. Numbers of walleye sampled using gill nets (n), by year class, and associated stocking history (Number stocked x 1,000) for walleye captured in West Stink Lake, 2008.

	Year Class								
Survey Year	2008	2007	2006	2005	2004	2003	2002	2001	2000
2008[1]					23				
Number stocked									
fry					2,500				
small fingerling									
large fingerling									

[1]Age assignments made using otoliths

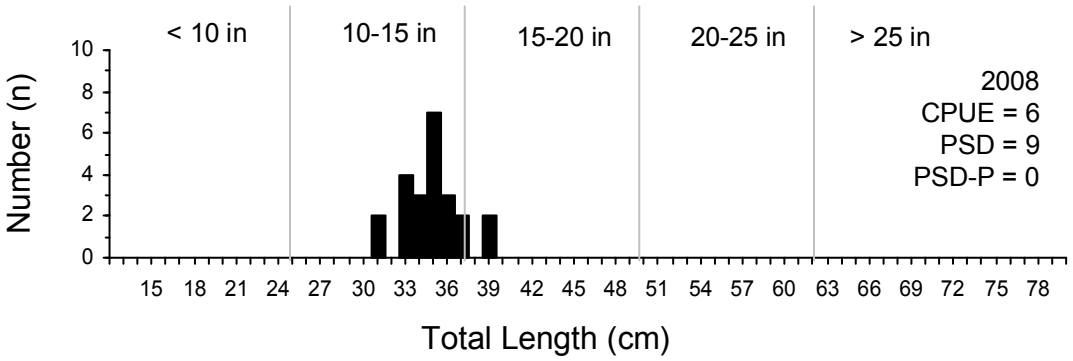

Figure 2. Length-frequency histogram, catch rate of stock-length fish (CPUE), proportional size distribution of quality- (PSD) and preferred-length fish (PSD-P) for walleye captured in gill nets in West Stink Lake, 2008.