

**Proposal to Establish Muskellunge in the Sauk River Chain of Lakes (SRCL), Stearns County  
August 13, 2009**

**Objective:** To provide a trophy muskellunge fishing opportunity in the St. Cloud/Richmond-Cold Spring area.

The specific goal for muskie management in the SRCL is to produce an adult (larger than 33 inches) population density of approximately 0.25 fish per acre. This population density is similar to other lakes that are actively managed for muskies in Minnesota, locally Sugar Lake, in Wright County.

**Justification:** A new muskellunge lake would provide a fishing opportunity in this portion of central Minnesota. The SRCL is located partly within the city limits of Cold Spring and Richmond, MN. The area is approximately 30 miles northwest of Sugar Lake, the only other muskie lake in the Montrose Area. Other muskie waters are located about 50 miles west in the Alexandria Area and 50 miles north in the Little Falls Area. Richmond is 20 miles west of St. Cloud, a growing urban area, with a population approaching 100,000.

The Sauk River Chain of Lakes include the following lakes (in order from upstream to downstream, map attached):

Becker (73-156) 176 ac.  
Horseshoe (73-157) 550 ac.  
Cedar Island (73-133) 998 ac.  
Zumwalde (73-89) 106 ac.  
Schneider (73-82) 53 ac.  
Great Northern (73-83) 356 ac.  
Krays (73-87) 90 ac  
Knaus (73-86) 107 ac.  
Bolting (73-088) 103 ac.

Total acreage is 2,539. There is a broad connection throughout the SRCL providing safe navigability. In addition, there are four connected lakes, Long, North Browns, Eden and Mud (Eden Lake subwatershed), which are tributaries to Horseshoe Lake. Only Long Lake is navigable from Horseshoe Lake.

The SRCL has three designated public accesses developed with ramps and parking areas, as well as several resorts that also offer launching facilities.

## **Lake Criteria Important for Muskellunge Management**

### **1) Lake size: >500 acres**

The SRCL includes 2,539 total acres. The lakes are connected by the Sauk River and fully navigable. Horseshoe (575 acres) and Cedar Island lakes (995 acres) comprise the largest share of the lakes' total acreage. Together there are 1,030 littoral acres. The SRCL has a variety of morphological elements such as points, bays, and islands that provide diverse habitat. The littoral area substrates include muck, sand and rock. These substrates support a moderately diverse aquatic plant community (MN DNR Lake Survey 2003). There is no history of winterkill.

**2) Water clarity:** - Although not critical to the ability of a lake to produce a quality muskellunge population, in the past good water clarity has been an important consideration of muskie management. Water quality is improving but summer secchi disc readings are about three feet. Becker and Schneider Lakes are exceptions with midsummer secchi readings between 5-7 feet. The SRCL has an average total alkalinity of 201 mg/l, which is considered productive.

**3) Open system:** Water levels have been altered on the SRCL by a dam on the Sauk River at Cold Spring. Muskellunge have never been stocked in the SRCL before. However, it is possible that a population may have existed before the construction of the dam at Cold Spring. Since a natural population of muskellunge exists in the Mississippi River. The SRCL outlets into the Sauk River and eventually flows into the Mississippi River at St. Cloud.

Surveys have been conducted in the various basins of the SRCL to determine potential differences. However, in some sense, the basins constitute only one body of water. It has been decided that the SRCL will count as one lake for muskie management as allowed by the long range plan.

### **4) Low northern pike abundance:**

Coexistence of muskellunge and northern pike has been a concern to anglers and fish managers. The last test netting in 2003 found the northern pike catch to be 3.5/gill net in Cedar Island Lake, which is below the first quartile value (4.5) for class 36 lakes. Results were similar for Horseshoe Lake, 2.3 northern pike/gill net, (3.1/net is the 1<sup>st</sup> quartile value for class 25 lakes).

Northern pike sampled in 2003 ranged in length from 18-31 inches with a mean length of 24.2 inches. Mean weight of fish captured in 2003 was 3.0 pounds. Female northern pike can be expected to reach 24+ inches by age 5.

Other lakes in the SRCL show the same pattern except Becker and Schneider Lakes. These small lakes have clearer water and higher northern pike catches.

### **5) Adequate Prey:**

Gill net catches of yellow perch in 2003 were low and below the first quartile value for both Cedar Island and Horseshoe lakes, 1.7/ and 1.9/lift. However, sucker and three species of redhorse are common in the SRCL. In 2003, gill net catches of white sucker and shorthead

redhorse in Cedar Island Lake were 4.4 and 11.3/gill net, both above the 3<sup>rd</sup> quartile value for their respective lake class. Growth might be expected to be good considering the forage and productivity of the lakes.

The diverse fish community should provide appropriate sized prey for all sizes of muskellunge, especially when each species' life stages are considered.

**Public Acceptance:** Several groups will be interested in the muskie stocking proposal including the Sauk River Chain of Lakes Association, Minnesota Darkhouse Spearers Assoc, Richmond Sportsmen Club, the cities of Richmond and Cold Spring, and the St. Cloud Chapter of Muskies Inc. If this proposal receives internal support an open house to discuss the proposal with all of the groups will be held in 2009.

Several discussions have occurred with the SRCL Board since 2006. The most recent forum took place on July 27, 2009 and included several members of the St. Cloud Chapter of Muskies Inc. On August 8, 2009 the SRCL Board took a straw poll and voted 5-2 against muskie management. The vote against was not based on biology or social factors but a perception that DNR Fisheries would not have the resources to carry out the stocking and evaluation. The reason for this observation was that previously DNR Fisheries (Montrose Area) would not institute a 15" minimum size limit for walleye; nor did we electrofish areas of the SRCL that the Association had stocked with walleye fry. It was explained that the only minimum size limit option in the toolbox was a 17" minimum size limit; and we used the evaluation time to electrofish traditional areas in Cedar Island and Horseshoe Lakes.

The St. Cloud Chapter of Muskies Inc met with the Richmond Sportsmen's Club during the summer of 2009 and indicated that the group was in support of muskie management.

**Potential for Opposition:**

There will likely be opposition from dark house spearers since northern pike spearing has been popular for many years. In an average winter, approximately 107 and 101 fish houses are placed on Horseshoe and Cedar Island Lakes, respectively. It's not known how many of these might be dark houses but a guess is that up to 20% of them might be. Therefore, about 40 spearers may be using the lakes.

The SRCL Board met with members of the Minnesota's Darkhouse Spearers Assoc. and St. Cloud Chapter of Muskies Inc on July 23, 2009. In attendance were Tim Spreck, President, Dale Lyon, President of the Heartland Chapter, Janet Kresinski, Randy Schneider, and Jerome Orbeck. (I was not in attendance at this meeting). An observer reported that the MN Darkhouse Assoc. will take legal action if muskies are stocked into the SRCL, even though it was made clear that the proposal would not include a restriction on northern pike spearing.

Any meeting in this vicinity will hear protests about channel catfish, first stocked in Horseshoe and Cedar Island Lakes by the DNR Fisheries, Spicer Office in 1976. The last stocking occurred in 1988. Catfish were plentiful by 1990; and complaints that catfish were too abundant were

raised by the mid-1990's. Those concerns persist today. Bullheads have been completely displaced by the catfish. Citizens may protest that DNR lied in this action (catfish would not reproduce) and cannot be trusted with muskie management.

It is expected that muskellunge will distribute throughout the SRCL. Interestingly, channel catfish have not become abundant in North Browns, Eden or Mud Lakes. Also, since the advent of walleye fry stocking in the SRCL, anecdotal reports are that walleye have become more abundant in the SRCL but not in the lakes of the subwatershed. No meetings to assess acceptance of muskie in the lakes of the subwatershed have been conducted.

**Proposed Stocking (number, size, frequency):** The initial stocking would consist of 1,030 fall fingerlings (one per littoral acre, mean length 10-12 inches or 3-5/lb) every other year over a period of nine years. Carry-over fish could be used if available to get a jump-start on the management (preferably two year old fish). However, if older muskellunge are used, the stocking rate should be reduced to reflect an increase in survivability of the larger fish.

**Evaluation:** Prior to 2003 the SRCL was assessed approximately every five years with lake surveys or population assessments. This will be the case if/once muskie are stocked.

To evaluate the muskellunge population directly, spring netting with large trap nets would begin seven years after the initial stocking to allow the first year of stocked fish to become sexually mature. Future assessments would be conducted every five years to fit within our spring assessments on other local lakes. Trap net catch rates, lengths, weights, sex and anal fin rays will be collected to determine relative abundance, size and age structure, condition and growth. Captured fish will be marked with a fin clip, and used in conducting a population estimate. A healthy trophy population would be defined by a spring trap net catch rate of at least 0.3 fish/net, a population density of at least 0.25 adults/acre based on a Schnabel estimate (with adults defined as fish >33 inches), multiple year classes represented and at least 5% of the sample 50 inches or longer once the population becomes established.

Summary: The lakes meet criteria for muskie stocking based on size, northern pike catches, and forage availability. Water quality is less than most traditionally managed waters but similar to others in the southern part of Minnesota.

Prepared by Paul Diedrich, Area Fisheries Supervisor  
Revised 8/13/09

Map of Sauk River Chain of Lakes

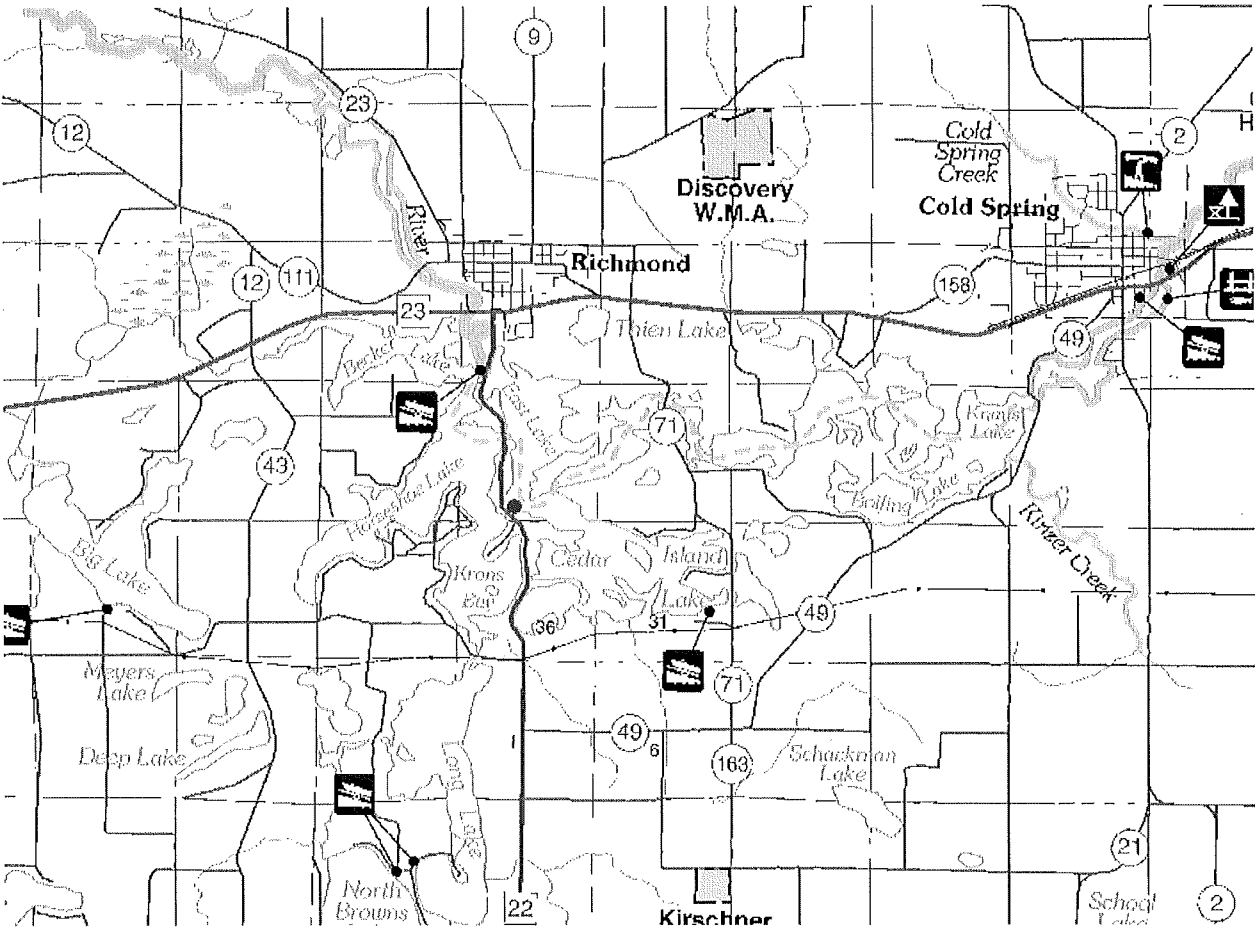


Table 2. Physical and biological characteristics for new introductions based on existing muskellunge waters (Taken from Long Range Plan). Horseshoe and Cedar Island Lakes characteristics compared to the lake selection criteria.

Characteristic	Attribute	Priority	Criteria of attribute	Horseshoe	Cedar Island	Total
Physical	Lake size (acres)	Best	> 3,000			1,548
		Better	300 to 3,000	550	998	
		Acceptable	< 300, but ≥ 100			
	Maximum depth (ft)	Best	> 80			75
		Better	40 to 80	57		
		Acceptable	< 40, but ≥ 15			
	Secchi (ft)	Best	> 10			2.3
		Better	5 to 10			
		Acceptable	< 5, but ≥ 3	3		
	Littoral area (%)	Best	0.33 to 0.55			68%
		Better	NA			
		Acceptable	< 0.33, but ≥ 0.55	50%	76%	
Biological	SDF	Best	> 1.40	3.93	6.28	
		Better	1.40 to 2.40			
		Acceptable	< 1.40, but ≥ 1.05			
	Northern pike CPUE	Best	< 2.4	2.3		3.5
		Better	2.4-6.3			
		Acceptable	≤ 15.1			
	Forage (size quality abundance diversity)	Best	Primary and secondary species present, abundance inter-quartile ranges or above	Best		Better
		Better	Secondary species present, abundance inter-quartile ranges or above			
		Acceptable	At least one secondary species present, with some mix of alternate species at moderate to high abundance			