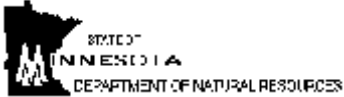


NA-01570-01 LAKE MANAGEMENT PLAN



Region	Area	F218	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

Ecological Class: 6 Alternate Class: Littoral Acres: 439 Maximum Depth: 30 ft

Long Range Goal: Maintain a self-sustained walleye population with a minimum gill net catch of 13.0 fish/set. Maintain a minimum northern pike gill net catch of 1.2 fish/set, with some fish over 25 in.

Operational Plan:
 1) Discontinue supplemental walleye fry stocking.
 2) Population assessments duplicating all 1998 net sets (9 GN, 9 TN, 9 TQU) should be done in July 2011 and 2014.
 3) A lake survey, repeating all 1998 sampling stations, should be done in July 2017.
 4) Special assessments designed to sample smallmouth bass, using open-water angling, should be done in June 2011, 2014, and 2017.
 5) This lake management plan should be revised following the 2017 survey.

Mid Range Objective: Determine whether a resumption of stocking is needed to meet the walleye long range catch goal. Determine whether a walleye population meeting the long range goal provides satisfactory walleye fishing.

Potential Plan:
 1) If funding is available, creel surveys should be done in May-September 2014 and 2017, in conjunction with creel surveys on Two Island or Crescent Lakes. Cost - \$35,000/survey
 2)

Primary Species Management Walleye	Secondary Species Management Northern pike	Check the appropriate boxes below: <input type="checkbox"/> BWCAW : Superior National Forest <input type="checkbox"/> Chippewa National Forest <input type="checkbox"/> Leech Lake Indian Reservation : 1854 Ceded Territory <input type="checkbox"/> 1837 Ceded Territory <input type="checkbox"/> Fond du Lac Indian Reservation <input type="checkbox"/> Voyageurs National Park
Area Supervisor's Signature Steven E. Persons	Date 2/9/2010	
Regional Supervisor's Signature Joe Mix	Date 5/12/2010	

Prepared by: Steven E. Persons
 Date of initial lake management plan: 4/26/1988
 Dates of management plan revisions: 5/4/93, 3/17/01

See following pages for information on various surveys, past management, social considerations, present limiting factors, survey needs, land acquisition needed, habitat development and protection, commercial fisheries, stocking plans, other management tools, and evaluation plans.

USFS District: Tofte

Date sent from DNR Area Fisheries to USFS District Ranger:	N/A
Date sent from DNR Regional Fisheries to USFS Forest Supervisor:	

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
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NARRATIVE

Ecological Class: 6

Various surveys Limited water quality analysis was done and observations were made on the lake in 1936 and 1937. Walleye, northern pike, and 'black bass' were listed as the most common fish species, although no fish sampling was done. Reference was made to a survey of the lake done by Eddy in 1935, but no copy of that survey is available in the Grand Marais office. Another survey was apparently done in October 1939 (referenced in 1951 survey), but again, no copy is now available.

An initial survey was conducted on Caribou Lake in 1951, and the lake was resurveyed in 1956, 1969, 1977, 1986, and 1998. Population assessments, using varying numbers of gill net and trap net sets, were done in 1957, 1970, 1971, 1972, 1979, 1981, 1984, 1989, 1992, 1995, 2003, 2005, and 2008. All assessments and surveys were done in July or August, with the more recent done in mid to late July. YOY assessments using 1/4-in-mesh trap nets were conducted in 1969, 1972-1983, 1986, 1995, 1998, 2003, 2005, and 2008. Special assessments using electrofishing gear to collect smallmouth bass were done in June 1988, 1995, and 1998. Special assessments using open-water angling, and targeting smallmouth bass, were done in June 2002, 2003, and 2008.

Species collected in 1951 included northern pike, white sucker, black crappie, yellow perch, largemouth bass, bluntnose minnow, and walleye. Additional fish species collected (and the year first collected) in surveys and assessments done after 1951 include darters (sp.; 1956), trout-perch (1957), pumpkinseed sunfish (1957), Johnny darter (1969), dace (sp.; 1977), fathead minnow (1977), smallmouth bass (1981), bluegill (1988), creek chub (1995), shiner (sp.; 1995), hybrid sunfish (2008), and golden shiner (2008).

In assessments and surveys since 1951, the walleye catch has ranged from 69.2 fish/gill net (1951) to 7.1 fish/gill net (1995), with a median of 13.56 fish/gill net set. Although catches have fluctuated considerably, they appear to have been declining slowly since the 1970s (Figure 2). The average size of walleye taken in gill nets has been fairly steady since 1979, at about 0.7 lb/fish. The walleye catch in the 2008 assessment was 8.50 fish/gill net set, with a mean weight of 0.84 lb/fish. Lengths for walleye collected in gill nets in 2008 ranged from 6.7 to 21.5 in, with most between 10.5 and 14.9 in. Natural year classes in 2006, 2005, and 2003 accounted for most of the walleye catch in 2008. Growth of young walleye collected in 2008 had been faster than average for the area, and faster than average for this lake. Mean length at last annulus formation for age-3 fish was 11.9 in, compared to an area mean of 10.3 in for Class 6 lakes in the Grand Marais area. Growth rates in this lake have been variable; prior to 2001 mean lengths at last annulus formation for age-3 walleye ranged from 9.6 in (1986) to 11.3 in (1989).

Smallmouth bass were first collected in Caribou Lake in the 1981 assessment. Since that time the catch of smallmouth bass in gill nets and trap nets has fluctuated, but has never been high (Figure 3). Smallmouth bass catches in trap nets peaked in 1984 and have declined fairly steadily since. The gill net catch peaked in 1998, and declined in each assessment after that year. Only two smallmouth bass were taken in gill nets and trap nets combined in 2008. Smallmouth bass collected in 2005 ranged in length from 5.6 to 15.9 in. Growth rates were slow for young fish, but average or faster for older fish.

Catches of northern pike in Caribou Lake have ranged from zero to 4.0 fish/gill net, and have generally been within the normal range for lakes of this ecological class (Figure 5). The catch in the 1998 survey (0.2 fish/gill net) was one of the lowest seen in this lake, but the catch rebounded in 2003 and remained at median levels in 2005 and 2008. Northern pike taken in gill nets in 2008 ranged in length from 12.6 to 34.3 in, with most in the 18-20 in length range. Growth rates for young fish had been fast.

Catches of yellow perch in gill nets have been fairly stable since 1951, although catches were higher in the 1970's than they have been recently (Figure 1). The yellow perch catch in 2008 was 3.38 fish/gill net set, above the third quartile for the lake class, but close to the median (3.00 fish/gill net set) for this lake historically. Yellow perch collected in 2008 were small; only three of the 27 fish taken in gill nets exceeded nine inches in length.

Caribou Lake supports small numbers of bluegill, pumpkinseed sunfish, hybrid sunfish, and black crappie. None have ever been abundant. A few YOY black crappie were collected in 1/4-in trap nets in 1998, and two large adults were taken in standard trap nets. Several black crappie were taken in 3/4-in-mesh trap nets in 2008. Lengths ranged from 9.4 to 13.8 in. Anglers report catching crappie occasionally; in 1992 an angler reported that there were large numbers suspended over one of the deep holes in the lake. It is not known whether this angler actually caught crappie there, or

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was just speculating from depth finder readings. Four bluegill, 4.4 to 7.1 inches in length, were taken in trap nets in 2008.

Catches of young-of-the-year (YOY) walleye and yellow perch in YOY assessments using quarter-inch-mesh trap nets have fluctuated widely (Figure 6). YOY yellow perch catches have ranged from over 5,000/trap net to zero, and YOY walleye catches have ranged from over 20/trap net to zero. The median catch of YOY walleye for years when fry were stocked has been 3.75 fish/set, compared to a mean of 1.42 fish/set for years with no fry stocking. There has been a wide overlap in catches between stocked and unstocked years, and a Wilcoxon rank sum test found no significant difference between walleye YOY catches in stocked and unstocked years ($p=0.7748$). Catches of YOY yellow perch have been low (for this lake) since smallmouth bass were introduced, with pre- and post-introduction median catches of 1,320 and 170 fish/set, respectively. A Wilcoxon rank sum test found that the difference was significant ($p = 0.0296$). Pre- and post-introduction medians for YOY walleye catch were 4.83 and 0.56 fish/set, respectively; however, there was considerable overlap in 1st-3rd quartile ranges, and the difference was determined not to have been significant ($p=0.2849$).

Residents of Caribou Lake have sometimes expressed concern over high numbers of white sucker in the lake. White sucker were abundant in the 1970s, but gill net catches have dropped since (Figure 1). The catch in 2008 (5.13 fish/gill net set) was close to the median for the lake class.

Summer creel surveys were conducted on Caribou Lake in 1956-1958, in 1993, 1994, and 1999, in 2002 and 2003, and in 2005 (Table 1). Average fishing pressure for 1956-1958 was 7,365 angler-h (10.1 angler-h/acre). Walleye made up 98% of the harvest and northern pike made up the remainder. No smallmouth bass were present in the lake in the 1950's. The average walleye harvest rate for 1956-1958 was 0.26 fish/angler-h. Average walleye harvest and yield were 1,927 fish and 2.8 lb/acre, respectively. Average fishing pressure for creel surveys done in the 1990's was 6,251 angler-h (8.6 angler-h/acre). In the 1990's, average summer harvests of walleye, northern pike, and smallmouth bass were 816, 76, and 348 fish, respectively, with walleye accounting for 66% of the total harvest. The average walleye harvest rate in the 1990's creel surveys was 0.12 fish/angler-h, with an average walleye yield of 1.1 lb/acre. Estimated fishing pressure in 2005 was 6,729 angler-h, with harvests of walleye, northern pike, and smallmouth bass estimated at 872, 129, and 350 fish, respectively.

The 2005 creel survey was done in cooperation with the Fond du Lac band and the 1854 Treaty Authority as part of an effort to determine exploitation rates in a few NE Minnesota walleye lakes. Fish were collected by electrofishing and individually tagged in the spring of 2005. Four hundred fifty-one walleye 10-in or longer were tagged. Based on tag returns in the 2005 assessment, the lake was estimated to have supported 4,248 walleye 10-in or longer in spring 2005. Exploitation of walleye of that size appeared to have been about 29% over the 2005 open-water fishing season.

Past management Stocking records at the Grand Marais office indicate that from the 1920's through the 1940's, 'pike' (probably walleye), walleye, 'bass' and 'black bass' (probably largemouth bass), largemouth bass, 'sunfish', and 'crappie' were stocked in Caribou Lake. There is no record of any stocking in the 1950's. Northern pike and walleye were stocked periodically in the 1960's, and largemouth bass were stocked again in 1963. Northern pike were again stocked in 1973 and 1977. No walleye were stocked from 1970 through 1976. Walleye fingerlings were stocked in 1977, and walleye fry were stocked in 1978, 1981, 1983, 1985-1987, and 1990.

Because assessment data could not show that walleye fry stocking was contributing to the walleye population, the 1988 lake management plan recommended that walleye stocking in Caribou Lake be discontinued, and none were stocked between 1990 and 2004. Walleye fry stocking resumed in 2004 in an effort to increase the walleye gill net catch to 20.0 fish/set. Walleye fry were to be stocked in each year following an assessment where the walleye catch goal was missed by a significant amount. As a result, walleye fry (440,000/stocking) were stocked in 2004, 2007, and 2009.

As yet we still have no evidence showing that walleye stocking in this lake has been effective. Catches of YOY walleye in stocked and unstocked years have been similar (Table 2). A Wilcoxon rank sum test showed no difference between walleye gill net catches in assessments following periods of stocking and assessments not influenced by stocking ($p=0.9048$). First-third quartile ranges for assessments done in stocked and unstocked periods overlap almost completely (Figure 2).

White sucker were removed in 1970 (15,443 lb) and 1971 (23,076 lb). In 1986, local cabin owners removed 10,026 lb under a Class B commercial permit. Those fish were trapped in Murmur Creek, above Bigsby Lake. The trap was operated for several more years, but the high catch in 1986 was never repeated. Assessment data suggest that the removal effort had more effect on the white sucker population in Bigsby Lake than in Caribou Lake.

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Caribou Lake was included in a statewide study of experimental regulations, conducted in the 1990's and through the 2000's. Caribou Lake was included as a control, and was paired with Two Island Lake. An 11-in maximum size limit was implemented for smallmouth bass in Two Island Lake, while no regulations were changed on Caribou Lake. At the time the study began, both lakes were considered to have been Class 7 lakes; however, when lakes were reclassified, Caribou Lake was placed in Class 6, while Two Island Lake went to Class 16.

Investigators in the 1930's recommended that Caribou Lake be managed for 'pike', bass, and panfish, and that it be stocked with walleye, largemouth bass, crappie, and sunfish. Following the initial lake survey in 1951, John B. Moyle recommended the lake be managed as a walleye lake, although no stocking was considered necessary. Walleye management was again recommended after the 1977 survey, although no specific plans were given, and no goals were set. Stocking of 1,400 walleye fry/surface acre, every other year, was recommended following the 1981 assessment.

The first lake management plan (LMP) for Caribou Lake was prepared in 1988. That plan set a goal to 'Maintain walleye population capable of supporting moderate fishing pressure', and recommended that stocking be discontinued. A 1993 LMP revision set a new long range goal for walleye at a minimum catch of 10.0 fish/gill net, and did not recommend any stocking. That revision also established a goal for northern pike of a minimum catch of 1.2 fish/gill net, with some fish over 25 in. The 1993 walleye goal was based roughly on the third quartile catch for lakes of the class (Class 7 at that time). The third quartile was used because the lake was known to be capable of producing high gill net catch rates. The walleye goal in the 2001 LMP revision was increased to 20.0/gill net lift due to concerns from clientele that the 1993 goal was too low and would not provide an acceptable fishery. A catch of 20.0/gill net is well above the third quartile value of 13.2 fish/gill net for Class 6 lakes, but falls between the median and third quartile values for this lake, historically.

One of the mid-range objectives in the 2001 LMP was to determine whether a long range goal of 20.0 walleye/gill net set could be achieved in this lake, either through natural reproduction or with the aid of supplemental stocking. Results of the 2003, 2005, and 2008 assessments, and a review of other historic assessment data, suggest it cannot. Since 1977 gill net catches have rarely exceeded 20.0 fish/set. Regular stocking prior to 2004 was not effective in raising walleye gill net catches. Supplemental stocking done since 2004 has not been thoroughly evaluated; however, fry stocking in 2004 and 2007 contributed little (if at all) to the walleye catch in 2008.

One might also consider whether a gill net catch of 20.0 fish/set is required to provide satisfactory fishing in this (or any other) lake. During the 2005 creel survey, anglers were asked to rate their day's fishing on a scale of one to ten (one low, ten high). The mean rating given (4.1) was one of the higher means observed for anglers interviewed in this area. In the 64 creel surveys where that question was asked, only five summer creel surveys yielded a higher mean rating. The walleye gill net catch supporting the fishery in 2005 (13.56 fish/set), while high for a lake of this class, was still well below the long range goal set for this lake.

For this LMP revision, the long range goal for walleye gill net catch will be set at 13.0 fish/set. That goal is close to the third quartile for Class 6 lakes, and close to the median for Caribou Lake, historically. If the goal is met, the lake will be supporting relatively high numbers of walleye that should be capable of supporting a very satisfactory fishery. It is hoped that this goal can be met solely through natural reproduction. The northern pike long range goal established in the 1993 LMP revision has been retained in this revision, since it still appears to be reasonable and attainable in this lake.

Social considerations Caribou Lake has long been one of the most heavily developed lakes in Cook County. The 1951 survey reported there were three resorts and 45 cabins on the lake. The 1986 resurvey counted two resorts (one a youth camp), 105 lake homes or cabins, and a public boat launch. By 1998, only one resort (the youth camp) remained, but the number of homes and cabins had increased. As a result of the heavy development and a high number of permanent lakeshore residents, there is considerable local interest in the fishery, and the lake has a high management priority. Despite the consistently high catch of walleye in assessments, complaints of poor fishing are common.

Public access to Caribou Lake consists of a launch ramp and small parking area on the SW corner of the western basin, off County Road 4 (Caribou Trail) out of Lutsen. In the 1999 creel survey, 55% of anglers interviewed on the lake had used the public access to gain access. The remainder had accessed the lake from private homes or cabins. Forty-seven percent of angling parties interviewed in 2005 had used the public access.

There have been some conflicts between lakeshore residents and personal watercraft users on Caribou lake. A small number of people have trailered personal watercraft to the lake, and there has been some irresponsible use. This prompted the CLPOA to put up signs at the public access warning personal watercraft users that their activities on the

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lake would be monitored, and that they might be video taped. The sign asked users to exercise restraint.

Public input Public input on the 2001 plan revision was sought in 1999. On 3 July 1999, at a meeting of the Pike Lake Area Property Owner's Association (PLAPOA), whose members have sometimes expressed an interest in the management of Caribou Lake, Caribou Lake was not on the agenda, and no comments were made on the lake's management.

An open house was conducted at the DNR Fisheries office on 28 August 1999, where comments were invited on Caribou Lake, and other lakes in the area. Four of those attending had a strong interest in Caribou Lake and wanted walleye stocking resumed. They believed fishing was poor and had gotten worse in the last 15 years. They also wanted northern pike stocked to improve their abundance, and they reported that spearers were removing too many large northern pike. They indicated that they might support a northern pike regulation, if it included a ban on spearing on the lake. This group also indicated that the Caribou Lake Property Owner's Association (CLPOA) might be willing to pay for private walleye stocking.

On 4 September 1999, at a meeting of the CLPOA, there was widespread agreement that the current (1993) lake management plan goal for walleye (10 fish/gill net) was too low, and that the goal should be set at 15-20 fish/net. The members supported walleye stocking if needed to reach that higher goal. There was some interest in a walleye slot limit. There was also some support for stocking northern pike.

Before and after the above meetings, various individual comments were received by phone and mail. There was some support for a regulation on the northern pike fishery to improve the quality of the fishery. A letter from the CLPOA (after the 9/4/1999 meeting) expressed some concern about the effect of increasing northern pike abundance on the walleye fishery. The CLPOA also asked for some information on the effects, timing, and cost of northern pike stocking, about the possible effects of a minimum size for northern pike, and about the possible effects of raising the limit on smallmouth bass to reduce their numbers.

In the fall of 2009 comments on the management of this and many other lakes in the Grand Marais area were solicited in a news release. No comments were received specific to the management of Caribou Lake, nor were there any general comments that pertained to the management of the lake.

Present limiting factors Walleye growth has sometimes been slow, but good growth exhibited by northern pike, smallmouth bass, and yellow perch indicates that forage has not been limiting. Although variable, the production of YOY yellow perch in this lake has often been high, and would seem to be adequate even for the large number of walleye present.

Walleye reproduction is probably adequate to sustain a good walleye population without the need for stocking, despite the heavy fishing pressure that this lake receives. Strong unstocked year classes were identified in the 1992 and 1995 assessments, in the 1998 survey, and in each subsequent assessment. Conditions in the lake have changed with the introduction of smallmouth bass, increased development, and changes in climate, but it is still capable of producing fairly high walleye numbers. Although walleye catches in recent assessments have not been as high as those in some earlier assessments, the median catch for the period 1977-2008 was still 13.17 fish/gill net set.

Lake users have expressed concern about the effects of the recent smallmouth bass introduction on the walleye fishery in the lake. The DNR has been blamed for stocking smallmouth bass; however, none were stocked by the agency. It is thought that they entered the lake from a population higher in the watershed (Pike Lake) during a period of high water in the late 1970's. Cabin owners have reported seeing far fewer YOY yellow perch along shore since smallmouth bass were introduced, and have reported a decline in the walleye fishery. Both reports are supported by DNR Fisheries data. Harvest rates appear to have been lower in creel surveys done in the 1990's and 2000s than they were in surveys conducted in the 1950's, prior to the introduction. Walleye gill net catches have also declined. Catch of YOY yellow perch in 1/4-in trap nets has been significantly lower since smallmouth bass appeared in the lake, although there has been no decline in catch of yellow perch in standard gill nets. It is likely that the introduction of smallmouth bass has resulted in changes and adjustments across the fish community, with some of the lake's productive capacity shifted to the production of smallmouth bass.

The decline in the walleye fishery, while unacceptable to some, has been balanced to some degree by the creation of a fairly high-quality smallmouth bass fishery that is attractive to many. Thirty-seven percent of angling parties interviewed on Caribou Lake in 2005 were seeking smallmouth bass, and anglers targeting the species reported catch rates of 0.718

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fish/angler-h. An estimated 1,120 smallmouth bass 12-in or larger were caught by anglers in 2005.

High white sucker abundance has been considered by some to have been a limiting factor in this lake. This has led to state and private removal efforts in Caribou Lake. In 1970-1971, a total of 38,519 lb were removed from Caribou and Bigsby Lakes (47 lb/acre) by a state crew. In 1986, a private group removed 10,716 lb at Murmur Creek, the inlet to Bigsby Lake (12.3 lb/acre). Neither removal was formally evaluated. Following the 1970-1971 removal, increased yellow perch catches (in gill nets) were observed in 1972 and 1977, with catches declining by 1981. White sucker gill net catches declined, but had rebounded by 1979. There appeared to have been no change in walleye catch that could be linked to the 1970-1971 removal. The 1986 removal did not result in any identifiable effects on other fish species. White sucker gill net catches in Caribou Lake have been close to the median for the lake class since 1984.

Stocking plans Supplementary walleye stocking, as outlined in the 2001 LMP revision, should be discontinued. The 2001 LMP revision made supplemental stocking of this lake contingent on assessment results, on the assumption that assessments would be done regularly and fairly frequently. Reductions in funding and staff in the Grand Marais area have made it difficult to maintain regular assessment schedules on even the highest priority waters, and have resulted in reduced assessment frequencies. In Caribou Lake stocking has not been effective, and stocking at even lower frequencies would likely be even less effective. The need for stocking is also not well established, since the lake continues to produce good natural year classes in most years. Given good natural reproduction observed in this lake and the high catches generally supported by that reproduction, regular walleye stocking cannot be justified. Slow walleye growth in some years suggests that adding large numbers of juvenile walleye to the system could be counterproductive.

No stocking of northern pike is recommended. Low northern pike catches were a concern when the 2001 LMP revision was written, but catches have since recovered.

Other management tools Local cabin owners have a continued interest in sucker removal, both in Caribou lake and at the Murmur Creek site. This activity, at the level engaged in in the past, has not produced any benefit to fisheries in Caribou Lake, and should be discouraged, as long as white sucker catches remain below the third quartile (11.7 fish/gill net).

Some interest has been expressed in regulations to improve the walleye or northern pike fisheries in this lake. If the CLPOA expresses a strong interest in doing so, appropriate regulations could be designed and implemented, based on creel survey data already available. No regulations will be proposed at this time.

Habitat protection Because Caribou Lake is heavily developed, it is essential that nutrient loading from septic systems and lawn maintenance be minimized. Cabin owners should be made aware of the high environmental stakes involved, and be encouraged to have their septic systems inspected and upgraded when necessary. The CLPOA should be (and has been) involved in this process.

Survey needs and evaluation plans Caribou Lake remains one of the highest-priority management waters in the Grand Marais area. It is important that population assessments be completed on a regular basis. Population assessments duplicating all 1998 net sets (9 GN, 9 TN, 9 TQU) should be done in July 2011 and 2014. A lake survey, repeating all 1998 sampling stations, should be done in July 2017. Special assessments designed to sample smallmouth bass, using open-water angling, should be done in June 2011, 2014, and 2017 to supplement smallmouth bass sampling done during the regular assessments and survey. If funding is available, creel surveys should be done in May-September 2014 and 2017, in conjunction with creel surveys on Two Island or Crescent Lakes. Creel survey data will be used to determine whether anglers are satisfied with the walleye fishery, and to provide an updated baseline for evaluating regulatory changes that may be proposed in the future. This lake management plan should be revised following the 2017 survey.

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Table 1. A comparison of selected estimates from the 1956-1958 (averaged), 1993, 1994, 1999, 2002, 2003, and 2005 creel surveys of summer fisheries on Caribou Lake, Cook County, Minnesota.

1956- Estimate	1958	1993	1994	1999	2002	2003	2005
Fishing pressure							
Angler-h	7,365	5,925	8,173	4,654	2,577	2,355	6,729
Angler-h/acre	10.1	8.1	11.2	6.4	3.5	3.2	9.2
Mean rating of fishing	ND	2.8	3.4	3.1	ND	3.3	4.1
Harvest (fish)							
Walleye	1,927	571	1,531	346	257	148	872
Smallmouth bass	0	127	133	785	0	0	350
Northern pike	20	67	86	75	0	11	129
Yellow perch	ND	0	95	0	0	0	14
Yield (lb/acre)							
Walleye	2.8	0.6	2.2	0.4	0.4	0.3	1.2
Smallmouth bass	0.0	0.3	0.2	1.2	0.0	0.0	0.6
Northern pike	0.1	0.1	0.2	0.1	0.0	0.1	0.4
Yellow perch	ND	0.0	0.1	0.0	0.0	0.0	<0.1
Total	ND	1.0	2.7	1.8	0.4	0.4	2.1
Mean length at harvest (in)							
Walleye	ND	12.6	13.6	14.7	15.3	15.6	13.9
Smallmouth bass	ND	13.8	12.9	12.9			13.0
Northern pike	ND	17.0	20.0	19.0			20.8
Yellow perch	ND	10.1	ND			11.0	
Harvest rate (fish/angler-h)							
Walleye	0.262	0.101	0.195	0.074	0.100	0.063	0.130
Smallmouth bass	0.0	0.022	0.017	0.169	0.0	0.0	0.052
Northern pike	0.003	0.012	0.011	0.016	0.0	0.005	0.019
Yellow perch	ND	0.0	0.012	0.0	0.0	0.0	0.002
Catch rate (fish/angler-h)							
Walleye	ND	0.170	0.248	0.099	0.106	0.137	0.243
Smallmouth bass	ND	0.100	0.072	0.568	0.092	0.234	0.533
Northern pike	ND	0.062	0.055	0.071	0.055	0.058	0.131
Yellow perch	ND	0.006	0.015	0.0	0.0	0.0	0.006
Percent of parties seeking							
Walleye	ND	74	78	73	68	84	89
Smallmouth bass	ND	12	11	31	32	16	37
Northern pike	ND	9	10	0	16	4	16
Yellow perch	ND	0	0	0	0	0	0

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Table 2. Median catches (fish/set), with first-third quartile ranges, of YOY walleye, yellow perch, and smallmouth bass in quarter-inch mesh trap nets in Caribou Lake, Cook County, Minnesota, 1972-2008, for all assessed years, for years when smallmouth bass were present or absent, and for years when walleye fry were stocked or not stocked.

	N	Median	First Quartile	Third Quartile
All assessed years				
Walleye	18	1.42	0.33	7.88
Yellow perch	18	730.00	47.00	2157.50
Smallmouth bass*	9	0.20	0.0	18.89
Smallmouth bass present				
Walleye	9	0.56	0.0	8.29
Yellow perch	9	170.00	12.00	810.00
Smallmouth bass not present				
Walleye	9	4.83	1.08	8.09
Yellow perch	9	1320.00	730.00	3860.00
Walleye fry stocked				
Walleye	4	3.75	0.33	12.67
Yellow perch	4	1055.00	180.00	2672.50
Smallmouth bass*	3	0.0	0.0	0.17
No walleye fry stocked				
Walleye	14	1.42	0.33	7.88
Yellow perch	14	730.00	17.50	1935.00
Smallmouth bass*	6	7.86	0.15	54.75

* For 1981-2008, when smallmouth bass were known to be present

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais	16-0360	Cook	Caribou	728	

Table 3. Catch (fish/set) and mean weight (lb/fish) of northern pike, walleye, smallmouth bass, and yellow perch in gill nets set in Caribou Lake (16-0360), Cook County, Minnesota, 1951-2011. Medians and quartiles from statewide data through 1995.

Date	Number of sets	Northern pike		Walleye		Smallmouth bass		Yellow perch	
		Catch	Weight	Catch	Weight	Catch	Weight	Catch	Weight
7/19/1951	5	0.20		69.20	0.74			5.20	0.19
7/16/1956	12	0.08		21.08	0.84			0.33	0.18
7/22/1957	8	0.13		29.38	0.84			1.13	0.34
8/28/1969	4	1.25	1.20	13.50	0.94			2.50	0.50
7/21/1971	3	2.67	1.91	30.67	0.98			2.33	0.31
7/18/1972	3	4.00	1.66	42.67	0.98			11.33	0.25
8/7/1973	3			10.00	0.99			1.00	0.23
7/26/1977	3	3.00	2.52	13.33	1.32			11.67	0.85
7/25/1979	2	2.50	2.80	21.00	0.69			7.00	0.43
8/20/1981	3	1.00	2.23	11.33	0.68	0.67		2.67	0.16
8/3/1984	3	1.33	3.69	13.00	0.65			2.33	0.17
8/20/1986	3	0.67		14.33	0.70	0.33		4.00	0.38
8/8/1989	3	2.67	1.48	22.33	0.38	0.67		3.00	0.28
7/15/1992	9	2.22	2.25	9.44	0.65	0.44	1.02	7.00	0.50
7/17/1995	9	0.78	1.13	7.11	0.75	0.33	0.84	3.00	0.22
7/20/1998	9	0.22		19.67	0.65	2.67	1.14	4.44	0.32
7/21/2003	9	2.11	2.20	5.00	0.77	2.11	1.66	2.89	0.11
7/18/2005	9	1.67	2.48	13.56	0.69	1.56		10.67	0.13
7/14/2008	8	2.13	2.02	8.50	0.84	0.13		3.38	0.19
8/1/2011	9	1.78	1.48	7.44	0.54	0.22		0.22	
7/21/2014	9	1.44	1.91	6.67	0.77			2.44	0.08
Class 6									
Median		2.17	1.75	5.25	0.91	0.33	0.94	1.50	0.16
1st quartile		1.16	1.48	2.96	0.68	0.17	0.33	0.53	0.12
3rd quartile		3.88	2.41	13.19	1.30	0.67	2.15	2.78	0.27

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

Table 4 Catch (fish/set) and mean weight (lb/fish) of white sucker, smallmouth bass, black crappie, and bluegill in 0.75-in-mesh trap nets set in Caribou Lake (16-0360), Cook County, Minnesota, 1956-2011. Medians and quartiles from statewide data through 1995.

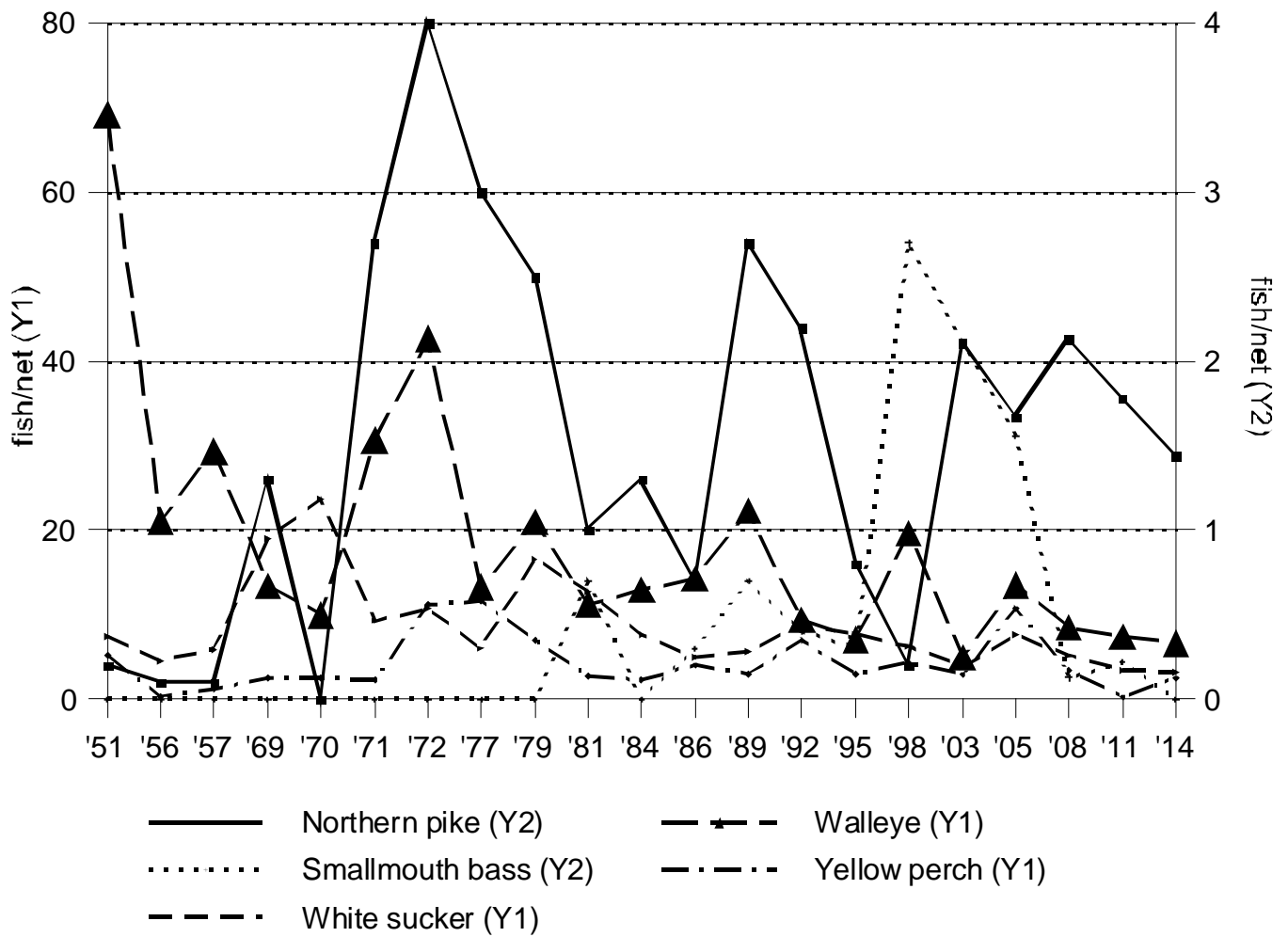
Date	Number of sets	White sucker		Smallmouth Bass		Black Crappie		Bluegill		
		Catch	Weight	Catch	Weight	Catch	Weight	Catch	Weight	
7/16/1956	8	2.25	3.22			0.13				
7/27/1957	8	0.75	2.70							
8/28/1969	4	1.50	2.65							
7/21/1971	4	0.50				0.25				
7/18/1972	4	1.25	2.04			0.25				
8/7/1973	4	10.25	2.14							
7/26/1977	3	2.00	2.37							
8/20/1981	4	1.50	2.23							
8/3/1984	4	1.25	1.40	2.50	0.10					
8/20/1986	4	2.75	3.05	0.25						
8/8/1989	5	0.60	2.03	1.80	0.37					
7/15/1992	15	0.20	2.00	1.67	0.32					
7/17/1995	9	1.11	2.93	0.44	0.38	0.11				
7/20/1998	9	1.00	3.53	0.11		0.22				
7/21/2003	9	0.33	3.91	0.44	0.56					
7/18/2005	9	0.11		0.22						
7/14/2008	9			0.11		0.78	1.01	0.44	0.17	
8/1/2011	9			0.11		0.11		0.78	0.39	
7/21/2014	9	0.22		0.44	0.33	0.11		2.00	0.21	
Class 6										
Median		1.08	1.80	0.50	0.30	0.67	0.88	4.50	0.25	
1st quartile		0.69	1.40	0.37	0.18	0.05	0.30	1.44	0.11	
3rd quartile		2.27	2.81	1.90	0.60	0.80	0.92	8.50	0.40	

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

Figure 1.

Caribou Lake - General Trends

fish/24-hr gill net set

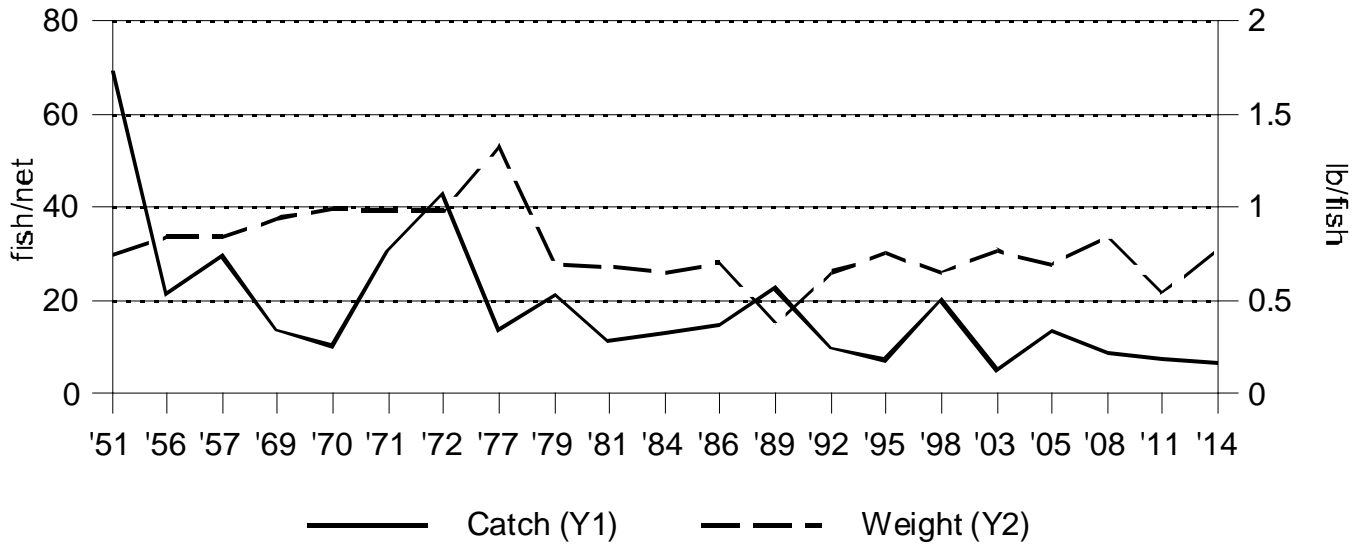


Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

Figure 2.

Walleye Catch (fish/gill net) and Mean Weight (lb)

Caribou Lake



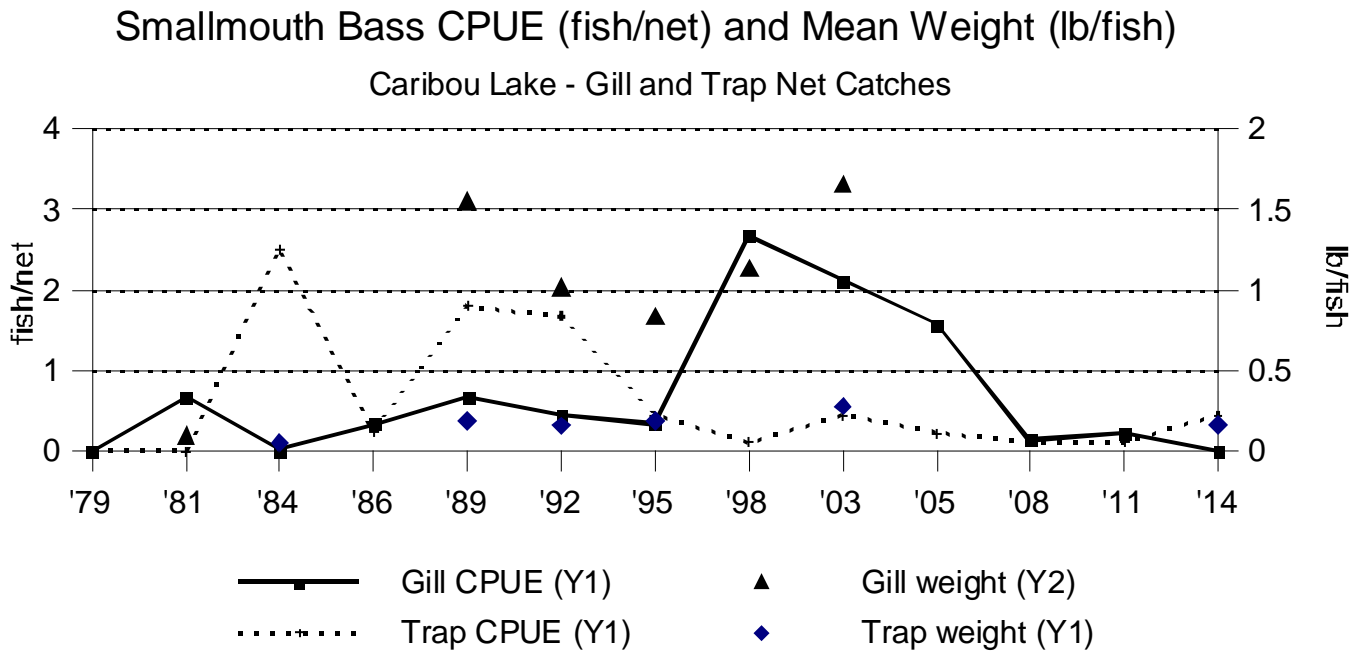
Walleye stocking may have influenced catches in 1951 (fry or fingerlings stocked in 1946-1949), 1969-1972 (fry or fingerling stocking done in 1961-1969), and 1981-1992 (fry stocking in 1978-1990).

Catches in 1956, 1957, 1977, 1979, 1995, 1998, 2003, 2005, and 2008 were probably not influenced by stocking. Fry stocking in 2004 and 2007 contributed little to the 2008 catch; neither year class was strong.

Walleye catches	Median	First Quartile	Third Quartile	N
Influenced by stocking	13.50	10.67	26.50	9
No stocking influence	16.62	8.15	23.15	10
All assessments	13.56	10.00	22.33	19

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

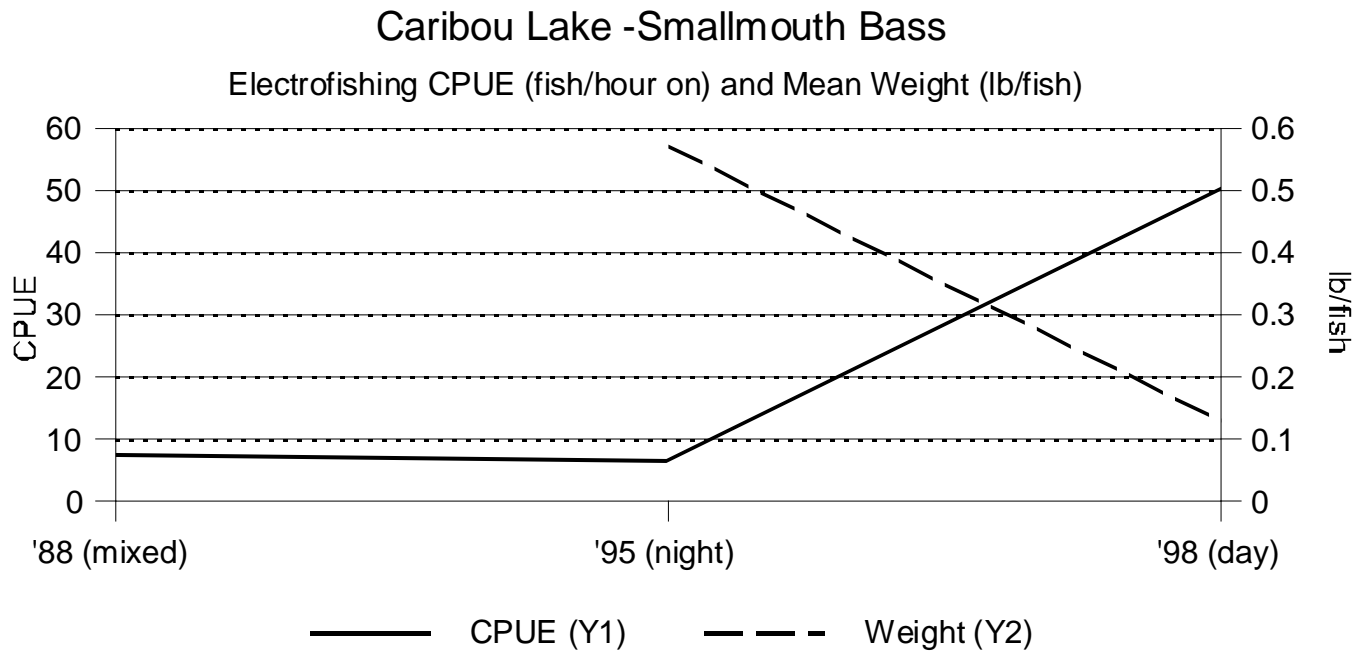
Figure 3.



No smallmouth bass were collected in Caribou Lake prior to 1981. For assessments done in 1981-2008, median smallmouth bass gill net catch and mean weight (with first-third quartile ranges) were 0.56 fish/set (0.28-1.70) and 1.08 lb/fish (0.89-1.53), respectively.

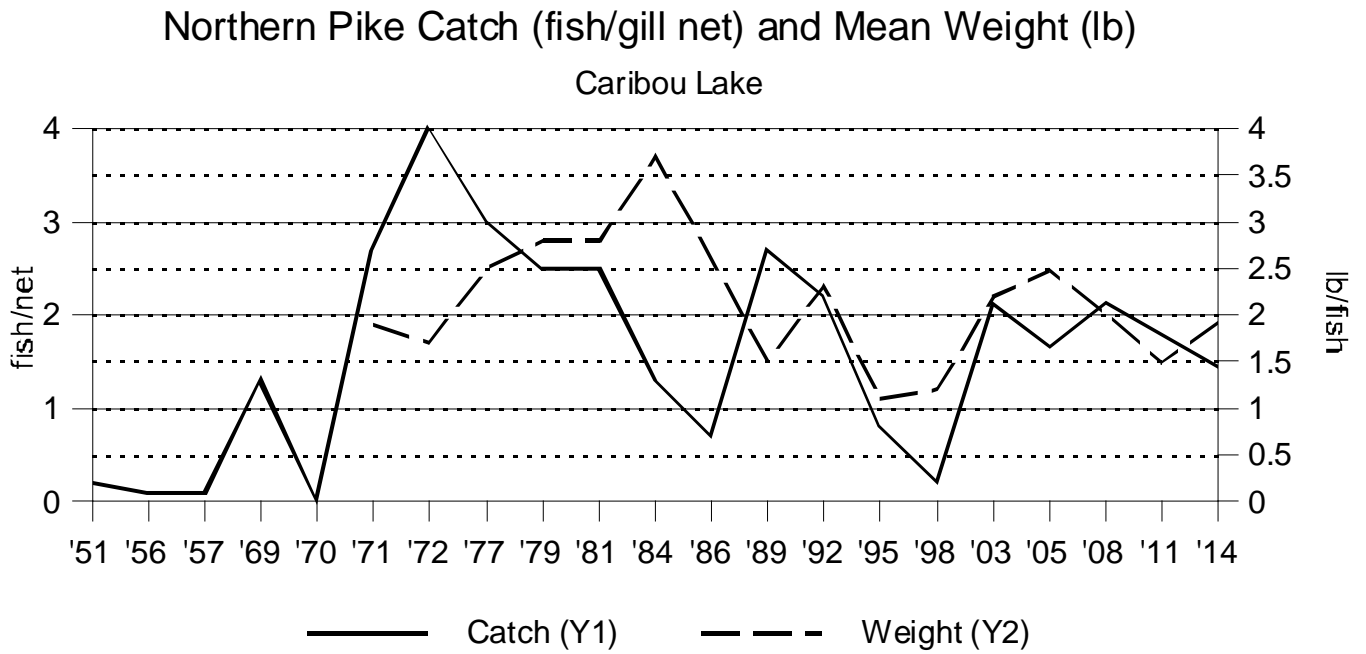
Region	Area	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais	16-0360	Cook	Caribou	728

Figure 4.



Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

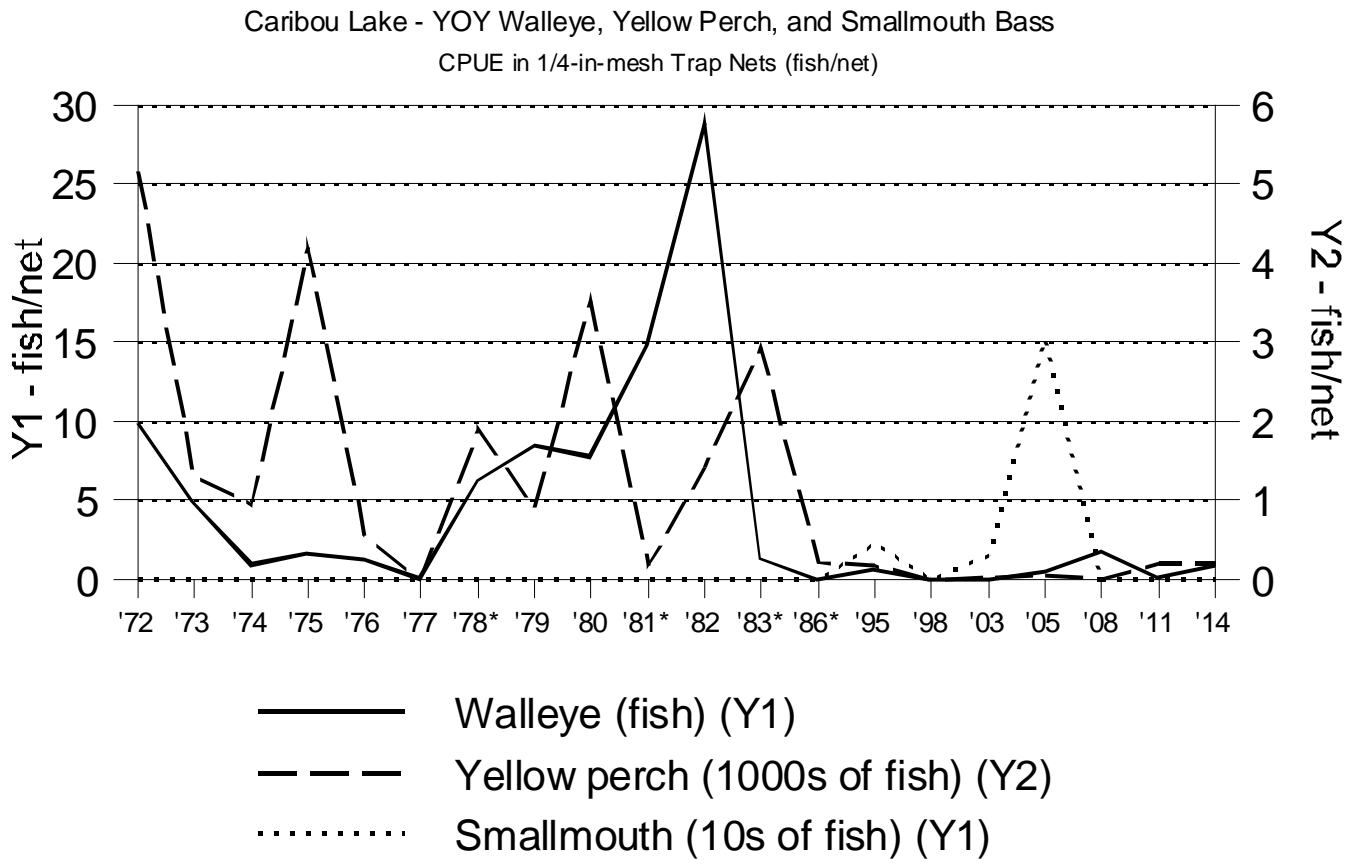
Figure 5.



For assessments done in 1951-2008, northern pike gill net catch and mean weight medians (with first-third quartile ranges) were 1.33 fish/set (0.22-2.50) and 2.22 lb/fish (1.62-2.59), respectively.

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0360	Cook	Caribou	728

Figure 6.



* - walleye fry were stocked in asterisked years.