CHAIN PICKEREL ASSESSMENT

Department of Inland Fisheries and Wildlife
Divisions of Fisheries and Planning

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LIFE HISTORY

Pickerel inhabit oligotrophic lakes as well as shallow, warm bodies of water, but they establish thriving populations more readily in the latter type of environment, where aquatic vegetation is more prevalent. They are often associated with weed beds, lily pads, bulrushes, etc. where they conceal themselves and find prey which utilize such areas for cover. One factor underlying their capacity to establish thriving populations is their remarkable efficiency as predators. The pickerel's voraciousness in preying on a wide variety of organisms is well documented. They remain motionless, and when an unsuspecting fish swims by, they make a sudden, swift lunge, grabbing the hapless victim in a mouth well equipped with razor sharp teeth, which makes it difficult for the prey to escape. The sex ratio in pickerel populations usually favors females by about 1.3 to 1, thereby enhancing their reproductive potential. Consequently, it's not surprising that the species has established sizeable populations in many waters.

Pickerel attain sexual maturity at age 3-4, generally at lengths from 13 to 16 inches. Spawning occurs shortly after ice-out when adults move into swampy areas containing flooded vegetation. The typical female contains from 10,000-12,000 eggs per pound of body weight. Several males usually attend each female. The breeding groups are very active as the eggs are extruded and fertilized. No nest is prepared as the eggs are randomly broadcast. There is no parental care of eggs and the young hatch out after a 1 to 2 week incubation period. Although juvenile pickerel prey primarily on a variety of invertebrates, mostly immature aquatic insects, they occasionally grab a small fish. By the end of their first growing season in September-October, they typically range from 4 to 5 inches in length.

After attaining a length of 7 to 9 inches, the diet of juvenile pickerel changes to strongly piscivorous. Yellow perch, white perch, sunfish, minnows, and smelts comprise the principal prey species. Additional favored items include crayfish, frogs, and dragonfly nymphs. However, the plain truth is that any appropriately sized organism, which swims by a hungry pickerel, is literally putting its "life on the line". The annual growth increment, which varies widely depending upon habitat quality and abundance of prey, is likely in the range of 2.5 to 3.5 inches. Many pickerel ponds support good numbers of 15-19 inch fish. More productive waters commonly grow 20 to 23 inch fish, along with some large, 24 to 26 inch fish. The current state record pickerel, caught in 1992 at Androscoggin Lake, measured 28.3 inches and weighed 6 lb, 13 oz.

MANAGEMENT HISTORY

The chain pickerel was apparently native to only the southwestern portion of Maine. As a result of widespread transplants, the species has increased its range to much of the southern half of the state. There are accounts of pickerel transplants being carried out in the early 1800's. One such transfer carried out in this period was from the Penobscot to the St. Croix River. In 1817 or 1818 pickerel were introduced into Annabessacook Lake from Great Androscoggin Pond. It is safe to assume that such introductions were routinely accomplished in large sections of southern, central, and eastern Maine during the nineteenth century. Northern Maine apparently escaped such transfers.

Initial scientific fishery investigations in Maine commenced in the period from 1850 to 1860. Pickerel were held in very low esteem by these early fisheries personnel who viewed the further spread of the species as endangering trout fisheries in ponds. This concern manifested itself in the Maine Fisheries Commissioner's report of 1867, which contained the following recommendation:

> *"We advised that legislation should forbid the introduction of pickerel into any waters where they do not now exist."*

Other historical information reveals that the pickerel was not always viewed in such a dim light. The fish was occasionally utilized as a winter source of food in some of the earlier Maine woods logging camps when the more desirable trout, salmon or togue weren't readily available. Furthermore, commercial fisheries of some importance existed for pickerel in the late 1800's and early 1900's in

several sections of the state. Numerous sporting magazine accounts from this era indicate that it was by no means unusual for groups of several men to catch between two and six hundred pounds of pickerel within a two-or three-day period on certain ponds. Several Washington County lakes supported commercial fisheries for pickerel from the early 1900's into the 1950's. The species' potential as a source of income is partly responsible for their present-day wide distribution in Washington County.

Although management of pickerel has essentially been "laissez faire", the Department has attempted to control the spread of the species beyond its present range. Department sponsored transfers of the species to increase its range have been minimal. Furthermore, it has been standard management procedure to attempt to utilize chemical reclamation to eliminate pickerel from ponds considered capable of supporting trout. However, due to financial constraints, the scope of this program has been greatly reduced. Pickerel have re-established populations in a number of smaller ponds previously managed for brook trout.

A large portion of the Department's pickerel work focused on investigating the species' role as a predator on coldwater species, especially, juvenile landlocked salmon. A study conducted by the Fishery Division in the late 1960's revealed that pickerel were the most common predator on newly stocked salmon. It was discovered that losses of newly stocked salmon could be sharply curtailed by scatter planting the fish over deepwater areas instead of releasing them directly into shallow shoreline locations inhabited by pickerel. This stocking technique has been utilized for numerous years as standard operating procedure and has contributed to increased survival rates of newly stocked salmon.

Pickerel predation is an acknowledged problem affecting other Maine species. For instance, the dead-water areas of certain Atlantic salmon rivers contain pickerel, which may prey on emigrating smolts. In fact, in a study conducted in Beddington Lake on the Narraguagus River drainage during the smolt migration period, salmon smolts were discovered in the stomachs of 21% of the pickerel examined that exceeded 10 inches. Additionally, the results of a 1989 research project conducted at Brandy Pond in Region F demonstrate that there is little doubt that pickerel adversely impact a trout fishery. In that study newly stocked spring yearling brown trout were observed in the stomachs of 15 (28%) of 54 pickerel. The smallest pickerel, which had consumed a brown trout, measured 15.0 in. A single 18.0 in pickerel had 3 brown trout in its stomach. Mean length and weight of the 54 pickerel sampled was 16.9 in and 1.1 lb. The experimental stocking program was terminated due to unsatisfactory survival.

The general law regulation, i.e. a 10-fish daily bag limit with no legal minimum length, is in effect on the overwhelming majority of Maine lakes. On certain waters where management emphasis is on coldwater sportfish, a liberalized " no size or bag limit on pickerel" regulation is utilized. The intent is to encourage maximum harvest, or removal, of pickerel in an effort to create more favorable conditions for coldwater sportfish. The same regulation applies on main stem Atlantic salmon rivers and certain of their tributaries. While the rationale is biologically sound, the end result is negligible because only a handful of anglers take advantage of the law by killing more than 10 pickerel in a day.

Although some progress has been achieved recently in collecting pertinent data on fishing pressure, harvest, catch rates, etc.; there remains a lack of knowledge concerning the status of pickerel populations in most Maine waters. A number of winter sport fishery creel surveys have provided useful estimates of total seasonal angling pressure and catch for the species. However, the majority of such work has been carried out on combination, coldwater-warmwater management waters where pickerel usually represent only an incidental fishery compared to the more popular salmonid fisheries. Some recent winter sport fishery creel surveys have been conducted on ponds supporting only warmwater; however, these studies have been conducted within a small geographic area and have limited statewide applicability. One reason why this type of survey is not conducted more often is that fishing quality on such waters generally remains at satisfactory levels without any active management. Also, there is a constant, pressing need for the Fishery Division to evaluate many high priority coldwater sportfish stocking programs in order to achieve a reasonable return on the sportsman's dollar. Such factors will likely continue to restrict the amount of effort expended on pickerel during the next planning period.

PAST MANAGEMENT GOALS

The management goal for pickerel as stated in the 1985 Strategic Plan update was to maintain present levels of abundance, increase angler use and harvest rate on certain underutilized waters, and increase average size of pickerel in selected waters. Specific objectives associated with this goal were:

Abundance objective: Maintain population levels sufficient to support viable fisheries in those lakes (626 lakes comprising 330,564 acres) providing principal fisheries for the species. Contain pickerel within their present distribution of 754 lakes, totaling 511,251 acres.

Harvest objective: Maintain an average annual harvest of approximately 0.35 pounds per acre. Increase angler harvest by about 10% on certain underutilized waters.

Fishing Quality objective: Maintain an average statewide harvest rate of approximately 0.35 pickerel per angler day with an average length of 16.2 inches and average weight of 1.1 pounds. Increase the average size of angled pickerel in selected waters to 20.0 inches and 1.8 pounds.

The first part of the goal, i.e. to maintain current abundance, was not achieved as abundance actually increased. Because of the substantial upsurge in catch and release angling over the past 10 years, the numbers of pickerel kept by anglers has declined dramatically. This phenomenon resulted in increased abundance. The next part of the goal, i.e. to increase angler use and harvest rate on some waters has been partially achieved. Data from the Angler Questionnaires indicate that statewide use during the winter has more than tripled, rising from an estimated 108,000 angler days in 1985 to 345,000 angler days in 1999. Similarly, statewide use during the open water season has increased dramatically, rising from an estimated 355,000 angler days in 1985 to 1,587,000 angler days in 1999. However, even though use has increased, harvest rates have declined sharply because of the popularity of catch and release fishing. Winter creel survey data suggest that on a statewide basis, the average harvest rate declined from about 0.20 pickerel/angler in 1985 to 0.14 in 1999. Angler questionnaire data indicate that the decline was even more pronounced in the open water season as the statewide average harvest rate declined from an estimated 0.30 pickerel/angler in 1985 to 0.03 in 1999. The last part of the goal, i.e. to increase average size of angled pickerel in selected waters, was not achieved. Attainment of this would have required substantial effort, and due to a lack of time to work on pickerel because of the much higher priority work demands associated with the various coldwater sportfish by the regions, it proved to be unrealistic.

Although the first part of the abundance objective was achieved, the second was not. The objective was to limit the occurrence of pickerel to 754 waters totaling 511, 251 acres. However, the species is now found in 781 waters totaling 514,205 acres, which represents an increase of only 0.6% on an acreage basis.

Neither part of the harvest objective was met. The dramatic reduction in the number of pickerel kept by anglers throughout Maine is a product of the surge in popularity of catch and release angling. This strong trend overwhelmed any chance for an increased harvest advocated by biologists on selected regional waters.

Strictly speaking, no part of the fishing quality objective was attained. This is because harvest rate, rather than catch rate, was the standard. The desired harvest rate was not achieved for the reason cited above, i.e. the overwhelming majority of pickerel were released, rather than kept. If the standard had been based on catch rate, rather than harvest rate, this part of the objective would have been met. Data suggest that the desired size quality was met, although it's likely that more waters are supporting " stunted" populations because of insufficient harvest rates.

OPPORTUNITY

Information in this plan is presented on the basis of the seven Fisheries Management Regions which are aggregations of townships (Figure 1).

The chain pickerel is one of the most widespread major sportfishes in Maine (Figure 2). All populations are maintained by natural reproduction. Pickerel provide important sport fisheries during both the ice fishing and open water seasons. The 1999 Angler Questionnaire indicates that anglers spent more time fishing for pickerel in the winter (345,000 days) or in the summer (1.6 million days) than for any other species except for bass. These figures probably reflect the widespread occurrence of pickerel throughout the heavily populated areas of Maine more than the species' popularity. Regions F and C have the most pickerel acreage; the species is least common in Regions E and G, occurring in less than 20 waters in each region (Table 1). The species is generally able to maintain moderate to high density populations wherever it occurs. As long as a lake contains relatively shallow, weedy habitat, the pickerel is likely to do well. Pickerel are least abundant in those oligotrophic waters where such habitat is scarce. Examples of such waters include Colcord Pond, Thompson Lake, and Trickey Pond in Region A; Echo Lake and Minnehonk Lake in Region B; Branch lake, Alligator Lake, Green Lake, and West Grand Lake in Region C; B Pond, Embden Pond and Wyman lake in Region D; Sebec Lake in Region E; and Cold Stream Pond, East Grand Lake, and West Lake in Region F.

Table 1. The distribution of chain pickerel in Maine

	Total Occurrence		Principal Fisheries	
Management Region	Number Of Lakes	Total Acreage	Number Of Lakes	Total Acreage
A	227	87,091	158	42,306
B	210	95,656	183	89,775
C	151	137,311	95	5,440
D	56	46,020	39	37,734
E	18	9,145	16	8,650
F	107	137,037	83	96,804
G	12	1,945	12	1,945
State Totals	781	51,4205	586	331,654

The current inventory of the total number of Maine lakes supporting pickerel is only about 3% higher than it was in 1985. It is likely that a minor increase in this total will occur during the next planning period because as previously unsurveyed waters are officially inventoried, additional pickerel populations will be documented. It's also certain that the species will increase its range, either by migration into new waters where it presently is not found or by illegal introductions into new waters by the angling public, but the magnitude of such increases should be small. In recent years, the Fishery Division's reclamation program has remained extremely limited in scope. While the number of reclamations carried out in the next planning period may increase somewhat, any such increase would cause only a minimal and insignificant decline in the number of pickerel populations.

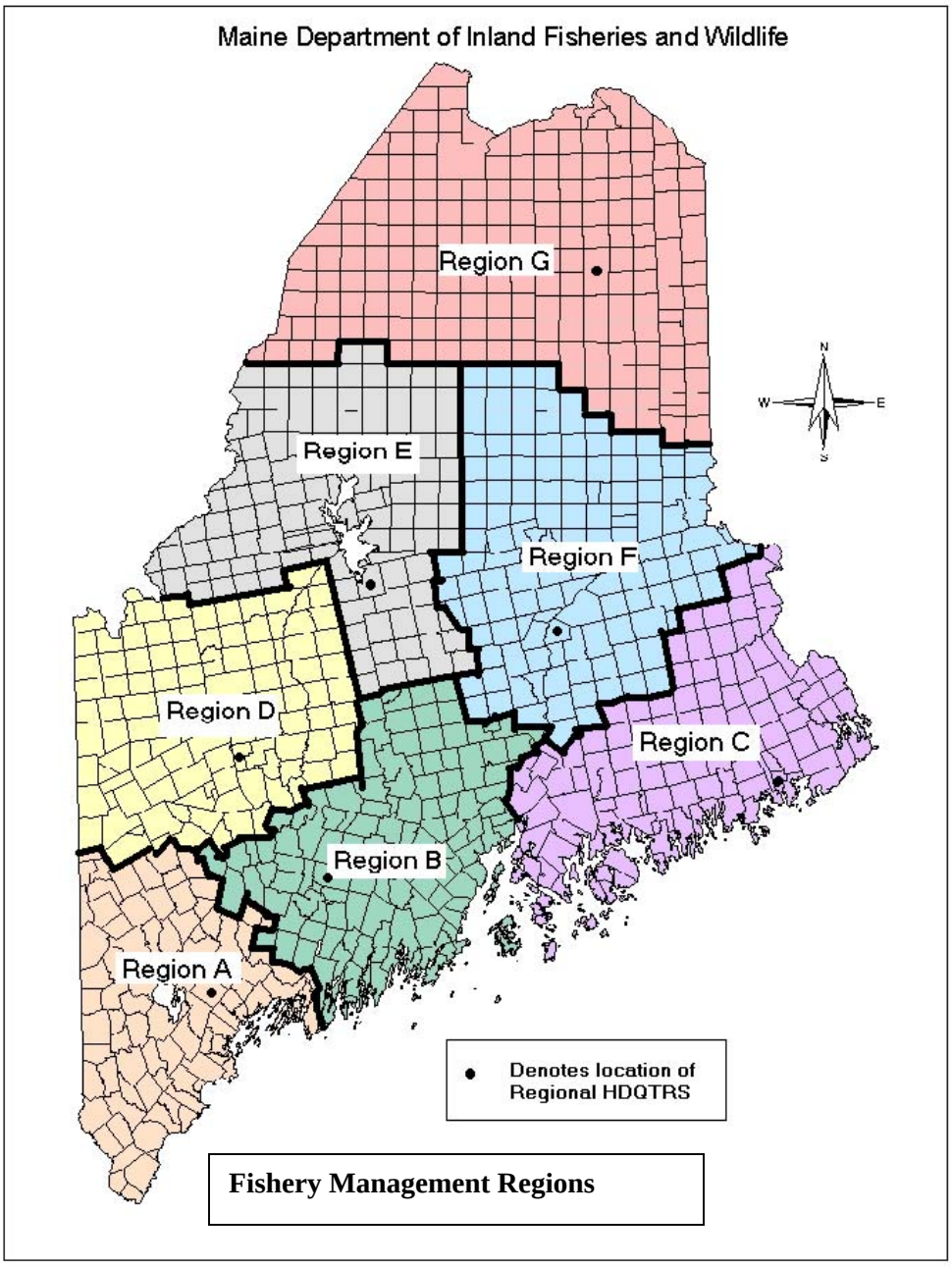

Figure 1
Maine Department of
Inland Fisheries & Wildlife
Fisheries Management Regions

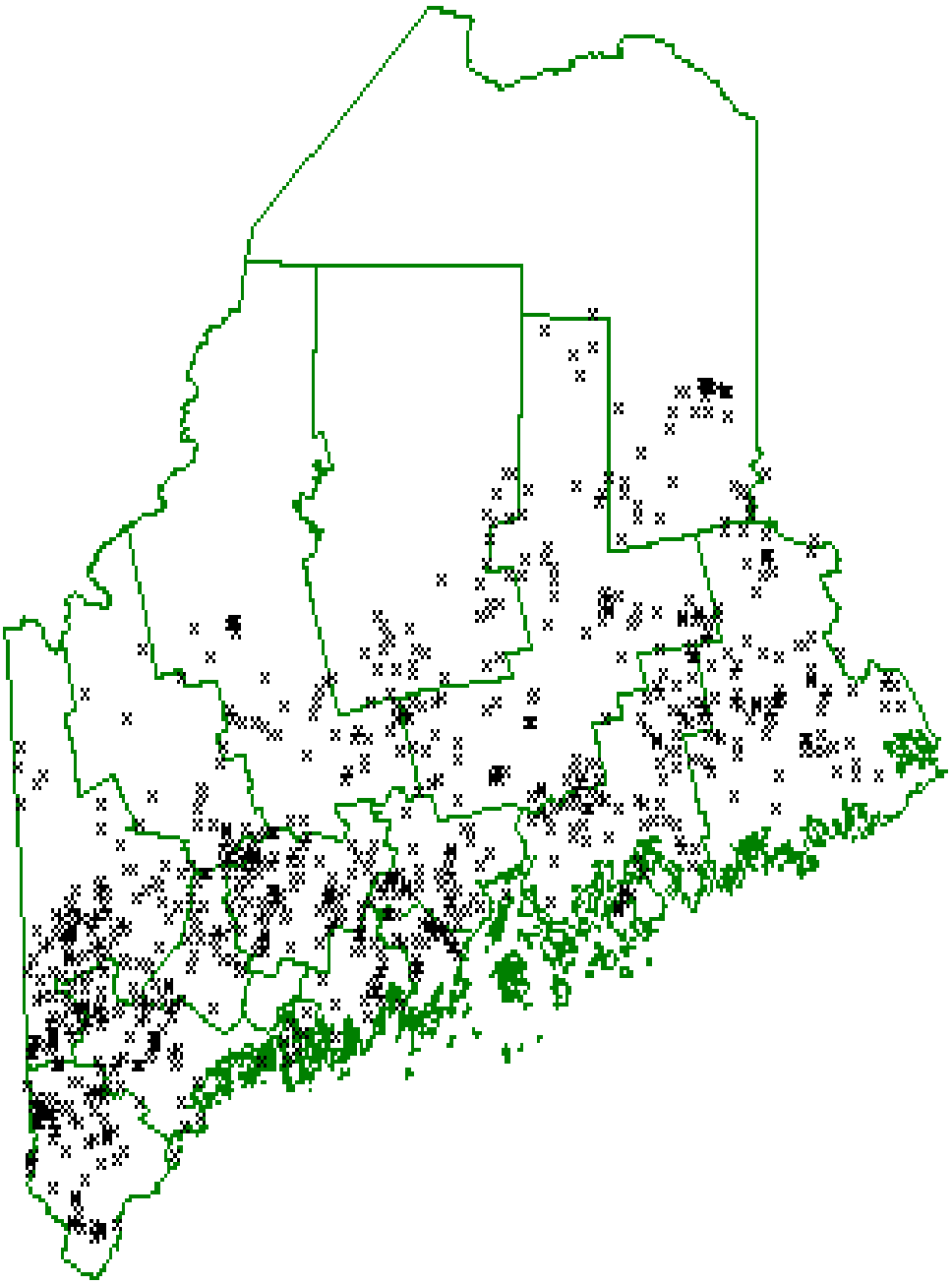

Figure 2
1980
Species Distribution in Lakes
CHAIN PICKEREL
Esox niger
Principal fishery

Deterioration in water quality in some of the more heavily developed Maine lakes is a possible consequence of future shoreline development. Such occurrences should not produce any meaningful decline in overall pickerel abundance, as the species is able to cope with moderate degradations of its habitat.

No region reports any significant, widespread declines in pickerel populations. Regions A and B indicate that population levels in a few, small, heavily-fished waters have likely declined possibly due to overexploitation. However, it should be emphasized that such situations are rare on a statewide basis, and that the acreage involved comprises only a small fraction of the state resource base. On some other waters, the decline in the size quality of pickerel may be a result of an increase in population densities and concomitant decline in growth rates because of the trend towards increased catch and release angling.

Region A reports pickerel have declined in a number of small waters where aquatic vegetation and/or spawning habitat is limited, and where largemouth bass have become established. Barker Pond in Lyman is an example. Anecdotal reports from anglers from a number of Region C waters indicate that pickerel have declined in certain waters in that Region where largemouths have become established. It's believed that largemouths, which frequent weedy areas, are serious predators on young of the year pickerel which are largely confined to these patches of aquatic vegetation.

DEMAND

There are two readily identifiable segments of the angling public which account for most of the demand placed on Maine's extensive pickerel resource. The first major component of demand is resident ice anglers. Because pickerel bite readily in the winter, families with children and other anglers seeking "action" often target the species. The other major component of demand is comprised of resident and non-resident summer anglers vacationing in Maine. In July and August, specialized techniques are required to catch coldwater sportfish, so many anglers focus their efforts on the more easily caught warmwater species, including pickerel. Since successful pickerel fishing requires no special skills, the species appeals to neophytes and younger anglers.

Although all regions have conducted winter creel surveys on waters inhabited by pickerel, the number of these surveys is insufficient for most regions to obtain estimates of total use on all their pickerel waters. Accordingly, data from the 1994 and 1999 angler questionnaire surveys will be utilized. Because these surveys are conducted using comparable methods, estimates of use, catch, and harvest can be compared. Statewide, the survey estimates indicate that in 1999, anglers spent 1,923,000 days fishing for pickerel, an increase of 14% from the 1994 estimate of 1,682,000. Open water fishing accounted for 82% of the annual use, while ice fishing comprised 18%. The modest decline in winter use over the 5-yr survey period is consistent with general findings of fishery biologists throughout Maine as they conducted their annual winter sport fishery creel surveys. Winter use declined in all regions except E and F. Ice

Table 2. Angler effort on Maine lakes with pickerel fisheries, comparing the ice and open water questionnaire estimates for 1994 and 1999.

Management Region	Total angler-days Season	1994	1999	Change (%+/-)	Days/acre 1999
A	Winter	112,000	96,000	-14	1.06
	Summer	438,000	614,000	+40	6.81
	Annual	550,000	710,000	+29	
B	Winter	158,000	153,000	-3	1.57
	Summer	503,000	662,000	+32	6.81
	Annual	661,000	815,000	+23	
C	Winter	38,000	28,000	-26	0.24

Table 2. Angler effort on Maine lakes with pickerel fisheries, comparing the ice and open water questionnaire estimates for 1994 and 1999.

Management Region	Season	Total angler-days 1994	1999	Change (%+/-)	Days/acre 1999
C, continued	Summer	110,000	89,000	-19	0.75
	Annual	148,000	117,000	-21	
D	Winter	16,000	11,000	-31	0.24
	Summer	53,000	40,000	-25	0.87
	Annual	69,000	51,000	-26	
E	Winter	9,000	13,000	+44	1.36
	Summer	89,000	37,000	-58	3.87
	Annual	98,000	50,000	-49	
F	Winter	33,000	41,000	+24	0.25
	Summer	109,000	136,000	+25	0.84
	Annual	142,000	176,000	+24	
G	Winter	5,000	4,000	-20	2.32
	Summer	9,000	-	-	
	Annual	14,000	-	-	
Statewide Totals	Winter	370,000	345,000	-7	0.65
	Summer	1,311,000	1,577,000	+20	3.00
	Annual	1,682,000	1,923,000	+14	

fishing in Regions A, B, and F accounts for 84% of the total statewide winter use; of these 3 regions, on a per acre basis, use is highest in Regions B and A. For the open water season, use in Regions A and B comprises 81% of the statewide total. Interestingly, on a per acre basis, both regions receive the identical (6.8 angler-days/acre) use.

FISHING QUALITY

Winter catch rates of pickerel are routinely amongst the highest recorded for any Maine sportfish. A statewide ice fishing census conducted by Maine wardens in the late 1950's revealed that the average catch per hour of all coldwater species combined (salmon, togue, and brook trout) was only 0.08 versus 0.42 for pickerel. Thus, fishing for pickerel was about five times faster than that offered by the coldwater sportfish. In a Department questionnaire for the winter of 1982-83, ice anglers reported harvesting pickerel at the rate of 2.33 fish per angler-day, again five times higher than for coldwater species that were reported harvested at a rate of 0.45 fish per angler-day. The 1994 and 1999 Winter Angler Questionnaires report catch rates of 1.08 and 1.18 pickerel /angler-day, respectively. These catch rates are higher than normally obtained from on-site creel surveys, however, both data sources indicate that angler success for pickerel is commonly 3-5 times higher than for salmonid species.

Catch rates vary widely from water to water, and are largely dependent upon two factors: (a) the quantity of good pickerel habitat available and (b) whether or not a viable fishery exists for one or more coldwater sportfish. Virtually all lakes supporting winter fisheries for pickerel can be categorized as Type A, B, or C lakes. Type A lakes include those waters which contain only warmwater sportfish or which contain a very limited fishery for one of the coldwater sportfish along with the predominant warmwater sportfish. These waters typically are classified as either eutrophic or mesotrophic lakes. Type B lakes include all waters, which support a fishery for pickerel (and possibly other warmwater sportfish), as well as a viable fishery for one or more salmonids. These waters may be eutrophic, mesotrophic, or oligotrophic, and include most of the "combination management" waters. Type C lakes include those

waters which support a limited fishery for pickerel (and possibly other warmwater sportfish), but which are primarily known for their salmonid fisheries. These waters are typically classified as either oligotrophic or mesotrophic lakes.

Type A lakes provide the highest winter catch rates, typically from 1.0 to 2.0 pickerel per angler. At Shaker Pond in Region A, the mean catch rate for the 1999-2000 seasons was 0.96 pickerel per angler. At Stetson Pond in Region B, a 3-year mean winter catch rate was 1.2 pickerel per angler. At Etna Pond in Region B, a 3-year mean winter catch rate was 1.0 pickerel per angler.

Type B lakes provide intermediate winter catch rates, typically from 0.15 to 0.90 pickerel per angler. For 51 combination management waters in Region B totaling 57,417 acres, the estimated winter catch rate was approximately 0.24 pickerel per angler. At Wesserunsett Lake in Region D, the 3-year mean catch rate for the 1997-99 seasons was 0.42 pickerel/day. At Oaks Pond in Region D, the 2-year mean catch rate for the 1998-99 seasons was 0.24 pickerel per angler. At Wilson Pond in Region D, the 2-year mean catch rate for the 1996-97 seasons was 0.13. At Drews Lake in Region G, the mean catch rate for the 1998-2000 seasons was 0.94. At Spaulding Lake in Region G, the mean 2-year catch rate was 0.45 pickerel per angler.

Type C lakes produce the lowest winter catch rates, typically from 0.02 to 0.10 pickerel per angler. At Mousam Pond in Region A, the mean 4-year catch rate for the 1997-2000 seasons was 0.05 pickerel per day. At Wassookeag Lake in Region B, during the 2000 winter season, anglers caught pickerel at the rate of 0.02 fish per day. At Porter Lake in Region D, the 4-year mean catch rate for the 1996-99 seasons was 0.08 pickerel per day. At Nickerson Lake in Region G, the 4-year mean catch rate for the 1995-98 seasons was 0.08 pickerel per angler.

Based on winter creel surveys, the average winter catch rate for the state approximates 0.24-0.28 pickerel per angler. However, the overwhelming majority of these surveys were conducted on Type B and C pickerel waters, as opposed to Type A waters where pickerel are most abundant. If more Type A waters had been included in the surveys, the average catch rate would probably have been substantially higher and might have approached the statewide average catch rate of 1.18 pickerel per angler as estimated by the 1999 Angler Questionnaire.

Based on winter creel surveys conducted within the past 5 years on 12 widely dispersed waters from around the state, anglers released 1,713 (49%) of the 3,507 pickerel they caught. Comparative data from the 1999 Angler Questionnaire indicates that, on a statewide basis, ice anglers released 79% of the pickerel they caught while open water anglers released 94% of their pickerel. These figures clearly illustrate the increasing popularity of catch and release fishing. One factor contributing to this extremely high release rate is the statewide health warning relating to relatively high levels of mercury found in some of the large, older warmwater sportfish, including pickerel.

Catch rates were estimated for each Region in the1999 Angler Questionnaire (Table 3). In most regions, ice fishing catch rates were 2- 2 ½ times higher than those for open water. Five of the 7 regions had catch rates > 1.0 pickerel/angler. The best winter catch rates occurred in Regions C and F and the slowest ice fishing for pickerel was in Region E. Anglers from Region F kept 40% of the pickerel they caught, the highest of the seven regions. Region E has an abundance of quality coldwater sport fisheries, and perhaps anglers are more inclined to kill pickerel in the belief that it may help to maintain quality angling for trout and salmon. On a statewide basis, anglers caught 1.2 pickerel/angler, kept 0.25 pickerel/angler, and released 79% of their catch.

As was the case in the winter, the best summer catch rates occurred in Regions C and F, while the slowest pickerel fishing occurred in Region E. Anglers in all regions released a remarkably high proportion (from 89-97%) of the pickerel they caught. On a statewide basis, anglers caught 0.50

Table 3. Angler catch and harvest of pickerel in Maine lakes with pickerel fisheries.

Region	Season	Estimated Number Caught	Kept	Fish per angler day Caught	Kept	% Kept
A	Winter	104,200	26,200	1.09	0.27	25
	Summer	239,500	11,000	0.39	0.02	5
B	Winter	156,800	29,500	1.03	0.19	19
	Summer	273,200	16,700	0.41	0.03	6
C	Winter	53,000	8,300	1.90	0.30	16
	Summer	106,300	5,200	1.20	0.06	5
D	Winter	12,400	1,500	1.11	0.14	12
	Summer	26,000	800	0.65	0.02	3
E	Winter	7,000	2,800	0.55	0.22	40
	Summer	11,900	1,300	0.32	0.03	11
F	Winter	69,900	17,100	1.73	0.42	25
	Summer	119,000	11,800	0.88	0.09	10
G	Winter	3,100	600	0.79	0.16	20
	Summer	-	-	-	-	-
ALL	Winter	406,400	86,000	1.18	0.25	21
	Summer	783,800	47,300	0.49	0.03	6

pickerel/angler, kept only 0.03-pickerel/angler, and released 94% of their catch.

Winter creel surveys conducted within the past 5 years provided data on size quality (Table 4). The absence of data from Regions C and F is primarily because these Regions focused their survey efforts on waters providing coldwater sport fisheries. Pickerel harvested in Regions D and E are smaller than the statewide average, while those harvested in Regions A and B are generally of average size. Region G pickerel are the largest in Maine. Although the species occurs in only 12 waters in the southern portion of Region G, pickerel attain good size in some of them. These data suggest that the average size of pickerel kept by ice anglers has increased slightly during the last 15-year planning period, from an. average length and weight of 16.2 in and 1.1 lb, respectively, in 1986, to the present 17.0 in and 1.2 lb. Despite the recent sharp increase in catch and release angling which creates the potential for reduced growth/stunting, it appears as if medium-large pickerel are still sufficiently numerous in most waters so that size quality for the state as a whole has been maintained. Although the high release rates may yet eventually lead to a reduction in size quality, data suggest that they have not presently done so.

Table 4. Size of pickerel kept by anglers during the ice fishing season

Region	# of waters surveyed	# fish in sample	Mean length (in)	Mean weight (lb)
A	3	51	16.7	1.1
B	6	201	17.3	1.3
C	NONE	-	-	-
D	5	182	14.9	0.7
E	4	126	15.8	0.8
F	NONE	-	-	-
G	3	285	18.8	1.5
TOTALS	21	845	17.0	1.2

PICKEREL GOALS AND OBJECTIVES
2001-2016

STATEWIDE GOALS

Maintain pickerel fishing opportunities in about 586 lakes and ponds (331,654 acres), and attempt to increase angler harvest from some of the many under-utilized waters.

STATEWIDE OBJECTIVES

1) Maintain current wide diversity of fishing opportunities that give anglers the chance to:
   a) Catch some trophy (>24 inch) pickerel in certain waters,
   b) Catch some larger than average (19-21 inch) pickerel in certain waters, and
   c) Enjoy "fast fishing", i.e. 1 fish/hour, or better, on a good day in some waters.

2) Maintain an average length of 17.0 inches and average weight of 1.2 lb for pickerel kept by anglers

3) Increase the annual harvest of chain pickerel by 10-15%

CAPABILITY OF HABITAT

Because pickerel thrive in a wide variety of waters, the habitat can readily sustain current levels of abundance. However, as largemouth bass increase their range through illegal fish introductions, pickerel abundance may decline in some waters. The Department's limited reclamation program is likely to result in the eradication of a few populations in favor of improving the trout fishery. But such losses are negligible in view of the species' widespread occurrence in southern, central, and eastern Maine.

FEASIBILTY

The goal of maintaining viable pickerel fisheries in over 650 lakes and ponds is feasible. In the vast majority of waters, pickerel have demonstrated the ability to maintain themselves at moderate-high population densities despite liberal season and bag limits. Furthermore, they readily withstand moderate degradations in water quality and habitat. The goal of increasing angler harvest from selected waters is feasible, although it will be a challenging one made more difficult because the practice of catch and release angling in other sport fisheries is beginning to be adopted by pickerel anglers. It will be difficult to persuade many of these anglers that it's often preferable for them to kill their pickerel because a reduced harvest level could lead to "stunting". Another factor contributing to lower harvests at many waters is public concern over eating pickerel perceived to be relatively high in mercury. Although indications are that most anglers can safely enjoy a moderate number of small-medium size pickerel meals throughout both the ice fishing and open water seasons, some anglers will continue to release all or most of their pickerel, not wishing to possibly endanger their health.

The first two objectives, basically maintaining the status quo, are feasible. The third objective, increasing annual harvest by 10-15% is feasible; however, achieving an increase of this magnitude is likely to be problematic because of the long-held position of many Maine anglers that pickerel are poor table fare.

DESIRABILITY

Achieving the stated goals and objectives in the next planning period is desirable because pickerel comprise an important fishery resource in Maine. Because pickerel bite readily in the winter, parents with children and other anglers looking for "good action" frequently head to a pickerel pond. In the summer months when specialized gear and techniques are required to catch coldwater sportfish, many anglers focus their efforts on the more easily caught pickerel. Since successful pickerel fishing requires nothing more than the ability to cast a lure in and around a weed bed, the species is well suited for young anglers and neophytes. Nowadays, and in the future, with many kids spending time on diverse and competing interests other than fishing, it's important to provide them with a great chance to catch a fish when they do give it a try. A typical pickerel pond is an ideal choice.

POSSIBLE CONSEQUENCES

Attainment of all objectives will insure that most pickerel waters will continue to provide good fisheries. Achieving a 10-15% increase in the statewide harvest of pickerel should produce improved growth and an increase in the average size of pickerel in the fishery. On the other hand, if the current trend continues toward a decrease in the number of pickerel harvested, the number of waters characterized by fish of a small average size will increase. Such fisheries are unattractive to most anglers. On a <u>few</u> heavily fished waters a 10-15% increase in the harvest of pickerel could result in over exploitation thus producing a decline in angling quality.

PICKEREL
MANAGEMENT PROBLEMS AND STRATEGIES

Problem 1. Due to the Fishery Division's emphasis on coldwater sportfish, relatively little data is collected from pickerel in typical warmwater habitats.

Strategy a. Redirect some Divisional effort to include obtaining data pertinent to achieving our objectives.

Strategy b. Seek an increase in the Fishery Division staff that would permit an increased level of work to be directed at this species.

Problem 2. Pickerel populations consisting largely of individuals whose small average size makes them unattractive for harvest.

Strategy a. Encourage the public to increase the harvest of pickerel from most pickerel waters thereby improving growth rates and average size by decreasing intraspecific competition

Strategy b. On those waters where biological data suggests that over-exploitation, rather than stunting, is the problem, consider reducing the daily bag limit from the general law of 10-fish/day to 5, or even 2, fish/day.

Problem 3. The current level of estimated angler harvest is well below the optimum, resulting in large losses of pickerel due to natural mortality.

Strategy a. Attempt to increase harvest by making the public aware of the species' catchability and edibility.

- ✓ Promote the edibility of pickerel anglers through an educational effort emphasizing the several "tried and true" cleaning and preparation methods that largely alleviate the problem of too many bones. Widely disseminate recipes for pickerel to foster increased levels of consumption.

- ✓ Reduce the confusion amongst the angling public regarding the relevance of the general fish consumption warnings as they relate to pickerel by publicizing the nutritional benefits to be gained by from eating moderate amounts of fresh pickerel and by emphasizing the fact that with only a few rare exceptions the safe eating guidelines do not require that all persons should avoid eating any pickerel. Advise concerned anglers to consult their regulation booklet to determine if and how the safe eating guidelines apply to them.

APPENDIX A

WARMWATER WORKING GROUP INPUT

CHAIN PICKEREL MEETING SUMMARY

24 JANUARY 2002

Issues:

- ✓ *Has the increase in catch and release produced/exacerbated stunting*
- ✓ *Stunted populations are generally not attractive fisheries.*
- ✓ *Have the various fish consumption advisories, particularly for mercury, contributed to the increase in catch and release?*
- ✓ *Pickerel are often "kept" and the carcasses discarded on the ice.*
- ✓ *The eating quality of this species is not widely known.*
- ✓ *Many anglers do not know how to prepare pickerel for consumption.*
- ✓ *The sporting qualities of this species are not widely known.*
- ✓ *Some anglers believe that size quality has declined in some pickerel populations.*
- ✓ *Because the species often provides fast action, pickerel are a good "kids" fish.*

Goals and Objectives:

I. Maintain pickerel fishing opportunities in 661 Lakes and Ponds (346,704 acres).

II. Maintain the present diversity of fishing opportunities for chain pickerel, including:

A. "Trophy fishing opportunities": continue to provide for the opportunity to occasional catch a 24 in+ pickerel in some waters.

B. "Memorable fishing opportunities": continue to provide for the opportunity to capture some 20 in+ pickerel in some waters.

C. "Fast action fishing opportunities": continue to provide for the opportunity for "fast fishing", i.e. 1 fish/hour, or better, on a good day in some waters.

D. Continue to provide the opportunity to fish for pickerel in a wide variety of surroundings including small ponds, large lakes, undeveloped waters, highly developed waters, and so on.

PRIORITIZED CHAIN PICKEREL MANAGE MENT OBJECTIVES

DESCRIPTION OF STATEWIDE OBJECTIVES	RANKINGS Warmwater Group
Maintain the current diversity of fishing opportunities including the chance to catch some trophy (>24-inch) pickerel in certain waters, some large pickerel (19-21-inch) pickerel in certain waters and to enjoy "fast fishing", I.e. 1fish/hour, or better, on a good day in some waters.	**1**
Maintain an average length of 17-inches and an average weight of 1.2-lbs for pickerel harvested (kept) by anglers.	**2**
Increase the annual harvest of chain pickerel by 10-15%.	**3**

PRIORITIZED CHAIN PICKEREL MANAGEMENT PROBLEMS

Description of Management Problems	Fisheries	Warmwater Group	FINAL RANKING
The Fishery Division lacks sufficient data to fully implement the management plan for this species.	**1**	**2**	**1**
Pickerel populations consisting largely of individuals whose small average size makes them unattractive for harvest.	**2**	**3**	**2**
The current level of estimated angler harvest is well below the optimum, resulting in large losses of pickerel due to natural mortality	**3**	**1**	**3**

CONCEPT PLAN FOR IMPLEMENTATION OF CHAIN PICKEREL MANAGEMENT OBJECTIVES (2001-2016)

PRIORITIZED CHAIN PICKEREL MANAGEMENT OBJECTIVES		Region A Contribution			Region B Contribution			Region C Contribution			Region D Contribution			Region E Contribution			Region F Contribution			Region G Contribution			Statewide Totals[1]		
DESCRIPTION OF STATEWIDE MANAGEMENT OBJECTIVES	Rank	Exst	Prop	Dfct	Exst	Prop	Dfct	Exst	Prop	Dfct	Exst	Prop	Dfct	Exst	Prop	Dfct	Exst	Prop	Dfct	Exst	Prop	Dfct	Exst	Prop	Dfct
Maintain the current diversity of fishing opportunities including the chance to catch some trophy (>24-inch) pickerel in certain waters, some large pickerel (19-21-inch) pickerel in certain waters and to enjoy "fast fishing", I.e. 1fish/hour, or better, on a good day in some waters.	**1**	158	158	0	183	183	0	95	95	0	39	39	0	16	16	0	83	83	0	12	12	0	586	586	0
Maintain an average length of 17-inches and an average weight of 1.2-lbs for pickerel harvested (kept) by anglers.	**2**	158	158	0	183	183	0	95	95	0	39	39	0	16	16	0	83	83	0	12	12	0	586	586	0
Increase the annual harvest of chain pickerel by 10-15%.	**3**	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk

Exst = Existing;
Prop = Proposed;
Dfct = Deficit (Proposed – Existing).

[1] Numbers only include those waters having principal fisheries for pickerel