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# Fish Management Policy



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STATE OF MINNESOTA  
Department of Conservation  
Division of Game and Fish

# **Minnesota**

# **Fish Management**

# **Policy**



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STATE OF MINNESOTA

**Minnesota Department of Conservation**  
**Division of Game and Fish**  
**St. Paul**

Revised 1964



## PREFACE

How shall we manage our lakes, streams and rivers? This is a question of great importance to Minnesotans who jointly own more than four million acres of surface waters. Each of these acres of water is capable of producing recreation and income in the form of fish and game crops.

Fishing is important in Minnesota. One out of three Minnesotans fish, and non-resident fishing guests are a mainstay of our vacation industry. In Minnesota, sport fishermen spend about 100 million dollars a year to take fish, and of this about 30 million dollars is "new money" from out-of-state visitors. These fishermen take about 50 million fish a year, weighing about 25 million pounds.

Our fisheries resources deserve the best planning and management we can give them. To provide this, the following "Fish Management Policy" has been prepared. Fish management is a difficult and complex business. There are many different kinds of lakes and streams and many kinds of game fishes, all deserving attention. No fish lake or stream is exactly like any other and each presents different management problems.

Minnesota has had a Fish Management Policy for 25 years and this Third Revision of the Policy expresses the aims and goals of the Department in the light of past experience and present information. It tells what is being done to better sport fishing in Minnesota, who is doing it, and why. It has been prepared by the Administrators, Fisheries Managers, Game Wardens, and Fisheries Biologists, all of whom are concerned with management of Minnesota's fisheries resources, and has been prepared to inform all those interested in our fish and fishing. It delineates the general guide lines that are being followed in fisheries work in Minnesota.

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## INTRODUCTION

The fish crop of lakes and streams is one of Minnesota's most important natural resources. It is a renewable resource and one, that with proper management, can be expected to provide recreation for millions of people each year in the future. At present, fishing provides year-round recreation for more than a million Minnesotans and is a basis of the large vacation and resort industry. Our fish crops, game and non-game fishes, also supply a considerable supply of protein food—40 to 50 million pounds a year.

The primary goal of fish management in Minnesota is the production of the greatest number of satisfactory sport-fishing hours—or expressed another way, the most fishing for the most people. To reach this goal, each lake and stream must be managed for kinds of fishes for which it is best suited. The time between bites, the size of fish available to anglers, and the kind of fish desired by anglers must all be considered. Management methods must fit conditions found in each lake. They must be based on best available information about fishes and fishing and must take into account the capabilities of individual waters and the many kinds of public use they receive.

The need for a Fish Management Policy is obvious. Such a policy allows the people of Minnesota to know what is being done for conservation of fisheries resources and the reasons for the approaches and fish management methods used. It provides conservation of-

officials with a unified management guide based on best present information. It spells out the methods to be used for increased production of game fishes, including approved uses of artificially propagated fish and best application of other fish management techniques.

It should be recognized, however, that a general management policy cannot fit exactly all local conditions and situations, and latitude must be allowed the local fish manager for interpreting the policy to fit individual cases. Also, increase of knowledge or changing conditions may require future changes in management methods.

## HISTORICAL BACKGROUND

Fish management has been practiced on Minnesota waters for more than 80 years. During the first 25 years the principal emphasis was on stocking of newly-hatched fish fry, especially of non-native species. Brown and rainbow trout were introduced to the betterment of fishing. Carp were planted and took over many waters and later were found to be undesirable. Other fishes, such as several kinds of salmon, were widely planted in the 1880's but failed to survive. Little was known then about the conditions that different kinds of fishes require or about the basic nature of our lakes. Fish planting was then mostly a matter of trial.

Between 1900 and 1925 there was great expansion in propagation and stocking of native fishes, such as wall-

eyes, whitefish, basses and sunfishes. It was thought, at that time, that planting of lakes each year with young fish was as necessary as planting of farm fields. However, it became evident after years of general and indiscriminate fish plantings that often these plantings were not successful and did not improve fishing. Some planting, such as carp in our southern lakes and walleyes in lake trout lakes, did damage. During this period the first biological investigations of Minnesota lakes and streams were made. Since that time investigators in Minnesota and elsewhere have found that fish management is more than a matter of putting little fish into lakes each year. Often such large crops of small fish were raised naturally that stocking additional fish makes little or no difference. Then too, some lakes are best suited to one kind of game fish and some to others. It was discovered also that, in waters where stocking was desirable, different sizes of fish are often needed for best results. In some waters fry were satisfactory, in others fingerlings, yearlings, or adults were most useful.

Experience and research led to the development and use of many fish management methods. Trout were raised to fingerling and later to catchable size in hatcheries. Walleyes were raised to fingerling size in ponds. A program was developed for removal of rough fish from lakes. In some waters it was found that rough fish could be removed satisfactorily by controlled commercial fishing. Efficient methods were devised for rescue of game fishes,

especially northern pike, from shallow lakes in danger of winter oxygen depletion. It was sometimes found desirable to protect or develop fish spawning areas. It was found that some lakes and streams were being injured by pollution, siltation, and other unwise use. Considerable emphasis in fish management in recent years has been placed on preserving and improving the habitat and thereby helping fishes to perpetuate themselves.

Better laws and effective and efficient law enforcement by Game Wardens have also played an important role in fish management.

It is now recognized, as the result of much research and survey work, that the fishes of a lake make up a complicated society. Each kind of fish in a lake is somewhat dependent on every other kind, and lake management cannot consider one kind of fish alone. For example, in most good walleye lakes young walleyes feed on young perch and a crop of young perch is necessary to feed the young walleyes.

A lake with many kinds of fish of different ages and sizes is like a forest which different kinds of trees and shrubs from which some trees can be cut each year. It is not like a corn field that is planted and harvested each year. Only in exceptional cases can a lake be managed as intensively as a farm. "Farming" of lakes by elimination of all fishes present by toxicants—such as is done in reclaimed trout lakes—and then planting with more desirable fishes is practical only in special

situations and such drastic alteration of conditions in large lakes is usually not economically feasible.

Laws and regulations affecting fish and fishing have changed over the years. The trend has been toward laws and regulations that permit fuller utilization of the entire fish crop—all kinds and sizes of fish. Fish populations produce an annual crop of fish that can be harvested and used and if these catchable-size fish are not taken, they eventually die of natural causes. Laws and regulations must be adjusted to the abundance of fish so that both a good harvest of desirable kinds and sizes of fish can be had and the fish stocks preserved.

The present Fish Management Policy is a revision of that published in 1956 and which was first formulated in 1949. Recent research and management findings, new techniques, laws, and administrative changes have made another revision of the Policy desirable.

## BASIS OF MODERN FISH MANAGEMENT

Modern fish management is based on factual information about fish and waters. It stresses maintenance and improvement of the environment; proper regulation of the catch by laws and law enforcement; encouragement of natural reproduction of game fishes; control and adjustment of fish populations; adequate utilization of fishes present; and proper use of hatchery-produced fish.

Environmental improvement includes pollution control and abatement; control of soil erosion; maintenance and control of water levels; and, where advisable, installation of engineering structures in lakes, lake outlets and stream beds. It also includes protection and development of natural spawning areas. Other phases of environmental improvement are fencing of shorelines and stream banks; planting of trees and soil-binding vegetation along banks and shores; and control of undesirable aquatic vegetation. Other practices which have more limited or experimental application are the dredging and deepening of marginal fish lakes; installation of artificial fish shelters; and the construction of barriers to fish movement such as filter barriers on trout lakes and carp barriers on streams.

It is recognized that in practice there is no sharp line separating game from rough fish. Anglers preferences are not the same in different parts of the state. For example, bullheads, perch, and sheepshead, although legally "rough fish," are desirable sport fishes in parts of southern Minnesota, but are little taken in the north. Removal of non-game fishes must be adjusted to local fishing preferences and local fish populations. In some cases it is desirable to transfer fish of kinds that are not wanted locally to other waters where they have sport fishing value. In addition to the usual approaches of removing rough fish to improve the environment and encouragement of sport fishing for more desirable species, there are waters in which removal of non-sport

fishes, especially bullheads, can be regarded as harvest of an unused part of the fish crop.

Fish stocking is an important tool in fish management, but it is not a universal answer to all fisheries problems. The uses and limitations of stocking are considered in detail in some of the following sections.

Fish management is of little value unless the fishing public has access to lakes and streams. For this reason the present program of acquisition and development of public access sites to lakes and streams must be continued.

## ORGANIZATION OF FISH MANAGEMENT ACTIVITIES

### 1. *General Organization*

Fisheries management by the Division of Game and Fish is carried out by coordinated work of three sections, each having parallel status: (1) the Section of Fisheries; (2) the Section of Research and Planning; and (3) the Warden Service. The Section of Fisheries is responsible for operational phases of the management of public waters for fish and fishing. The Section of Research and Planning is responsible for fisheries research, biological surveys and mapping of waters, planning, and for special service jobs. The Warden Service is responsible for enforcement of laws and regulations affecting fish and fishing and some other uses of and activities on public waters and is assigned the acquisition of public access sites to lakes and streams. Boating laws

and regulations, however, are enforced by County Sheriffs.

### 2. *Fish Management by Section of Fisheries*

Under the supervision of the Section of Fisheries the state is organized into Fisheries Management Regions. Each of these is headed by a Regional Fisheries Manager, who is assigned the responsibility for local fish management activities. These fisheries managers and their assistants are stationed at strategically located Fisheries Headquarters, Stations or Hatcheries.

Fisheries Management activities supervised by managers in their assigned regions, areas, or capacities include:

- a. Maintenance and operation of fisheries headquarters, fish hatcheries, rearing ponds and related facilities.
- b. Transportation and planting of fish into suitable waters.
- c. Detection of winter kills and rescue of fish in danger of suffocation or stranding.
- d. Acquisition, development and management of natural fish spawning areas.
- e. Aid in supervision of aquatic nuisance control.
- f. Lake and stream improvement.
- g. Direction of field operations for lake reclamation and removal of

undesirable fishes, especially rough fish.

- h. Recommendation of lakes and streams to be surveyed.
- i. Routine investigation of status of fish populations and reproduction in lakes and streams.
- j. Recommendations concerning regulations affecting fish and fishing.
- k. Public relations on local fish management activities.

Fish stocking or any other fish management decision is, in the final analysis, the manager's decision and must take into account the various aspects of public use of waters. Waters managed experimentally are excepted and must be managed according to research specifications and plans.

Regional Fisheries Managers also have the responsibility for keeping headquarters, fish rearing facilities and assigned inventory in good repair and are expected to recommend any improvements necessary to facilitate and increase efficiency of field operations. They are expected to keep accurate records of all fisheries management operations.

3. *Research, Surveys, Planning, and Biological Services by the Section of Research and Planning.*

Successful fisheries management must be based upon adequate and accurate information about fishes and other aquatic life and upon knowledge

of the nature, potentialities, and uses of lakes and streams. Therefore, investigation of basic problems related to fish and fisheries management and to the nature and use of our waters is a prime requisite. Such work is being and will be carried out by a staff of biologists as fast as funds, time and personnel permit.

This biological staff is headed by and responsible to a Research Supervisor who directs the research, inventory and planning work. The staff consists of: (1) a central core of biologists in St. Paul who coordinate the various aspects of the program and who work on problems that are statewide in scope; and (2) a field staff strategically located for investigation of local fisheries problems.

The Research and Planning staff is engaged primarily in research and inventory work and in the evaluation of management methods. However, it also supplies technical aid and advice to personnel of the Department, especially to fisheries managers. Biological service work is also done, such as investigation of fish diseases and kills, investigation of pollution as it affects fish, supervision of aquatic nuisance control in public waters, investigation of bait fish problems, and supplying of information to the public on the technical aspects of fish, fishing and fish management. They work with administrators and managers in fisheries aspects of conservation planning.

Usually initial lake and stream surveys are organized on a watershed basis, both to facilitate field work and to

gather information systematically for land and water use planning by natural geographic areas. Special lake and stream investigations will be handled by resident biologists as assigned by the Research Supervisor.

#### 4. *Law Enforcement by the Warden Service*

Enforcement of legal regulations affecting the use of our waters and taking of fish from them is a long established and important part of fish management. Without adequate enforcement of the laws affecting sport and commercial fisheries, other management activities would be much less effective, and often to little avail. Such enforcement is presently carried out by 147 Game Wardens. Ten of these are Warden Supervisors, each of whom is in charge of a Warden District.

Although Game Wardens are primarily law enforcement officials, they also aid the Division in many fisheries jobs, especially those requiring contact with the fishing public and other users of our waters. They also are responsible for the acquisition and development of access sites on public waters, and for arranging for the maintenance of these sites by local organizations.

### POLICIES FOR SPECIFIC FISH MANAGEMENT ACTIVITIES

#### 1. *Fish Stocking*

Planting of fish in public waters is known to be practical in and is approved under the following situations:

- a. For stocking newly-created or restored waters.
- b. For stocking lakes subject to frequent winter kill.
- c. For introducing a desirable species of fish into suitable waters not inhabited by it or for re-establishing it in suitable waters from which it has disappeared.
- d. For adjusting population structure where investigation indicated that heavy stocking of game fishes (usually predaceous fishes) will benefit sport fishing.
- e. For stocking catchable-size trout in certain designated trout streams or fingerlings in lakes for the purpose of obtaining higher fishing yields than the waters would naturally produce.
- f. For stocking of lakes, especially lake trout lakes, where natural reproduction of a species is not adequate to maintain the population.
- g. For stocking, when available, catchable-size warm-water fishes (usually fish taken from other waters) to supply put-and-take fishing in ponds or small lakes in metropolitan areas to which there is public access and where fishing pressure warrants intensive management.
- h. For stocking game fishes, usually fingerlings or rescued predaceous fishes, in certain waters where all or portions of the environment is

sued to them but is unoccupied because of lack of suitable spawning areas.

- i. For stocking of fish of kinds necessary for biological control of nuisance conditions in lakes or to supply more adequate forage for game fishes.

## 2. *Fish Rescue and Transfer*

Rescue and transfer of fish in danger of suffocation or stranding will be done by Section of Fisheries personnel except in emergencies when other help may be necessary. The following rules will be observed in rescue operations:

- a. Priority for rescue and transfer will be given northern pike, walleye, bass, and trout. Lower priority will be given panfishes, and none to most species of rough fish.
- b. Fish with serious diseases or parasites are not to be transferred from one water to another.
- c. Rescued fish will be transferred only to suitable waters where they will improve the existing fish population and (or) provide sport fishing.
- d. Panfishes will not be transferred to waters where fish of the same species are already abundant and of small size.
- e. Fishes generally regarded as unsatisfactory for angling, such as green sunfish, dogfish, or orange-spotted sunfish, are not to be

transferred to other waters. White bass will not be transferred to waters in which they do not now occur.

- f. Correct records are to be kept of fish rescued, transferred, and planted in each body of water.

## 3. *Bait Minnow Production*

The availability of bait is an important aspect of sport fishing. Private fish hatchery operators will receive encouragement and technical aid and advice in the rearing of bait fishes. Minnows may be seined from public waters under such regulations as shall be provided. Waters may be closed to taking of minnows to prevent depletion of food for game fishes. Toxicants may be applied to ponds to be used for rearing of bait fishes, or to other waters, only under a permit from the Director of Game and Fish.

## 4. *Licensed Commercial Fishing*

Licensed commercial fishing, which is permitted by statute in some Boundary and inter-State waters, will be managed to produce the largest annual sustained yield of the commercial fishes compatible with maintenance of fish populations and perpetuation or betterment of sport fishing. Management of these waters will be based on the most accurate information available on the fisheries, fish populations, and conditions affecting fish in these waters. Such information will be obtained from fisheries and biological surveys and

from catch reports that are and will be required from each commercial fisherman.

Commercial fishing in those parts of the Red Lakes within the Red Lake Indian Reservation will be managed under formal agreement between the Department of Conservation, the U. S. Bureau of Indian Affairs, and Red Lake Fishermen's Association.

#### 5. *Rough Fish Control and Utilization*

Rough fish populations will be reduced in size or eliminated, for improvement of public waters for sport fishing, waterfowl, furbearers or other public uses when and where investigation shows control feasible and necessary. The control of rough fish populations whenever feasible will be undertaken on a watershed basis with the strategic employment of barriers to migration and movement, and use of traps, seines and, in special cases fish toxicants and other fishing gear.

Such operations must take into account the kinds and numbers of rough and game fishes present; the nature of the waters; the local value of rough fish for sport fishing; and the relationships between rough and sport fishes. Some kinds of rough fish (such as perch) are valuable forage for game fishes when young and some kinds (such as suckers, perch, and bullheads) supply considerable sport fishing in certain waters. In some waters rough fish may be so few or of such kinds that they are of little overall importance. There are some lakes which sup-

port large populations of rough fish (such as bullheads) which cannot be made into game-fish lakes and in such lakes rough fish may be regarded as a fish crop that may be harvested by netting under the rough fish control program.

In other waters which contain harvestable populations of valuable commercial species such as, whitefish, burbot, tullibees, and suckers that are not desired by the sport fishermen commercial harvest of these species will be encouraged in the interest of local industry and as a contribution to the nation's food supply. However, this operation must not be injurious to game fish populations, and the commercial operator will be required to pay a predetermined amount to defray the cost of supervision of the fishery.

Accurate records will be kept on all rough fish removal operations, removal operation will be carefully supervised, and investigative work continued to devise better methods of rough fish control.

Rough fish removal will be carried out both by state crews and by private commercial fishermen operating under contract with or having a permit from the Department. Usually state crews will be assigned those waters where rough fish removal is needed, but where private contractors cannot afford to operate.

Where feasible, effective and economically reasonable, dams and screening devices will be installed in streams

to prevent carp and other undesirable fishes from migrating upstream into connected waters.

## 6. *Habitat Improvement*

Maintenance, restoration and improvement of habitat in lakes and streams for the benefit of fish and fishing will be stressed when feasible and economically justified. The program will include:

- a. Water conservation and water level control.
- b. Pollution prevention, abatement, and control.
- c. Acquisition, improvement, and development of natural fish spawning areas.
- d. Alleviation of rough fish damage by installation of devices such as traps for taking fish.
- e. Improvement of stream and lake banks and beds for the benefit of fish and fishing.
- f. Encouragement of proper land use for prevention of soil erosion, over-grazing or other misuse of forest and agricultural lands.
- g. Rehabilitation of waters by removal of undesirable fishes by use of fish toxicants or other means.
- h. Construction of barriers to fish movement, including filter barriers on reclaimed trout lakes or lakes stocked with migratory salmonids. Such barriers will be

designed to prevent access of rough or other unwanted fish to spawning areas or to reclaimed waters. Their effectiveness will be evaluated.

- i. Dredging and deepening of marginal fish lakes, when and where biologically and economically feasible.

It is recognized that sport fishing both now and in the future is to a great extent dependent upon maintaining our lakes and streams in a condition suitable for game fishes. If favorable conditions are maintained, natural fish propagation can be expected to supply most of our fishing.

Control of aquatic nuisances, such as excessive water weed and algae growth, is sometimes desirable to permit greater public use of waters. Because of possible effect of such activities on fish, private individuals will be permitted to carry out aquatic nuisance control only under permits issued by the Department and under regulations formulated by it. Aquatic nuisance control must be financed by benefitted parties. The state neither pays for such work nor accepts responsibility for any personal or property damage that may result from it.

Stream improvement work will not be started until there is control of the land involved through easements or purchase and preference will be given to watersheds where there is adequate control of runoff by proper farming and forestry practices.

## 7. *Farm Fish Ponds*

Farm fish ponds, which are of considerable value in milder climates, are often uncertain in Minnesota because of their tendency to winter kill when sufficient depth or flow through them is not provided. Because of the large number of accessible fish lakes and streams, no organized farm fish pond program will be undertaken by the Department nor will fish be supplied for stocking farm ponds. Fisheries Managers will inspect new farm ponds for which stocking applications have been made to the U. S. Bureau of Sport Fisheries and Wildlife.

## 8. *Dams, Fish Ladders, and Fish Screens*

Dams have two important fisheries effects: (1) impoundment of water whereby an area is created that is suitable for kinds of fish different from those that originally inhabited the stream; and (2) obstruction of normal migration of fish. Raising the water level by a dam may also in some lakes lessen the danger of winter kill and make additional spawning grounds available. Construction of a dam may affect other wildlife and recreational values and all such values should be considered before a dam is built.

Beaver dams may be beneficial or harmful to fish in streams, depending upon local circumstances. Where harmful they and the associated beaver will be removed.

Fish ladders have been found ineffective in Minnesota for facilitating passage of game fish over dams. Rather, they are used mostly by rough fish. There are circumstances, however, such as in the lower portions of the North Shore streams where migration of game fish over low head dams and natural barriers can be aided by construction of properly designed fishways.

Fish screens, mechanical or electrical, will not be installed except where it is possible to block effectively the movement of rough fishes or where such screens are biologically sound and where adequate attention to proper functioning of the screen is assured.

## 9. *Introduction of Non-Native Fishes*

Introduction of kinds of fishes not native to our waters is potentially dangerous because more desirable native species may be replaced and sometimes (as has been the case with carp) the aquatic habitat damaged. Introduction of exotic fish or other aquatic animals, if any, will be made only after careful study and will be first limited to situations where the introduced fish can be observed and eliminated if necessary.

## 10. *Propagation of Game Fishes in Private Hatcheries*

Permission will not be granted to private fish hatchery operators for propagation and distribution of game fishes, other than trout, for the following reasons:

- a. Stocking of fishes from private hatcheries could be at cross pur-

poses with state management plans for a lake and might even be detrimental to the fish population;

- b. Taking of eggs of game fishes locally for private hatchery operations is private use of a public resource and could be expected to result in public opposition and would preempt some fish spawning and rearing sites necessary for state fishery operations;
- c. Importation of eggs or fry, which are very difficult to identify, could lead to introduction of undesirable kinds of strains of fishes, or of fish diseases;
- d. Opportunity would be created for sale of wild game fishes especially game fishes taken during seining of minnows.

#### 11. *Cooperation With Other Agencies*

Fisheries administrators, so far as able, will keep informed on the programs of the fisheries agencies of adjoining states and provinces and of federal agencies and will join with these agencies in cooperative enterprises which are of mutual benefit to fish, fishing and fish habitat.

### POLICIES FOR MANAGEMENT OF DIFFERENT KINDS OF FISHES

#### 1. *Trout*

Trout are cold-water fishes and in such waters supply much sport fishing. Trout management in Minnesota is

and will be confined to water of three types: (1) cold-water streams; (2) larger northern lakes suitable for lake trout; and (3) small, often reclaimed lakes which are suitable for stream trout (rainbow, brown, and brook trout). Trout are usually stocked as fingerling or catchable-size fish. The primary aim of stocking of catchable stream trout is to supply temporary put-and-take fishing and thereby cause certain trout waters, especially streams, to produce more trout than they would otherwise raise. Since hatchery-reared trout are expensive, they will be planted when and where they can be expected to produce the greatest return to anglers. The following items make up the trout management policy:

- a. Stocking of trout will be restricted to lakes suitable for these cold-water fishes and to designated trout streams.
- b. Trout stocking in streams will be based on plans derived from fisheries surveys and investigations. Stocking of such streams will take into account carrying capacity, the size of the wild trout population and fishing use. Stocking of marginal trout waters to supply put-and-take fishing will be discouraged and when found necessary the stocking quota will be based mostly on fishing pressure, since trout cannot be expected to survive long in such waters.
- c. Trout stocked in streams will generally be of yearling or catchable size, except that surplus fry

or fingerlings may be stocked where local conditions are favorable for their survival and growth or where such stocking better promotes fishing than the stocking of larger fish.

d. Yearling fish will be stocked in the spring and during the trout fishing season to obtain best returns to the angler, except for streams where investigations show that fishing will benefit from stocking of a portion of the total quota in fall.

e. Trout from state hatcheries will be stocked only in waters accessible to the public and where good returns to anglers can be expected.

f. Southeastern streams will be stocked mainly with brown and rainbow trout. In other trout streams brown, rainbow or brook trout will be stocked as natural conditions warrant.

g. Stocking in suitable, and especially reclaimed, small cold-water lakes will be restricted to stream trout or, experimentally, to other cold-water fishes of the trout family, especially splake and Kokanee salmon.

h. Stocking of lake trout will be restricted to larger cold-water lakes where investigation shows some additional lake trout are needed.

i. Stocking of trout below the lower-most falls or barrier in the

North Shore streams will be done, if at all, only on an experimental basis. However, natural spawning will be encouraged here by habitat improvement.

j. Improvement of trout waters will be carried out where economically feasible and where betterment of trout habitat and fishing can be expected.

## 2. *Walleye*

The walleye—locally called “wall-eyed pike”—is a favorite Minnesota sport fish and considerable emphasis is and will be placed on its management. It is recognized that the best means for maintaining walleye populations in typical walleye lakes are: (1) preservation and development of the habitat and natural spawning sites; and (2) maintenance of proper structure of the population which includes the walleye and fishes associated with it. Stocking of walleyes is usually not necessary in typical walleye lakes. However, there are a number of situations in which stocking of walleyes is useful. Lakes to be stocked must be carefully chosen so that introduced walleyes do not injure fishing for other valuable sport fishes. The following items make up the management policy for the walleyes:

a. Development and improvement of natural spawning areas, where feasible.

b. Fry may be stocked in lakes where the fish population has been depleted or reduced because of

winter kill, or in newly created or rehabilitated waters.

- c. Fingerlings or fry may be stocked periodically in larger lakes which have walleye habitat that is unoccupied because of poor natural spawning facilities.
- d. Fingerlings or fry may be stocked in lakes where investigation shows fishing would benefit from alteration of the fish population structure.
- e. Walleyes may be planted under experimental programs recommended by fisheries biologists and concurred in by fisheries managers.
- f. Stocking of walleyes will be guided by recommendations in lake survey reports where recent reports are available. Elsewhere, the stocking will be left to the judgment of the fish manager and be in accord with the present policy.
- g. State-owned rearing ponds for raising of walleyes from fry to fingerling size may be constructed as need for them is shown and will be operated by personnel of the Section of Fisheries. They will be located where good construction sites are available and where they can be operated most economically with due regard for location of waters in need of stocking and transportation problems. State-owned ponds will be built according to best present

information and engineering specifications and will be provided maintenance as is necessary. Contributions toward the construction of state-owned rearing ponds shall not influence the distribution of the fish reared in them.

- h. Operation of cooperative rearing ponds, usually natural ponds operated with aid of sportsmen's or civic groups, will be authorized when the ponds are strategically located, capable of effective, economical and useful operation, and if terms of distribution and use of fish raised is in accordance with Departmental rules and regulations.

### 3. *Northern Pike*

The northern pike is one of our most valuable game fishes, both because of its sport fishing merits and because of its role as a predator in fish populations. The following items form the management policy for this species:

- a. Emphasis will be placed on acquisition, management and improvement of natural spawning areas, including water level control, purchase or lease of spawning areas, and protection of spawning areas from molestation and fishing.
- b. Artificial propagation will be carried on to the extent is found practical and economically sound.
- c. Whenever necessary and economically feasible, northern pike will

be rescued from areas where they are in danger of suffocation or stranding and transferred to suitable waters.

- d. Wherever feasible and necessary the program of rearing and rescuing northern pike from shallow lakes having other major uses, such as wild rice and waterfowl production, will be continued and developed. Rescue operations will be incorporated into the overall management plan for such waters as long as they do not interfere with the primary use for which they are being managed.

#### 4. *Muskellunge*

Only a few Minnesota waters are suited for management of muskellunge because of general abundance of northern pike and the incompatibility of these two species. The management policy for muskellunge is as follows:

- a. Lakes especially suited to muskellunge will be selected as the lake survey program progresses, especially those lakes with few or no northern pike, and muskellunge will be planted in them.
- b. Muskellunge will be propagated for planting in waters suited to this species.
- c. Certain small lakes will be developed as muskellunge lakes with the view of using these as a readily available source of brood stock for propagation.

#### 5. *Largemouth Bass*

This valuable sport fish is common in many smaller weedy lakes, especially in the southern part of the state. Management policy for largemouth bass is as follows:

- a. Natural spawning areas will be protected by posting when necessary.
- b. Stocking will be limited to suitable waters where there is need for artificially reared fish.
- c. Where stocking is found necessary, fingerlings will ordinarily be supplied from state-owned ponds, federal hatcheries, or public waters having excess population of fingerlings. Use of natural ponds for bass rearing will be discouraged and restricted to special circumstances, especially in the vicinity of lakes where it has been demonstrated that bass populations have been depleted or destroyed.

#### 6. *Smallmouth Black Bass*

Smallmouth black bass will be reared in ponds and stocked in suitable streams or lakes where surveys find natural reproduction to be inadequate and where need for artificially reared stock has been demonstrated. Natural spawning areas will be protected by posting where necessary.

Incompatibility of the walleyes and smallmouth bass has been demonstrated in the rocky soft-water lakes of the northeastern part of the state and

stocking of smallmouth proposed in this area will be considered in the light of the possible damage to other fishing.

#### 7. *Panfishes (Crappies and Sunfish)*

Panfishes usually need no aid other than maintenance of natural conditions suited to them. Sometimes they become so abundant that slow-growth and stunting results. The following items form the management policy for panfishes:

- a. No panfish are to be stocked, except in special situations such as public fishing ponds and in other public lakes normally suited to panfish but with unusually low populations or extremely poor natural reproduction.
- b. No state-owned or cooperative rearing ponds will be operated for panfishes.
- c. Natural spawning areas of panfishes will be protected or improved where necessary.
- d. Excessively large populations of stunted panfish may be thinned out by any practical means and the fish transferred to waters of the types specified under Item "a" or destroyed if unsuitable or not needed for planting.

#### 8. *Catfish*

Channel catfish may occasionally be planted in suitable waters where they are lacking or where natural reproduction is inadequate.

#### 9. *Whitefish and Tullibee*

Whitefish may be reared on a small scale for experimental research in some inland lakes where this species may have possibilities as a sport fish. No herring or tullibee will be raised or stocked except for experimental project where results of stocking are evaluated

#### 10. *Bait and Forage Fishes*

Bait and forage fish may be propagated when necessary as food for predaceous fishes being reared in ponds. No non-native bait or forage fish will be introduced except on a trial basis and in situations where they can be eliminated if necessary. Rearing of native bait fishes in private hatcheries will be encouraged.

#### 11. *White Bass*

The white bass is considered to be an inferior game fish in most inland Minnesota lakes. White bass will neither be reared nor transplanted to waters not now inhabited by them.

#### 12. *Grayling*

Grayling will be propagated and stocked to a limited extent in small landlocked reclaimed lakes if it proves to be a successful and satisfactory sport fish.

#### 13. *Salmon*

Both kokanee and silver salmon appear to have possibilities as sport fish in Minnesota waters and will be in-

roduced on an experimental scale in waters where their populations can be controlled, if necessary.

#### 14. *Sturgeon*

Lake sturgeon, in recent years, have been increasingly sought as a sport fish. Natural reproduction of these fish will be encouraged in the waters where they already occur. Investigations will be made on the possibility of using the species as a trophy fish in other waters.

#### 15. *Bullheads*

It is recognized that bullheads are an important sport fish in southern Minnesota even though they are legally classified as rough fish. Sport fishing use of bullheads will be given consideration in planning rough fish removal operations.

#### 16. *Perch*

The yellow perch, while legally a rough fish in Minnesota, provides much

angling in both summer and winter, especially in southern Minnesota and may be stocked in lakes that are subject to winter kill.

#### 17. *Lampreys*

Every effort will be made to keep the sea lamprey, which is now present in Lake Superior, from entering our inland waters. It is recognized that the several species of native lampreys now present do little overall harm to the fish populations, but the sea lamprey could cause great damage.

#### 18. *Smelt*

With the large smelt fishery in Lake Superior there is always danger that this fish will be introduced into inland waters. It is already present in two inland lakes where its effect on other fishes is being evaluated. It will not be purposely introduced unless it is found to have real value in some inland waters.

