

M I 54.16  
C.1 15/1

MAINE STATE LIBRARY

WINTER  
1972-73  
35¢

# MAINE

## FISH AND GAME

MAINE DEPARTMENT OF  
INLAND FISHERIES AND GAME

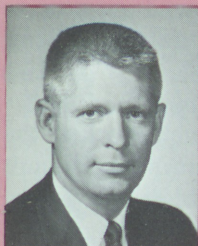
AP 23 '73





IS THIS YOUR DOG? Chet Farrell, a photographer for the *Belfast Republican Journal*, witnessed this scene on the Passagassawaukeg River in January. A large, shepherd-like dog chased a doe out onto the tidal ice, where she broke through but was fortunate enough to regain solid footing. Then the dog began a waiting game, heading the deer off at every attempted exit. A shout from the photographer scared the dog away and probably saved the deer's life.





Governor  
Kenneth M. Curtis

## Department of Inland Fisheries and Game

Maynard F. Marsh	Commissioner
J. William Peppard	Deputy Commissioner
Kenneth H. Anderson	Director, Planning and Co-ordination
Stanley P. Linscott	Supt. of Hatcheries
William J. Shaw	Chief Warden
Lyndon H. Bond	Chief, Fishery Division
Ralph C. Will	Business Manager
Robert W. Boettger	Chief, Game Division
William C. Mincher	Director, Information and Education
John L. Ketner, Jr.	Chief Engineer
Richard B. Parks	Chief, Realty Division
Lorenzo J. Gaudreau	Snowmobile Registration

## Advisory Council

Dr. Alonzo H. Garcelon, <i>Chairman</i> Augusta, Maine	
Glenn H. Manuel Littleton	Asa O. Holmes Belfast
Robert D. Steele Scarborough	Burleigh Richards, Jr. Buxton
Reginald L. Parker Bath	

Maine Fish and Game is published quarterly by the Maine Dept. of Inland Fisheries and Game, State Office Bldg., Augusta, Maine 04330, under appropriation 4223. No advertising accepted.

William C. Mincher, Editor  
W. Thomas Shoener, Managing Editor  
William W. Cross, Photo Editor  
Thomas L. Carbone, Photographer

© Maine Dept. of Inland Fisheries and Game, 1973. Written permission must be secured from the Department before reproducing any part of this copyrighted material.

Subscription rates: \$2.50 for two years, \$3.50 for three years. No stamps, please. Second class postage paid at Augusta, Maine 04330.

## CREDITS

All photographs in this issue were made by the Information and Education Division unless otherwise indicated.

Maine Fish & Game — Winter 1972-1973

# MAINE

## FISH AND GAME



## STATE OF MAINE

Winter, 1972-73

Vol. XV, No. 1

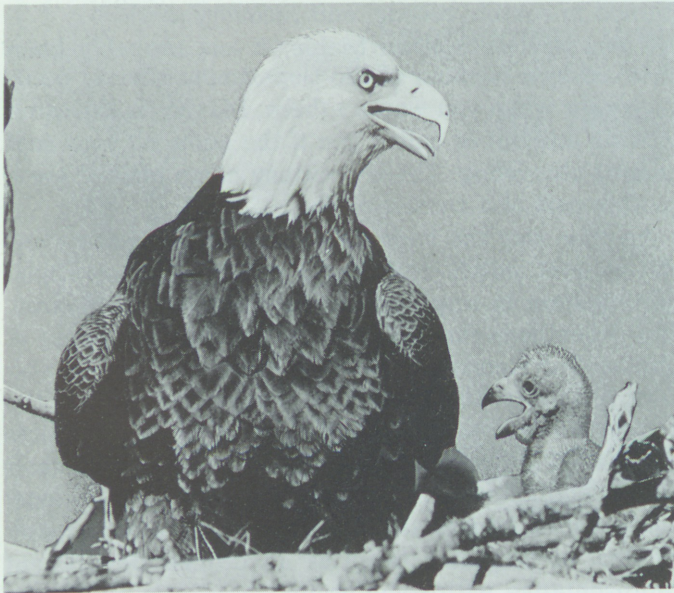
In Case You Didn't Know...	2
J. William Peppard	
The Bald Eagle in Maine	4
Linda Wright	
Discover Whitefish	6
Tom Shoener	
Wildlife Management Areas: Steve Powell	9
Frederick B. Hurley, Jr.	
To Catch a Poacher	12
Paul J. Fournier	
Before You Dam a Stream...	14
Roger A. Marin	
Ice Fishing Versus Open Water Fishing	16
Stuart E. DeRoche	
The Yellow Grub	19
Roger A. Marin	
Managing Your Land for Upland Furbearers	20
Lee E. Perry	
A New Idea in Trout Pond Management	23
Paul R. Johnson	
Letters, Notes, Comment	24
Return of the Woody	26
Paul J. Fournier	



# THE BALD EAGLE IN MAINE

By Linda Wright  
Maine Audubon Society

Photo by Frederick Kent Truslow



## A STRUGGLE FOR SURVIVAL

**B**ENJAMIN Franklin, who wanted the wild turkey to be our national symbol, probably wouldn't agree that the bald eagle could effectively fill such a role. However, through our history this majestic bird has represented strength and dignity, and now it is serving as a warning of our own possible self-destruction.

Maine is the bald eagle's last frontier in the northeast, and even here it is struggling against insurmountable odds. In 1972, the U.S. Fish and Wildlife Service and the Maine Audubon Society began taking a closer look at Maine's eagle population. Our purposes are: (1) to find and record eagle nest locations, (2) to learn more about the areas in which they are found, and (3) to determine the status of the eagle population.

The first step, before we actually began observing eagles in the field, was to find out all the possible nest locations. Much of our information came from the National Audubon Society which has surveyed the eagle nests annually for the past 10 years. We also checked information recorded in the Natural Areas Inventory, a study done under the auspices of the Natural Resources Council. People from all over Maine, responding to articles in their local newspapers, provided us with more information on possible eagle nest locations. With this data, we were ready to travel throughout the state, running down all leads in search of eagle nests. Incidentally, we are still not sure that all eagle nests in Maine have been charted. If you know of any, please notify the U.S. Fish and Wildlife Service office, Federal Building, Augusta, Maine 04330.

The use of aircraft has proven to be the most effective method of surveying eagles because the nests are located high in trees and often cannot be seen or reached

from the ground. Bill Snow, regional pilot and warden for the Bureau of Sport Fisheries and Wildlife, was instrumental in conducting this survey. His Beaver airplane, outfitted with pontoons, served us well. We chose the middle of April to begin the survey because at this time the leaves have not yet come out on the trees, thus making it easier to observe the nests. At this time, also, most of the female eagles have laid their eggs and are just beginning to brood. There were nearly 100 reported locations to check throughout the state; by the time we completed our spring series of flights, we had verified 65 of them.

The second part of the survey was done in late June. By this time, the eggs have hatched and the young eagles are sitting on the nest, easily seen from the airplane. Although we observed only eight young eagles, we were overjoyed to find at least that many, for we knew the number would be low. Having analyzed the results of both series of flights, we estimate that there are about 50 eagles in Maine. Although this number is up a bit from records of the past 10 years because of a more extensive study, it still cannot compare to the estimated 200 at the turn of the century or the estimated 100 in 1950.

In our survey, we found that although most of the eagles nest along the coast, the ones living inland have a much higher reproductive rate. The 18 eagles living north of Bangor produced five young, compared to the 30 eagles living in coastal areas, which produced only two. The remaining eagle was born in Androscoggin County and disappeared from the nest before it was able to fly. We suspect that it was a victim of predation.

**I**N ORDER to find ways to protect eagles, we need to have an understanding of their life history. A pair of eagles mate for life, but if one dies, the survivor may take on a new mate. Eagles tend to use the same nests year after year. In some cases, they have more than one nest in an area, repairing and adding to them each spring. The nest is made of branches of limbs, lined with twigs, grass, and pine needles. Nests sometimes measure up to 10 feet in diameter and are found in the tops of tall trees, commonly white pine in Maine. The bald eagle always chooses a nest location near a body of water. Under prime conditions, eagles lay two to three eggs per clutch, but in Maine, one egg is most often the case. Incubation takes about 35 days, and it will be at least 10 weeks before the fledgling leaves the nest. The immature eagles are basically black, and three to four years will pass before they obtain the white head and tail of the adult plumage.

The eagle is essentially a scavenger, and its primary food is fish, picked up along the shore or stolen from



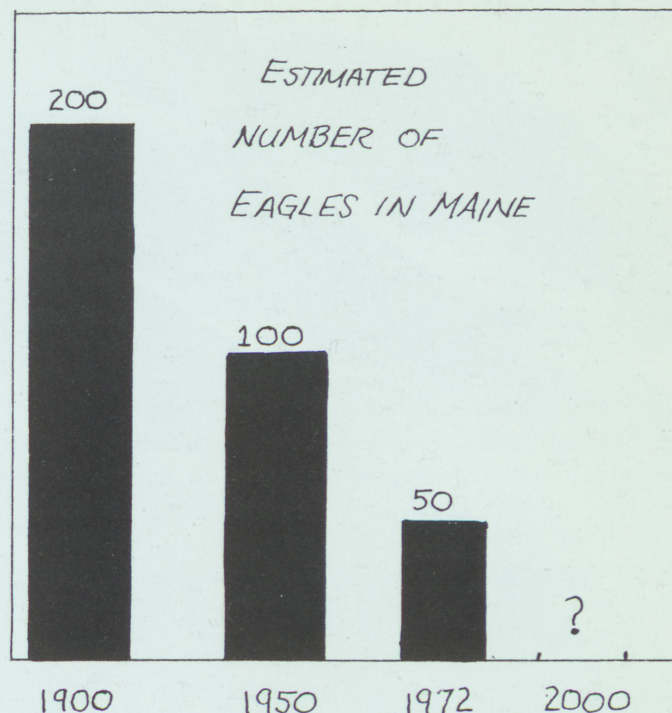
an unwary osprey. Other parts of the eagle's diet are small rodents, reptiles and amphibians, and larger animals that are either weak, diseased, or already dead. Eagles do not kill healthy deer or livestock as was once supposed. We now know that an eagle can carry only small animals.

Some factors are especially significant in the death of eagles. Of course, there are many causes of eagle deaths, such as impact injuries (cars), electrocution, diseases, and pesticide intoxication. However, one cause is a distinct standout. A study done in 1965 revealed that 62 per cent of eagle deaths are due to gunshot wounds.

Eagle shooting started very early in the American history. Eagle bones have been found in Indian shell heaps. In 1806, the townsmen of Vinalhaven placed a 20-cent bounty on eagles, as the bird was considered a menace and evil predator. But by 1940, eagle numbers had decreased to such an extent that a federal law was passed to protect them. This law carried a maximum sentence of \$500 and/or a six-month jail sentence. Congress recently passed a law which increases the penalty for killing or molesting bald or golden eagles. The fine for a first offense of knowingly or with wanton disregard causing the death of an eagle may now be up to \$5,000 and/or a year in jail. And these penalties may be doubled for a second offense.

Although eagles are shot every year, to the best of our knowledge no one in Maine has ever been prosecuted for killing one. Many times, the shooting of an eagle is a case of mistaken identity but not always. Gun owners are urged to learn how to identify eagles.

Besides the direct causes of death, there are two indirect influences which reduce the eagle population: coastal development and pollution of our waterways. The development of the Maine coast has had a crowd-



ing effect on the eagle. To a certain extent, the eagle is able to adapt to the presence of humans, but large amounts of stress during the breeding season tend to lower the reproductive rate. A perfect example of this occurred in spring 1972 when a pair of eagles on a Washington County island were harassed and shot at by young boys. The eagles stopped brooding and abandoned the nest.

Problems also arise when a change is made in the habitat around the nest. In an attempt to protect this habitat, the U.S. Fish and Wildlife Service has drawn up an agreement for landowners with eagle nests located on their property. This agreement provides for a protection area around the eagles' nest, limiting excessive human disturbance, including building or use of roads, lumbering, development, etc.

Along with the development of the Maine coast has come pollution of our waterways. These waterways are channels for toxic chemicals; fish populations have decreased, accelerated eutrophication has spoiled lake habitats, and the list goes on. Fortunately for the eagle, the rivers and lakes are being cleaned up, DDT and other toxic chemicals are being banned, fish are being restocked into once polluted waterways, and controls are being put on development, but much more needs to be done for the eagle.

Precious wilderness areas necessary for the eagle's existence must be protected and preserved. The laws protecting eagles need to be strengthened and enforced. Most of all, people must begin to realize that if we don't do something soon, there won't be any bald eagles soaring across Maine's skies. They will be seen just as metal ornaments over garage doors or as figures engraved on the President's seal. ■

Youngsters attending a hunter training course in Skowhegan learned eagle identification and why illegal shooting must be stopped. Instructing were Wildlife Biologist Peter Davis, center, and Warden Supervisor Vern Moulton. Immature eagle is on right, mature on left.







**H**AVE YOU heard of the “almost game fish?” Well, that’s a pretty good term if you want to describe the present status of whitefish in Maine.

Whitefish became game in the eyes of the law two years ago when the Legislature put into effect the first daily limit on them, eight fish. Before that, they could be taken in unlimited numbers.

But having legal status as a game species is not quite the same as being a game species in the estimation of great numbers of fishermen. It is safe to say that a fair number of anglers wouldn’t know a whitefish if they caught one. Some probably haven’t even heard of the fish before. Others get mad when whitefish “bother” a carefully presented trout fly or steal bait from hooks intended for togue.

Also, a traditional game fish like a salmon or a bass is something that you get so excited about that you can’t sleep the night before the season opens. Lost any sleep over whitefish lately? And when was the last time you saw a nicely mounted whitefish on the wall of a fisherman’s den?

So, the whitefish really hasn’t arrived yet as a game fish in the sense that it captures the affection and attention of large numbers of anglers. But that seems to be slowly changing, as more and more fishermen come to recognize its fine sporting and eating qualities and the fact that whitefish are quite abundant in a number of Maine lakes.

The whitefish is a cousin of trout and salmon and like them is a cold-water fish. A large, deep lake where

By Tom Shoener

there is plenty of cold water during the summer months is what a whitefish really likes. It is distinguished from trout and salmon by its much larger scales and small, toothless mouth. In Maine, we have two species: the lake whitefish and the round whitefish. As you might expect, the round version has a more cylindrical body shape, but the lake model is more common and grows larger than the round. Fish from 1 to 3 pounds are the most common in the fisherman’s catch, but they do run larger. The state record is a 7 pound, 8 ounce, lunker that cruised the waters of Sebago Lake until he made his last mistake in 1958.

The whitefish diet consists mainly of small crustaceans and insects. Larger whitefish — ones from about 14 inches and up — are sometimes found to have smelts or other small fish in their stomachs, usually in the fall and early spring.

As a table fish, whitefish is hard to beat. Its flavor is very delicate. The flesh is white and flaky, and there is practically no way that you can fix it that it isn’t good eating. Pan-sized fillets of whitefish are good fried. Larger fish can be baked, or you can broil them on a charcoal grill, basting every few minutes with butter. They are also a wonderful fish to smoke, and they keep well when frozen.

In some northern states and Canadian provinces, whitefish have been highly valued for years as a food



fish. They even supported a commercial fishery in the Great Lakes. In neighboring New Hampshire, where they are known as "shad," they have long been recognized as a fine sport and food fish. Meanwhile in Maine, some unknowing anglers were tossing them aside as unfit for consumption, undoubtedly without ever having tried them.

Few people are more aware of the presence of whitefish in Maine lakes than Department fishery biologists. In the course of their lake survey work, they have found whitefish in numbers worth fishing for in about 70 lakes. In some of these waters, the species is very abundant. For instance, at Sebago Lake, Fishery Biologist Stuart DeRoche has found that over the last 8 years 70 per cent of the lake's deep-living fish (not counting smelts) have been whitefish.

Piscataquis County would have to be regarded as the whitefish capitol of Maine as it contains more whitefish lakes than the rest of the counties combined. Some of the better known Piscataquis lakes having them in good numbers are: Moosehead, Chesuncook, Chamberlain, Churchill, Eagle, Lobster, Harrington, Ross, Telos, Schoodic, and the Roach ponds. On the Piscataquis-Penobscot line are Millinocket, Matagamon, the Pemadumcook chain, and the Jo-Mary lakes. Downeast in Washington County, anglers can find whitefish in Pleasant Lake (near Topsfield) and West Grand. They are also in Clearwater Lake in Franklin County and South Pond (Greenwood) in Oxford County. Both Aroostook and Somerset counties have a scattering of whitefish lakes. And as we previously mentioned, southern Maine anglers have Sebago Lake with its large whitefish population (and probably more serious whitefish anglers than any other Maine lake). A complete list of known waters with fishable populations of whitefish is found in "Maine Lakes" which is available at no charge from the Fish and Game Department in Augusta.

**A**LTHOUGH MOST of the growing interest in whitefish seems to be on the part of wintertime fishermen, open-water anglers do share in the fun. Back in 1905, noted fishery researcher Dr. W. C. Kendall had this to say about a whitefish he took on a rod: "For a fish its size it did out run, out twist, out roll, out leap and out maneuver in every way, any fish I have ever connected with."

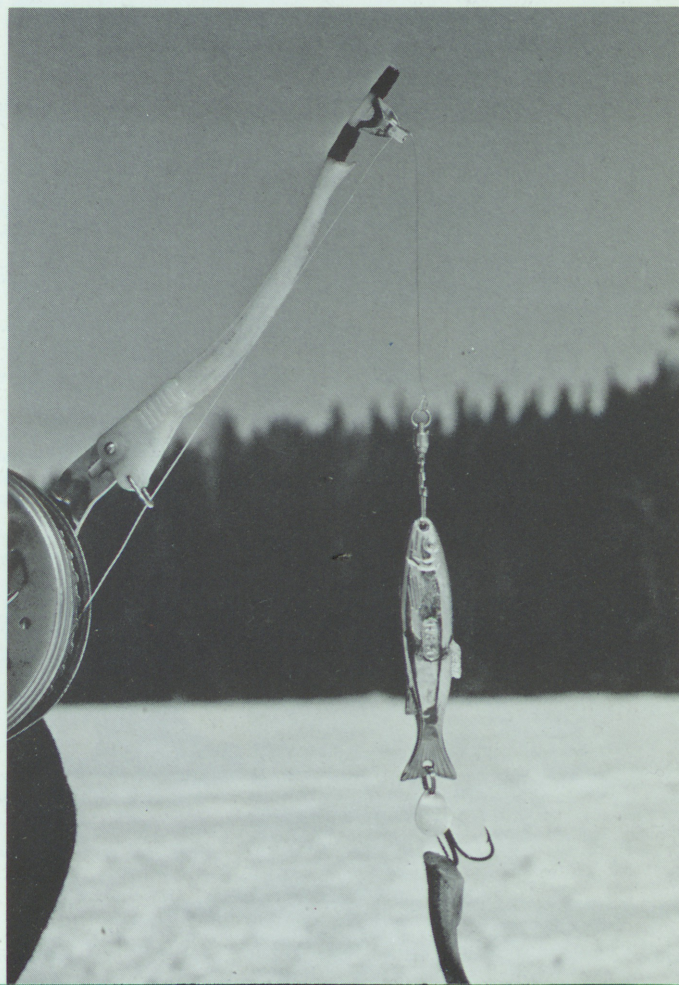
You can take whitefish on or near the surface for a few weeks after ice-out using wet or dry flies, streamers, or small spinners. As the water warms, they seek the cool depths, and you'll have to change tactics accordingly. You'll have to do some experimenting in a lake until you find the proper depths and bottom types where the fish are feeding. Thirty-five feet is a good average depth to start from. The "magic" depth at Sebago seems to be between 45 and 60 feet. Many old-timers, though, prefer the deep holes of 100 feet or more.

**Maine Fish & Game — Winter 1972-1973**

One effective method of catching whitefish in the summer is by handlining out of a boat. Attach a short-shanked #8 or #10 trout hook about 18 inches below a large sinker on a line that doesn't have too much stretch. Bait with small bits of sucker or other cut fish; small earthworms, meal worms, grubs, maggots, and small hellgrammites work, too. Fish with the bait on or just off the bottom and the line resting across one of your fingers so that the slightest tap will be felt. Jig the bait lightly. Allow the fish to tap at least twice before bringing the line up. Unless he has swallowed the bait, you're going to have quite a time getting the tender-mouthed whitefish up to your waiting net without losing him. Another difficult thing about this method of catching whitefish is being able to detect his extremely delicate nibble.

One other good way to take whitefish is by jigging with small artificial lures such as a Leadfish, Swedish Pimple, or some similar jigging lure. A short homemade or store-bought jigging rod is usually employed, mainly as a convenient way to handle your line. A smelt tail or other small piece of cut bait can be added to the hook. The hook on a jigged lure should be larger than the one used with bait as you aren't likely to get a second tap once the fish hits the metal; he won't swallow the jig, so the hook needs to be large enough to get into something solid rather than the side of his mouth.

Leadfish jigging lure with cut smelt tail.

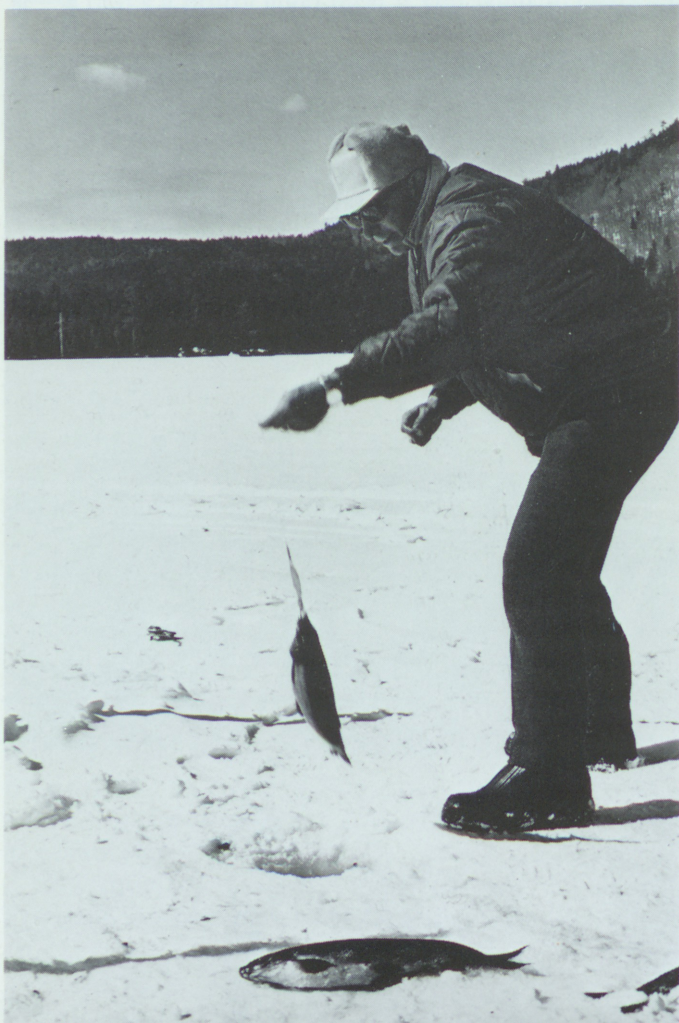




Ice fishing techniques are basically the same as described for handlining and jigging whitefish in open water. Dick Clow, who lives handy to Sebago Lake and probably knows as much about catching whitefish there as anybody, uses a 20-pound test monofilament line and a #11 Kinsey hook (a large hook). Several inches above the hook is a 2-ounce sinker of special design. The bait, which is usually the head or tail of a small smelt or shiner, is suspended a couple of inches off the bottom. Topside in his warm bobhouse, Clow has a loop in the line hung on — of all things — a corset stay. When the nibble comes, the end of the stay moves downward ever-so-slightly.

This method of catching whitefish through the ice, although very effective, requires the full-time attention of the angler. As Clow says: "Blink your eyes, and you've missed your fish. When that corset stay nods, you've got to be there and see it, not be off socializing or chasing around on your snowmobile." The best bet for the novice who is interested in this method is to spend some time watching someone else do it. Most whitefish fishermen, unlike secretive trout fishermen, will go out of their way to help you get started with the right techniques and in a good spot. If you can't find an old fashion corset to tear apart for its stays, don't fret — you can get by very nicely with a flag

Whitefish are abundant in a number of deep, cold Maine lakes.



spring pilfered from an unused underwater ice-fishing trap.

There is a very effective variation of Clow's method that doesn't require the angler's undivided attention. For this, use a small trout hook, a 1-ounce sinker, and about 16 inches of 10-pound test leader. The corset stay is employed, and the sinker is suspended about 8 inches from the bottom, with the cut bait or small live bait on the bottom. The whitefish will swallow the bait and hook himself.

You can take whitefish on standard underwater ice-fishing traps provided you remember that they have a very gentle bite and a small mouth. Bait up with a live smelt on a #6 hook. Your traps should be rigged with braided nylon line, two or three yards of 10-pound test monofilament leader, and a split-shot or two half-way up the leader. Sound the bottom, then peel out another 4 or 5 feet of line. Set the traps very lightly to spring with the slightest touch. When the flag flips up, your whitefish is usually hooked. Sometimes, though, more time is required for the bait to be swallowed, so don't be too anxious to haul in.

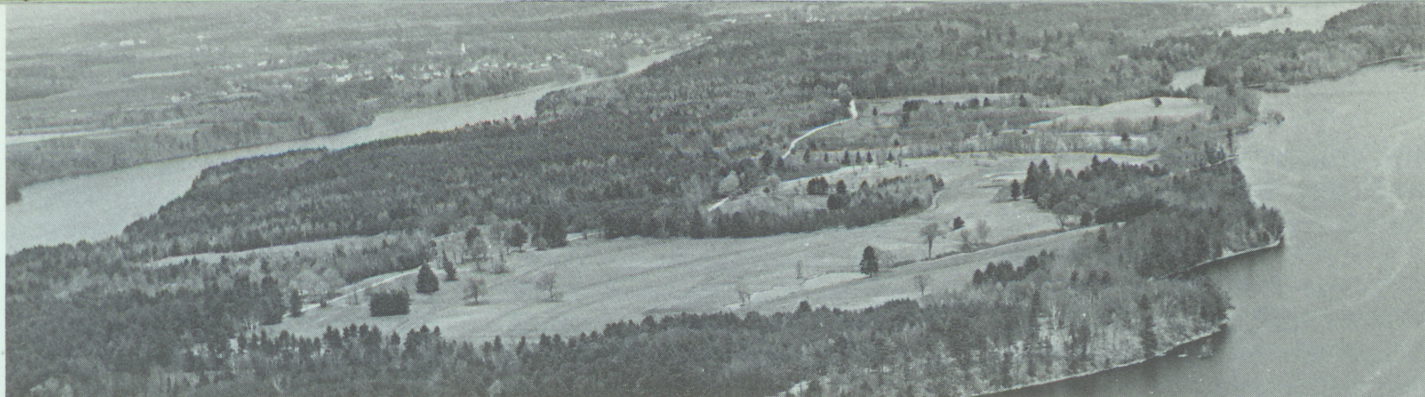
Jigging methods for taking whitefish through the ice are the same as for open-water fishing. Use either cut-fish bait, an artificial jigging lure, or a combination of the two.

These are the basics of fishing for whitefish, the "almost game fish." We must re-emphasize the point that they are often not an easy fish to catch, and the time you spend with an experienced whitefish angler is time well spent. You may also have to do some experimenting and refining to come up with your own "best way." There is still a lot to be learned about where to go and how to catch whitefish in Maine, and your contribution can help promote the sport.

The limit of eight whitefish doesn't count against your daily limit of trout, salmon, or bass; and there is no length or weight limit. The open-water season follows the general law on most lakes, but the ice-fishing season varies: some whitefish lakes are closed to winter fishing; most others are open during February and March, but there are a few that open earlier. Check your law booklet closely. Also, be careful with any trout, togue, or salmon you may catch accidentally; return the short ones immediately, and be sure it's legal to do so before you keep any legal-sized ones.

**I**F YOUR IDEA of a heck of a good fishing trip is to pile up a whole lot of fish for your friends to see, then maybe you'd better stick with perch. But if you like a challenge and can stand a fishless hour or maybe an occasional fishless day, you'll like whitefish. If you like to try something new, and you appreciate the finest in good eating, you'll like whitefish. And if you think it is a worthwhile idea to put to good use an abundant-but-lightly exploited natural resource, then Maine's "almost game fish" is for you. ■





## PERSONAL ORDER

Please check one box so we won't send duplicate issues in case of renewal or extension.

Please send MAINE FISH & GAME Magazine to the address below:

- ☐ New ☐ Renew expired subscription  
☐ Extend present active subscription

If you are now a subscriber or your subscription recently expired, PLEASE ATTACH A MAILING LABEL or copy it at right, including all letter & number coding.

Name _____		
Address _____		
City or Town _____	State _____	Zip Code _____

PLEASE PRINT, and don't forget Zip Code. Make check or money order payable to "Treasurer, State of Maine," and enclose with order.

- ☐ 2 years ( 8 issues) \$2.50  
☐ 3 years (12 issues) 3.50

Send to:  
 Circulation Section  
 Maine Fish & Game Magazine  
 Room 600, State Office Bldg.  
 Augusta, Me. 04330

## GIFT SUBSCRIPTION

- ☐ New ☐ Renewal

Please check, if you're sure.

Please send MAINE FISH & GAME Magazine to my friends listed. I enclose \$2.50 for each two-year subscription, \$3.50 for each three-year subscription. (Check or money order should be made payable to "Treasurer, State of Maine," and sent with subscription form to address below.)

- ☐ Place my name \_\_\_\_\_ on gift card(s) and mail to recipient(s).

- ☐ Send gift card to me to mail. My name \_\_\_\_\_

My address \_\_\_\_\_

#1 ☐ 2 Years ☐ 3 Years


#2 ☐ 2 Years ☐ 3 Years


PLEASE PRINT . . . and don't forget Zip Code. Use additional sheets if necessary. Please put your name and address on reverse side.

Send to:  
 Circulation Section  
 Maine Fish & Game Magazine  
 Room 600, State Office Bldg.  
 Augusta, Me. 04330

one-fourth to three-fourths of a mile wide. It contains a mixture of forested land, agricultural land, and inland fresh wetlands. Most of the land suitable to agriculture is located on the eastern side of the island, while western portions are considerably steeper and contain the bulk of the forested land. Included in the area are approximately 520 acres of fertile mud

stone fortress on Little Swan served as headquarters for these rulers.

The name Swan Island has been used ever since the early expeditions to the area, except for a

Wild rice is an abundant waterfowl food of the Swan Island and Merrymeeting Bay area.

B. Hurley, Jr.  
 Biologist

view of the northern and shows agricultural dotted western portion.

en it was called origin is probably word "swango" es, and to this day ll frequents these ory of Dresden in- n Island has been nnection with the of 1607, and with e Bashaba visited ony, and Captain







By Frederick B. Hurley, Jr.  
Regional Wildlife Biologist

## Wildlife Management Areas:

# STEVE POWELL

**T**HE STEVE POWELL Wildlife Management Area, formerly the Swan Island Game Management Area, was dedicated on October 15, 1971, in memory of the late Stephen E. Powell who served as the resident game biologist on the area for several years and later as the assistant Game Division chief. The area, which is in the Kennebec River between Richmond and Dresden, includes Swan Island, Little Swan Island, and several hundred acres of tidal flats. In total, it is approximately 1,755 acres, and it contains a unique mixture of upland and wetland cover types which provide habitat for nesting and migrating waterfowl.

Upland portions total approximately 1,235 acres, and the majority of this is on Swan Island. This rectangular-shaped island is approximately four miles long and from one-fourth to three-fourths of a mile wide. It contains a mixture of forested land, agricultural land, and inland fresh wetlands. Most of the land suitable to agriculture is located on the eastern side of the island, while western portions are considerably steeper and contain the bulk of the forested land. Included in the area are approximately 520 acres of fertile mud

flats which annually produce dense stands of wild rice, softstem bulrush, and other aquatic plants. These mud flats occur around the periphery of the islands and along the "middle ground" between the Eastern and Kennebec rivers and are a part of the long-famed tidal fresh wetlands of Merrymeeting Bay.

Swan Island and Little Swan Island have a very colorful history, much of which is recorded. The Indians were the first to be attracted to the shores of the "Bay" area. Several tribes often rendezvoused here, and the English named it Merrymeeting Bay because of the revelry which took place on these occasions. Swan and Little Swan Islands were the center of many Indian activities, and upon these islands lived a long line of Indian kings who ruled the tribes in the outlying territories. A circular stone fortress on Little Swan served as headquarters for these rulers.

The name Swan Island has been used ever since the early expeditions to the area, except for a

Aerial view of the northern half of Swan Island shows agricultural eastern side and wooded western portion.

short period when it was called Garden Island. Its origin is probably from the Indian word "swango" which means eagles, and to this day the bald eagle still frequents these islands. The *History of Dresden* indicates that "Swan Island has been mentioned in connection with the Popham's Colony of 1607, and with other events. The Bashaba visited the Popham Colony, and Captain



Wild rice is an abundant waterfowl food of the Swan Island and Merrymeeting Bay area.



John Smith is said to have visited him in 1614, and to have called him Kennebacca."

Several early claims were made to the title of the area. It has been recorded that it was sold by the Indians to Christopher Lawson in 1665 and then sold by the Indians to a Humphrey Davie in 1667. Even though the islands had already been settled, the Plymouth Company claimed the area as part of their grant upon which they established the Frankfort Plantation. They granted Captain James Whidden title to a 325-acre tract of land in the southern part of Swan Island where he had been living. In 1758, the remainder of the island and Little Swan Island were granted to Dr. Silvester Gardiner.

The daughter of Captain James Whidden, along with her husband,

children, and two servants, were kidnapped on the island by a band of Indians in 1750 and taken to Canada, in revenge for the murder of an Indian in Wiscasset. Settlement of Swan Island continued, and contact with the Indians lasted until the 1700's. Of particular note in the history of this area is the stay of Benedict Arnold and Aaron Burr while they were enroute to Quebec. The Indian Princess Jacataqua is said to have fallen in love with Burr and proceeded with him to Quebec.

The islands were a part of Pownallborough and Dresden until they became Perkins Township in 1847. During the 1800's, a small community with a school, church, and various private enterprises existed on Swan Island. Ice-harvesting, farming, ship building, and fishing efforts supported a prosperous local economy. Habitation of the island decreased in the early 1900's

for a combination of reasons. These included a decreasing demand for natural ice, reduced shipping in the Kennebec River, and unfavorable conditions relating to fishing and agriculture. The purchase of the area by the State of Maine, with Federal Aid to Fish and Wildlife Restoration Funds, was begun in the early 1940's.

THE DEPARTMENT of Inland Fisheries and Game first used the area as a game research experimentation station. A resident biologist, game warden, and laborer were assigned to this project; and studies concerning big game, waterfowl trapping techniques, waterfowl banding, and wildlife food plantings were undertaken. Development efforts during this period included the general maintenance of facilities, construction of big game enclosures, construction of seven small upland marshes, and the planting of approximately 100 acres of various crops. Canada geese used the crop land during their spring migration, and various waterfowl frequented the small marshes for nesting and sanctuary. White-tailed deer also freely roamed the island, and the population level was controlled by trapping and transplantation. Animal repellent studies conducted during this period resulted in the development of a deer repellent by the Goodrich Chemical Corporation, who sold it commercially under the trade name Goodrich Zip.

In 1952, game research was relocated to facilities at the University of Maine at Orono, and the research programs at Swan Island were phased out. The staff was reduced to an area custodian and one assistant, and management efforts have since concentrated on the development and maintenance

Pastures for migrating geese are maintained by fertilizing, liming, and mowing.



This field of winter rye will provide early green forage for geese in spring 1973. More rye plantings are planned for the future.





Parker Blen, left, and Jim Dorso of the Game Division check experimental corn planting. Blen is the resident custodian on Swan Island.

of forage crops for the thousands of Canada geese that concentrate in the "Bay" area each spring.

Past experience indicated that the conventional planting of crops for use by migratory birds on Swan Island was both expensive and time consuming, and thus, the number of acres of field that could be maintained was greatly limited by available manpower. It was felt that a majority of the fields could be maintained and still produce an acceptable forage through a program directed towards the establishment of grass-legume pastures. We have been undertaking this form of management for several years, and more than 200 acres of improved pasture have been developed. The pastures are fertilized and limed on a regular basis and maintained in a golf-course appearance by mowing several times each year.

Observations over the last three springs indicate that the Canada geese arrive in the "Bay" area approximately two to three weeks before the pastures start to "green

up," and the use of the area is delayed until green forage is available. In an effort to provide an early source of forage, we plan to plant small patches of winter rye annually in select locations traditionally preferred by grazing geese. One such strip of about 10 acres has been planted for spring 1973. In addition, 10 acres were planted to corn last season by use of the new sod planting technique. This method is relatively inexpensive and may prove to be an important part of future management efforts on the Island.

**T**HE ISLANDS and Maxwell's Cove, a tide flat midway down the eastern side of Swan Island, are closed to hunting and serve as places of sanctuary for ducks and geese stopping over at Merrymeeting Bay during their fall migration. The remainder of the tidal flats are open to hunting and provide the public with some excellent places to hunt waterfowl. The small marshes on Swan Island support a sizeable nesting population of wood ducks. Twenty-four nesting boxes are presently maintained on these areas, and up to 200 wood ducks are annually hatched from these structures. Young Canada geese have also been liberated in an effort to establish a local breeding population. The control of hunting on a greater portion of the tidal flats is a potential management tool that deserves further consideration. This could possibly improve the waterfowl "holding capacity" of the upper portion of the bay. Additional places of sanctuary would thus be provided and shooting might be sustained for a longer period of time in the area.

The potential for an intensive program to encourage use of Merry-

meeting Bay by Canada geese during the fall migration has been investigated by Kenneth Anderson and Steve Powell. A review of their findings indicates that the development requirements and the physical characteristics of the Island are not suited to such an undertaking. Swan Island is considered marginal for intensive goose management because of its relatively small size. Goose management authorities consider 1,000 acres to be the minimum amount of agricultural land needed for a successful goose management program. In addition, the cost of clearing extensive areas on the island, preparing the land, and annual maintenance is very high. Presently, we are attempting to encourage fall and spring utilization with development efforts that are within the scope of available manpower and budget limitations.

Swan Island does not lend itself to management for upland species because of its physical nature and use as a migratory bird sanctuary. Hunting restrictions prohibit the appropriate use of wildlife on the Island, and an upland game improvement project would only encourage a larger population of deer that cannot be efficiently controlled. Such a situation would be in conflict with efforts to develop forage for migratory birds. In addition, the abundance of suitable habitat on the mainland greatly reduces the need for a development project such as this.

**A**LARGE NUMBER of people, both young and old, visit Swan Island each summer. The Department operates camping and day-use facilities, and personnel working on the area frequently conduct tours of the island. Arrangements for such a visit must be made through the Game Division office in Augusta. While on the island, visitors enjoy a most esthetically pleasing setting and observe many forms of wildlife in a relatively secluded situation.





Warden Ford holds the "bell."

Photos and story  
by Paul J. Fournier

## TO CATCH A POACHER, RING HIS BELL!

**A** YOUNG Maine game warden literally "rang the bell" on two nonresident hunters in the predawn darkness during last fall's hunting season, and caught them in their own deer trap.

The pair — a father and his teen-aged son from Rhode Island — were convicted in Belfast District Court on several charges of night hunting and snaring. They pleaded guilty and paid fines totaling \$900.

Warden John Ford, 25, of Burnham learned of the illegal deer trap from three young hunters from the Troy-Unity area who discovered it while hunting in a remote wooded area of Troy. The hunters led Ford through the woods to the trap, which was located some 90 yards in thick woods from the Rhode Islanders' hidden hunting cabin.

Upon examining the trap, Ford discovered that it had been rigged with a "warning system" to apprise the trappers if a catch was made during the night. A monofilament fishing line had been strung from the trap's trigger through eye hooks in trees leading up to the kitchen window of the camp. A tin can filled with stones was tied to the end of the fish line so that it would drop into the sink when the trap was tripped.

The trap itself was apparently designed after viewing many Tarzan jungle-type movies, according to Ford. It consisted of a heavy rope net spread on the ground, concealed with leaves, and baited with grain. An elaborate system of ropes and pulleys led from the net to a heavy boulder resting on a hinged platform high up on a tree.

"The theory was that the deer feeding on the grain would trip the platform, allowing the rock to fall and pull the net up to snare the deer," Ford explains. "Meanwhile, the tin can would be released to fall into the kitchen sink, alerting the hunters of their catch."

Ford, an enterprising young warden who only in recent weeks

Grain was used to lure deer to snare.



had taken a new bride, spent a cold, stormy night watching the trap, while the poachers slept in their snug cabin.

At 4 a.m., Warden Ford brought the camp to life by tripping the alarm.

"The system worked perfectly," he reported. Ford helped the deception of the poachers by crackling the brush and making the bleating sounds of a young deer in distress.

The hunters — one still wearing only pajamas — came running

out with flashlights and a loaded rifle. Instead of a snared deer, they found Warden Ford awaiting with a court summons.

There were a few tense moments for Ford as he confronted the armed, startled, and angry would-be deer trappers, but they soon surrendered their weapon and were placed under arrest.

In Belfast court the following morning, the elder hunter was fined \$200 for night hunting and \$500 for illegal snaring. The son was fined \$200 for the snaring

incident, but another fine of \$200 for night hunting was suspended.

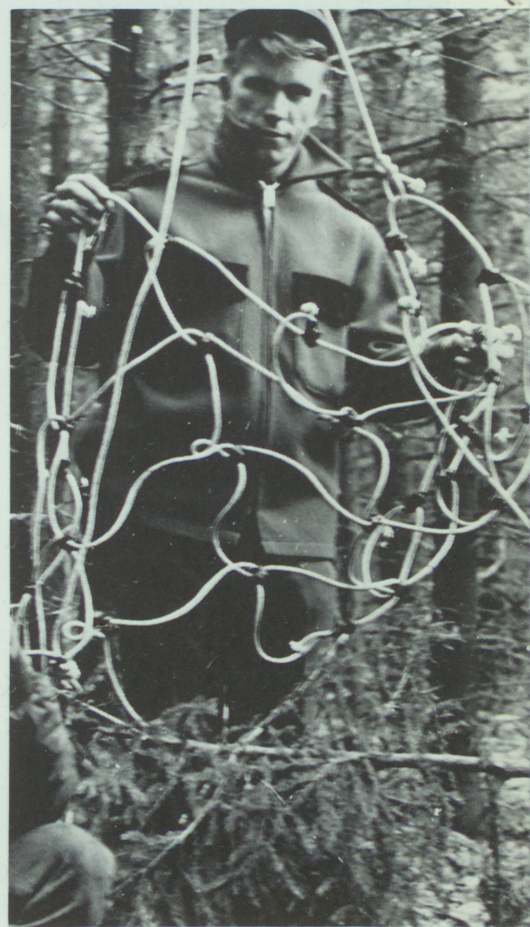
The incident was not without its lighter overtones. The Rhode Islanders developed a liking for their warden apprehender. After paying their fines, they invited Ford out for coffee, and even managed a few jokes at their predawn surprise.

Warden Ford then returned to his risky job of protecting Maine's deer herd from meat- and trophy-hungry poachers.

The Rhode Islanders returned home, poorer but wiser. Their abortive attempt at illegal hunting had been costly. Not only did their check book receive a staggering blow, but they also lost the privilege of hunting in Maine for one year. They can come here next summer to fish...but one of them is going to have to replace the 90 yards of monofilament line that helped ring the bell on them last fall! ■



The triggering device featured a heavy rock in a tree.



Ford and the "business end" of illegal snare.





## ***Before You Dam a Stream . . .***

**F**OR SOME REASON, people — like beavers — have a “thing” about building dams on free-running brooks and streams. The beaver does it for the honorable purpose of creating a home for his family. A landowner with a brook on his property may decide to dam it to create a trout pond, or for ducks, fire prevention, swimming, or maybe just for looks. Like a beaver, a landowner can make a good impoundment in a good location, or he can make one that causes a lot of trouble.

Most people do not realize the ecological impact of a pond built on a stream, nor do they realize the many financial, legal, and public relations aspects in building

such a pond. These are things that the beaver doesn't worry about but which you, if you are a prospective pond builder, must consider *before* the job is undertaken.

The construction of a dam on a stream can seriously alter the natural physical and chemical characteristics within, above, and below an impounded area. When water flows are restricted at the dam and upstream levels rise, temperatures also rise, and dissolved oxygen in the water in these areas may be lessened. These changes can affect fish, insect, and plant life. In streams where trout or young salmon normally exist, an increase in water temperature and a decrease in dis-

solved oxygen make the water itself unsuitable for these fish. The runoff water from an impoundment may warm the stream for some distance below the pond, thus affecting aquatic life even outside the impoundment.

Spawning migrations of brook trout, brown trout, landlocked salmon, bass, alewives, suckers, and smelts are hindered if a dam is constructed across the normal path of migration. Spawning areas for trout and salmon consist of shallow, gravelly riffles with cool, well-oxygenated water percolating through the gravel. A dam in an area like this may soon ruin it by causing higher water levels, lower dissolved oxygen, and higher water temperatures. In addition to the loss of spawning area, the everyday habitat of cold-water fish may also be destroyed.

Another problem that arises from constructing ponds on streams is that the flooded area becomes more attractive for warm-water fish such as hornpout, suckers, chub, and other undesirable species. These fish may do so well that they soon overrun the pond along with the stream areas above and below. The cold-water fish cannot compete with these newcomers and are eliminated.

Insect life important to trout and salmon may also be seriously affected by the construction of a pond in a stream. Like some fish, some insects cannot tolerate certain changes in their normal habitat.

**O**NE OF THE FIRST things a prospective pond builder must do before building a dam on a stream is notify, in writing, the Commissioner of Inland Fisheries and Game of his intent and include a description of the location of the proposed dam. Since the Commis-



sioner may require a fishway in the dam, it is necessary for the Department to have this information. The Commissioner must also be notified and a permit obtained if a total of 200 feet or more of the stream bank is to be altered.

Upon being informed of a proposed dam, Department fish and game biologists conduct an on-site investigation for state interests. The Commissioner, after carefully reviewing the biologists' findings and recommendations, notifies the owner of any fishway requirements. If the owner plans to stock fish in his pond, permission to do so must also be obtained from the Commissioner.

The Maine Fish and Game Department does not offer any financial aid or free consulting services for private pond construction; however, if a fishway is required, the Department can either design it or inform the owner of someone who is qualified to do the design work. For further assistance in pond construction and, possibly, finan-

cial assistance, one should contact his local Agricultural Stabilization and Conservation Service or U.S. Soil Conservation Service office. Funds for in-stream pond construction have been very limited, however.

A person wishing to build a dam should obtain legal advice about his responsibilities to riparian landowners upstream and downstream from his property. An example of legal responsibilities might be as follows: a downstream landowner who finds his stream drying up during a particular period may feel this is the fault of the upstream dam owner. He asks the dam owner to release more water to the downstream area. Then, according to the way things are handled between these two landowners, legal action may or may not arise. Let us emphasize, however, that this is a civil matter entirely outside the jurisdiction of the Fish and Game Department.

Another potential legal and public relations problem is that of

trespass by fishermen, some of whom may have fished the stream before the private pond was constructed.

**T**OO OFTEN, private ponds become abandoned for one reason or another, with the result that money, time, and effort have been wasted. Ecologically, the natural environment may have been seriously upset, resulting in permanent damage to certain living organisms.

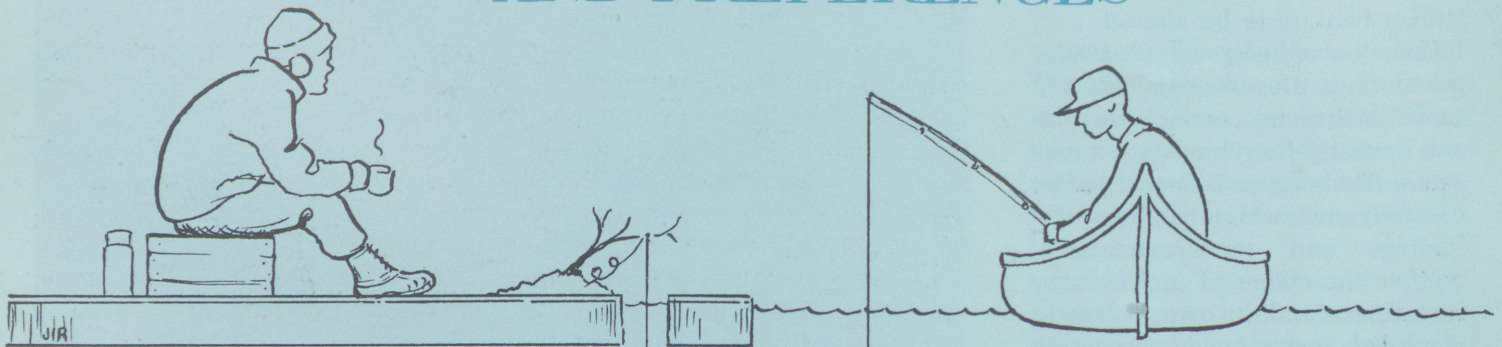
The Department is concerned about the loss of good trout habitat by dams constructed on trout streams. We feel that it is often better to build a dugout pond adjacent to a stream — diverting some of the stream flow into the pond — rather than actually dam the stream itself. We recommend that if you build a pond, you do so in an area where there will be no harmful effects to cold-water fish populations. Remember, you're probably not the only one who enjoys that stream and the fish in it, and future generations must be thought of, too. ■

Dams often continue to block fish spawning migrations and have other adverse effects on streams for many years after they are abandoned and fall into disrepair.





## A MATTER OF RIGHTS AND PREFERENCES



**T**O MANY, ICE FISHING is as big a part of Maine winters as pumpkin pie is to a New England Thanksgiving Day dinner. Fishermen who live in Maine look upon ice fishing as another leisure-time activity that makes Maine winters a little more tolerable and a little less long. Take away ice fishing, and for lots of sportsmen and women, about the only thing to look forward to is reading the Sears-Roebuck catalogue and fixing up the fishing gear for spring.

In spite of the tremendous recreational assets that ice fishing brings to Maine residents and out-of-state visitors, there are continued efforts by some to take away ice fishing privileges. There are various reasons offered for closing lakes to ice fishing, which range all the way from littering to drastically reducing game-fish populations. Possibly some understanding and helpful co-operation from both sides might forestall further unnecessary closures.

First, let it be understood here and now that there are some lakes where ice fishing should not be permitted because of the harm that might occur to game-fish populations. These are generally small lakes which are managed for brook trout. Brook trout seem to be highly vulnerable in the wintertime, and a population could be drastically reduced by ice fishing. Another instance where ice fishing might be harmful to game-fish populations is the possibility of introducing undesirable species of fish via the bait pail (i.e. reclaimed trout ponds, a back-country pond where only salmon or trout are present, etc). Generally speaking, however, ice fishing is not considered to be harmful to game-fish populations in most Maine lakes.

**I**CE FISHING IN MAINE can be divided into two segments—an early season, that starts when ice forms in early December, for pickerel, smelts, cusk, yellow perch, and white perch; and a later season that starts February 1 for salmon, lake trout, brown trout, brook trout, and bass. Both seasons generally close on the last day of March. There are some exceptions to these general opening and closing dates which are listed in the annual fishing law booklets that are available to all licensed anglers.

The early season is most popular for pickerel, and fishing for this species is usually at its best during the first few weeks of the season although fishing success remains quite high throughout the winter. Some anglers value salmon and trout the highest, and they save their efforts for the later season; however, there are tremendous numbers of anglers who prefer the faster action that pickerel offer, and this group commences to fish just as soon as there is enough ice on the lakes to hold them. I have seen

fishermen go onto these small ponds when one swing of an axe will go completely through the ice cover—a practice that is not recommended, by the way!

Fishing for smelts, cusk, and whitefish during the early season and throughout the winter has become very popular in recent years. As a matter of fact, in



many Maine lakes, the principal winter fishery is for smelts and/or whitefish. Usually these anglers will set out a few traps outside their shacks "just in case a salmon or trout comes along" while most of their efforts will be concentrated inside their shacks jigging for smelts and/or whitefish.

Angling for cusk during the nighttime is most successful, and although special regulations apply to the method of taking cusk through the ice, these specials do not seem to reduce the popularity of this rather unique sport. During a night of fishing, a party may catch as many as 15 or 20 cusk, some of which may weigh up to 6 or 7 pounds.

Some anglers who fish the early season prefer to fish for yellow perch and white perch, and for these anglers there is some pretty fast action. There are no restrictions in most Maine counties on the size and numbers of these fish that may be caught.

**T**HE GENERAL ice fishing season for salmon, lake trout, brown trout, brook trout, and bass is very popular, and thousands of people brave the elements each day during the winter for the privilege of catching these prizes. Although fishing success for salmon and trout is much lower than for pickerel, the prizes seem to be well worth the added effort that is necessary to catch them.

Until 1972, it was not legal to catch smallmouth or largemouth bass through the ice, but after a rather lengthy bit of selling, legislation was passed to include both species of bass as legal game during February and March. The addition of bass to the list of legal fish that may be caught through the ice was heartily received by many Maine anglers, and it promoted many successful fishing trips on some lakes that heretofore had very little ice fishing pressure.

The Fishery Division has obtained a vast amount of ice fishing creel census data over the years on many lakes in Maine, and it should be pointed out quite clearly that at certain times ice fishing is a very successful method of catching fish; but let it also be understood that there are days, too, when one "can't buy a fish"! By and large, though, the data show that ice fishing has its ups and downs just like open water fishing, and there is very little difference in the catch rate between ice fishing and open water fishing for the well-equipped angler. Statewide, we have found that it takes anywhere from 1 to 10 hours to catch a salmon or a lake trout through the ice; but, as a rule, successful fishermen catch a fish about every 2½ to 3 hours. The catch rate of salmon and lake trout during the summertime is somewhat better than this, but the difference is really not measurable in terms of whole fish caught. The catch rate for pickerel through the ice is about 5 times faster than for salmon and trout, with an average catch rate of anywhere from 30 to 50 minutes per fish. Although open water catch data for pickerel are scarce, I would

say that there is very little difference in the catch rates between the two fishing seasons.

Perhaps a few figures on some actual creel census results are in order here to point up the fact that there are not great differences in the catch rates between winter and summer. On Moosehead Lake, ice fishermen catch salmon and lake trout at a rate of nearly 4 fish every 10 hours, and open water fishermen catch 5 fish every 10 hours with a range of anywhere from 1 hour to 16 hours per fish. At Thompson Lake, in southwestern Maine, the catch of lake trout during the wintertime and open-water seasons was quite similar, with a fish being caught about every 3 hours with a range of 2½ to 8 hours per fish. Statistically, however, ice fishermen were slightly more successful, but this difference would not be measurable in terms of a day's catch.

In the final analysis it boils down to this: no matter whether it's winter or summer, there are days when you can't keep them off the hook, and there are other days when you'd swear that there wasn't a fish in the lake. Fishermen and biologists alike still seek the answer to that mystifying question, "why do fish bite on some days and not on others?"

**M**AYBE THE TRUE MEASURE of whether ice fishing should be allowed can be made by the number of people who participate. If, for example, it could be shown that a very small segment of all fishermen pursued the sport of ice fishing and that these few anglers removed a large number of fish, we might justifiably close lakes to ice fishing. Such is not the case, however, because a very large segment of the fishing fraternity does ice fish, and although they are successful in catching fish, the data do not indicate that this removal is in any way harmful to game-fish populations in most Maine lakes.

I would even go so far as to say that in my observations over the 20-odd years I have worked for the Fish and Game Department that there are more people who ice-fish than who open-water fish. I qualify this statement by the following examples: one can make fisherman-counts on Thompson Lake during the wintertime and on most any week day can count 10 to 50 fishermen; on week ends he will count anywhere from 75 to 200 fishermen. Throughout the summer fishing season, week ends and week days alike, it is doubtful if more than 25 fishing boats per day will be counted. On Kezar Lake, anywhere from 5 to 40 fishermen can be counted during any day during the winter season, but it is rare that more than 5 to 8 boats will be seen on any day during the open water season.

The same comparisons can be made for most any lake in southern Maine, and although I am not familiar with more northern Maine lakes, I am reasonably certain that the same conditions exist on the more accessible lakes where both ice fishing and open water fishing is allowed. I would like to qualify these statements by



saying that there are times during the open water fishing season in May and June when angling pressure is moderate to heavy and a higher-than-average number of fishing boats may be counted on salmon and trout lakes; but, by and large, Maine lakes receive very light fishing pressure during the open water fishing season.

**T**HE STORY that the popularity of snowmobiles has put a lot of extra fishing pressure on Maine lakes is constantly heard. This may be true in northern Maine and on Maine's inaccessible lakes; but from a fisheries management standpoint, this extra fishing pressure is not necessarily heavy fishing pressure. Actually, many Maine lakes that are inaccessible do not get enough fishing pressure for an adequate harvest of game fish, and in these cases the added pressure that snowmobiles create is not necessarily unwanted fishing pressure. In areas where lakes are most accessible, snowmobile traffic is heavy at times, but much of the traffic comes from recreational snowmobilers rather than from fishermen.

I feel that fishermen who own snowmobiles are using them to get to the same fishing areas they have always gotten to either by car or by snowshoe, or, to some extent, the anglers are spreading out more over the lakes; but I can't agree that fishing pressure has actually increased because of snowmobiles. Actually, snowmobiles have probably reduced the number of fishermen due to the rather unique recreational assets of these vehicles. Spreading fishing pressure out over a lake and spreading out the pressure over a number of lakes is better for the well-being of the fish than it was before the snowmobile era, when fishing pressure was concentrated on the well-known and easy-to-get-to areas and only on lakes that one could drive to.

Methods of ice fishing have changed drastically in the past 20 years, too! I recall the days when all one had for ice fishing gear was a hunk of "cod line," a knife to cut some bushes with, a few pieces of red flannel cloth to tie onto the bushes for "flags," a home-made chisel, and a lard pail for live bait. Now, ice fishermen have fancy underwater traps, power augers, jig sticks, refined lures for jigging, fish finders, fancy live-bait buckets, pickled bait, ice shacks with gas- and coke-burning stoves, snowmobiles, air planes, and many other modern-day gadgets. All this refinement indicates to me how popular ice fishing really is and that the days are gone when the open water fishermen can point to his expensive boat and motor and fancy rods and reels and say, "I've got a lot of dough invested here; therefore, the fish ought to be saved for me!"

The pros and cons of ice fishing will continue forever and ever with neither group winning its case, but one thing is certain: to an ice fisherman, his right to go fishing during the wintertime is just as valid as for the fisherman who prefers to fish from a boat or from the shore. If there is such a thing as a fair share of fish, the ice fisherman pays just as much for his pleasure

as the open water fisherman does; actually, the ice fisherman pays more because he has a much shorter season.

No matter whether you pursue the sport of ice fishing, you must agree that it must be pleasurable or a fellow wouldn't get up before dawn at 18° below zero with the wind blowing a gale, drive anywhere from 30 to 100 miles (one way) to his favorite lake, get out onto the lake to his favorite fishing spot, and brave the horrors of a Maine winter to catch one or two fish every 3 to 10 hours. I guess we could say that such a person is either dedicated to the sport or else he is a dern fool. Whichever the case may be, this individual does it, and he gets a great amount of pleasure from it.

**I**N PASSING, the subject of litter and property damage should be mentioned. An ever-increasing number of requests to close lakes to ice fishing are based on litter and personal property damage, blamed exclusively upon ice fishermen. There is no question that there are occasions when ice fishermen litter and destroy docks for firewood etc., but to blame this exclusively upon fishermen is unfair. There are many, many instances where littering and destruction of property occur from sources other than ice fishermen and on lakes which are closed to ice fishing. With the new litter law that was passed a few years ago, litter on lakes has decreased greatly, almost to the point now of being insignificant.

I guess if one had to defend the ice fishermen he could do it on the following points:

1. In most cases, ice fishing does no measurable harm to gamefish populations.

2. Ice fishing is a sport in itself, enjoyed by a highly significant number of anglers.

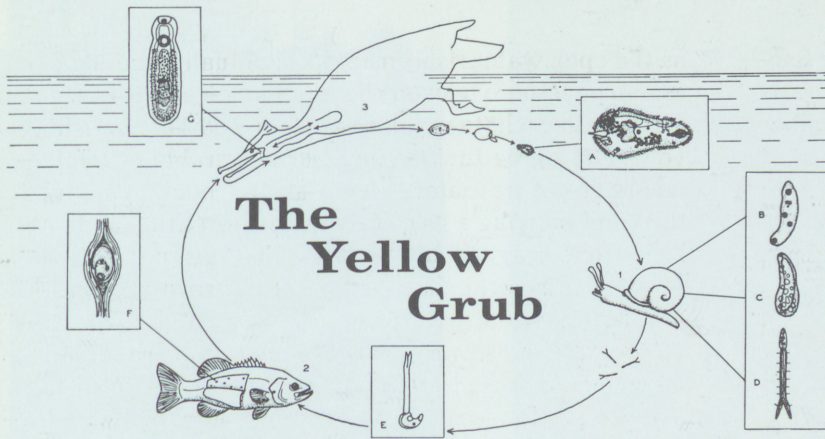
3. The rights of anglers to ice-fish are just as valid as for those who prefer to fish during the open water season, and many of today's ice fishermen have just as much invested as the open water fisherman; in many cases, he has more invested.

4. Although snowmobiles are putting more people on Maine lakes, the bulk of them are "joy riders," and the fishermen who use snowmobiles are spreading out the fishing pressure rather than increasing it. Where snowmobilers are getting into some of the inaccessible lakes in northern Maine, they are, in most cases, more adequately harvesting the game-fish populations.

5. Unfortunately, ice fishermen—like all affluent Americans who have altogether too many throw-away articles at their disposal—contribute to litter and to some extent to personal property damage, but it should not be the common feeling that all ice fishermen are litterers and dock burners and that lakes should be closed to ice fishing because of them.

6. The Maine Department of Inland Fisheries and Game tries to provide fishing for all fishermen, and it feels that none of them should be denied the right to fish in Maine lakes where the game-fish populations can withstand the harvest of a two-season fishery. ■





Yellow grub life cycle: Larva (A) after hatching from egg and before entering snail. B, C, and D are developmental stages within snail. Cercaria (E) before entering fish, and (F) after encysting in flesh. Adult worm (G) in fish-eating bird.

**I**F YOU have read the last few issues of **Maine Fish and Game**, you are aware of the following generalizations about Maine's fresh-water fish parasites. For those who haven't, the following paragraph may be enlightening.

There are many types, or more technically, "species" of parasites in and on Maine fishes, but don't be shocked. Fish parasites are common the world over and have been around much longer than we have. Some are new to this state, but many are not. Some are external (ecto-parasites), some are internal (endo-parasites). Some appear in fish as adults; some, as larvae (immature stage). The yellow grub (*Clinostomum complanatum*) is an internal parasite occurring as larvae in fish and is an old-timer to Maine.

The yellow grub is a member of a large group of parasites known as trematodes or flukes. These tiny, worm-like creatures are capable of infecting most species of fresh-water fish, but because of their habitat and host (animals infected) requirements, they are usually found most commonly among our shallow-dwelling warm-water fishes.

The yellow grub's life cycle involves three hosts. Each is necessary to the continuation of the parasite's existence; without each of these animals, there could be no continuation of this parasite. However, elimination of any of these hosts for the purpose of eradicating the yellow grub is biologically and economically unsound. Keep this in mind.

Where does this parasite originate? This is the age old question of which came first — the chicken or the egg? For convenience, let's start with the adult stage.

Blue herons and cormorants are generally considered the final hosts of yellow grub adults because they are largely fish eaters and, therefore, are likely to pick up infected fish in their diet. Kingfishers, mergansers, and other fish-eating birds are potential hosts, also. The important fact to remember here is that the host is a bird, not a mammal.

Eggs from the adult yellow grub are shed into the water from the bird's mouth or vent. The eggs hatch shortly thereafter, and tiny larvae emerge in a free-floating form. These creatures drift about until they come in contact with the second host, a snail. This all sounds very simple and safe; but in actuality it is a difficult and precarious time for these larvae: not only must they find a snail for a host, but this snail has to

be of a particular genus (*Helisoma*) and of a young age (less than four months). The larvae can survive for only a few minutes if they don't find the snail, and they are extremely susceptible at this time to predation by various aquatic animals.

When the larvae contact the right snail host, they attach themselves to the head region and bore into the host tissue. After they come to rest, they begin the second stage of their life. They divide, multiply by the thousands, and develop until they have physical characteristics which will enable them to attach to and penetrate their next host, a fish.

After leaving the snail host, the tiny cercaria as they are now known, become vulnerable to predators and must come in contact with the fish host within a few hours or die. Again, we have nature's control working.

The few creatures that do survive and find their next host attach themselves by means of spines. Then, with the aid of special, penetrating juices, they break through the outer flesh of the fish and burrow into the animal. These parasites seem to prefer the gills, gill covers, and fin bases. They are less commonly found in the fleshy parts of the fish.

Once this larval stage of the grub enters the new host, cysts are formed encasing them. These cysts are the result of the defensive action of the fish's body rather than the action of the larvae themselves. This encysted stage appears as yellowish-white lumps under the flesh of the fish. While the larvae are in this stage, they continue to develop but do not actively feed. If the infected fish is not eaten by the third host, a bird, within a year or so, the cysts will rupture, and the larvae will be released into the water and die. If, however, the fish is eaten by a bird, the life cycle of the parasite is complete. The cysts are then dissolved by the bird's digestive juices, and the larvae are released. They then migrate upward into the mouth of the bird where they settle and mature to the adult stage.

The yellow grub is not known to be a human parasite, and proper cooking of infected fish will kill the creature. However, because of the obnoxious appearance of the yellow grub within the fish, some fishermen discard their catch.

This parasite is effectively held in check by nature, and as long as it stays in check we should not interfere, since man in an attempt to control one problem, often ends up causing another. ■





## *Managing Your Land for Upland Furbearers*

**W**HETHER you, the private landowner, look upon Maine's upland furbearers strictly from a commercial viewpoint or as a part of the community of life valuable only from the aesthetic and educational viewpoint, the same basic requirements for food, shelter, and water must be met if there is to be an optimum population of the desired species. Depending upon individual viewpoints, optimum densities of certain species may be different.

If you are an avid home gardener who prefers corn over anything else, your optimum density of raccoon may well be "less than one." If, on the other hand, you like to see the little fellows knocking over your garbage cans, or like to trap or give chase with the hounds, you might wish to maintain or improve the size of the local population. Since the raccoon is found throughout Maine except in the northern sections, you probably will enjoy some success if you undertake a project to increase their numbers.

Although often found in urban areas, raccoons prefer wooded ridges with some old growth hardwoods close to a watercourse. A marsh built for waterfowl, or a stream on your property, will pro-

By Lee E. Perry  
Regional Wildlife Biologist

vide water as well as a source of food for the 'coon. Mast, primarily beechnuts and acorns, is sought in the fall and a cutting in your woodlot to favor these species will benefit raccoons as well as deer and possibly bear. Releasing wild apple trees and also harvesting timber will provide apples and openings in the woods in which raspberries and blackberries will grow and provide additional food. Although a well balanced timber cutting program should produce enough wild food, planting corn patches will also provide food. Den trees may be a limiting factor. A box measuring 14 inches square and 36 inches high, with a 5x6 inch rectangular hole and filled with sawdust, will serve as a den and possibly discourage 'coons from entering your home or out buildings.

The red fox inhabits forest edges, farmland, and stream bottoms throughout the state. His desirability as a neighbor is also governed by personal opinion and the occupation of the landlord. The fox is a roving hunter, feeding primarily on small rodents although small game animals and birds are

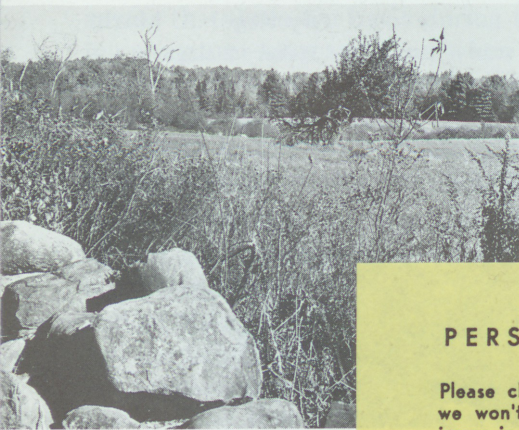
undoubtedly taken as well as various fruits and carrion. The fox den is generally on a hillside in sandy soils. The male seldom enters the den but sleeps in the open during all seasons of the year. Foxes generally do not dig their own dens but instead improve upon an abandoned tunnel of some other animal. Old woodchuck dens are used extensively. Maintaining brushy fence rows and open fields provides hunting grounds for these animals.

The skunk, once valued for its fur, is presently more valuable as a destroyer of mice and insects. The skunk is a burrow dweller and may take over an abandoned woodchuck den or dig one to his liking. Skunks have been known to camp out under barns and homes and to use abandoned drain tiles and culverts for dens. Skunks prefer brushland and fields. This type of habitat may be maintained by mowing or pasturing cattle or sheep on portions of your property.

Since raccoons, foxes, and skunks are carriers of rabies, some thought should be given to allowing an annual harvest to prevent wildlife overpopulations, which encourage the spread of this disease.

Three species of weasels or ermine are found in Maine. The least weasel, the smallest of the three, is generally found in marshy areas and grassy fields. The short-tailed weasel inhabits woodlands, brushland, and occasionally open





## Managing Your Land for U

WHETHER you, landowner, Maine's uplanders strictly from a viewpoint or as a part of a community of life valuing the aesthetic and educational point, the same basic for food, shelter, and be met if there is to be a population of the desired. Depending upon individual points, optimum density for certain species may be obtained.

If you are an avid hunter who prefers corn over else, your optimum density of raccoon may well be "less." If, on the other hand, you see the little fellows knocking over your garbage cans, or you might wish to maintain the size of the local raccoon population.

Since the raccoon is found throughout Maine except in the northern sections, you probably will enjoy some success if you undertake a project to increase their numbers.

Although often found in urban areas, raccoons prefer wooded ridges with some old growth hardwoods close to a watercourse. A marsh built for waterfowl, or a stream on your property, will provide

courage raccoons from entering your home or out buildings.

The red fox inhabits forest edges, farmland, and stream bottoms throughout the state. His desirability as a neighbor is also governed by personal opinion and the occupation of the landlord. The fox is a roving hunter, feeding primarily on small rodents although small game animals and birds are

ing an annual harvest to prevent wildlife overpopulations, which encourage the spread of this disease.

Three species of weasels or ermine are found in Maine. The least weasel, the smallest of the three, is generally found in marshy areas and grassy fields. The short-tailed weasel inhabits woodlands, brushland, and occasionally open

### PERSONAL ORDER

Please check one box so we won't send duplicate issues in case of renewal or extension.

Please send MAINE FISH & GAME Magazine to the address below:

- ☐ New ☐ Renew expired subscription  
☐ Extend present active subscription

If you are now a subscriber or your subscription recently expired, PLEASE ATTACH A MAILING LABEL or copy it at right, including all letter & number coding.

Name _____		
Address _____		
_____		
City or Town _____	State _____	Zip Code _____

PLEASE PRINT, and don't forget Zip Code. Make check or money order payable to "Treasurer, State of Maine," and enclose with order.

- ☐ 2 years ( 8 issues) \$2.50  
☐ 3 years (12 issues) 3.50

Send to:  
Circulation Section  
Maine Fish & Game Magazine  
Room 600, State Office Bldg.  
Augusta, Me. 04330

### GIFT SUBSCRIPTION

- ☐ New ☐ Renewal

Please check, if you're sure.

Please send MAINE FISH & GAME Magazine to my friends listed. I enclose \$2.50 for each two-year subscription, \$3.50 for each three-year subscription. (Check or money order should be made payable to "Treasurer, State of Maine," and sent with subscription form to address below.)

- ☐ Place my name \_\_\_\_\_ on gift card(s) and mail to recipient(s).  
☐ Send gift card to me to mail. My name \_\_\_\_\_  
My address \_\_\_\_\_

#1 ☐ 2 Years ☐ 3 Years


#2 ☐ 2 Years ☐ 3 Years


PLEASE PRINT . . . and don't forget Zip Code. Use additional sheets if necessary. Please put your name and address on reverse side.

Send to:  
Circulation Section  
Maine Fish & Game Magazine  
Room 600, State Office Bldg.  
Augusta, Me. 04330





country, especially around stone walls, old buildings and wood-piles. The long-tailed weasel inhabits areas similar to the short-tailed weasel but is also found in more open timber about ridges and fields. To all three of Maine's weasels, home is the abandoned den of some other animal, a crevice in a rock wall or rock pile, or a hollow log or stump. Small mammals are their principal food. Maintaining rock and brush piles as well as allowing fallen trees and stumps to remain will increase den sites for food species as well as weasels. If your property is primarily woodlands, timber harvests in small, 1 to 5 acre, irregular clearcuts will provide openings and interspersions of cover types necessary for larger populations of prey species. Be sure to leave older trees that could possibly be used as dens for other wildlife.

The furbearers discussed thus far generally are dependent upon farmland habitats maintained in open fields or in the early stages of reversion to forest. Since all their requirements for life can usually be met in a relatively small area and their distribution is statewide, the private landowner has a good chance of attracting them to his property and possibly increasing their numbers.

**T**HE BOBCAT is rare in the actively farmed coastal and southwestern portions of the state as well as the northern spruce for-

ests. This species appears to thrive in brushy woodland areas containing numerous swamps and rocky outcroppings. Because the bobcat is known to maintain an extensive home range, the chance of management on a small landholding is questionable. However, increasing edge and interspersions of cover types will encourage an abundance of prey species and will encourage 'cats to frequent your property if they are in the area. The bobcat is similar to the fox in that a den is not used as a shelter by the adults but is required for bringing up the young. Dens are usually found in rocky ledges or hollow trees and stumps. Again, allowing den trees to stand, or girdling (cutting a ring around a tree in order to kill it) trees, that could potentially be used as den trees will provide denning sites.

The marten or sable is also believed to require a rather large home range and is commonly found only in the northern and northwestern portions of the state. His preferred habitat appears to be thick, older stands of spruce. Unless you are lucky enough to own a spruce forest, your chances for increasing this species appear to be poor. The marten may be spreading throughout the state, however, and although the spread may not be as noticeable as the increase in fisher in recent years, chances for seeing marten in other portions of the state are becoming better. Small mammals are the favorite

**Every prey species—and, in turn, every predator species—has its own optimum successional stage or land use. The landowner can encourage populations of desired animals by providing or maintaining their preferred conditions.**

food although some fruits are taken.

The fisher, once thought to prefer the dense, softwood forests of the north, has increased its range to include all but the easternmost sections of the state in the last 10 years. Presently, this furbearer appears to prefer lowlands in burned-over and mixed sapling hardwood-conifer forests. Snowshoe hare, porcupines, and various other small mammals as well as wild fruits are commonly taken as food. A good timber management plan favoring various stages of mixed forest growth will encourage food species to thrive and will encourage this species. Dens are usually found in hollow trees, under stumps, and in ledges. Fishers may seek temporary cover under brush piles.

The eastern coyote, or brush wolf, is a newcomer to Maine. He is apparently well established in localized sections of western and southwestern Maine. Woodland borders and second growth hardwood following cutting or fire, appear to be the preferred habitat. Coyotes have been reported to use logging roads and trails through dense woodlands and have been observed feeding on insects and mice in open fields at various times of the year. Dens are similar to those of the fox, and often an abandoned fox burrow will be enlarged for use by the coyote. Foods in-



clude small mammals, carrion, birds, insects, fruits, and occasionally deer. Suitable den sites and availability of food will limit the reproductive rate and the numbers of animals which will be able to live on your property. Again, this species maintains a large home range, and the chances of a small landowner providing all the necessary requirements for the coyote are questionable.

**I**N THE preceding paragraphs, I think it has become evident that these furbearing animals are but a part of a system which is dependent upon smaller life-forms for food. Each of the required foods is dependent upon some other set of conditions in order to survive. Thus, the predator which requires mice, squirrels, or rabbits as food depends directly upon the availability of these species, which, in turn, depend directly upon certain land uses and successional stages which will produce the cover and food necessary for them to

survive. The predator also depends directly upon certain land uses which provide him cover as well as a den site. When striving to improve your land for upland furbearers you must start by creating conditions beneficial to the production of smaller animals as well as providing specific requirements such as den sites on which the furbearers depend.

If you have followed this series from its inception, you are probably beginning to realize that the recommendations made for other species are also applicable to managing for the upland furbearers. You also should realize that furbearers, often called predators and pests, are an important part of the total environmental picture and, to coin an old phrase, are a "product of their environment." Improving your land for woodcock generally means encouraging the earlier successional stages, reverting fields, and brush stages which are also beneficial to the fox, skunk, and weasel. Constructing a marsh for waterfowl production is beneficial also to all the animals we have

discussed. Managing for forest game will provide the clearings and uneven-age forest necessary for those furbearers requiring second growth forests. In short, any action you take to benefit an individual furbearer will benefit other game and non-game species associated with the successional stage preferred by them.

The methods discussed in this article are quite general but should aid in starting your management plans. Don't lose faith if your efforts are not rewarded by immediate changes. If none of these species occurred on your land when you started, it will take time for animals to spread into the new areas. Resident species will require perhaps a year or more before breeding takes place and young animals find the new habitats available to them. Remember also that most of the furbearers are nocturnal and may not be seen often. And, of course, your project may not be big enough to encourage a population explosion in your area; however, you may be doing enough to increase the period of time the area will be useful to those species already living on your property.

Timber harvests can be planned to benefit wildlife.



**S**PECIFIC advice concerning wildlife management on your property is available from your regional game biologist on a "time available" basis. In addition to employing the services of the Department of Inland Fisheries and Game, you may wish to contact your local service forester who will be able to give you assistance in planning a timber harvest on your area to benefit wildlife. The U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service has programs available by which the landowner, subject to his eligibility, can receive payment for releasing wild apple trees, maintaining open fields, and creating openings for wildlife food production.

May any projects you undertake be both educational and rewarding.



By Paul R. Johnson  
Fishery Biologist



## LITTLE SOURDNAHUNK

### A New Idea in Trout Pond Management

**T**HE MAJORITY of Maine's brook trout waters are managed to provide the best possible fishing for the greatest number of anglers. These lakes and ponds produce trout ranging from six to twelve inches, with relatively few caught each year longer than twelve inches and weighing more than a pound. While the fishing in some of these waters is maintained through stocking of fall fingerlings, there still remain many ponds that produce native trout.

However, with the increase in fishing pressure throughout the state, and with more and more of the formerly remote areas becoming easily accessible to fishermen, some ponds that were once famous for fast fishing and large native squaretails are not producing as well now as they used to. Therefore, there is concern in the Fish and Game Department, and among anglers, about preserving some waters for not only quality fishing for native brook trout but also for trophy size fish. It was this concern that led to the designation of Maine's first trophy trout pond.

Little Sourdnahunk Lake, a 100 acre body of water in Piscataquis County, was accessible only by foot trail from Big Sourdnahunk Lake

until around 1960. At that time it was known as a place where an angler could catch large, native squaretails. However, around 1961, a good gravel road was constructed to within several hundred yards of the lake.

Fishery Division biologists surveyed Little Sourdnahunk in 1961 and found excellent water conditions and a population of fast-growing native trout, with red-belly dace — a small minnow — as the only competitor. Although the amount of spawning area available to trout was found to be limited, the good fishery there had been protected by "fly fishing only, five fish daily limit" regulations and by the lake's relative inaccessibility.

Because of the lake's reputation, fishing pressure at Little Sourdnahunk increased dramatically once it became easily accessible, and it became evident that the existing regulations could no longer protect the fishery. Local sportsmen, concerned that the quality of fishing was declining, encouraged the Fish and Game Department to establish a new set of regulations that would further protect the fishery but still give the angler a chance at a two- or three-pound trophy trout.

Such a regulation was passed in 1967 by Maine's 103rd Legislature. In addition to limiting the lake to fly fishing only and prohibiting fishing from one hour after sunset to one hour before sunrise, the Legislature set precedent by restricting the daily bag limit to one trout. This went into effect for the 1968 open water season. Thus, Little Sourdnahunk Lake became Maine's first trout pond where size of the fish rather than quantity is emphasized.

Since that time, neither angler enthusiasm nor the quality of fishing has decreased at Little Sourdnahunk. With so many waters nearby where an angler may catch a normal limit of medium-sized trout, it has been an attraction to some of them to be able to have a chance at catching one of the big ones in Little Sourdnahunk. Naturally, all of the trout are not two- or three-pound lunkers, but the angler can fish and release those he catches until he gets one that he wants.

**P**RESENTLY, the principal threat to the fishing in Little Sourdnahunk is the possibility of overprotection. The access is by a trail from a gravel road, and anglers must carry boats or canoes around 400 yards through the woods to get onto the lake to fish. Fishing pressure is fairly light, and the one-fish limit is not attractive to those anglers who want a big catch. A low harvest rate could result in a large population of slow-growing trout, with few fish reaching trophy size.

Fishery Division biologists sampled the population in June 1972 and found continued good growth; they will continue to check for signs of significant changes and will recommend any necessary new regulations to insure quality fishing for trophy-sized native trout at Little Sourdnahunk Lake. ■



# LETTERS

# NOTES

# COMMENT

The Editor "Maine Fish and Game"  
Fish and Game Dept.  
Augusta, Maine 04330

## THE BOOK SHELF

Listed here are books on subjects of interest to those who enjoy the outdoors. These notes are set forth mainly to call your attention to the publications. If we have been able to evaluate a publication and recommend it, we will do so; but a lack of comment does not mean that the book is not deserving.

*The World of the Moose*, by Joe Van Wormer, published in July 1972 by J. B. Lippincott Co., Philadelphia, Pa. 19105. Hard cover, 160 pages. This is another in the LIVING WORLD series, filled with interesting information on the largest member of the deer family; it includes many photographs by the author, who has done eight books in this series. \$5.95.

*The World of the Swan*, by Joe Van Wormer; also in the LIVING WORLD series; 156 pages. The author also provides many photographs for this book, which like others in the series is non-technical but contains much interesting information. \$5.95.

*Enjoying Maine Birds*, revised edition, edited by Richard B. Anderson and Irving Richardson, published in June 1972 by the Maine Audubon Society. Paperback, 80 pages. This is the fifth edition of this popular book, designed as an aid to finding, studying, and attracting birds in Maine. It does not replace a field guide but does present considerable information on 80 birds and their

activities in Maine. Available by mail from the publishers at 57 Baxter Blvd., Portland, Me. 04101. \$1.50.

*Freshwater Ecology*, by William A. Andrews; one of a series of four study guides being published by Prentice-Hall, Inc., Englewood Cliffs, N.J. Paperback, 182 pages. Already published is another of the series, *Environmental Pollution*. Available soon will be *Soil Ecology* and *Terrestrial Ecology*. Valuable as teaching aids or for individual study of environmental subjects.

*Duck Hunters Are Nuts*, by Owen O. Osborne, published in 1971 by The Monmouth Press, Lewiston, Maine 04240. Hard cover, 136 pages. The author, sports editor of the *Bangor Daily News*, has assembled a collection of experiences — some his, some not — that provide an illustration of what duck hunters are and what they sometimes do. Duck gunners may recognize themselves or their friends in the numerous incidents told with humor, and there's also some advice that may come in handy. \$6.95.

*You Are an Environment*, by Noel McInnis, published in August 1972 by The Center for Curriculum Design, Box 350, Evanston, Ill. 60204. Self-cover, 96 pages. An intriguing book that will be of value to anyone who reads it or, especially, who discusses its content with others. It is concerned with

others. It is concerned with teaching/learning environmental attitudes and should be of great benefit to school teachers (of almost any subject) as well as to anyone who works with others (of any age) in learning situations (of almost any kind). It has a substantial list of good reference material. \$2.00 (discount on quantity purchases).

*Wilderness Pocket 'n Pack Library*, published in 1972 by Life Support Technology, Inc., Box 97, Hillsboro, Ore., 97123. Five pocket-size paperback volumes about 64 pages each, on the topics of SURVIVAL IN THE WILDERNESS, EDIBLE PLANTS IN THE WILDERNESS (2 volumes), POISONOUS PLANTS IN THE WILDERNESS, and PRIMITIVE MEDICAL AID IN THE WILDERNESS. Volumes are in a vinyl case and are written by authors with imposing references. A handy set that could make being lost or injured a less rigorous experience. \$4.95 (discount schedule on purchases of two or more sets).

*Maine; A Guide 'Downeast'* edited by Dorris A. Isaacson, published in 1970 by the Courier-Gazette, Rockland, Maine, and distributed by the Stephen Greene Press, Brattleboro, Vt. 05301. Hard cover, 510 pages. Coming out during Maine's 150th anniversary year, the book is an updating of a WPA project in 1937. It is a reference volume containing much information about Maine and includes a selected bibliography. \$6.50.

## NEW DIVISION CHIEFS

Robert W. Boettger of Mount Vernon has been named chief of the Game Division by Commissioner Marsh, who also announced the appointment of Kenneth H. Anderson as Director of the Planning Division.

Both had been acting head of their divisions in recent weeks. Anderson replaces Donald K. Christie who left to join the Maine Department of Education and Cultural Services, and Boettger succeeds







# Return of the Woody

By Paul J. Fournier

**I**N THIS DAY of endangered species, it's heartening to learn that man's intervention is bringing back from the verge of extinction one of our most beautiful species of wildfowl—the wood duck.

The male woody is unchallenged as the most handsome of our wild game birds. So handsome, in fact, that this native North American has for years been the object of man's interest and pursuit.

Wood duck feathers have long been prized for mounting in bird collections and for use in tying artificial trout flies. Fly tyers favor breast and side feathers for making Light Cahill and Quill Gordon dry flies, and wing feathers are used in the tying of salmon flies. A price of \$3.00 to \$4.00 was common for a prime male wood duck skin, thus making the species attractive to old-time market hunters. Adding to its attractiveness to gunners is the fact that it decoys easily, lives close to civilization, and makes delicious table fare.



Adult male wood duck.

The wood duck is as much a creature of the woods as the waters, preferring to spend most of its time in wooded lowlands and river bottoms and in such places as beaver flowages. It generally avoids large expanses of open water and areas with only sparse cover.

Unlike most other ducks, which nest on the ground, the wood duck's preferred nesting place is in a tree—in a natural cavity or in the abandoned nest of a woodpecker.

**E**ARLY IN this century, the combined effects of several factors reduced wood duck populations to a very low ebb. Heavy hunting pressure was first thought to be the prime cause, and in 1918 a closed season was declared throughout the United States and Canada. Recovery was slow, and it wasn't until 1941 that there were sufficient numbers of wood ducks to allow the taking of one in the hunter's daily bag.

Other factors which worked against the wood duck included the draining of valuable wetlands and the loss of beaver flowages to excessive trapping in the early part of this century. In addition, many mill ponds, which once provided suitable conditions for wood ducks, were abandoned and were no longer flowed.

The lack of nest sites was another important factor that was limiting wood duck populations. The disappearance of nest sites came about as a result of cutting of the mature forests which provided an abundance of nesting holes in aged and dying trees.

The use of man-made boxes to encourage wood duck nesting was suggested by a Massachusetts biologist named Forbush, and his idea was given its first thorough trial in 1937 when the U.S. Fish and Wildlife Ser-



Game Technician Jim Dorso with nesting female wood duck. Boaters and others who find nest boxes are urged not to go near them, especially in the spring.



Inside view of nest box shows wire mesh screen "ladder" used by ducklings to reach hole. Softwood shavings make ideal nesting litter. Old shavings should be cleaned out and replaced annually.



vice erected 400 boxes on the Chautauqua National Wildlife Refuge in Illinois. Additional boxes were put up in various parts of that state during the next two years by the Illinois Natural History Survey. The first confirmation of the success of nesting box programs came in 1940 when an inspection revealed that more than 25 per cent of 1,000 boxes were used by wood ducks.

Interest in nesting boxes in Maine is believed to have begun in the early 1940's when the late Stephen E. Powell, a wildlife biologist for the Fish and Game Department, began experimenting with them. The program got a solid boost in the early 1950's when James A. Dorso of Gardiner, an ardent outdoorsman then employed by the S. D. Warren Paper Company, became interested in the wood duck. He began building and setting up boxes as a hobby, and maintained some 130 boxes on his own. Also engaged in nest box work at that time was Ken Anderson, former regional biologist and now Director of Planning for the Department. He eventually hired Jim Dorso to work with him on the nesting boxes—first on a part-time basis and eventually full-time.

Today, Game Technician Dorso says he's one of Maine's most fortunate residents — doing exactly what he loves to do, and getting paid for it! He works with Regional Biologist Fred Hurley in Game Division Region 2, and maintains more than 400 nesting boxes. His work is part of a program being coordinated by Gary Donovan, assistant migratory bird project leader. Because of lack of suitable wood duck habitat in northern sections of the state, most of the effort of the nest box program is being concentrated in the deciduous forest areas of coastal and southern Maine. In all, there are nearly 700 boxes in Maine, and this total is growing each year.

**D**ORSO'S work with Maine wood ducks has turned up some interesting observations on the habits of these handsome birds. He finds them nesting in isolated places such as old beaver ponds, flooded lowlands, and quiet coves on the larger lakes and rivers. And while they avoid human company, they are partial to neighborliness among their own kind. Frequently two or three nesting families are found alongside each other.

Woodies normally nest near water, but they have been found to nest in trees up to one mile from water. They fly through thick-growth forests with ease, twisting, and dodging trees with great agility. The female's approach and entry into the small nest hole is startling: she flies straight into the hole, full tilt.

Dorso's nesting box work keeps him busy throughout the year. Much time is spent in the field, scouting new areas with good potential for boxes. Installation of new boxes and maintenance of old ones are generally done during the winter months when flooded areas are frozen and more easily reached by snowmobile.

All boxes are numbered to facilitate record keeping, and each is checked in the spring to monitor annual production and for banding of nesting hens. In a check of about 400 boxes in central Maine last year, Dorso counted approximately 2,000 ducklings. The brood size normally runs 12 to 14 birds.



Maine wood ducks generally start laying about April 20, and incubation begins soon after egg production is completed — usually around May 10. The incubation period is 26 or 27 days. If the first nest is destroyed, wood ducks will usually nest again. Occasionally, when nest sites are scarce, several hens will lay their eggs in the same nest, which are then incubated by one female. One such nest observed by Dorso contained 35 eggs, of which 26 hatched.

During the first few weeks of their lives, the ducklings subsist primarily upon small animal life such as beetles, flies, and slugs. The adult diet is mainly vegetable material including wild rice, pondweed, acorns, aquatic fruits, seeds, and other aquatic plants.

Approximately half of the ducklings in a clutch will survive to the flying stage, which they reach at six weeks of age. By the middle of October, a majority of the birds have started the annual migration to their wintering grounds in the southeastern states. Formation of the breeding bond begins on the wintering grounds, and established pairs return to the nesting sites in the spring soon after ice-out. Many hens return with their mates to the same wetland in which they were hatched.

Wood ducks have made a strong comeback, and gunners are now permitted to take two in their daily bag limit. In recent years, woodies have rated third in the Maine waterfowl harvest, behind black ducks and green-winged teal. Figures compiled by the Game Division reveal that the estimated harvest rose from 3,338 wood ducks in 1962 to a high of 9,132 in 1970.

A young wood duck about to leave its nest box — the symbol of National Wildlife Week 1973.

Woodies are not the only species to benefit from the nest box program. American goldeneyes, or "whistlers," as they are commonly known, and hooded mergansers also occasionally set up housekeeping in the boxes.

The feeling among waterfowl authorities is that natural nesting sites for tree-nesting ducks are continuing to become more scarce, thus making an active nest-box program even more important.

Several clubs and individual sportsmen in Maine build and maintain nesting boxes as a conservation project. Anyone else who is interested in this should contact the Fish and Game Department for advice and construction plans.

Some 50 nest boxes per year are built for the Department by patients at Togus Veterans Hospital under a therapeutic project which provides healthful work therapy for the patients and a contribution to the Maine wildfowl conservation efforts.

**S**O — MAN, who has too often in the past suppressed or destroyed wildlife, appears to be the prime force in returning from the brink of extinction a uniquely beautiful resident of the North American marshlands and flyways — the wood duck. ■



Predator guards and annual maintenance are very important to the success of nest box programs. Aluminum guard "sandwiched" on pole deters raccoons, etc. Caulking and other repair work keep box weather-tight.





# Discover Wildlife

*It's Too Good To Miss*



**National Wildlife Week**

National Wildlife Federation  
and State Affiliates March 18-24, 1973



STATE LIBRARIAN  
STATE LIBRARY  
STATE HOUSE  
AUGUSTA, MAINE  
04330

D C

0049S

RETURN POSTAGE GUARANTEED

Postmaster: If undeliverable, please  
return entire magazine with form 3579

Maine Department of Inland Fisheries & Game

State Office Bldg.

Augusta, Maine 04330

