The Fishes of Otsego Lake

by
Robert C. MacWatters

Illustrations
Mark S. Jones

Biological Field Station
Cooperstown, New York

Occasional Paper No. 7. May, 1980

Biology Department
State University College
Oneonta
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>1</td>
</tr>
<tr>
<td>Forward</td>
<td>2</td>
</tr>
<tr>
<td>Otsego Lake Fisheries</td>
<td>3</td>
</tr>
<tr>
<td>Map of Otsego Lake</td>
<td>5</td>
</tr>
<tr>
<td>Checklist of the Fishes of Otsego Lake</td>
<td>6</td>
</tr>
<tr>
<td>External Features of a Fish</td>
<td>7</td>
</tr>
<tr>
<td>Glossary</td>
<td>8</td>
</tr>
<tr>
<td>The Fishes of Otsego Lake</td>
<td></td>
</tr>
<tr>
<td>EEL FAMILY Anguillidae</td>
<td>10</td>
</tr>
<tr>
<td>TROUT FAMILY Salmonidae</td>
<td>11</td>
</tr>
<tr>
<td>PIKE FAMILY Esocidae</td>
<td>17</td>
</tr>
<tr>
<td>MINNOW FAMILY Cyprinidae</td>
<td>19</td>
</tr>
<tr>
<td>SUCKER FAMILY Catostomidae</td>
<td>32</td>
</tr>
<tr>
<td>CATFISH FAMILY Ictaluridae</td>
<td>34</td>
</tr>
<tr>
<td>COD FAMILY Gadidae</td>
<td>36</td>
</tr>
<tr>
<td>KILLIFISH FAMILY Cyprinodontidae</td>
<td>37</td>
</tr>
<tr>
<td>SUNFISH FAMILY Centrarchidae</td>
<td>39</td>
</tr>
<tr>
<td>PERCH FAMILY Percidae</td>
<td>47</td>
</tr>
<tr>
<td>SCULPIN FAMILY Cottidae</td>
<td>51</td>
</tr>
<tr>
<td>References</td>
<td>52</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

This treatment of the Fishes of Otsego Lake could not have been written without the contributions of many individuals. I am especially grateful for the assistance of Dr. Willard Harman, S.U.N.Y. Oneonta, for the help he provided me while I was in residence at the field station and for his valuable assistance in the organization of the report. Thanks also to Dr. John G. New, Chairman, Biology Department, S.U.N.Y. Oneonta, for his support and guidance.

A great deal of credit goes to the many students at S.U.N.Y. Oneonta and Cobleskill for the time spent in the collection of field data.

I am grateful to Walt Keller, Fisheries Manager, Region 4, Department of Environmental Conservation and members of his staff for the cooperation and advice given to me during the course of the study.

For information on the local fisheries, my appreciation to Russ Bland; Environmental Conservation Officer, Art Andrews; John Hohenfeldt; William Thayer; and Kay Sanford, Regional Fisheries Biologist, D.E.C. Stamford.

Last, but by no means least, to the quality artistic contributions of Mark Jones, a fisheries student at S.U.N.Y. Cobleskill. His drawings of the fishes of Otsego Lake are exceptional.
This manuscript represents the fruition of several Field Station aspirations. We have always felt that service to the local community was extremely important and have supported research with that end in mind. We have also recognized that our greatest resource is the human mind and have actively stressed the importance of supporting a visiting researcher, funded on an annual basis.

This contribution results from the satisfaction of both of these goals. The Fishes of Otsego Lake was written for the local sportsman and students of natural history. Therefore, the identification of Otsego Lake fishes, the angling techniques used in their capture, the habitat preferences of these organisms and notes on their natural history are stressed. The illustrations, of every fish known to inhabit the Lake, are an important aspect of the manuscript and are second to none in detail and accuracy. The author, Dr. Robert MacWatters (Professor - fisheries and Wildlife Ecology, S.U.N.Y. Cobleskill), held the visiting researcher position at the Biological Field Station during the summer of 1979. He was supported equally by the Otsego County Conservation Association and the S.U.N.Y. Oneonta Biology Department. The technical aspects of his research have appeared in the 12th Annual Report of the Biological Field Station.

Specimens secured for the basis of this endeavor were collected in the summer and fall of 1979. Dr. MacWatters and students from S.U.N.Y. Cobleskill and S.U.N.Y. Oneonta collected fish with Pennsylvania trap nets, experimental gill nets, bag seines and electrofishing equipment. Records and preserved collections from the Biological Field Station (Dr. J. G. New) and from the New York State Department of Environmental Conservation regional office at Stamford (Mr. K. Sanford) were also utilized.

The members of the Otsego County Conservation Association can be proud of their part in supporting Dr. MacWatters' project. This manuscript and the technical aspects of his 1979 work will serve as a basis for future studies on the fisheries and in research involving changing water quality and the basic limnology of Otsego Lake for years to come.

Willard N. Harman
Chairman
Biological Field Station Committee
Cooperstown, April 1980
Fish management activities took place on Otsego Lake as early as 1870 when a hatchery was built on the west shore. Records show that during its several years of operation over one million fish were stocked, including whitefish, landlocked salmon, black basses, California mountain trout, salmon trout and smelt. Most of these introductions, like so many others which took place in lakes and rivers during this period, were unsuccessful. From 1930 to the early 1960's reports were of excellent fishing for yellow perch, rock bass, chain pickerel, and bullheads. Some anglers describe catches of yellow perch in the 12-18 inch category and exceeding 2 pounds, chain pickerel over 30 inches and burbot caught through the ice in excess of 30 pounds. Large numbers of lake trout and whitefish Coregonus clupeaformis (Mitchill) were also reportedly caught during the 1930's, '40's, and early '50's. Whitefish were abundant enough to support not only a sport fisheries but part-time employment for some individuals. The Ciscoe, Coregonus artedii, Lesueur, did not appear in the lake until the mid 1950's probably introduced inadvertently with the stocking of other species. The Ciscoe rapidly adapted to the lake's environment where in the 1960's it constituted over 75 percent of the total catch of fish in standardized gill netting conducted by the conservation department. Whitefish and lake trout accounted for the remainder of the catch.

Walleye were first recorded in the anglers' creel around 1916 when a few fish were caught in some of the tributaries that lead into Otsego Lake. In 1938 the Issac Walton League stocked the walleye and from the 1940's to the early 1960's the fishing for this species was reported good. Anglers that fished the lake during this period boasted of the good night fishing for walleye using jointed plugs and worm harness arrangements. During this period walleyes were observed spawning off Clarke point, Sunken Island, and in Shadow Brook.

During the late 1950's, '60's, and '70's perch, walleye, whitefish and especially lake trout fishing declined. Studies conducted by the conservation department revealed that growth rates of the lake trout in Otsego Lake were slow compared with other New York waters and that females were not maturing until they were at least 21 inches long. In order to improve the lake trout fishing the New York Environmental Conservation Department embarked on an experimental stocking program from 1968-1978 where both Adirondack and Finger Lake strains of yearling lake trout were placed in the lake. In addition to stocking yearling "lakers" the minimum length limit for this species was placed at 21 inches in an attempt to protect the reproductive potential of the fish. Recent studies conducted by the conservation department show these management practices paying dividends (Sanford, 1979). Annual catches of both hatchery trout and native lake trout are increasing in Otsego Lake.

Observations on the present overall status of the fisheries of Otsego Lake warrant the following comments: The Ciscoe must be considered the primary fishery. This species is abundant, it's growth rate is excellent and it offers a good return to the anglers creel in the 11-16 inch range. The lake whitefish although not caught as readily as the ciscoe is holding its own in the lake with two and three pound lake whitefish considered common. The Lake trout fisheries once declining is now steadily improving as a direct result of management practices. Although the lake trout in Otsego Lake will probably never constitute a top notch fisheries it will, barring a drastic change in the lakes water
quality, provide hours of angler enjoyment for those who learn how and where to fish for this species. Fishing for chain pickerel, an easily exploited species, should improve as a result of the increase in its minimum length limit to 15 inches. Although a spawning walleye population is still maintained the species is somewhat difficult to catch and little angling effort has been directed toward this end. Both large- and smallmouth bass in Otsego Lake offer an excellent unexploited warm-water fishery. Future considerations for the fisheries of Otsego Lake may involve the addition of either the rainbow or brown trout. In any event the lake offers a variety of exciting fishing to a good cross-section of the angling public.
<table>
<thead>
<tr>
<th>FAMILY AND SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anguillidae</td>
<td>American eel</td>
</tr>
<tr>
<td><em>Anguilla rostrata</em> (Lesueur)</td>
<td></td>
</tr>
<tr>
<td><em>Anguilla rostrata</em> (Lesueur)</td>
<td></td>
</tr>
<tr>
<td><em>Salmonidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Coregonus artedii</em> (Lesueur)</td>
<td></td>
</tr>
<tr>
<td><em>Coregonus clupeaformis</em> (Mitchill)</td>
<td></td>
</tr>
<tr>
<td><em>Salmo trutta</em> Linnaeus</td>
<td></td>
</tr>
<tr>
<td><em>Salvelinus namaycush</em> (Walbaum)</td>
<td></td>
</tr>
<tr>
<td><em>Esox americanus americanus</em> (Walbaum)</td>
<td></td>
</tr>
<tr>
<td><em>Esox niger</em> (Lesueur)</td>
<td></td>
</tr>
<tr>
<td><em>Cyprinidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Cyprinus carpio</em> Linnaeus</td>
<td></td>
</tr>
<tr>
<td><em>Notemigonus crysoleucas</em> (Mitchill)</td>
<td></td>
</tr>
<tr>
<td><em>Notropis cornutus</em> (Cope)</td>
<td></td>
</tr>
<tr>
<td><em>Notropis bifrenatus</em> (Cope)</td>
<td></td>
</tr>
<tr>
<td><em>Notropis heterodon</em> (Cope)</td>
<td></td>
</tr>
<tr>
<td><em>Notropis Hudsonius</em> (Clinton)</td>
<td></td>
</tr>
<tr>
<td><em>Notropis rubellus</em> (Agassiz)</td>
<td></td>
</tr>
<tr>
<td><em>Notropis filopterus</em> (Cope)</td>
<td></td>
</tr>
<tr>
<td><em>Pimephales notatus</em> (Rafinesque)</td>
<td></td>
</tr>
<tr>
<td><em>Rhinichthys atratus</em> (Hermann)</td>
<td></td>
</tr>
<tr>
<td><em>Rhinichthys cataractae</em> (Valenciennes)</td>
<td></td>
</tr>
<tr>
<td><em>Semoilus atromaculatus</em> (Mitchill)</td>
<td></td>
</tr>
<tr>
<td><em>Catostomidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Catostomus commersoni</em> (Lacepede)</td>
<td></td>
</tr>
<tr>
<td><em>Erimyson oblongus</em> (Mitchill)</td>
<td></td>
</tr>
<tr>
<td><em>Ictaluridae</em></td>
<td></td>
</tr>
<tr>
<td><em>Ictalurus nebulosus</em> (Lesueur)</td>
<td></td>
</tr>
<tr>
<td><em>Noturus insignis</em> (Richardson)</td>
<td></td>
</tr>
<tr>
<td><em>Cottidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Lota lota</em> (Linnaeus)</td>
<td></td>
</tr>
<tr>
<td><em>Fundulus diaphanus</em> (Lesueur)</td>
<td></td>
</tr>
<tr>
<td><em>Centrarchidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Amphibolites rupestris</em> (Rafinesque)</td>
<td></td>
</tr>
<tr>
<td><em>Lepomis auritus</em> (Linnaeus)</td>
<td></td>
</tr>
<tr>
<td><em>Lepomis gibbosus</em> (Linnaeus)</td>
<td></td>
</tr>
<tr>
<td><em>Lepomis macrochirus</em> (Rafinesque)</td>
<td></td>
</tr>
<tr>
<td><em>Micropterus dolomieui</em> Lacepede</td>
<td></td>
</tr>
<tr>
<td><em>Micropterus salmoides</em> (Lacepede)</td>
<td></td>
</tr>
<tr>
<td><em>Percidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Etheostoma olmstedi</em> (Storer)</td>
<td></td>
</tr>
<tr>
<td><em>Percos flavescens</em> (Mitchill)</td>
<td></td>
</tr>
<tr>
<td><em>Stizostedion vitreum vitreum</em> (Mitchill)</td>
<td></td>
</tr>
<tr>
<td><em>Cottidae</em></td>
<td></td>
</tr>
<tr>
<td><em>Cottus cognatus</em> (Richardson)</td>
<td></td>
</tr>
</tbody>
</table>
EXTERNAL FEATURES OF A FISH

SOFT RAYED FISH - Trout, Salmon, Minnows & Suckers

SPINY RAYED FISH - Sunfish, Pikes & Perches
GLOSSARY

ADIPose FIN  
a small, fleshy rayless fin situated on the midline of the back behind the dorsal fin. Found in catfish and salmon fishes.

BARBEL  
fleshy projections around the mouth area of certain fish, i.e., catfish and carp. Sensory in function.

CARNIVORE  
flesh eating animal

CATADROMOUS  
spawning in the ocean - adult life spent in freshwater, i.e., American eel.

CHIRONOMID LARVAE  
true midges - the immature form of a group of two-winged flies common to a variety of lake bottoms. At certain times of the year they may be considered an important food item for fish.

CRUSTACEANS  
a group of animals; some members of which are shrimp, crayfish, and water fleas (Daphnia).

DETRITUS  
decaying organic matter - often the main component of the bottom "ooze" of lakes.

DORSAL FIN  
located on the back of the fish - the location is not always at the midpoint of the back - some fish have more than one dorsal supported by fin rays.

ELECTROFISHING  
employment of an electrical field (usually D.C.) into the water for purposes of "stunning" fish so that they can be netted, processed (scale samples taken, length, weight, etc.) and returned to the water unharmed. The science of electrofishing involves the manipulation of polarity, pulse rate, and voltages in order to achieve best results with different fish species.

ELVERS  
small "pencil like" young of American eels just prior to leaving the ocean in their ascent into freshwater.

GILL COVER (OPERCULUM)  
large bone behind the head region which covers the fragile gill filaments of a fish.

HELLGRAMMITE  
larval form of dobson fly - considered excellent bass bait.

HERBIVORE  
feeding on plant material.

LATERAL BAND  
a band of color extending along the side of some fishes.

LATERAL LINE  
series of pores along the side of a fish - the line may be straight, curved inward (concave), curved outward (convex) or incomplete. In some species the lateral line is missing - serves as outer ear of fish, picking up vibrations in the water - an important characteristic in fish identification.
LATERALLY COMPRESSED | flattened from side to side.
MAXILLA | the bone lying on each side of the upper jaw of fish - useful in the identification of some species.
OMNIVORE | eating everything - plants, animals, and decaying material.
OPERcular FLAP (EAR FLAP) | soft tab or flap extending back from rear margin of opercular - useful in the identification of sunfish.
ORIGIN OF FINS | the most anterior point at which fins are in contact with the body of the fish.
PAPILLAE | small finger-like projections - found on the lips of the white sucker.
PECTORAL FINS | uppermost paired fins usually located behind the head region.
PELAGIC | found in the open water zone of a lake - not associated with shallow areas.
PHARYNGEAL TEETH | teeth located deep in the throat of a fish, i.e., in such species as carp.
PISCIVOROUS | fish eating - fish are the mainstay of the diet.
REDD | a depression nest built by trout and salmon - usually in a gravelly riffle area of a stream.
SOFT DORSAL | a dorsal usually containing only soft rays.
TOTAL LENGTH | straight line distance from the tip of the snout (mouth closed) to the tip of the tail fin (lobes squeezed together).
TUBERCLES (NUPTIAL TUBERCLES, PEARL ORGANS) | hardened projections which develop on the snout and/or fins of male shiners during the breeding season.
ZOOPlANKTON | small free-floating animals considered important food chain organisms.
ANGUILLIDAE

AMERICAN EEL
*Anguilla rostrata* (Lesueur)

"Anguilla" is the name for eel
"rostrata" means long nosed (snout)

Other common names: Freshwater eel, eel

Description

Snake-like body, it may be confused with Lamprey eel but unlike the lamprey it possesses true jaws and pectoral fins, pelvic fins are missing and the dorsal caudal and anal form one continuous fin. The skin is thick and slimy, the back color is olive green to brown, the sides are greenish-yellow and the belly is white.

Distribution

Found throughout the eastern United States. Common in Susquehanna River system.

Size

Average size - 2-3½ feet; maximum size - 6 feet.
Natural History

Prefer deep water lakes and mud bottoms. Can live out of water for extended periods. Remains inactive during winter period. The eel is catadromous, living most of its life in fresh water, returning to the sea to spawn. It approaches sexual maturity in the fall of the year at which time it becomes silvery below - known as silver eel by anglers. The trip to the spawning site in the Atlantic takes approximately one year. Young are carried by ocean currents up along the eastern United States coastline where as pencil sized elvers they move into freshwater rivers and streams. Males remain in brackish water to live, females travel up river, traveling overland to bypass dams on their long journey. Sexual maturity is reached between the ages of 5 and 10 years. In captivity eels have lived more than 25 years. The eel is an omnivorous and voracious feeder. It feeds mainly at night on insect larvae, crayfish and decaying material. The eel may, during its feeding excursions, leave the lake in search of frogs and small mammals.

Otsego Lake Fisheries

Several eels were seen but not captured by night electrofishing survey crews. Although eels are caught in the Susquehanna River, reports of them occurring in the lake are sporadic. They are probably of little importance in the overall fisheries ecology of the lake.

**SALMONIDAE**

**CISCOE**

*Coregonus artedii*, Lesueur

"Coregonus" means angle eye, refers to pupil of eye extending to angle of head

"artedii" after Petrus Artedii, father of ichthyology, 18th century

Other common names:  Greenback (local name)
                      lake herring
                      tullibee
                      Otsego Bass (a recent local name)
Description

The mouth is terminal, not bluntly shaped like the lake whitefish. This species has large scales and a silvery body with some purple iridescence. Its body takes on a more streamlined appearance than does the lake whitefish and lacks the humpbacked features of the whitefish. Referred to as "greenbacks" by local anglers.

Distribution

Occurs from New England to the Great Lakes into Canada.

Size

Adults average 11-16 inches and weigh less than 1 pound.

Natural History

Like the whitefish it is a cold adapted deep lake species. Unlike the whitefish it is almost strictly a zooplankton feeder in the open water zone. Spawning occurs in late November over hard bottom areas in shallow water. The ciscoe remains in deep water during the summer period. Its spawning requirements are not as rigid as that of the whitefish. Sixteen inch ciscoe in some lakes may be nine years old. Growth rates of ciscoe in Otsego Lake are excellent with attainment of maximum length 15 to 16 inches during their fourth growing season.

Otsego Lake Fisheries

Ciscoe first appeared in the lake in gill net catches in 1955 and since that time have flourished. The lake is best known for its thriving ciscoe population. Serious anglers, fishing early morning hours and in the evening just prior to sunset, may creel more than 200-300 ciscoe over the summer period. A total of 113 ciscoe were sampled by field station biologists ranging in size from 11.4 inches to 16.2 inches and 0.48 pounds to 1.20 pounds. Ciscoe are schooling fish which feed on the vertical migration of zooplankton in the early morning and early evening periods. A popular angling method is to use lead line with a light leader 10-20 feet long. Small spoon-like lures are most popular; leatherstocking size 1 and 2, Daredevils, Gayblades and the popular sonar lures. A boat with a slow trolling motor is essential. One lead line is fished in 70 feet of water by jerking the line in a way that imitates the rowing of a boat. The ciscoe is an excellent table fish whether baked, fried, or smoked.

LAKE WHITEFISH

Coregonus clupeaformis (Mitchill)

"clupeaformis" means herring shaped
Other common names: Otsego Bass (local name)
Greyback (local name)
whitefish
whiting

Description

A deep bodied whitefish, with a small head and a humped back. The snout is blunt and overhangs the mouth. The background color is green to bluish-black and is referred to as the "greyback" by Otsego anglers. Also known locally as the original "Otsego bass".

Distribution

Found throughout northern North America including New York, New England and the Great Lakes.

Size

Adults usually 14-20 inches with weights up to 3 pounds. May attain weights of 20 pounds in some lakes.

Natural History

Prefers deep, cold water lakes. The species travels in schools and feeds on bottom insects and molluscs. It is also known to feed on zooplankton in the open water zone. Spawning occurs in the late fall, probably early December in Otsego Lake, in shallow inshore areas. Apparently silt free spawning areas are necessary for successful reproduction. Spawning occurs at night and the eggs hatch in late winter. Whitefish remain in deep water during the summer period. Lake whitefish attain their average maximum length of 18 inches during their sixth growing season.
Otsego Lake Fisheries

The first record of the whitefish in Otsego Lake was in 1842. In 1935 a biological survey of the watershed listed the whitefish as being abundant in the lake. Standardized gill netting practices show whitefish population remaining fairly constant to date. A total of 24 whitefish were processed by field station personnel ranging in size from 12 inches to 18.9 inches and 1.06 pounds to 3.33 pounds. Angler success for whitefish has decreased sharply through the years. Over 95 percent of the two whitefish caught by anglers in the summer of 1979 were ciscoe. This may be a function of increasing ciscoe numbers and the fact that these two species do not occupy the same food niche. One investigator feels that changing water quality may be detrimental to the more "sensitive" whitefish population (Newell, 1976). Trolling for whitefish using color coded lead line is a popular method in Otsego Lake. Ice fishing for whitefish in over 70 feet of water using a four way "biter" with scraps of seafood (scallop) or pieces of perch can be a successful approach. Double hook snatching is also a tried method. The whitefish like the ciscoe is an excellent table fish.

BROWN TROUT
Salmo trutta Linnaeus

"Salmo" is the Latin name for salmon of the Atlantic
"trutta" is Latin for trout

Other common names: Loch Leven trout
brownie

Description

Body is trout like, with the upper jaw (maxilla) extending past the eye. The general background color is olive brown to golden brown with three or more spots on the operculum. Large dark spots are also found on the sides of the body, dorsal and adipose fins and on the top lobe of the tail fin. Light halos appear surrounding these spots.
Distribution

Introduced from western Europe and Scotland, it is now widely distributed in the United States.

Size

Large 30 inch fish are sometimes caught but most browns are 7-15 inches, weighing less than 1 pound. 2-3 pound browns are not uncommon in lakes.

Natural History

Occurs in both streams and lakes and can withstand water temperatures in excess of 80°F. Temperatures between 65°F and 75°F are best. Spawning occurs in late fall when the species migrates upstream to gravel riffle areas. The male hollows out a depression (redd) where it entices the female to release her eggs. The eggs are covered after being fertilized and hatch the following spring. Its diet consists of aquatic insects and fish foraged during the twilight and night time hours. Although the most adaptable of trout, it is considered a hard species to catch.

Otsego Lake fisheries

Occasional large brown trout are caught in the northern section of Otsego Lake. Apparently these are fish that utilize tributary streams in that area for spawning. It is doubtful that browns are common in the lake at the present time. Consideration should be given to the stocking of this species. In the lake system, food is prevalent and the fish can adapt well to changing water quality conditions.

LAKE TROUT

*Salvelinus namaycush* (Walbaum)

“Salvelinus” is old name for Char
“namaycush” is an Indian name meaning “dweller of the deep”

Other common names: toque, mackinaw trout, lunge
Description

More elongate than other trout species, with a forked tail and a silvery gray body. No bright colors, the grayish body is spotted and the leading edge of the lower fins are sometimes bordered with white. As in the brook trout, the teeth on the roof of the mouth are confined to a small cluster near the front. Young lake trout have 5 to 12 dark parr marks along their sides.

Distribution

The lake trout is native to northern North America. It is found from Alaska to Labrador, southward to northern New England and New York.

Size

Largest member of the trout family with maximum weight of 100 pounds. Individuals weighing 10 to 25 pounds are not unusual in large lakes.

Natural History

Likes deep, cold, well oxygenated lakes and avoids summer temperatures in excess of 65°F. Stays in the deep, cold areas of a lake in the summer and disperses in the fall when water temperatures reach 50°F. Lake trout less than 9 inches feed on aquatic insects and crustacea, trout in excess of 9 inches feed on yellow perch, whitefish, ciscoe, minnows and suckers. Spawning takes place from early November to early December in 3 feet to over 100 feet of water. Spawning occurs in the evening where the eggs are broadcast indiscriminately over shoal areas. Windy and stormy weather seem to encourage spawning activity. The lake trout is a slow growing species with a 10 to 20 year life span.

Otsego Lake Fisheries

Otsego Lake is located on the southern fringe of the lake trout's range. Lake trout in this system do not grow as well as Adirondack and Finger Lake populations. In the face of poor "laker" fishing, the New York Environmental Conservation Department embarked on a long range management program for the lake. For a period in the early 50's and from 1968-1978, lake trout yearlings of Adirondack and Finger Lake strains were stocked. Standardized gill netting was employed during this period to check on the status of these two strains and the native population of lake trout. In addition, in 1976 the minimum size limit of 15 inches was increased to 21 inches to ensure that females were able to reach maturity and spawn before being exploited by the angler. As a result of the management plan the lake trout fisheries has improved (Sanford, 1979). Netting results show an increase in the abundance of native lake trout and slow growing Adirondack strain fish are beginning to appear in the legal fisheries. Although Otsego Lake will probably never be an "excellent" lake trout fishery, conditions are improving and "trophy" fish can be caught by anglers. Trolling with deep spoons is the most popular method used, although drift fishing with a live 5-7 inch minnow or a freshly killed minnow or sucker "bumped" slowly along the bottom will catch lake trout.

"Ice out" is a good time to get lakers in the shallows. A fly rod equipped with tandem streamers or smaller livebait is fished from a canoe. Drift slowly along the ice edge near stream outlets. Lake trout are considered "fair" table fish.
ESOCIDAE

REDFIN PICKEREL
_Esox americanus_ Gmelin

"Esox" name for European "Pike"
"americanus" means from America, first new world species to be recognized

Other common names: bulldog pickerel
banded pickerel
tROUT pickerel

Description

Body conformation is similar to the chain pickerel but it is a smaller fish. The red fin has a shorter snout than the chain pickerel. In this case the distance from the tip of the snout to the center of the eye is equal to or less than the distance from the center of the eye to the rear margin of the gill cover. Body coloration is olive green on the back shading to a lighter yellow green on the sides. The species has bright red or orange unspotted fins. A dark bar beneath each eye slants downward and posterior. Instead of the chain-like marking of the chain pickerel the redfin possess fairly distinct vertical curved bars on its sides.

Distribution

Confined primarily to the Atlantic drainage system.

Size

Usually not in excess of 12.0 inches. It is the smallest member of the pike family.

Natural History

Found in shallow vegetation choked lake waters. Its diet is of small fish and its spawning habits are similiar to the chain pickerel. They spawn in early spring, scattering their eggs over submerged vegetation and then deserting them. The maximum age of the species is 7 years. A 12 inch redfin is approximately 6 years old.
Otsego Lake fisheries

The redfin pickerel is of little or no significance in the overall fisheries of the lake. It is not abundant and is easily mistaken for the chain pickerel when caught by anglers.

CHAIN PICKEREL
Esox niger, Leveur

"niger" means black

Other common names: pickerel
reticulated pickerel
green pike
eastern pickerel

Description

The chain pickerel has a slender elongated shape, a large mouth, and both dorsal and anal fins are placed far back on the body. The fish's back is dark green, it has chain-like markings on its sides and the belly is a creamy white. The chain-like markings are not developed on pickerel less than 6-8 inches. A conspicuous dark bar occurs under each eye. The dark bar extends straight down or is slanted slightly forward. The operculums and cheeks are fully scaled. This species is often confused with the redfin pickerel especially with specimens less than 8.0 inches in length. If the distance measured from the tip of the snout to center of the eye is greater than the distance measured from the center of the eye to the rear margin of the gill cover, the fish is a chain pickerel.

Distribution

Found throughout the eastern United States from Nova Scotia to Florida west to the Mississippi River system.

Size

The average size range of pickerel taken in Otsego Lake is from 12 to 20 inches. Larger individuals, 30-39 inches have been recorded from other lakes. The United States angling record is 31 inches—9 pounds.
Natural History

The chain pickerel is a solitary species inhabiting shallow weedy waters with a mud bottom. It is a voracious carnivore feeding on aquatic insects and small crustaceans during its first year of life. As the pickerel grows larger it becomes more piscivorous showing a preference for golden shiners, bullheads, yellow perch, and small sunfish. Spawning occurs in the spring shortly after ice out in marshy backwater areas of lakes. Strings of gelatinous eggs are strewn over vegetation. No parental care is provided. The eggs hatch in 6 to 12 days. Chain pickerel in Otsego Lake obtain lengths of 6-8 inches in size by their 4th and 5th years of life. Most chain pickerel die by their 3rd and 4th year of life although occasional specimens are aged at 10 years with lengths in excess of 30 inches obtained.

Otsego Lake fisheries

Pickerel in excess of 18 inches were sampled by conventional boat electro-fishing in the following areas; Rat Cove to Brookwood point on the southwestern sector of the lake and in the shallows near sunken island in the northwest areas of the lake. Generally, ice fishing for pickerel on Otsego Lake has declined through the years. This species is easily exploited through various angling methods. The newly imposed 15 inch minimum length limit will definitely encourage better fishing for the future. Pickerel may be taken using a variety of angling methods. Trolling or spin casting with plugs, still fishing with frogs or using minnows through the ice are well accepted procedures. The pickerel is considered a fair table fish. It is better tasting when caught during the winter period. The fish should be skinned before cooking. As a result of a growing focus on warm and cool water fishes and coupled with positive regulation changes the future for the chain pickerel in Otsego Lake should improve.

CYPRINIDAE

Carp

"Cyprinus" is after the island of Cyprus from where the carp was introduced throughout Europe.

"carpio" is Latin for carp

Other common names: German carp
                  European carp
                  mirror carp
                  leather carp
Description

A robust fish with a single spinous ray in its dorsal fin, it also has two fleshy barbels on each side of the jaw. General color is golden olive, sides are yellowish, underparts are white. Scales have a definite cross-hatch appearance.

Distribution

Coast to coast. Common in the eastern United States.

Size

A large fish, 10-15 pound individuals not uncommon. World's record is 83½ pounds.

Natural History

This species was introduced into the United States from Europe in 1876. It is extremely tolerant of a wide variety of environmental conditions. The carp is a prolific breeder, a 20 pound female may produce over 2 million eggs. Spawning takes place in the spring and early summer, at which time the carp can be seen rolling and splashing about on the surface of the water. This activity occurs both day and evening with the female broadcasting her eggs indiscriminately into the water. The carp is an omnivore, eating algae, higher aquatic plants, insect larvae, and crayfish. Carp will also suck up a mouthful of bottom ooze and detritus expelling it back into the water while selecting out food items. Molar-like pharyngeal teeth facilitate the grinding of plant material. Some carp have scales which are enlarged and scattered on the sides of the body. These individuals are known as mirror carp. In other individuals scales are lacking and these individuals are referred to as leather carp.

Otsego Lake fisheries

Carp are abundant in all the shallow coves of Otsego Lake, with 6-15 pound specimens readily available. Their life history habits are certainly detrimental to many of the sunfish species which occupy the same general habitat. Nesting sites are destroyed and spawn eaten by these large voracious feeders. Fishing for carp is fun, they are readily taken by hook and line and put up a strong fight. Properly prepared it is a good table fish and is often highly regarded as excellent when smoked.

This species is generally looked upon as a underfished resource in Otsego Lake. In 1979 a 17½ pounder was taken on 6 pound test line off a dock. Anglers report that 30-40 pound carp are prevalent.
GOLDEN SHINER
Notemigonus crysoleucas (Mitchell)

"Notemigonus" refers to back being shaped like a keel
"crysoleucas" means gold, white

Other common names: American roach
bitterhead

Description

Small pointed head, strongly compressed and rather elliptical body. This species has a decurved lateral line, sickle shaped anal fin and a keel on the midline of the belly behind pelvic fin. Adults have a golden or brassy color. Young golden shiners have a dusky lateral band that fades when the fish reaches 4 inches.

Distribution

Occurs throughout the United States.

Size

Adult sizes 4-7 inches. May reach a maximum size of 12 inches.

Natural History

Likes quiet waters of lakes with thick vegetative growth and mud bottoms. Usually associated with chain pickerel, yellow perch, and largemouth bass. Exhibits schooling tendencies. This species spawns during the spring and summer over submerged vegetation. A single female may produce 200,000 eggs and spawn several times. Growth is very fast; 2-3 inches a year. Sexual maturity may not be reached until the third year. This shiner feeds on microscopic animals strained from the water.

Otsego Lake fisheries

Golden shiners are common in Otsego Lake. Many 8-10 inch fish have been sampled by field station crews. It is probably a very important forage fish for chain pickerel and black bass. Because it is a prolific spawner and a plankton feeder it probably would not be adversely affected by competition from suckers and carp.
COMMON SHINER

Notropis cornutus (Mitchell)

"Notropis" refers to back; keel
"cornutus" means "horned" refers to breeding tubricles
on head of male during breeding season

Other common names: silver shiner
roughhead shiner

Description

Body stout, compressed laterally, head triangular, mouth large and terminal. Pelvic fins are small, originating just under the origin of the dorsal fin. Overall coloration is silvery with a purple or gray stripe along the back. Lateral line is concave and scales are readily shed giving the fish a patchy appearance. Breeding males are brightly colored with red streaking on all fins and the head region.

Distribution

Found throughout North central and Northeastern states.

Size

Average length 2.5-4.0 inches. Occasionally reach 6.0 inches.

Natural History

Found in both lake and river systems, principally a stream species. In lakes it spawns in May and June in shoal areas. Its diet consists of aquatic insects, algae and other aquatic plants. May be preyed upon by bass and walleye. Considered a good bait fish.

Otsego Lake fisheries

Collected in shallows of Hyde Bay. This species does not seem to be widespread in the lake, probably associated with lake tributaries.
BRIDLE SHINER
Notropis bifrenatus (Cope)

"bifrenatus" means two-bridled

Other common names: bridled shiner
bridled minnow

Description
A small slab sided minnow with a lateral band running through the eye and around the snout. It has large eyes and a straw colored back.

Distribution
Maine to Virginia, common in the Atlantic coastal drainage.

Size
A small minnow; 1½-2 inches.

Natural History
It prefers a habitat of weed beds near the margin of the lake (in backwater areas). It is also considered a gregarious fish. Spawning takes place during the spring and early summer in quiet backwaters among aquatic vegetation. Its diet consists of small aquatic insects and crustacea. It is an attractive bait for bass and is easily taken by yellow perch and pickerel.

Otsego Lake fisheries
A few specimens were collected in the shallow weed beds of the north sector of the lake. Information on its role as a forage fish in the lake is unavailable.
BLACKCHIN SHINER
Notropis heterodon (Cope)

"heterondon" means varying tooth

Other common names: blackchinned minnow

Description

The blackchin shiner is a stout bodied little fish. Its body is bronze to olive yellow with silvery sides. A dusky lateral band extends over the head and on to the chin. Dark edges of the scales on and near the lateral line produce a zig-zag effect along the sides of this fish.

Distribution

Great lakes and throughout the north central states. Otsego is on the eastern boundary of the range of the species.

Size

This little shiner seldom exceeds 2 1/2 inches.

Natural History

The blackchin shiner seems to prefer lakes and is not able to withstand increased turbidity and siltation. It feeds primarily on immature aquatic insects and small crustaceans. Spawning probably occurs in May or June. Very little is known concerning the natural history of this species.

Otsego Lake fisheries

It occurs only sporadically in Otsego Lake. It may be used as a forage fish for some predators but is probably not an important food species for Otsego Lake game species.
SPOTTAIL SHINER
Notropis hudsonius (Clinton)
“hudsonius” from Hudson River, N.Y.

Other common names: spottail
spottail minnow
spawneater

Description
A silvery shiner with a distinct candal spot. The scales along the lateral line may show small crescent-shaped bars. The back of the shiner is pale green to olive. The sides are silvery.

Distribution
Hudson River south to Virginia.

Size
Maximum size 5-6 inches.

Natural History
Usually found in large schools over sand or gravel bottom. Spawning usually occurs in midspring over shoals or near the mouths of tributaries. Feeds on zooplankton and aquatic insects. Usually considered a shiner of relatively large lakes. This species is considered an important forage fish.

Otsego Lake Fisheries
A very common species occurring throughout the lake including the open water zone where along with the rosyface shiner it has been collected in large numbers. The spottail is one of the most abundant forage species in Otsego Lake and deserves further study to determine its precise significance as a food species for game fish.
**DESCRIPTION**

A silver blue minnow with a lavender lateral band. The snout is sharply pointed and the pelvic fins are well in advance of the origin of the dorsal fin.

**Distribution**

Found from North Dakota to the St. Lawrence and Hudson rivers south to Virginia.

**Size**

Average size 2-3 inches. Large specimens 5 inches.

**Natural History**

The rosyface generally prefers flowing water of streams and rivers to the quiet waters of lakes. It is fairly intolerant of turbid and silted water. Spawning takes place from late May to late June. Apparently the rosyface is an omnivorous species feeding on aquatic insects, diatoms, and inorganic material. Because of its intolerance of turbid situations it may have some utility as a water quality indicator.

**Otsego Lake Fisheries**

Found throughout the lake including the open water zone. The most abundant shiner collected by means of night electrofishing. Along with the spottail shiner, this species should be studied further for its suspected role as an important forage species.
SPOTFIN SHINER
Notropis spilopterus (Cope)

"spilopterus" means spot

Other common names: silverfinned minnow

Description

Body compressed laterally, head pointed, snout slightly overhanging mouth area. Color is silvery with a broad lateral band only on the posterior half of the body. Very noticeable in preserved specimens. The most distinct marking is the concentration of black pigments between the last three rays of the dorsal fin.

Distribution

Found throughout central and north central United States east to Champlain and Hudson drainage system.

Size

Most individuals, 2-3 inches. Maximum size 4½ inches.

Natural History

Found in both rivers and the shallow margins of lakes. Spawning takes place in late May to early August. The eggs are adhesive and laid on the underside of submerged logs and roots. The major part of its diet consists of aquatic insects. This species may serve as a forage fish for important game species.

Otsego Lake Fisheries

This species is common in the shallows of the northern-most sector of the lake. It may be an important fish for pickerel and yellow perch although information to this point is lacking.
BLUNTNOSE MINNOW

*Pimephales notatus* (Rafinesque)

"Pimephales" means fathead
"notatus" means noted or spotted

Other common names: bluntnosed minnow

Description

The body of this fish is tubular, not strongly compressed laterally. The mouth is inferior and overhung by the snout, the back is a black olive green and the sides are silvery. Scales have a dark edge which gives a "crosshatch" appearance to the scales outline on the fishes sides. A conspicuous black spot appears at the base of the caudal fin near the anterior base of the dorsal fin. As viewed from above the scales appear crowded near the head region. This species is most often confused with the fathead minnow. The latter species may be distinguished by its terminal mouth.

Distribution

Found throughout central North America including the Great Lakes region. Also found throughout the Hudson River drainage system.

Size

A small minnow - usually 2-3 inches.

Natural History

Prefers sand and gravel bottom of clear lakes. Also found in streams. It can withstand a high degree of pollution and turbidity. This species spawns from late May to June. The male builds a nest in shallow water, six inches to three feet in depth. The bluntnose is almost entirely a detritus feeder, (bottom ooze). This species is an important forage fish and may in turn eat the spawn of other fish.

Otsego Lake Fisheries

This species is common in the shallow waters of Otsego Lake where it probably plays an important role as a forage fish for yellow perch, rock bass and sunfish.
BLACKNOSE DACE
*Rhinichthys atratus* (Hermann)

"Rhinichthys" means snoutfish
"atratulus" means dressed in black

Other common names: dace
potbelly
brook minnow

Description

A small minnow with a lateral band which extends around the snout, through the eye to the tail. Its snout projects beyond a subterminal mouth. The back is dark grey and the lower sides and belly are silvery white. Breeding males have their lateral band and lower fins dashed with red.

Distribution

Found throughout the Great Lakes and Atlantic coastal drainage.

Size

Seldom reaches 4 inches in size. Average size is 2-3 inches.

Natural History

This species is seldom found in lakes. It spawns in the riffle areas of streams where it builds a nest of small pebbles. The spawning period for this species is late spring and early summer. It feeds primarily on insect larvae.

Otsego Lake Fisheries

Like the longnose dace it is found only sporadically at the mouths of tributary streams. It is of virtually no importance in the overall fisheries ecology of the lake.
LONGNOSE DACE
Rhinichthys cataractae (Valenciennes)

"cataractae" means of the cataract-original specimen from Niagara Falls, N.Y.

Other common names: longnosed dace

Description

A dark green olive-backed minnow with a long snout overhanging the mouth. Silvery white on the belly with the dark dorsal color fading below the midpoint of the sides. Some populations may have a distinct lateral line.

Distribution

Found coast to coast, primarily a stream species.

Size

Small minnow, maximum length 4½ inches.

Natural History

Prefers gravel riffle areas of streams, but on occasion is found in lakes near the mouth of small tributary streams. Definitely prefers fast moving water. Spawning takes place May through July. Its diet consists largely of blackfly and chironomid larvae. May attain a length of 4 inches in 5 years. This species is not considered a good bait fish.

Otsego Lake Fisheries

Found near the mouth of some tributary streams. Considered of little importance to Otsego Lake game species.
CREEK CHUB

*Semotilus atromaculatus* (Mitchill)

“*Semotilus*” means banner (i.e. dorsal fin)
“*atromaculatus*” means black spot

Other common names: horned dace
chub
northern creek chub

**Description**

Its back is olive with a steel blue overcast, sides are light and silvery with a purple iridescence. Its underparts are whitish, its mouth is large. A good identifying characteristic is the presence of a prominent dark blotch at the origin of the dorsal fin. Breeding males have horny tubercles on the head hence the name “horned dace”.

**Distribution**

Found throughout the central and eastern part of southern Canada and the eastern United States. For the most part a stream species.

**Size**

This member of the minnow family may reach a length of 12 inches in 6 or 7 years. Average sizes are usually half this length.

**Natural History**

An omnivorous species feeding on insects, small fish and plant material. It spawns in spring and early summer on the gravelly bottoms of streams. This species is looked upon as a prize bait species.

**Otsego Lake Fisheries**

The creek chub is of little value to the fisheries of Otsego Lake. It is confined to the shallow areas next to the mouth of tributary streams which enter the lake.
**COMMON WHITE SUCKER**  
*Catostomus commersoni* (Lacepede)

"Catostomus" means inferior mouth (beneath the snout)  
"commersoni" is a tribute to P. Commerson, early French naturalist.

Other common names: sucker  
mullet  
eastern sucker

**Description**

The white sucker has a cylindrically shaped body, a squarish head with a blunt snout that overhangs the upper lip. It has a conspicuous sucking mouth with fingerlike papillae covering the lip area. The back is olive brown to black with ventral areas silvery or creamy. Young white suckers have three distinct dark blotches on their sides. Breeding males have coarse tubercles (pearl organs) on anal and caudal fins.

**Distribution**

Found from Labrador to Georgia and west to the MacKenzie River and New Mexico.

**Size**

Average length range 10-20 inches and $\frac{1}{2}$ to 3 pounds. May reach 2 feet and 4-5 pounds.

**Natural History**

The white sucker lives in shallow waters of lakes usually avoiding deep water. It lives on the bottom where it feeds on a variety of animal and plant material. Insect larvae, worms and algae are actively sought. Sunrise and sunset are the most active feeding times for this species. The white sucker spawns in April and May when it ascends tributary streams. Spawning takes place at night without any nesting or parental care involved. This species is tolerant of poor water quality and may thrive at the expense of other less tolerant species.
Otsego Lake Fisheries

The white sucker is very abundant in all of the shallow cove areas of Otsego Lake. Electrofishing in the summer of 1979 sampled significant numbers of white suckers in the 20-25 inch size range. Suckers will feed on the eggs of other species and generally provide a less acceptable environment for panfish and other species. Suckers are generally regarded as trash fish and are thought to be indicative of deteriorating water quality. Although not usually sought after by anglers their flesh is firm and palatable especially after spawning. It is generally regarded as a good smoked fish. Small suckers under 12 inches are preyed upon by black bass, walleye, burbot, and lake trout.

CREEK CHUB SUCKER
_Erimyzon oblongus_ (Mitchill)

"Erimyzon" means to suck
"oblongus" means oblong

Other common names: chubsucker
sweetsucker

Description

The creek chubsucker has an oblong, laterally compressed body which lacks a lateral line. Its mouth is surrounded by lips which are pleated. Prominent dark lateral bands appear on a brownish to coppery background. The dark lateral bands tend to become less defined as the fish grows older. The dorsal fin usually contains eleven to twelve fin rays.

Distribution

Found throughout most of the eastern United States west to Texas.

Size

Attains a maximum length of 14 inches and a weight of two pounds.

Natural History

The creek chubsucker is usually found in warm water lakes having a soft-mud bottom covered with dense aquatic vegetation. This species is a spring spawner ascending streams to spawn over gravel and rubble. It feeds on a variety of lake bottom organisms.
Otsego Lake Fisheries

The creek chubsucker's importance to the lakes fisheries is minimal. Occasional individuals were taken in trap nets and with electrofishing gear in rat cove, a shallow area with a dense growth of higher aquatic plants. All specimens were under 10 inches. Black bass and chain pickerel may utilize the chubsucker as a forage species.

**ICTALURIDAE**

**BROWN BULLHEAD**

*Ictalurus nebulosus* (Lesueur)

"*Ictalurus*" means fish cat
"*nebulosus*" means cloudy-mottled or gray coloration

Other common names: catfish, horned pout, bullhead

**Description**

Color is yellow brown to dark brown on the back, darker mottling or blotches on the sides and whitish below. Spines are located on the pectoral and dorsal fins. Serrations or teeth are located on the posterior edge of the pectoral and dorsal spine. The chin barbels are black and the caudal fin is square euged.

**Distribution**

Found from southern Canada, throughout the eastern United States to Florida.

**Size**

Adult bullheads are 6-14 inches weighing less than 1.0 pound. Some adults may attain a maximum size of 18 inches and 4 pounds.
Natural History

Abundant in shallow bays, prefers mud bottoms and is considered a very hardy fish. It may survive temperatures up to 90°F and oxygen levels as low as 1.0 p.p.m. or less. Bullheads may respire through the air bladder and can survive for extended periods buried in the mud. Spawning occurs in May and June when both sexes help construct a nest in less than two feet of water. The parents guard the eggs and nest. Clusters of coal black young emerge from the nest and can be seen in schools accompanied by adults. The brown bullhead eats everything including dead fish and garbage. It is a notorious bottom feeder foraging at night on such items as crayfish. Stunted populations frequently occur in lakes and ponds. May be an important forage species for game fish populations.

Otsego Lake Fisheries

Brown bullheads are abundant in all the shallow cove areas of the lake. Most of the bullheads collected by survey staff were between 6-10 inches although occasionally 12 inch specimens were processed. These larger individuals were from 6 to 8 years old. Fishing for bullheads in Otsego Lake can be fun. Any fishing tackle will do, doughballs, hellgrammites, and earthworms are all commonly used bait. The flesh is firm and sweet tasting and excellent fried or in a chowder. Chain pickerel and walleye will utilize the bullhead as a forage species.

MARGINED MADTOM

*Noturus insignis* (Richardson)

"Noturus" means tail over back
"insignis" means remarkable or extra ordinary

Other common names: eastern madtom

Description

A small slender-bodied catfish with a wide flattened head. The adipose fin is attached at its entire length to the back and is continuous with the caudal fin. The fins are often margined with black. This species has very sharp pectoral spines with a venom gland at the base of the spine. It is capable of inflicting a painful sting.
Distribution

Southern Canada to Georgia on the eastern side of the Appalachian mountains.

Size

Most adults are 4-5 inches long.

Natural History

Like other catfish this madtom is a nocturnal species. Usually considered a stream species it occasionally will become established along the margins of lakes. The diet of this species includes quantities of aquatic insects, small snails and some vegetation. Spawning takes place in early summer.

Otsego Lake Fisheries

Only a few specimens were collected near the east shore of the lake by night electrofishing. There is no information available on the abundance, distribution and significance of the margined madtom in Otsego Lake. This species probably gained access to the lake from tributary streams and has become sporadically established along the lake margin.

GADIDAE

BURBOT

*Lotia lota* (Linnaeus)

"Lota" from French derivative meaning pout

Other common names: Cusk
ling
lawyer
eel pout
freshwater cod

Description

The burbot has a somewhat elongated eel shaped body with a barbel on each anterior nostril and a longer barbel in the middle of the chin. The first dorsal fin is small and is followed by a second dorsal fin which is elongated and similar in shape to the anal fin. The burbot is marbled on its sides with black and yellow markings. This characteristic marbling and blotchy appearance is more pronounced on young fish.
Distribution

This species is a northern hemisphere cold water fish. Its range extends as far south as the Susquehanna drainage. It appears in significant numbers in the upper Susquehanna River near Cooperstown. The western extension of its range is to the Mississippi River system north of Missouri.

Size

The average length of the adult is 18 inches with an average weight of 1.0 pounds. Record sizes of 4.0 feet and 75 pounds have been recorded in some lakes, but in its southern range it is unlikely that a size of 30 inches is attained.

Natural History

During the summer months the burbot is found in the deep colder waters of Otsego Lake where it competes with the Lake trout and whitefishes. During the midsummer it is lethargic and appears to go into partial hibernation. The burbot is noted for its voracious appetite, feeding at night on the young of lake trout, ciscoe and whitefish. It is also known to consume large quantities of yellow perch.

The burbot is very active throughout the winter months and it is during this period that spawning occurs. The reproductive season is from December to March with the bulk of the spawning taking place in February. The species spawns at night under the ice in 1 to 4 feet of water. A large female may produce 1.0 million eggs at a single spawning. No nest is constructed. The eggs are broadcast freely over the bottom, fertilized and immediately abandoned. Growth during the first 4 years is rapid. Females grow faster than males and may reach sexual maturity in 3 or 4 years. At age 5 the burbot may reach 20 inches and weigh 2-3 pounds. The maximum life span of the species in the wild is 20 years.

Otsego Lake Fisheries

A few burbot are caught by anglers using tip-ups during the ice fishing season. Although the species is considered a good table fish, its flesh is white, firm and tasty, its repulsive appearance and general inaccessibility in Otsego Lake are reasons for little or no utilization by anglers. In the summer of 1979, several 6-8 inch burbot were sampled by field station biologists during standard electrofishing surveys. Information concerning the role of the burbot in the lake's fisheries is unavailable. It is unlikely that the burbot occupies a significant position as a predator on sport salmonids in Otsego Lake. Changing water quality conditions coupled with the fact that the lake is situated on the southern fringe of the species range are main factors for the burbot's poor showing.

CYPRINODONTIDAE

BANDED KILLIFISH

_Fundulus diaphanus_ (Lesueur)

"Fundulus" means bottom
"diaphanus" means transparent
Other common names: freshwater killy
topminnow
barred minnow

Description

The banded killifish is a slender little fish with a depressed head and a somewhat square-edged tail. The fish is olive green above, silvery on the sides with 12-20 dark vertical bars on each side. The female of the species lacks the silvery color and as a rule has fewer vertical bars than does the male.

Distribution

Great Lakes east to the Atlantic coastal plain. Introduced into many areas as a direct result of bait fishing.

Size

The average size of the banded killifish is 2-3 inches. Maximum size is 4 inches.

Natural History

Usually found in large schools in the shallow areas of Otsego Lake. The open sand bottom areas of Blackbird Bay near the village of Cooperstown are a good habitat for this species. The banded killifish generally avoids dense weed beds. Spawning occurs throughout the summer from April to September. The eggs are scattered over the bottom of shallow areas and abandoned. Aquatic insects are the chief food item for this species. This killy will also feed on small crustaceans and plant material. The banded killifish is a hardy species and is considered an excellent bait fish.

Otsego Lake Fisheries

The extent to which the banded killifish constitutes a forage species for black bass and pickerel in Otsego Lake is not known.
Description

A rockbass has a body which is heavier than most sunfish. Important characteristics are a large mouth, reddish eye and 8-10 horizontal rows formed from spots located on each scale. The effect produced is one of a series of interrupted horizontal streaks. The back and sides take on a dark olive brown color with a brassy tinge.

Distribution

Great Lakes region to Lake Champlain. It has been introduced into the Atlantic drainage system.

Size

Maximum size 8-10 inches. The record rockbass is 3 pounds.
Natural History

Common near weedy margins of a lake. It prefers areas with snags and logs at a water depth of 4-8 feet. The principal food items are aquatic insects and small fish. Spawning occurs during the month of June when water temperatures reach 60-70°F. At that time, the male prepares a nest and actively guards the young when they hatch. The young are recognized by their characteristic black marblings pattern on each side. The rockbass usually travels in small schools. It usually takes 5-7 years to reach a size of 8-9 inches. Maximum age is 10-12 years.

Otsego Lake Fisheries

Fishing is good for this species in Otsego Lake. Rockbass 8-10 inches are prevalent and easy to catch. A size six hook is a good choice using a wide variety of bait. Night crawlers, hellgrammites and small silver or gold colored lures are excellent. The species fights hard although it is not considered a very palatable fish, its flesh often having a "muddy" flavor. Selected habitats from Brockwood point to three mile point are good areas to fish for rockbass. Also, sections north of point Judith on the east shore of the lake represent excellent habitat for this species. Competition with smallmouth bass in Otsego Lake may occur.

REDBREAST SUNFISH
*Lepomis auritus* (Linnaeus)

"Lepomis" means scaly operculum
"auritus" means eared-refers to elongated opercular flap

Other common names: longear yellowbelly flatside
Description

The redbreasted sunfish may be recognized from other sunfish by its long narrow uniformly black opercular flap. Its pectoral fins are small and rounded and its breast is a bright orange-red. The fishes back is olivaceous and its flanks are light blue.

Distribution

Atlantic and Gulf drainage areas from New Brunswick to Louisiana.

Size

Average length from 5-8 inches. Its maximum size is 12 inches.

Natural History

Generally this species prefers streams and rivers. In lake systems it is usually found in association with rockbass and blackbass. Unlike some of its sunfish relatives it does not require heavily weeded lake waters. It spawns in the middle of June when the water temperature reaches 60°F. The male constructs a nest in less than two feet of water. The male also guards the nest and protects the young. The principal food items in the diet of the redbreast are crustaceans, aquatic insects and small fish. In turn chain pickerel and bullheads may consume small redbreasts. This species is solitary in its habits during the summer months. In the winter redbreast congregate in deeper water.

Otsego Lake Fisheries

The redbreast reaches a larger size than its cousin the pumpkinseed. Redbreasts reaching lengths of 8-9 inches are not uncommon in Otsego Lake. Good fishing for this species is available using live bait—worms, crickets, and minnows as well as a variety of small spoons and wet or dry flies. When feeding on the surface, as it often does, it will snatch a dry fly or a popping bug. Unlike most sunnies it can be caught at night because it forages after dark. Shallow areas from Rat cow to three mile point on the western shore of the lake are preferred fishing areas for this species.
PUMPKINSEED
*Lepomis gibbosus* (Linnaeus)

"gibbosus" means like a full moon—refers to body shape

Other common names: sunny
punky
kibbee

**Description**

A common sunfish which is easily recognized by the bright scarlet spot on the lower rear margin of the opercular flap and wavy emerald blue streaks on the side of the head radiating back from the snout and eye. The color is greenish-olive on the back and the sides are spotted with orange and with reflections of blue and gold. The belly is orange-yellow. The pectoral fins are long and sharply pointed.

**Distribution**

Found throughout the Northeastern United States west to the Mississippi River System.

**Size**

Maximum length 8-9 inches. Most adults are 5-7 inches in size.

**Natural History**

The pumpkinseed likes areas where aquatic vegetation is prevalent. It feeds primarily by grazing on aquatic insects and small crustaceans. Reproduction occurs throughout the summer with the male building a nest in 1-3 feet of water. The male aggressively guards the newly hatched fry. Stunted populations of pumpkinseed are often found in lake and pond systems. In some instances spawning females are no larger than 2½ inches. Stunted populations of this sunfish may also compete with large and smallmouth bass.
Otsego Lake Fisheries

Pumpkinseeds are common in the shallow weedy coves of Otsego Lake. In many cases they share this habitat with several other species of sunfish and dense populations of white suckers and carp. The pumpkinseed does not grow rapidly in this environment and its spawning habitat is probably adversely affected by competition from these species. Youngsters enjoy fishing for the pumpkinseed, it is easily caught still fishing with live bait. The species is palatable, its flesh is sweet and delicious. There is no bag limit on the pumpkinseed in New York State.

BLUEGILL
*Lepomis macrochirus* (Rafinesque)

"macrochirus" means longhand-in reference to body shape

Other common names: bream
kivver
blue sunfish
roach

Description

Easily recognized by a conspicuous dark blotch at the back of the soft rayed portion of the dorsal fin. This species has a slate blue lower jaw and cheek (source of common name). It also bears a large black opercular flap. Body color varies more than any other sunfish. Generally, the body color is olivaceous to bluish, black on the back with faint dark vertical bands on the sides.
Distribution

Southern Canada, United States east of the Rocky Mountains.

Size

Maximum length 15 inches, weight 4½ pounds. Average size range 5-9 inches.

Natural History

The bluegill prefers quiet, warm, weedy waters. Often found close to shore under docks or overhanging limbs. This species is least active during the middle of the day. It moves into the shallows at early morning and evening to feed. Its principal food items are aquatic insects and small fish. Bluegills spawn throughout the summer into early fall. The male is very aggressive during the spawning season. A nest is built over a sandy bottom area in two to six feet of water. Growth approximates one inch per year. A nine inch bluegill may be six to eight years old. The bluegill is one of the main sport fish in the central United States.

Otsego Lake Fisheries

Most of the bluegills surveyed in Otsego Lake were between six to nine inches in size. Any of the shallow weedy coves in the lake support bluegills. Since this species has a small mouth its a good idea to use a size 8-10 hook. Grasshoppers and worms are especially appetizing. The species nibbles at the bait so a degree of patience is needed. It is a great sport for fly fisherman using light tackle. Competition from suckers and carp in shallow areas may be detrimental to the future of the bluegill in Otsego Lake.

SMALLMOUTH BASS

*Micropterus dolomieu*, Lacépède

"Micropterus" means small fin
"dolomieu" is a tribute to M. Dolomieu,
a French mineralogist

Other common names: smallmouth
blackbass
Also called white or mountain trout in the southern United States.
Description

May be distinguished from the largemouth bass by the following criteria: the upper jaw does not extend past the rear edge of the eye when the mouth is closed and the membrane connecting the spiny first dorsal fin to the soft dorsal fin is broad. The background color of the smallmouth is olive-green or brownish bronze, with obscure vertical bands on its sides. Young smallmouth possess a conspicuous tricolored tail, yellow-orange at the base, white at the tip, and black between.

Distribution

Great Lakes to the Mississippi River system.

Size

May reach 4-6 pounds, most smallmouth are in the 2-3 pound category. Record catch is 27 inches, 11 pounds, 15 ounces.

Natural History

Smallmouth prefer clear lakes with a gravel or rock bottom. Known as a solitary fish found at depths of two to twenty feet. Usually semidormant during the winter period. Spawning occurs when water temperature reaches 65°F. in the late spring and early summer at which time the male constructs a nest which is a depression two to three feet in diameter in two to twelve feet of water. Shortly after hatching the jet black young can be seen swarming over the nest area. The male guards the young for approximately a two week period. Males mature in four or five years; females in five or six years. The bulk of feeding occurs in the early morning and evening hours. It feeds on crayfish, fish and aquatic insects. This species has exceptional fighting ability when caught on hook and line, perhaps inch for inch the best fighting sport fish in the United States.

Otsego Lake Fisheries

Otsego Lake has an excellent smallmouth fisheries which is relatively unexploited by anglers. The best time of the year to fish the species is in October and November. During July and August night fishing seems to be more productive using an electric trolling motor, canoe or quiet oars. The principal live bait is the crayfish, in addition rapalaas, "purple worms" also medium size leatherstocking spoons are considered excellent artificial lures. Anglers regard the smallmouth as more "finicky" than the largemouth. Evening or night time is the best period with a dobson on a fly line in the shallow bays. Even trolled flies along the shelves on the east side of the lake seem to entice smallmouth. Live bait is still considered the best method for the smallmouth. Attach a night crawler to a spinner rig, cast it out and retrieve the spinner rapidly making sure to keep the bait moving.
LARGEMOUTH BASS
Micropterus salmoides (Lacépède)

"salmoides" means salmon-like

Other common names: largemouth
                   green bass
                   Oswego bass

Description

Resembles the smallmouth with the exception that the upper jaw extends past the eye and it lacks a broad membrane between the two dorsal fins. The largemouth also possess a broad dark lateral band along its sides. Its color is dark green above and silvery green on the sides. The young lack the tricolored tail of the smallmouth.

Distribution

The largemouth is found in almost every state.

Size

Its usual size is 2-3 pounds. In the south 10-12 pound bass are not unusual. The largemouth angler record is 32½ inches, 22 pounds.

Natural History

The largemouth differs from the smallmouth in its preferred habitat, for it likes shallow weed beds, very seldom venturing into deep water. Like the smallmouth it is a solitary fish, but differs in that it is much more active in the winter. Spawning occurs in June where a nest is built in one to three feet of water. This species may live to a maximum age of ten to twelve years. Like the smallmouth, crayfish, fish and aquatic insects constitute the main diet items. Not considered as strong a fighter as the smallmouth.
Otsego Lake Fisheries

An excellent largemouth fisheries exist in the lake. Field station biologists processed many two to four pound individuals before releasing them to the lake. In 1976 a 6½ pound largemouth was taken by an angler using a leatherstocking spoon as a lure. A good time to fish for largemouth is the spring and early summer when the fish is active around the spawning site. Again night fishing will provide many thrills for largemouth anglers. Artificial night crawlers at the end of a monofilament line, weighted and retrieved along the bottom is an excellent method. Do not fish as deep as you would for the smallmouth and use six to eight pound test line.

PERCIDAE

TESSELLATED DARTER
Etheostoma olmstedi, Storer

"Etheostoma" means various mouths-(to strain)
"olmstedi" tribute to Charles Olmsted, as early student
of the fishes of the Connecticut River

Other common names: Eastern Johnny darter

Description

Body slender, snout projecting beyond lower jaw. The species has two dorsal fins; the first dorsal is spinous and the second dorsal is slightly higher than the first. The background coloration is yellowish to straw colored. Six saddle-like markings bridge the back of the fish, with small "w" like marks scattered on the sides. There is also a degree of barring on the second dorsal and the caudal fin. The distinction between the Johnny darter E. nigrum and this species is a difficult one to ascertain. Conforming to Coles (1967) criteria the individuals in Otsego Lake fit the description listed for E. olmstedi, i.e. pointed pectoral and pelvic fins and the presence of an oblique and subterminal mouth.
Distribution

Atlantic coastal drainage to Florida. Found throughout central and eastern United States into Canada.

Size

Average size is 2-3 inches.

Natural History

The tessellated darter is usually found in shallow inshore waters. Its diet consists of small midge larvae, mayfly nymphs and copepods. Spawning occurs in the spring—April and May and the species is an active nest builder. The darter's maximum age is three to four years. Lake trout, burbot, black bass and whitefish are all know to include the tessellated darter in their diets. The tessellated darter may play an important role in the conversion of small benthic organisms to higher consumer levels.

Otsego Lake Fisheries

The presence of the tessellated darter in Otsego is restricted to the mouths of small tributary streams. It is doubtful if this species occupies any significant role in the diet of Otsego Lake game species.

YELLOW PERCH
Perca flavescens (Mitchill)

“Perca” is the ancient name of European perch
“flavescens” means yellowish

Other common names: lake perch
red perch
Description

A slightly compressed body with two separated dorsal fins, with spines present in the first dorsal fin, the anal and the pectoral fin. The opercular also contains one or more spines. The coloration is golden yellow on the sides with six to eight prominent dark bands extending from the back to the belly.

Distribution

Found throughout the eastern United States south to South Carolina.

Size

Most perch that are caught are between 1/2 to 3/4 pounds and 5-10 inches in length. Maximum size is 4 pounds at approximately 15 inches.

Natural History

It prefers weedy areas in a lake, but can be found anywhere throughout a lake system. This species often travels in schools that are made up of similar size and age groups. Usually found in deeper water during the daylight hours. Spawning occurs early in the spring shortly after ice out, at night in shallow weedy and brushy areas. A single female may produce 75,000 eggs in a gelatinous mass strung out over submerged aquatic plants. The young fry hatch out in about two to three weeks. The perch eats a variety of small insects and crustaceans as well as small fish. It is most active at night and during early morning hours.

Otaego Lake Fisheries

Yellow perch are abundant throughout the lake and are considered a slow growing population in this system. Stunted perch populations are not unusual in lake situations. They may serve as a food item for lake trout. This fish is easy to catch using any method; still fishing, artificial flies, spinning lures, line bait and with the use of tip-ups during the winter period. The flesh of the perch is delicious and makes excellent pan sized fillets. Competition by perch on other panfish is probably significant in this lake and deserves further study.

WALLEYE

*Stizostedion vitreum* (Mitchill)

"Stizostedion’’ means pungent throat
"vitreum’’ means glassy—alluding to the large silvery eyes

Other common names: walleyed pike
pikeperch
Description

A long, cylindrical body with two dorsal fins and large conspicuous milky eyes. The two dorsal fins are separated, the first is spiny and the second is soft-rayed. A black blotch appears on the rear portion of the first dorsal fin and a silver or milk-white tip on the lower lobe of the caudal fin. The coloration is usually olive-brown, densely mottled with fine brassy flecks, while the underparts are pinkish white. Gray colored walleyes occur to some extent in most populations. This is apparently due to the bluish cast of the mucus on the sides of the fish.

Distribution

Ranges throughout Canada and the northeastern United States to North Carolina and west to Nebraska.

Size

Largest member of the perch family, usually 1-3 pounds, angling record is 41 inches and 25 pounds.

Natural History

Usually thrives best in clear water with bottom substrate of gravel or bedrock. Does not do well in weedy waters. It is a nocturnal fish moving into bars and rocky areas to feed from its deeper daytime haunts. It may spend the entire summer period in deep water, perhaps because of the fact that its eye is extremely sensitive to bright daylight.

Spawning occurs in the early spring shortly after ice out. Spawning takes place at night either on rock or sandy lake shoals or in tributary streams. Usually mass migrations occur into selected spawning tributaries accompanied by some splashing. Approximately 23,000-50,000 eggs per pound of female are released during this period. Mortality of walleye fry resulting from predation and cannibalism may be extremely high, 99 percent in some lakes. Most females spawn during their third year of life, although females in some populations do not become sexually active until four or five years old when they are approximately 15-16 inches. The maximum lifespan is 12-15 years. The walleye is a piscivorous species feeding on perch, whitefish, ciscoe, rosyface shiner and rockbass.

Otsego Lake Fisheries

Few walleye are caught by anglers in Otsego Lake. The northern sector of the lake near Sunken Island seems to be the best area to fish. Spring spawning migrations still occur in some of the tributaries in the northern basin of the lake. Walleye are difficult to catch and are not considered a spectacular fighter, although regarded by many as the best eating of all sport fish. The best fishing occurs in the evening or early morning hours, using a surface plug (hula popper-mouse) fished parallel to the shoreline. It may also be taken trolling with a minnow-spinner combination. Considering the difficulty involved in catching this species and the low angler effort employed, the walleye has to be considered an underexploited game fish in Otsego Lake.
COTTIDAE

SLIMY SCULPIN
*Cottus cognatus*, Richardson

"Cottus" is its European name
"cognatus" related to European species

Other common names: millers thumb
slimy muddler
stargazer

Description

This bizarre little fish possesses a broad flattened head and a thin, tapering body. It has wing-like pectoral fins, its eyes are located high on the head and it has a large mouth. Small spines are located on the preopercle and the first dorsal fin. The second dorsal fin is elongated, the anal fin is similar in appearance to the second dorsal, and a pair of small pelvic fins are found directly beneath the pectoral fins. The pelvic fins contain three fin rays, a criteria useful in its identification. A similar species, Cottus bairdi, Girard, the mottled sculpin usually possesses four pelvic fin rays. The slimy sculpin displays a mottled brown coloration on its back and sides. During the breeding season males are nearly black and have a bright orange border on the first dorsal fin.

Distribution

This species is found throughout northern North America—Alaska to Siberia. Virginia represents the southern extent of its geographic range. The sculpin is found both in lakes and streams throughout its range.

Size

Its maximum length is 4½ inches. Most individuals are 2-3 inches in length.

Natural History

The slimy sculpin prefers the rocky bottom areas of cold lakes. In Otsego Lake it can be found from 30 feet to 167 feet in depth. It is known as a voracious feeder utilizing aquatic insects as the major food item in its diet. It also preys on crayfish and selected small fish. This species spawns in the spring of the year when water temperatures reach 45-50°F (8-10°C). Eggs are deposited on the undersides of rocks and are protected for a period by the male.
Otsego Lake Fisheries

Little information is available on the role of the slimy sculpin in the fisheries of the lake. It occurs as an occasional food item in the stomachs of lake trout and burbot. In turn the slimy sculpin is known to feed on the eggs of lake trout.

REFERENCES


