

## SOME LITTLE-KNOWN FISHES OF LAKE MICHIGAN

By LOREN P. WOODS  
CURATOR OF FISHES

THERE ARE approximately 75 species of fishes in Lake Michigan proper (excluding tributary streams and connecting lagoons), but of these only 10 or 12 are of real commercial importance—namely, chubs (three or four species), lake herring, smelt, yellow perch, whitefish, carp, suckers, and walleye (in order of quantity caught).

The lake trout, formerly the most prized and for many years one of the most abundant food fishes of Lake Michigan, is now so rare that commercial fishermen no longer fish for it. Before 1945, the catch of lake trout in Lake Michigan was four to six million pounds a year.

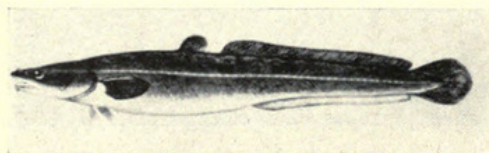
### ANGLING

Sport fishing along shore is usually done for yellow perch, but occasionally other kinds, especially lake herring, are caught in late summer. Carp are frequently caught in the open lagoons and adjoining waters. Occasionally a stray whitefish takes a fisherman's bait and more rarely a sturgeon is hooked. In the spring there is considerable activity in connection with the smelt run, both with large dip-nets and small gill-nets. In some parts of Lake Michigan, especially in Green Bay and along the northeastern shore, sport fishermen angle for walleyes, northern pike, and muskellunge.

There are several little-known but very abundant species of lake fishes living along shore or in very deep water. Among these are the ninespine stickleback, trout-perch, deepwater sculpin, slimy muddler, spoonhead muddler, and burbot. Their habits, distribution, and general place in the economy of the lake are only superficially known, and most fishermen do not recognize these fishes by kind. Small fishes, such as these, are important chiefly as food for other fishes and, except for the burbot, none is longer than 8 inches.

### BURBOT (LOTA)

The burbot is of great importance because it is a ubiquitous predator. It is a fresh-water representative of the codfish family



From Iowa State Conservation Commission

### BURBOT

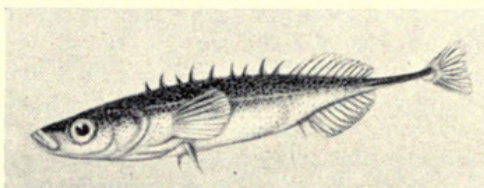
(BULLETIN, May, 1957) and, like the marine cods, haddock, and pollack, is voracious, eating all kinds of smaller fishes. Burbot are very abundant and the amount of fish they consume is enormous. The first three years of their lives, or until they attain

10 inches in length, they feed on invertebrates and later entirely on fish. When full-grown they are  $3\frac{1}{2}$  feet long and weigh from 25 to 30 pounds.

Burbots live in cool and cold lakes and streams in England, across northern Europe and Asia to Alaska, and south to the Upper Mississippi River system and the Great Lakes. They are most active during the night in streams and shallow lakes, but in the deep, dark waters of Lake Michigan they are very likely active at any time. Commercial fishermen market between 75,000 and 100,000 pounds of burbot each year. The burbot is used for food, fertilizer, and cod-liver oil. The liver is enormous, about 10 per cent of the total weight of the fish. The liver oil is quite as potent in vitamins A and D as that of marine codfish.

### NINESPINE STICKLEBACK (PUNGITIUS)

Chicago is near the southern limit of the circumpolar range of the ninespine stickleback. This range extends throughout northern Europe and in Asia and North America north of parallel  $42^{\circ}$ . This small (2 to  $2\frac{1}{2}$  inch) cold-water species is ex-



From Commercial Fishes, USSR

### NINESPINE STICKLEBACK

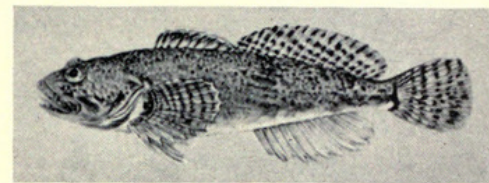
ceedingly abundant at certain seasons in the marginal waters of all the Great Lakes except Lake Erie. Around Chicago they are found in the lagoon entrances of Jackson and Burnham parks. They spawn in the spring, when the male generally builds a nest attached to grass or weeds in which the female lays her eggs. The male guards the nest until the eggs hatch (about twelve days). The food of the stickleback has not been investigated in Lake Michigan, but in other places it is known to be chiefly small aquatic insects and their larvae, small crustaceans, and in summer the fry of other fishes. Sticklebacks are especially important as food for other fishes, especially yellow perch, walleye, and burbot.

### DEEPWATER SCULPIN (MYOXOCEPHALUS)

Deepwater sculpins live on the bottom of Lake Michigan and the other Great Lakes in depths of 150 to 600 feet. There is no record that they have been caught in Lake Michigan in water of less depth. They live in darkness and twilight in water that is never more than a few degrees above freezing ( $39^{\circ}$  F.). They are quite abundant 16 to 20 miles offshore in depths of from 250 to 450 feet and are an important food

of the burbot and the smaller lake trout (in fact they are seldom seen except when taken from the stomachs of these two species). About the food or habits of deep-water sculpins in Lake Michigan nothing definite is known. Probably these fish spawn in early spring in deep rocky areas and their food most likely consists of aquatic larvae and the inch-long opossum shrimp *Mysis*.

Deepwater sculpins resemble the mud-dlers but have a more elongate head and body. Their fins are larger than those of mud-dlers and there are four spines on the gill cover. These little sculpins (maximum length 7 inches) live also in the streams of arctic Canada. The species in the Great



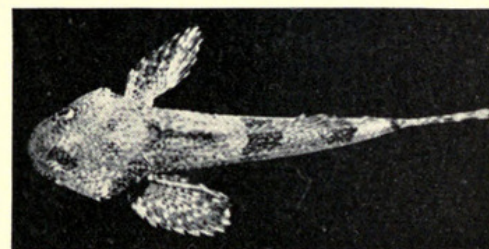
From Iowa State Conservation Commission

### SLIMY MUDDLER

Lakes is a fresh-water relict of a marine group of sculpins.

### MUDDLERS (COTTUS)

The slimy muddler lives in the rivers and streams tributary to Lake Michigan and in the lake itself down to depths of 400 feet. The spoonhead ranges from shore down to 450 feet but it does not live in streams. Like the deep-water sculpin both mud-dlers live on the bottom and feed on whatever small aquatic animals are available. Neither



From Cranbrook Institute

### SPOONHEAD MUDDLER

of these fishes grows longer than 4 inches and most are 2 or 3 inches long. They are important food for large perch, young lake trout, and burbot.

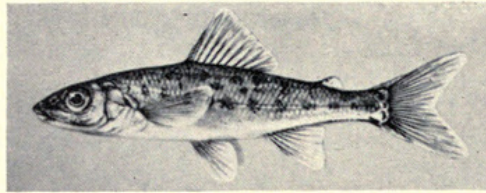
### TROUT-PERCH (PERCOPSIS)

The little trout-perch (6 to 8 inches long) is one of the most interesting of all fresh-water fishes because it is intermediate in structure between soft-rayed and spiny-rayed fishes. The resemblances are indicated by its name, trout-perch. It has a fleshy (adipose) fin between the back fin and tail as do the trouts, whitefish, and smelt, and its ventral-paired fins are midway on the belly as in primitive fishes. It



slightly resembles the perch in having rough-edged scales and one or two spines in the dorsal and anal fins.

This species is known to shore-anglers chiefly from dead specimens found floating near shore or washed up on the beach in late



From Iowa State Conservation Commission

#### TROUT-PERCH

summer. In spring trout-perch migrate from deep to shallow water, moving along-shore with the smelt toward streams or bays into which they migrate to spawn, and a few are taken in the gill-nets of the smelt fishermen. Trout-perch eat all kinds of small aquatic animals and are, in turn, a principal food of the larger predatory fishes, such as pikes and walleyes.

### SOUTH PACIFIC TRIBE HAS '4-H CLUB'

America's famed 4-H Clubs, organized to encourage boys and girls of rural areas to achievement in agricultural pursuits, particularly livestock raising, were anticipated centuries ago in the "pig cult" of a Melanesian tribe living in the New Hebrides Islands of the South Pacific.

While not directly comparable, there is a certain parallelism between the 4-H activities and those of the people on the island of Malekula in the New Hebrides group. In both societies the youths are given livestock to cultivate into animals exceeding the growth they would attain in a natural course of life. In America these cultivated cattle and hogs win prizes at county fairs and livestock expositions and bring fabulous prices in the market. In the Malekula pig cult, the animals, in this case boars, not only are fattened to great size but their tusks are developed into coils exceeding any growth that would occur in nature. The carcasses of these beasts end up in huge ceremonial feasts and the curled tusks become treasures jealously held as family heirlooms.

The American 4-H youth attains honors for his success in cultivating livestock. The Malekula youth gains his first recognition of manhood when he has raised a curled-tusk boar, and then all through his life his rank and privileges as a man grow in proportion to the number of pigs he raises and slaughters. Degree-giving rites are periodically held at which these honors are bestowed. The pigs are ceremoniously killed with shell-bladed axes at the festivals, the number slaughtered at one time sometimes mounting

to several hundred during a period of many days' feasting. Pork is the most highly valued of foods among these people.

The curled tusks of the boars are developed by knocking out the lower tusks so that the upper tusks can grow without being worn down. The pigs are usually kept tied up, often right in the house, and are fed soft food. On animals kept this way for years, the upper tusks grow into coils, sometimes two or three complete circles. Tusks with only one full circle are regarded as of great value, those with two coils are regarded as special treasures, and those with three coils attain an importance comparable to crown jewels, and their owners refuse to part with them at any price. For this reason it has been possible to include in the Museum's Malekula pig-cult exhibit (Hall of Melanesia, Hall A, Case 57) examples of only the single and double coiled tusks. Some of the axes used in the ceremonial pig-killings are also shown.

#### STAFF NOTES

**Dr. Julian A. Steyermark**, Curator of the Phanerogamic Herbarium, has been named chairman of the Special Volo and Wauconda Bog Committee of the Illinois Nature Conservancy. He recently lectured before the Lions' Club of Wauconda . . .

**Dr. Donald Collier**, Curator of South American Archaeology and Ethnology, and **Roland W. Force**, Curator of Oceanic Archaeology and Ethnology, attended a two-day conference at Edwardsville, Michigan, sponsored by the Wenner-Gren Foundation for Anthropological Research, to discuss the preparation of an encyclopedia of anthropology . . . **Dr. D. S. Rabor**, Field Associate in Zoology and chairman of the division of natural sciences at Silliman University, Philippine Islands, is working in the Museum on Philippine birds with **Dr. Austin L. Rand**, Chief Curator of Zoology . . . **Dr. Fritz Haas**, Curator of Lower Invertebrates, attended the recent meeting of the American Malacological Union at New Haven, Connecticut . . . **Dr. Theodor Just**, Chief Curator of Botany, has been appointed chairman of the Committee for Formulation of Editorial Policy sponsored by the Conference of Biological Editors.

#### Insect Collecting in the Rockies

**Rupert L. Wenzel**, Curator of Insects, has begun an expedition of several weeks' duration to collect insects in parts of the Rocky Mountains. He will work principally in the areas south of Raton, New Mexico, near Boulder, Colorado, and in the Big Horn range of Wyoming. His collections will be used in continuation of a long-time research project.

### MOVIES FOR CHILDREN CONTINUE IN AUGUST

Three free programs of color motion-pictures for children in the Raymond Foundation's summer series remain to be given in August. Two showings of each program are offered in the James Simpson Theatre of the Museum—at 10 and at 11 or 11:15 (see below). Children are invited to come alone, accompanied by parents or other adults, or in organized groups. Dates and titles follow:

#### August 1—CURIOUS ADVENTURES OF MR. WONDERBIRD (10 and 11:15 a.m.)

A fairy tale in animated-cartoon style

#### August 8—THE ALASKAN ESKIMO (10 and 11 a.m.)

One of Disney's "People and Places" movies

Also a cartoon

#### August 15—HEIDI AND PETER (10 and 11:15 a.m.)

Sequel to the well-known story of a little girl who lived high in the Swiss Alps

Seats may be reserved for Museum Members and their children until the hour of the program. Adult leaders of groups are requested to remain seated with their groups during the entire program.

### MUSEUM SCIENTISTS ON TV PROGRAM

**Emmet R. Blake**, Curator of Birds, will lecture on "Birds of the Chicago Area" on Sunday, August 4, at 9:30 A.M. over TV Station WNBQ (Channel 5). He will illustrate his talk with specimens from the Museum. The program is presented in the series "Live and Learn" sponsored by Northwestern University.

Several other members of the Museum staff have appeared on this program in recent weeks. They are: **Loren P. Woods**, Curator of Fishes, who spoke on Lake Michigan's finned inhabitants; **Dr. Margery C. Carlson**, Associate in Botany, who talked on plants of the Chicago area; **Dr. Orlando Park**, Research Associate in Insects, who lectured on the region's animal habitats, and **Dr. Everett C. Olson**, Research Associate in Fossil Vertebrates, who discussed the fossils found in the area.

#### Physical Differences

Human skulls, color charts, casts of hands and feet, and other exhibits showing some of the diagnostic characters considered by physical anthropologists in differentiating racial types are to be found in Chauncey Keep Memorial Hall (Hall 3—Peoples of the World).





Woods, Loren P. 1957. "Some Little-Known Fishes of Lake Michigan." *Bulletin* 28(8), 4–5.

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