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BAITS USED IN WINTER FISHING

The popularity of ice fishing has increased tremendously during the past few years. With the increase in the number of fishermen and the decrease in the number of ice lines, fishermen have demanded a greater variety of baits. A few years ago the average bait dealer closed his doors during the winter months, while a few hardy dealers carried meager supplies of minnows. But now it is possible to buy a variety of worms, wigglers and minnows at any of the numerous bait stores. The winter bait industry is becoming as important and as necessary as the summer bait business.

It is unlawful to take aquatic insects from any trout stream except for personal use on such streams or under permit from the Director of the Conservation Department. The removal of insects from any stream decreases the amount of natural food present in the stream, which is essential for fish production. Whenever larvae or nymphs are removed from non-trout streams, care should be taken to avoid damaging the vegetation. It is as important to practice conservation of fish bait as of fish themselves.

Some of the most important baits are discussed below.

Worms. During the winter months fish worms and night crawlers are difficult to obtain. The man who raises his own worms or keeps a supply on hand is extremely fortunate. A wooden bucket or earthenware crock filled

to within several inches of the top with a rich loam makes an excellent container for worms. Sphagnum moss may be used in place of loam. A top should be provided for the container to prevent drying of the surface layer. Sphagnum moss or sod placed on top of the soil also prevents drying. With this treatment worms will keep indefinitely if fed. The container should be placed in a cool place, preferably the cellar, providing the temperature remains below 60°F., and above freezing. Feeding may be necessary if the worms are to be kept for more than several weeks. Chopped beef suet, crumbled hard-boiled eggs, cereals, or milk may be fed at intervals of a week or ten days.

The manure worm (also called striped worm or red worm) may be obtained from well rotted manure. It can be held in boxes containing manure, or a mixture of manure and well rotted leaves.

Insects. Insects are probably the most popular bait used for pan fishes. In the last few years the number and variety of insects used has steadily increased. The immature aquatic stages of insects are known as larvae and nymphs. In general the term "larva" is applied to those forms having soft, light-colored bodies. The term "nymph" is applied to those forms having hard bodies and long, jointed legs. The aquatic stages of mayflies, stoneflies, dragonflies and damselflies are called nymphs. Those of hellgrammites, beetles, moths and true flies are called larvae.

Mayflies. These insects live in all fresh waters which are unpolluted, being adapted to a great diversity of habitats. The adults are fragile insects, having three pair of long legs, two or three long tails, and delicate, net-veined wings, folded vertically when at rest. The adults are known to fishermen as mayflies, "drakes," and "fishflies." The adult lives but a short time, usually only a day or so. Although there

are over 500 different species of mayflies in the United States and Canada, the only ones of importance as bait are the large ($1\frac{1}{2}$ - $2\frac{1}{2}$ inches) burrowing nymphs, variously known as "wrigglers" and "sea horses." The nymphs of burrowing mayflies are all recognizable by the long feathery gills which are arranged in pairs along the back and sides of the abdomen. The body terminates in three long tails. On each of the jaws is developed a long, pointed tusk, which aids the insect in burrowing through soft mud and debris.

Mayflies make excellent winter bait for bluegills, crappie, sunfish and perch.

Mayflies are found in mud bottom which contains enough sand, fine gravel or organic debris to make it slightly porous. They can be captured by using screens to sift bottom materials. Burrowing mayflies are rather delicate and should be handled as little as possible. After collecting they should be transferred to a tank or aquarium with a layer of dead leaves and leaf mold on the bottom. In general, the lower the water temperature, the longer the nymphs will live. Crowding should be avoided. If this is not possible, aerate the water.

Caddisflies. The adults of the caddisfly are hairy, moth-like insects with thread-like antennae which are often longer than the body. Fishermen sometimes refer to them as "sedges" or "grannomflies." Most of the larvae live in portable cases which they drag around as they move. The cases are usually cylindrical tubes, open at the head end, with the tail end partially covered by a net. The cases may be quadrangular, triangular or circular in cross section. They are made from any available materials such as sticks, pebbles or sand grains, pieces of reeds or other plants, and shells. Each species has its own particular type of case.

The caddis worms (also known as "stick worm" or "reedamites") are more or less caterpillar-like. They have strong legs, necessary in moving about while dragging their heavy cases. They are found in all aquatic habitats, but the large species preferred as bait are most abundant around weedy lake shores or in quieter sections of streams. They are usually found on the bottom on or near the roots of aquatic vegetation. After collecting, caddis larvae should be cared for in the manner described for mayflies. A few of the larvae are meat eaters, but the majority feed on vegetable matter. Several of the larger species may turn cannibals in captivity in spite of the fact that they normally subsist largely on vegetable matter. Caddis larvae are excellent bait for bluegills, crappie, sunfish and perch.

Hellgrammites. The hellgrammite is the larval form of a large, winged insect called the dobsonfly. They are found under rocks in streams and are most abundant where the water is fast. This larva is found in greater numbers in warm water streams than in trout streams. They are aquatic carnivores, feeding upon mayflies, stoneflies and other small insects. This is one larva that can be fed upon hamburger in captivity. The larva is easily recognized by the presence of slender, fleshy appendages along the abdomen, a pair to each segment, one on either side. They are tougher bodied and more tenacious of life than mayflies and caddisflies. The larvae can be held in tanks or aquaria, preferably containing running water. They can also be kept for weeks in a cool basement in a wooden bucket or box containing dampened sod and decaying leaves.

Hellgrammites make excellent bass bait but are rather large for bluegills, crappie and perch.

Stoneflies. The stonefly is a flat-bodied, lacy-winged insect whose nymph is found clinging to the underside of stones in rapid streams or

rocky, wave-washed shores of lakes. The nymph is rather long and flat with a pair of tails at the end of the body. Gills are often absent. If present they may be located beneath the body, sometimes being attached to the legs. The large, flattened legs extend out horizontally from the body. Stonefly nymphs are rather fragile and are hard to keep on a hook. This species requires running water or very well aerated quiet water.

Dragonflies and damselflies. Dragonflies and damselflies are very common aquatic insects. The adults may be seen flying over almost every lake, pond or stream. The adult dragonfly when at rest holds its wings horizontally, airplane-like, while the damselfly folds its wings vertically, at an angle over the abdomen.

The body of the dragonfly nymph is usually broad and flat, while that of the damselfly nymph is much thinner. The wings of both nymphs are developed externally and stand out as two pair of large pads behind the head. The nymphs are recognizable by the possession of an enormous, grasping lower jaw, hinged in the middle, and tipped with spiny grab-hooks. It is thrust out and withdrawn with great speed, and serves as a formidable weapon for the capture of living organisms.

Dragonfly and damselfly nymphs are seldom used as bait, but there is no reason why they shouldn't be as successful as any other insect. They are hardy and good swimmers. The best means of capturing these nymphs would be by seine or dip net. They are cannibalistic, but otherwise tolerant, both of oxygen and temperature extremes. They occupy nearly every aquatic situation around lake shores or in stream beds.

Leather-jacket. The leather-jacket is the larva of the crane-fly, a large, mosquito-like insect having extremely long legs. This species lives in stream gravel, leaf-drifts in streams and weed beds. The larva is caterpillar-like but without legs, is usually greenish-brown in color, and

rather soft bodied. It often reaches a length of one and a half inches, or more when fully extended. It is mainly a plant feeder. It is excellent bait for bluegills, sunfish, and perch, although it frequently shrivels greatly when transfixed by a hook.

Goldenrod gall worm. There are two species of goldenrod gall worms. One is the larva of a moth, while the other is the larva of a fly. The latter is found most frequently. These worms are found in the ball-like enlargements of the stems of goldenrods. The larva or maggot living within the gall is responsible for the peculiar growth. The larvae are usually small and several are needed to bait a hook. They are very good bait for bluegills and other panfish. To remove the larvae, the gall may either be broken or cut. The larvae can be held in the gall during the winter if left in a cold place.

Meal worms. Meal worms are the larvae of beetles. They can be found in old meal that has been standing for some time, or in flour mills. They are often very serious pests. The hard bodied larvae is yellow or brown, about an inch in length, tenacious of life and a good panfish bait. These worms can be successfully reared in boxes of cornmeal or other cereal.

Wood borers or sawdust worms. The wood borer or sawdust worm may be the larva of either the metallic wood borer, or the long-horned borer, both of which are beetles. These forms are difficult to obtain, and are sometimes difficult to hold, once removed from their burrows. The larvae bore in wood and are serious economic pests of forest and fruit trees. They may frequently be secured from rotten logs, or while splitting posts, railroad ties, mine props, etc. They can sometimes be kept successfully in sawdust. These larvae are excellent bait for panfish.

Bait fishes. Most of the common species of minnows are used as bait by the ice fishermen. The lake shiner, or lake runner is perhaps the most popular minnow among perch and walleye fishermen. Small minnows, especially

golden shiners of an inch or inch and a half in length, are preferred by the panfish fishermen. The pike fisherman still prefers the chub. Large suckers, chubs, carp and goldfish are the favorite decoys of the man with the spear and light-tight shanty. Salmon eggs and chunks of fish are used by some bluegill fishermen.

Artificial lures. It would be impossible to give a list of the artificial lures used by ice fishermen. Silver tackle spoons, tin of various shapes and sizes and wooden decoy minnows probably top the list. Many fishermen prefer to use an artificial fly, minus the hackle, as a bait hook.

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