

***BAITFISH
OF VERMONT***
INCLUDING LAKE CHAMPLAIN



VERMONT
FISH & WILDLIFE DEPARTMENT
(802) 241-3700
www.vtfishandwildlife.com





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In 2004, this excise tax provided over \$260 million dollars to state sport fish restoration and management projects across the United States. Vermont uses this money for funding fisheries management and restoration projects, purchasing and developing access areas, and developing public outreach and educational materials, such as this guide. These excise tax dollars, coupled with state fishing license fees, are the primary source of funding for fisheries programs in Vermont.



Baitfish Team: Shawn Good (VFWD), Kenneth Cox (VFWD), Thomas Jones (VFWD), Michael Hauser (VDEC), Tom Stearns (Ret.)

Dedication

Cover Photo: Tom Evanoika, of Tom's Bait & Tackle, Bomoseen Vermont, harvests emerald shiners from the Poulney River.

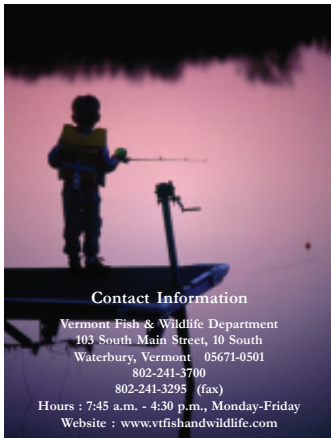
This guide to the identification of Vermont's baitfish is dedicated, in part, to the memory of Tom Evanoika, who passed away in June 2004. Tom was well known as the owner of Tom's Bait & Tackle in Bomoseen, Vermont. Tom was a valuable source of information on fishing in the state. He was always willing to help both new and experienced anglers with tips on where fish were hitting and how best to catch them.

Department biologists managing fisheries in southern Vermont often relied on Tom's knowledge of the fisheries and angling in the area when making management decisions. Tom was actively involved, for instance, with the committee that developed the recent changes to Vermont's baitfish regulations. Tom was an enthusiastic promoter of fishing in Vermont. His passing was a loss for Vermont's angling community and he will be sorely missed.

MISSION STATEMENT



The mission of the Vermont Fish & Wildlife Department is the conservation of fish, wildlife and plants and their habitats for the people of Vermont. In order to accomplish this mission, the integrity, diversity and vitality of all natural systems must be protected.



Contact Information

Vermont Fish & Wildlife Department
103 South Main Street, 10 South
Waterbury, Vermont 05671-0501
802-241-3700
802-241-3295 (fax)

Hours : 7:45 a.m. - 4:30 p.m., Monday-Friday
Website : www.vtfishandwildlife.com

Table of Contents

Baitfish : An Angling Tradition	1
Baitfish : A Risk to Our Fisheries	2
Vermont's Baitfish Regulations	4
Baitfish Use in New York Waters of Lake Champlain	6
Baitfish Use in Quebec Waters of Lake Champlain	7
Baitfish Identification	8
Eastern Silvery Minnow	10
Fathead Minnow	11
Bluntnose Minnow	12
Emerald Shiner	13
Golden Shiner	14
Spottail Shiner	15
Common Shiner	16
Mimic Shiner	17
Creek Chub	18
Fallfish	19
Blacknose Dace	20
Longnose Dace	21
Northern Redbelly Dace	22
White Sucker	23
Longnose Sucker	24
Rainbow Smelt	25
Exotic Species Identification	26
Alewife	27
Round Goby	28
Ruffe	30
Rudd	32
Tench	33
Goldfish	34
Disposal of Unused Baitfish	35
Vermont Commercial Bait Dealers	36
Catch & Release	38

Baitfish : An Angling Tradition

The main focus of fishing today seems to be science and technology. You can't watch a fishing show on television or read an outdoors magazine without being told that you *need* all the latest gadgets and gizmos to catch fish. Fishing used to be something folks did to relax. But lately it seems today's fast-paced life style has become part of fishing.

Live bait, however, offers something different. Using live bait to catch fish is one of the simplest and purest forms of angling. At a time when recreational fishing is becoming more "high-tech," with specialized rods, reels, tackle, and electronics, live bait-fishing offers a slower pace and a chance to get back to the root of what angling has always been about. The chance to spend quality time with friends and family in the outdoors, and catch a few fish. Angling with live bait is simple, easy, effective, and fun.

Live bait can include leeches, crayfish, frogs, worms, and grubs. But minnows are the king of all live bait. The term "minnow"

is often used to include any small fish commonly used for bait. However, the term refers to the largest of all fish families—the Cyprinidae. In Vermont, the family Cyprinidae includes chubs, dace, shiners, and minnows, such as the eastern silvery minnow and the fathead minnow. Many types of minnows are used for bait in Vermont. Suckers, smelt and yellow perch also are used for bait, especially for tempting large northern pike!



Baitfish : A Risk To Our Fisheries

Has this ever happened to you? At the end of the day you look in your bait bucket, see leftover minnows, and dump them overboard. It's a common practice and one the average angler does almost without thought. Maybe you think you're doing the fish a favor by releasing them alive. Maybe you think you're helping the game fish in your favorite fishing spot by "stocking" some extra food. However, what you really might be doing is introducing a new, exotic species to the waters—disrupting the fragile balance of the lake's ecosystem and the sport fish population you value.

Discarding unused baitfish can introduce invasive species that disrupt ecosystems. Aquatic nuisance species often reproduce and quickly dominate a waterbody. These species compete with native species for food and habitat, and sometimes cause native species to decline or disappear. For example, the rudd, a known competitor and threat to our native golden shiner, has already been introduced, presumably through bait bucket dumping, to several lakes in Vermont. The alewife also was illegally introduced into Lake St. Catherine in 1997, and greatly threatens the native fish communities of Vermont waters.

The water in the bait bucket also can be a threat. It may contain other damaging aquatic nuisance species such as zebra mussel larvae, spiny water fleas or fish diseases. Exotic plant fragments, such as Eurasian watermilfoil and water chestnut, also may be in the water. Dumping a bait bucket into a waterbody could introduce any of these destructive species to new waters of Vermont.



2

Vermont anglers *need* to be aware of the dangers of dumping the contents of a bait bucket into waterbodies. Anglers should take these necessary precautions to avoid the introduction of aquatic nuisance species:

- **Know and understand** Vermont's baitfish rules and regulations.
- **Learn to identify** Vermont's permitted baitfish species as well as potential aquatic nuisance species.
- **Never release** live bait or water from a bait bucket into any lake, pond or stream.
- **Always empty** your bait bucket on land.
- **Never transport** water, animals or plants from one lake or river to another.
- **Always encourage** others to follow these guidelines.



Aquarium Fish and Plants

Some people release unwanted aquarium pets (fish, snails, plants, etc.) into nearby waterbodies. This practice can be extremely harmful to Vermont's natural aquatic communities. Return unwanted aquarium pets to a local pet shop. It will be better for your pet and the environment.

Moving Live Fish

Many new populations of fish species have been established across Vermont through illegal stocking. These introductions may be done by anglers with good intentions to create new recreational fisheries. However, this can cause great harm to existing fisheries and aquatic communities. Anglers should never transport and stock fish from one water to another.

3



Vermont's Baitfish Regulations

The following fish species are the only approved species of fish for use as bait in Vermont.

- | | |
|--------------------------|--------------------------|
| - Eastern silvery minnow | - Creek chub |
| - Fathead minnow | - Fallfish |
| - Bluntnose minnow | - Blacknose dace |
| - Emerald shiner | - Longnose dace |
| - Golden shiner | - Northern redbelly dace |
| - Spottail shiner | - White sucker |
| - Common shiner | - Longnose sucker |
| - Mimic shiner | - Rainbow smelt |

General Baitfish Use

Permitted Activities and Restrictions

- A minnow trap may be used for taking fish for bait provided the trap does not exceed 18 inches in length and the opening for the entrance does not exceed 1 inch in diameter.
- Dip nets, cast nets and umbrella nets not exceeding a total of 51 square feet of mesh, or a seine net not exceeding 25 feet in length, may be used for taking fish for bait from waters not listed as "Closed Trout Waters." This list is available online at:
www.leg.state.vt.us/statutes/chapters.cfm?Title=10Appendix
- Hook and line may be used to take fish for bait.
- Baitfish may be taken for personal use only, with the exception of rainbow smelt, which may be sold. Smelt may be taken only by angling or ice fishing.
- A person may take, possess, transport, buy, and use as bait only those species of fish listed above.
- Yellow perch may be used for bait in those waters where taken and shall not be transported alive from those waters.
- A Vermont fishing license is required.



Commercial Bait Dealers

Permitted Activities and Restrictions

- Any person who buys bait for resale or sells bait is required to obtain a Commercial Bait Dealers Permit. The application is available from the Vermont Fish & Wildlife Department.
- Persons shall not operate dip nets, cast nets and umbrella nets exceeding 51 square feet of mesh, or a seine net exceeding 100 feet in length, for the purpose of taking fish for bait without first obtaining a permit from the Commissioner of the Vermont Fish & Wildlife Department.
- Bait netting is prohibited in all Closed Trout Waters unless otherwise provided for on the permit.
- A person may take, transport, buy, sell, and use as bait only those species of fish listed above.
- A person intending to import or transport bait from another state or country must also have a Vermont Commercial Bait Dealer's Permit prior to doing so.

Disposal of Unused Bait

It is illegal to discard unused bait, dead or alive, into Vermont waters. Emptying bait buckets can lead to the introduction of undesirable species.

Please consult the current Vermont fishing regulations for updates and changes at:

www.leg.state.vt.us/statutes/chapters.cfm?Title=10APPENDIX





Baitfish Use in New York Waters of Lake Champlain

Baitfish use is permitted in the New York portion of Lake Champlain. Possession of endangered or threatened fish species is prohibited. Minnows, killifish, mudminnows, darters, sticklebacks, stonecats, smelt, and suckers are the only fish that may be taken and used in New York.

Note

- The use, or possession for use, of alewife and blueback herring as baitfish is prohibited in Clinton, Essex, Franklin, Warren, and Washington counties.
- Carp, goldfish and goby may not be possessed or used as bait at any time.
- Carp and goldfish caught by angling may be possessed at any time in any number.
- Lamprey larvae may not be used as bait.

Collection of Baitfish

Any person who has a fishing license or is entitled to fish without a license may collect baitfish for personal use (sale prohibited). Fish taken may be used only for bait in hook-and-line fishing. These are the only circumstances where the use of seines, traps, cast nets, and gill nets are permitted unless a commercial license has been obtained. Seine and scap nets with a maximum size of 36 square feet may be used from sunrise to sunset on Lake Champlain for the taking of baitfish. Traps with a maximum length of 20 inches and a maximum entrance diameter of 1 inch also may be used. Traps must be marked with owner's name and address.

Please consult current New York fishing regulations for updates and changes at:

www.dec.state.ny.us/website/dfwmr/fish/fishregs/index.html



Baitfish Use in Quebec Waters of Lake Champlain

The use of DEAD OR LIVE BAITFISH is permitted in the Quebec portion of Lake Champlain.

However, in these waters it is **prohibited** to use or to have in ones' possession for use as baitfish (whether dead or alive, whole or cut up) the following species: bass, bowfin, bullhead, burbot, carp, channel catfish, char, freshwater drum, goldfish, mooneye, goldeye, lake trout, lampreys, longnose gar (gar/pike), muskellunge, pike, redhorse sucker, salmon (Atlantic, coho, chinook, kokanee, landlocked), sturgeon, sunfish (longear, bluegill, rock bass, pumpkinseed), tench, trout, walleye, and yellow perch.

Collection of Baitfish

A valid **sportfishing licence holder** may collect baitfish in the Quebec portion of Lake Champlain with one dip-net or up to three bait-traps. Bait-traps left unattended must be identified with the name, address and licence number of their owners. When one or more persons fish under the licence of another person, the number of collection gear used by the group must not exceed that authorized for the licence-holder.



Please consult the current Quebec fishing regulations for updates and changes at:

www.fapaq.gouv.qc.ca/en/regulations/index.htm



BAITFISH IDENTIFICATION

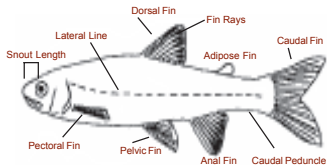
The following pages of this guide provide photographs and descriptions to help you properly identify the fish species currently permitted for use as bait in Vermont.

The fish in the section are the ONLY species allowed to be imported, harvested, sold, bought, or used as bait in Vermont.



8

External Anatomy of a Fish



Adipose fin: A fleshy fin without spines or rays located on the back behind the dorsal fin.

Anal fin: A single fin located on the underside of the body and in front of the caudal fin.

Caudal fin: The tail fin.

Caudal peduncle: The region of the body lying between the caudal fin and the end of the backbone.

Dorsal fin: One or more fins located on the back characterized as having spines and/or rays. All of the approved bait fish have a single dorsal fin.

Lateral line: A series of tubes and pores on the sides of fish which fall in a single line running from just behind the gill cover to the base of the caudal fin. In some species the lateral line may be complete. In others it may be incomplete, ending before it reaches the caudal fin.

Laterally compressed: Flattened from side to side.

Pectoral fin: A pair of fins (one on each side of body) located closest to the head.

Pelvic fin: A pair of fins (one on each side of body) located near the underside of the fish and behind the pectoral fins and ahead of the anal fin. The distance between the pelvic and pectoral fins may differ considerably from species to species.

9



Photo Credit: Jan Craig Cloutier

EASTERN SILVERY MINNOW

Hybognathus regius

Other common names: Hunt, pinhead, shiner, méné d'argent.

Identification: Body is stout, moderately compressed laterally, with the deepest and widest portion of the body located ahead of dorsal fin. Caudal peduncle is fairly deep. Snout is blunt, rounded and slightly overhangs small mouth. Upper jaw extends back to front edge of eye. Lower jaw is nearly horizontal and chisel-shaped, with a small knob at the inside tip of mouth. Eyes are moderately large. Fins are clear and body lacks any distinctive markings. Lining of body cavity is black. Intestine is very long and coiled. Coloration: Sides are bright silvery often with a bluish metallic sheen and lack any lateral stripe or band. Back is olive to silvery with a dark mid-dorsal stripe. Length: Up to 3-4 inches.

Habitat: Prefers large, slow moving streams--particularly pools and backwater areas. The silvery minnow is not a commonly encountered species in Vermont, although it can be found in abundance in some waters with suitable habitat.

Bait value: This is an important baitfish especially during the ice fishing season. Small, young fish (pinheads) are popular perch bait.



Photo Credit: Doug Watkinson

FATHEAD MINNOW

Pimephales promelas

Other common names: Rosy red, fatty, fathead, tête-de-boule.

Identification: Body is stout and chubby, moderately compressed laterally, and heaviest toward the front. Head is large but short, flat on top, and has a blunt snout. Mouth is small, terminal, and slightly upturned. Scales are largest toward the tail, smaller and crowded toward the head. A dark spot is sometimes visible on the first few dorsal fin rays. A dark vertical bar is present at the base of the caudal fin rays. Coloration: Back is dark olive or gray. Sides are silvery or brassy and whitish below. The "rosy red" variant is pinkish-orange overall. Length: Average about 2 inches.

Habitat: This is a species tolerant of extreme environmental conditions (muddy, warm, poorly oxygenated water). It may be encountered in a variety of habitats, including small and large streams and ponds with soft bottoms. The fathead minnow is widely distributed in Vermont however they tend to be more common in the Lake Champlain drainage.

Bait value: This is one of the most commercially important baitfish in Vermont. Both wild and "rosy red" types may be purchased from most bait shops. This is a hardy fish, making them suitable for transporting and holding.



Photo Credit: John Lyons

BLUNTNOSE MINNOW

Pimephales notatus

Other common names: Minnow, ventre-pourri.

Identification: Body is slender and elongate, round to roughly squarish in cross section ahead of dorsal fin, and only slightly compressed laterally behind dorsal fin. Snout is broadly rounded and decidedly overhangs a small, horizontal mouth. Scales on sides are large and dark-edged, which produces a cross-hatched appearance. Scales are crowded behind head. A lateral black stripe extends from tip of snout, through eye and gill cover, and ends in a prominent black spot at base of tail. A dark spot is sometimes visible on the first few dorsal fin rays. Lining of body cavity is black. Coloration: Sides are silvery and back is olive-brown to black. Underside is whitish. Length: Average about 2-3 inches.

Habitat: This fish inhabits a wide range of waters (small streams, rivers, lakes) but seems to prefer clear, rocky streams. It is fairly widely distributed in Vermont.

Bait value: It is reported that the bluntnose minnow makes a good baitfish particularly for panfish. However, it is not generally available from commercial bait dealers unless it comes mixed with other wild-caught minnows and shiners. It does not transport well and is short lived in a crowded bait bucket.



Photo Credit: Doug Wilkinson

EMERALD SHINER

Notropis atherinoides

Other common names: Lake shiner, icicle, pinhead, blues, buckeye, méné émeraude.

Identification: Body is elongated, slender and fragile looking. It is strongly compressed laterally and moderately deep. Snout is bluntly pointed. Mouth is moderately large (upper jaw extends back to leading edge of large eye), terminal and slightly upturned. Scales are large and easily shed, resulting in dark blue or bluish-green patches. Fins are clear. Dorsal fin begins noticeably behind base of pelvic fins. Anal fin has ten to eleven rays. Coloration: Back is light olive to bluish-green. Sides are silvery with an iridescent green or bluish-green band and underside is whitish. Length: Average about 2-3 inches.

Habitat: This species occurs in large open lakes and pools and runs of large and medium size rivers. Prefers clear water and sandy bottoms. The emerald shiner is not a widely distributed fish in Vermont but is quite abundant in Lake Champlain and the lower reaches of its larger tributaries.

Bait value: The emerald shiner is an important baitfish to Vermont anglers, particularly during the ice fishing season when it is commonly used as perch bait. Since it requires fresh, highly oxygenated water to thrive, it does not hold up well in the bait bucket or holding tank for long periods of time. It is readily available from most commercial bait dealers either alive, frozen or salted.





Photo Credit: Noel Burkhead

GOLDEN SHINER
Notemigonus crysoleucas

Other common names: Pond shiner, golden, Arkansas red, méné jaune.

Identification: Body is deep and strongly compressed laterally. Head and snout are pointed. Mouth is small and decidedly upturned causing the chin to project ahead of mouth. Scales are large. Midline of belly between pelvic and anal fins is a fleshy, scaleless ridge or "keel." Lateral line on sides with dark pores dips conspicuously downward toward the pelvic fins, rising again as it approaches the tail. Anal fin has a long base (usually 11-14 rays). Coloration: Back is dark olive-green. Sides on adult fish may vary from golden, brassy or silvery. Young fish are silvery with a broad dark lateral band. A cultured variety, called the Arkansas red, has silvery scales with a pronounced pinkish overtone. Length: Average about 2-4 inches. Large individuals up to 8-10 inches.

Habitat: This is a fish of warm, clear, weedy, shallow lakes and ponds. The golden shiner is widely distributed and common in Vermont.

Bait value: A very popular baitfish and is readily available from most commercial bait dealers. It is not particularly hardy either in the bait bucket or on the hook compared to some other bait fish species.



Photo Credit: John Lyons

SPOTTAIL SHINER
Notropis hudsonius

Other common names: Spottail minnow, spottail, queue à tache noire.

Identification: Body is relatively elongated, compressed laterally and moderately deep. Snout is blunt, rounded and slightly overhangs small mouth. Eyes are large. Small to medium size fish have a conspicuous black spot at base of caudal fin. Body and fins lack any other markings. Scales are large and easily shed. Coloration: Back is yellowish or pale green, sides are silvery, and underside is silvery-white. Length: Average about 2-3 inches.

Habitat: This species inhabits lakes and large rivers. Wild populations within Vermont are not widely distributed. They are most abundant in Lake Champlain and the Connecticut River.

Bait value: The spottail is an important baitfish and readily available from many commercial bait dealers. It is a moderately hardy fish.





Photo Credit: Doug Watkinson

COMMON SHINER

Luxilus cornutus

Other common names: Redfin shiner, méné à nageoires rouges.

Identification: Body is deep, strongly compressed laterally, and heaviest toward front. Head is moderately large and blunt. Eyes are large. Mouth is large, terminal and slanted upward. Scales are large and easily shed. Scales on sides near front of body are taller than wide (at least two to three times). Middle of back in front of dorsal fin has a distinct black line. Coloration: Back is olive-green or dusky olive. Sides are silvery but may have a bluish or purplish iridescence. Fins vary from clear to having pink or orange pigmentation on outer third of fin margins. Fin color intensity depends on fish size, age and time of year. Length: Average about 2-4 inches.

Habitat: As the name implies, this fish is a common resident of rivers and streams and may sometimes be found in the shallow shore waters of some lakes and ponds. Flowing water is needed for spawning. The common shiner is widely distributed throughout Vermont.

Bait value: This is a popular bait species frequently taken in bait traps set out in suitable habitats. It also may be purchased at some bait shops. Common shiners generally transport well during the cooler months and are easily maintained in holding tanks.



Photo Credit: John Lyons

MIMIC SHINER

Notropis volucellus

Other common names: Shiner, minnow, méné pâle.

Identification: Body is fairly slender and compressed laterally. Snout is broad, rounded, and barely overhangs the small, slightly upturned mouth. Eyes are large. Scales, particularly on the back and upper sides, are dark edged. Scales on forward part of lateral line are taller and narrower than elsewhere. Silvery sides have a faint, dusky lateral stripe that is more noticeable and thickest near the tail. Fins are clear. Dark pigmentation occurs around the anus and base of the anal fin. Coloration: Back is yellowish-olive, sides are silvery, and underside is silvery-white. Length: Average about 2-3 inches.

Habitat: This is a fish of sandy pools in small to large rivers and some lakes. The mimic shiner is not a widely distributed species in Vermont but is fairly common in Lake Champlain and the Connecticut River.

Bait value: This fish is more likely to be encountered as wild-trapped bait. It is not generally available from commercial dealers unless it comes mixed with other wild-caught minnows and shiners.





Photo Credit: Doug Watkinson

CREEK CHUB

Semotilus atromaculatus

Other common names: Chub, common chub, horned dace, mulet à cornes.

Identification: Body is relatively thick and deep, and barely or only moderately compressed laterally. Front half of body is more or less round in cross section. Head is large and blunt. Mouth is terminal and large, extending back to a point below pupil of the eye. Scales are large, more crowded toward front of body and not easily shed. A distinctive black spot is present at base of first three rays of dorsal fin. Sides have a dusky lateral stripe that ends in a spot at base of caudal fin (most evident in young fish). Coloration: Back is olive-brown or olive-green. Sides are silvery with a purplish iridescence and underside is silvery-white. Young fish are silvery with a dark, narrow lateral stripe ending in a distinct caudal spot. Length: Average 3-5 inches, although 10-12 inches may be found.

Habitat: This is a species that seems to prefer pools in small brooks and streams with gravelly bottoms. It is sometimes encountered in shallow shoreline areas of small lakes and ponds. The creek chub is widely distributed and common throughout Vermont.

Bait value: The creek chub is a common species and considered to be a hardy baitfish. It is not often sold in Vermont bait shops but is frequently encountered when trapping wild bait fish in suitable habitats.



Photo Credit: Noel Burkhead

FALLFISH

Semotilus corporalis

Other common names: Chub, silver chub, lake chub, stone roller, outitouché.

Identification: Body is heavy set and more compressed laterally than the closely related creek chub. Head is blunt with a large mouth that is slightly overhung by the snout (very obvious in large individuals). Eyes are large. Scales are large. Adult fish have a dark crescent or triangular-shaped pigmentation at base of each scale on the back and upper sides. Dorsal fin rays closest to the back are often darkly pigmented, but are not limited to a distinctive black spot characteristic of the creek chub. Coloration: Back is olive to golden-brown. Sides are very silvery, sometimes with purplish or bluish sheen and underside is silvery-white. Young individuals have a dark band along the sides and a spot at base of tail fin. Length: Average 5-8 inches, but large adults may attain 18 inches. This is the largest minnow species native to Vermont.

Habitat: An adaptable species inhabiting pools in moderate to large streams with gravel-rubble bottoms. It also is found in some lakes. The fallfish is widely distributed in Vermont.

Bait value: As a baitfish, the fallfish has many of the same attributes as the creek chub.





Photo Credit: John Lyons

BLACKNOSE DACE

Rhinichthys atratulus

Other common names: Dace, naseux noir.

Identification: Body is stout and elongate, fairly round in cross section ahead of dorsal fin and slightly compressed behind it. Snout is long and slightly overhangs mouth. Upper lip of mouth is not separated from the snout by a groove. Scales are very small, giving the fish a smooth skinned appearance.

Coloration: Back is dark gray. Sides have a prominent black band that extends from base of tail, along lateral line, through eye, and around tip of snout. The lower sides and underside are silvery-white. Males may show a black and reddish lateral band. Body is peppered with numerous dark flecks. Length: Average about 2 inches.

Habitat: This species prefers small, clear, swift flowing streams that have gravel bottoms. The blacknose dace is widely distributed in Vermont.

Bait value: The blacknose dace is not a particularly popular baitfish, perhaps due to its overall drab appearance. However, it is common in many Vermont streams, usually abundant and easily obtained from the wild.



Photo Credit: John Lyons

LONGNOSE DACE

Rhinichthys cataractae

Other common names: Dace, naseux des rapides.

Identification: Body is stout and elongate, fairly round in cross section ahead of the dorsal fin and slightly compressed behind it. Top of head is somewhat flattened. Snout extends well beyond and overhangs the mouth. Upper lip of mouth is not separated from the snout by a groove. The lips are thick, giving the fish a sucker-like appearance. Very small scales give the fish a smooth skinned appearance. **Coloration:** The upper body is light olive-green to black with numerous dark flecked scales. The lower body is silvery-white. With exception of very young individuals, a distinct black band on sides is lacking. Length: Up to 4 inches.

Habitat: This fish prefers swift flowing streams with riffles and pools. The longnose dace is widely distributed in Vermont.

Bait value: Longnose dace is not a particularly popular baitfish, although it is common in many Vermont streams. Its overall drab appearance may be a reason for its limited use as bait. It also is not a hardy fish to maintain for any length of time in holding tanks. However, it is usually abundant and easily obtained from the wild.



Photo Credit: John Lyons

NORTHERN REDBELLY DACE

Phoxinus eos

Other common names: Yellowbelly dace, dace, ventre rouge du nord.

Identification: Body is stout and round in cross section. Snout is short and rounded. Mouth is small, terminal and slightly upturned. Scales are very small, giving the fish a smooth skinned appearance. There are two distinct dark lines or bands on each side of the body. One is slightly below the lateral line and the other is located above it. The upper band may be interrupted and appear as dark spots toward the rear half of the fish. Coloration: Back and sides above the upper stripe are olive-brown. Sides between the two stripes are silvery or brassy. Sides below the lower line and underside are silvery-white or yellowish. The underparts of male fish may be red during the peak spawning season and bright fluorescent yellow immediately prior to and following spawning. Length: Average about 2 inches.

Habitat: This is a fish of acidic lakes, beaver ponds, bogs, and streams, although populations also may occur in non-acidic waters. It avoids fast moving waters, preferring backwaters with silty bottoms and abundant aquatic vegetation. This fish is not particularly widespread in Vermont, however, in suitable habitats it can be quite abundant.

Bait value: Not readily available through commercial bait dealers. However, it is trapped locally from the wild and used primarily for walleye bait.



Photo Credit: John Lyons

WHITE SUCKER

Catostomus commersoni

Other common names: Common sucker, sucker, meunier noir.

Identification: Body is elongate with a rounded cross section throughout its length. The head is squarish in shape and snout is blunt. The mouth is aligned nearly horizontal and has thick fleshy lips covered with coarse papillae (bumps). The lip of the lower jaw extends back from the mouth as two enlarged, flattened lobes. Scales are large and number less than 74 along the lateral line. Coloration: Back is olive-brown to black and sides are brassy to silvery. Underside is silvery-white to creamy-white. Young fish may have dark mottling and three dark oval blotches on the sides. Length: Adults attain large size, 10-18 inches.

Habitat: The species is found in a wide range of habitats including headwater streams, medium to large rivers, and lakes and ponds. The white sucker is widely distributed in Vermont.

Bait value: Suckers are an important baitfish in Vermont. Smaller fish are sold and used live as much as shiners and minnows. Large individuals may be used for "cut bait" or fished dead as whole "sewn-on-bait." They are hardy for transporting and maintaining in holding tanks.





Photo Credit: Jon Craig Cloutier

LONGNOSE SUCKER

Catostomus catostomus

Other common names: Finescale sucker, northern sucker, red-sided sucker, meunier rouge.

Identification: The longnose sucker has many similarities to the white sucker, however, several characteristics help in setting it apart. The snout projects noticeably beyond the leading edge of the upper lip (twice as much as the snout of a white sucker). Scales are smaller and number more than 95 along the lateral line. Coloration: Back is brown to olive-brown, lightening to silvery or brassy-yellow on the sides that frequently have dark irregular blotches. Underside is whitish, yellowish or pinkish. In spring and summer, the sides of the fish may have a prominent broad, rosy band. Length: Typically up to 10-15 inches. It can attain much larger size, particularly in lake populations.

Habitat: Unlike the white sucker, this species prefers cool, deep lakes and it also can be found in streams. The longnose sucker is widely distributed in Vermont, but it is less common than the white sucker because of its more specialized habitat requirements.

Bait value: The longnose sucker has many of the same attributes as the white sucker but is less important as a baitfish.



Photo Credit: Doug Watkinson

RAINBOW SMELT

Osmerus mordax

Other common names: Smelt, American smelt, jack smelt, frostfish, icefish, éperlan arc-en-ciel.

Identification: A proportionately long and slender fish with an adipose fin. Mouth is large, extends back to rear of eye and has strong teeth on the jaws and tongue. Scales on the sides are easily shed when handled. Coloration: Back and upper sides are yellowish-olive or greenish. Sides have a bright silvery band extending from rear gill cover to base of tail. Band frequently reflects a purplish-bluish iridescence. Underside of body is whitish. Length: Ranges 6-10 inches.

Habitat: Smelt inhabit deep, cold, clear water lakes and may spawn either along lake shorelines or swim up tributary streams. Because of its strict habitat requirements, smelt populations are limited to relatively few lakes in Vermont.

Bait value: This is an important bait species especially during the ice fishing season for lake trout, landlocked salmon and large trout. It is either obtained directly by angling or can be bought from some bait shops when in season. Smelt also are a valued table fish and harvested in large numbers through the ice.

EXOTIC SPECIES IDENTIFICATION

The following pages of this guide provide photographs and descriptions to help you properly identify some of the aquatic nuisance fish species that could potentially be encountered in wild-harvested or store-bought bait.

These exotic fish species are ILLEGAL to import, have in your possession, or use as bait in the state of Vermont.

Be aware of and informed about Aquatic Nuisance Species and the rules and regulations pertaining to them!

26



Photo Credit: Jon Craig Cloutier

ALEWIFE

Alosa pseudoharengus

Other common names: Sawbelly, skipjack, shad, herring, gasparcau.

Identification: The alewife is a member of the herring family. It is generally 3 to 7 inches in length and silvery in color with a blue-green back. The alewife's belly is serrated, giving it a saw-tooth feel when rubbed from tail to head. The alewife's eyes are large and its lower jaw extends outwards beyond its upper jaw. The alewife's body is compressed laterally (flattened from side-to-side). There is typically a large prominent black spot on its side just behind the gill cover.

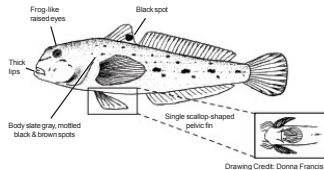
Habitat: The alewife is a schooling fish, preferring to suspend over deep water. In the evenings and at night it also can be found foraging for food in thick aquatic vegetation close to shore.

Exotic Species Status and Impacts: In Vermont, alewives are currently found only in Lake St. Catherine, Rutland County. It is suspected they were illegally imported from out-of-state and introduced in the mid-1990s by anglers. Alewives reproduce rapidly and can quickly dominate a new lake. They eat the eggs and fry of important sport fish and also compete with native fish species for food and habitat. Native fish, such as smelt, yellow perch and walleye, can often decline or even disappear following the introduction of alewives. Alewives also interfere with the natural reproduction of lake trout and landlocked Atlantic salmon.

27

Frog-like raised eyes

Thick lips



ROUND GOBY
Neogobius melanostomus

French common name: Gobie à taches noires.

Identification: The round goby resembles a sculpin (also known as a muddler or Miller's Thumb). They have a large head, soft bodies, spineless dorsal fins, and fused pelvic fins—a unique feature which forms a suction disk. Round gobies have a distinctive large black spot on the first dorsal fin. Sculpins often have a dark spot in the same location, but sculpins can be distinguished from gobies by their separate pelvic fins. The goby's body is mostly gray, with mottled black or brown spots. Gobies average 3 to 6 inches in length but can reach 10 inches.

Habitat: The round goby is an aggressive bottom-dwelling fish. They can be found at all depths and prefer sandy or rocky bottoms. Gobies build and actively defend nests laid in rocky crevices. Females are able to spawn up to five times during the mating season.

Exotic Species Status and Impacts: The round goby is currently found in all five Great Lakes but has not yet spread to other waters. However, this fish is increasing its distribution annually and may eventually spread beyond the Great Lakes.

Invasive gobies are a threat because they:

- Are aggressive and reproduce quickly, which may allow them to outcompete native fish for food and spawning habitat.
- Feed on the eggs and fry of native fish, as well as directly eat smaller native fish species.
- Are a nuisance to anglers. Their aggressive feeding habits cause them to be caught frequently, making it difficult to catch target sport fish in areas where gobies are present.

Anglers should know how to identify the round goby.



Anglers are often the first to discover round gobies because these aggressive fish are commonly caught by hook and line.

Your help is vital in reporting new sightings and preventing their spread.



Photo Credit: Gary Cholwek

RUFFE

Gymnocephalus cernuus

French common name: Grémille.

Identification: The ruffe is a member of the perch family native to northern Europe. An adult is generally 5 to 6 inches long but can attain 10 inches. At first glance, ruffe resemble young walleye, yellow perch or trout-perch, but there are ways to tell the difference. The ruffe has two dorsal fins, one spiny and one soft, which are joined together. The membranes between the spines on the front dorsal fin have rows of dark spots. The ruffe also has very sharp spines on its gill cover and pelvic and anal fins. The ruffe has glassy eyes and a small, down-turned mouth. Their coloration is similar to walleye, and they are slimy when handled.

Habitat: The ruffe spends its days in deeper water, moving to the shallows to feed at night.

Exotic Species Status and Impacts: Currently, the Eurasian ruffe's distribution is limited to localized spots in Lake Superior and Lake Huron. The ruffe was likely carried to the Great Lakes in the ballast water of an ocean freighter in the early 1980s. However, the ruffe is rapidly spreading, demonstrating quick growth and enormous reproductive potential. Given

time, they could spread to all the Great Lakes and many inland waters.

Ruffe are opportunistic feeders and will eat almost anything. The diet of the ruffe consists mainly of aquatic insects and other bottom-dwelling organisms. In Lake Superior, ruffe have also been observed feeding on the eggs of valuable species, such as lake herring, whitefish and lake trout.

Eurasian ruffe have the potential to impact existing commercial and recreational fisheries. For example, the ruffe has become the most abundant fish of the more than 60 fish species present in the Duluth Harbor on Lake Superior. This happened within three years of its discovery in the harbor. Declines of native fish species such as yellow perch and emerald shiner also were observed.

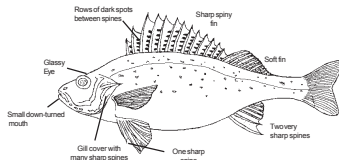




Photo Credit: Noel Burkhead

RUDD

Scardinius erythrophthalmus

French common names: Rotengle, gardon rouge.

Identification: A member of the Cyprinid, or minnow and carp family, the rudd has been introduced from Europe to many parts of North America. The rudd is a stocky, deep-bodied minnow that can grow to 20 inches long. It has a forked tail. The mouth is distinct, with a steeply angled protruding lower lip. Small rudd are very similar in appearance to our native golden shiner, but have blood-red fins (golden shiner's are yellowish-orange) and a fully scaled belly. As they get older and larger, their bodies will often turn solid orange.

Habitat: The rudd inhabits quiet, heavily vegetated waters, similar to golden shiners. However, they can adapt to a wide range of environmental conditions, including poor water quality. Adults feed mainly on aquatic vegetation, insects and small fish, while young rudd mainly eat algae and small invertebrates.

Exotic Species Status and Impacts: Because of its close resemblance to the golden shiner, the rudd was widely sold as a baitfish in the past (now illegal in Vermont). It is believed that bait bucket dumping is the primary way rudd have spread. Rudd up to 17 inches and 2.5 pounds have been caught in several Vermont waters, including Keeler's Bay on Lake Champlain, Lake Hortonia in Rutland County and Dewey's Mill Pond in Windsor County. The impacts of the rudd on native species are not completely known. Rudd will hybridize with the native golden shiner, which could interfere with their genetics and pose a risk to this important native baitfish species. Rudd also may compete with native fish for food. They eat large amounts of shoreline aquatic vegetation, which could degrade spawning and nursery habitats for young fish.



Photo Credit: Steffen Ziemer

TENCH

Tinca tinca

French common name: Tanche.

Identification: The tench is a member of the Cyprinid, or minnow and carp family, though it is unlikely to be confused with native minnows. It is a thickset fish with small scales, thick leathery skin, a short, deep caudal peduncle, and small reddish eyes. Tench also have a terminal mouth with a single, long barbel at each corner. It is typically greenish-brown above with bronze sides and a yellowish tinge to the belly. There also is a golden ornamental variety of tench. Tench average 8 to 10 inches long but can grow as large as 34 inches.

Habitat: The tench inhabits lakes, ponds and sometimes lower reaches of rivers. It can live in heavily silted, densely vegetated waters where few other fish could survive. It is very tolerant of high temperatures and low oxygen levels. Tench primarily eat crustaceans, aquatic insects, molluscs, and a considerable amount of plant material. They spawn in late spring and early summer, laying eggs in aquatic vegetation.

Exotic Species Status and Impacts: Tench escaped from a private facility in Quebec in the 1990s and became established in the Richelieu River. They have since been reported in the northern waters of Lake Champlain. The species can be a nuisance when it reaches high abundance, and it is a potential competitor for food with sport fishes and native minnows. Tench can stir up bottom sediments and possibly affect water quality, but probably not to the extent of common carp. Many introduced tench populations in the United States have not persisted and those that remain tend to be somewhat localized.





Photo Credit: John Lyons

GOLDFISH
Carassius auratus auratus

French common names: Carassin, poisson rouge.

Identification: Goldfish are a member of the Cyprinid, or minnow and carp family, and are native to eastern Asia. They are thought to have been the first foreign fish species ever introduced to North America. They vary in color and may be white, silver, gold, brown, black, or a mottling of various colors, although the most common varieties seen in aquariums and pet shops are bright orange.

Habitat: Goldfish prefer the shallow, warm edges of lakes and ponds with abundant aquatic vegetation. Although goldfish thrive in warm water environments, they can easily survive the cold temperatures and low oxygen conditions found under the ice during a Vermont winter. In the wild, goldfish will often hybridize with carp, producing fertile offspring. Goldfish are limited in their usefulness as forage fish because of their rapid growth.

Exotic Species Status and Impacts: The use of goldfish as baitfish is prohibited in Vermont and many other states. However, wild populations of goldfish are known to exist in almost every state. Large numbers are cultured as bait and forage for sport fish, as well as for the aquarium industry. In the wild, goldfish will compete with native fish species for food and habitat. Large populations can greatly disturb sportfish habitats. Goldfish will root around the bottom of lakes and ponds, destroying aquatic plants, turning the water muddy, and creating aquatic conditions that are less suitable to native fish species and unsightly to the human eye.

Never release aquarium fish into the wild! Unwanted pet fish should be returned to pet shops or humanely euthanized by placing them in the freezer for several hours and then disposing of them properly.

34

Disposal of Unused Baitfish

Anglers! Help Protect Your Valuable Fishery Resources.

The improper disposal of baitfish can spread damaging non-native aquatic animals and plants. Once established, they can have negative impacts on Vermont's native aquatic ecosystems. They also can detrimentally affect our overall ability to enjoy Vermont's natural resources. Negative impacts include:

- Reduction of game fish populations.
- Reduction of native fish and plant species.
- Degraded ecosystems.
- Damaged boat engines and fouling of mechanical equipment.
- Unsuitable conditions for anglers, boaters and swimmers.
- Increased operating costs of drinking water facilities, power plants, dam maintenance and industrial processes.
- Introductions of fish diseases and parasites.

How can you help?

- Learn to identify Vermont's legal baitfish species.
- Do not release any bait into a body of water.
- Do not transfer water, aquatic plants or other organisms from one waterbody to another.
- Always dispose of unwanted bait on land or in the trash.
- At home, thoroughly clean, rinse and dry all bait containers and nets prior to reuse.
- Never use baitfish that are abnormal or appear to be diseased.

Let's help keep damaging plants and animals out of Vermont's waters. Disposing of your unused baitfish properly will go a long way to ensuring healthy fisheries and ecosystems for all people to enjoy.

35

Vermont Commercial Bait Dealers

Northwest and Northern Champlain Valley Region

Al's Bait & Tackle, 28 Woods Court, Milton • 893-7905
Bayside Bait & Tackle, 135 Chubb St., St. Albans • 524-2222
Big River Dog Supply, 2093 Silver St., Hinesburg • 482-3028
Byam's Bait & Tackle, 4573 Lake Rd., Franklin • 933-4100
Charlies Northland, 3829 Rte. 2, North Hero • 372-8822
Don's Ponds, 3288 Perley Rd., Enosburg Falls • 933-8826
Eric Lindstam, 650 Williams Rd., Colchester • 872-0681
Gerry's Live Bait, 2531 Highgate Rd., St Albans • 524-2770
Hog Island Wholesale Bait, 172 Lakewood Dr., Swanton • 868-4806
Holiday Harbor Motel, 8369 Rte. 2, North Hero • 372-4077
Island Bait, 73 Hyde Rd., Grand Isle • 372-9116
Lakeshore Ace Hardware, 713 W. Lakeshore Dr., Colchester • 863-4910
Martins Store, 2934 Rte. 7, Highgate Springs • 868-4459
North Country Bait & Tackle, 23 N. River St., Swanton • 868-7843
Otter Creek Bait Shop, 697 Basin Harbor Rd., Vergennes • 475-2493
Ray's Seafood Market, 49 North St., Burlington • 658-7928
Ron's Bait & Tackle, 34 Jasper Mine Rd., Colchester • 893-2953
Tenney Enterprises, 76 Jackson Hill Rd., Charlotte • 425-2180

Northeast Region

Currier's Quality Market, 1 Main St., Glover • 525-8822
Flanders Signs, 587 New Boston Rd., St Johnsbury • 748-2228
Gary Birchard, 130 Carter Rd., Westfield • 744-2023
Morgan Country Store, 8411 Rte. 111, Morgan • 895-2726
Nancy's Live Bait, 2972 Rte. 105, Island Pond • 723-9825
Outback Bait, 251 Cross Rd., Barton • 754-8428
Peanuts Bait, 958 Parker Rd., Brownington • 754-6271
Point Comfort, 3182 Rte. 2, West Danville • 684-3379
Seymore Lake Market, 6569 Rte. 111, Morgan • 895-4961
Wrights Sport Shop, 48 Community Dr., Newport • 334-6114

Note: Current as of February 2005

**Please visit our website for updates
and changes: www.vtfishandwildlife.com**

Vermont Commercial Bait Dealers

North Central Region

Riek's Bait Shop, 5325 Rte. 14, East Calais • 456-1152
TJ's Outdoors, 81 Bridge St., Morrisville • 888-6210
Water-N-Woods, 74 Portland St., Morrisville • 888-7101

Mid and East Central Region

Ed's Live Bait, 1839 Camp Munn Rd., Bradford • 295-2383
L & J Bait Shack, 158 Montgomery Rd., E. Randolph • 276-3098
Steve's Bait Shop, 8 Rockwood St., N. Hartland • 296-7331
Twin Brooks Baitshop, Rte. 12 Bethel Line, Barnard • 234-6685

South Central Region

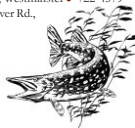
Delair Depot, 737 Rte. 100 North, Wilmington • 464-5391
Bruce's Bait, 4225 Rte. 103, Mt Holly • 259-3478
Stoddard's General Store, 1786 North Rte. 100, Ludlow • 228-2284

Southwest and Southern Champlain Valley Region

Charbonneau & Sons, 1155 Adams Rd., Pittsford • 483-6264
Cones Point Country Store, 43 Saw Mill Hill Rd., Poulton • 287-9925
Ed's Bait Center, 2060 Rte. 22A, West Haven • 265-3388
Fishman's Trading Post, 590 Franklin St., Brandon • 247-6595
Marty's Sporting Goods,
1679 Harwood Hill Dr., Bennington • 442-8826
Tom's Bait & Tackle, Rte. 4A, Bomoseen • 265-8654
Wells Trading Post, 5 Rte. 30, Wells • 645-0425

Southeast Region

Clint's Bait & Tackle, 838 Newton Rd., Vernon • 254-7340
GRC Bait & Supply, 2747 Kurn Hattin, Westminster • 722-4579
Rte 5 Bait & Tackle, 858 Connecticut River Rd.,
Ascutney • 885-3057
Spring Water Bait, 10 Draper Ln.,
Brattleboro • 258-2371



CATCH & RELEASE

Harvesting and eating a freshly caught fish is part of the angling experience. However, catch-and-release fishing has taken off in popularity, and there is nothing wrong with fishing for sport and putting your catch back to be caught another day. If you choose to do so, it is important to follow certain steps to ensure the fish you release truly will survive to fight another day. The following guidelines will help released fish live.

- **Land fish as rapidly as possible.** Use tackle that is adequate but sporting. A fish played gently for too long may be too exhausted to recover and has an increased chance of dying after release.

- **Keep the fish in the water as much as possible and handle it with care.** Gently restrain the fish to minimize its movement while unhooking it.



- **Remove hooks gently and carefully from fish hooked in the lip, jaw or mouth. Never rip the hook out. Use the "hook shake" method.** Reach into the fish's mouth and grasp the hook shank with fingers or pliers. Lift the fish slightly out of the water, rotate hook shank so cyelot is down and shake gently. The weight of the fish will cause it to pop off the hook.

CATCH & RELEASE

- **Use barbless hooks, or pinch the barb flat with pliers, to quicken the unhooking process.** Barbless hooks, when used with bait, can increase the survival of released fish.

- **Do not attempt to remove the hook if the fish is hooked in the gills, throat or stomach.** Leave the hook in the fish by cutting the line as close to the knot as possible, taking care not to injure the fish. The hook will often rust out of the fish or be passed within a few days. However, if legal, an injured fish is always a good candidate for harvesting!

- **When fishing with live bait, watch the line continuously and set the hook as soon as possible.** This reduces the chances of the fish swallowing the bait and the need for cutting the leader and leaving the hook in the fish.

- **Try not to expose the fish to the freezing air when fish fishing.** Keep the fish in the hole while unhooking it, if possible. If not, unhook it as quickly as possible and return it to the water immediately to prevent the fish's eyes and gills from freezing.

- **Before releasing an exhausted fish, cradle it in a swimming position in calm water and move it gently back and forth to force fresh water through its gills.** Let the fish go when it is able to maintain an upright position on its own and is beginning to struggle. This process can sometimes take up to 10 minutes for large, exhausted fish.

Practice these methods and teach them to young anglers, our next generation of conservationists!

Dispose of bait on land or in the trash

BAIT AND NON-BAITED POTS AND DEVICES ARE PROHIBITED IN BAIT CATCH BASINS AND OTHER FISHING AREAS.

PROTECT OUR WATERS...

For more information, visit www.vermont.gov/naturalresources/fishandwildlife

Courtesy of Illinois-Indiana Sea Grant College Program

Remember Not To Litter!

Please dispose of bait containers in appropriate receptacles!

Always dispose of unwanted bait on land or in the trash.

VERMONT
AGENCY OF NATURAL RESOURCES
FISH & WILDLIFE DEPARTMENT



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Noel Burkhead
USGS Florida Integrated Science Center
Center for Aquatic Resource Studies
7920 NW 71st St, Gainesville, FL 32653
352-264-3499 | fax 352-378-4956



John Lyons
Wisconsin Dept. of Natural Resources
1350 Femrite Center, Monona WI 53716-3736
608-221-6328



Douglas Watkinson
Fisheries & Oceans Canada
501 University Crescent, Winnipeg, Manitoba, R3T 2N6
204-983-3610 | fax 204-984-2404



New Hampshire Fish & Game Department
Freshwater Fishes of New Hampshire
11 Hazen Drive, Concord, NH 03301
603-271-3511 | fax 603-271-1438
Jon Craig Cloutier - photographer / John F. Scardala - author



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