True New Jersey Natives

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New Jersey anglers know a lot about fishing the Garden State. Most avid fishermen can distinguish a largemouth from a smallmouth bass. Many of us catch our limit of stocked trout on opening day while others have wet enough lines to have mastered techniques for catching lake trout, walleye or muskie. But many anglers may not know that each of these species, including most of our popular gamefish, were introduced to our state for recreational purposes. That's right, northern pike, channel catfish, rainbow and brown trout, hybrid stripers, common carp, crappie and even bluegill are not native to New Jersey.

bluespotted sunfish

Of the nearly 100 freshwater fish species that swim in our waters, only 65 of them are native. The term native is often misused to describe an individual fish that was born in the wild. The most common misuse among anglers is when we claim to catch *native* brown trout in New Jersey streams. Actually, brown trout are native to the British Isles and the European mainland. What we catch here are *wild* brown trout.

Non-native fish such as brown trout and largemouth bass reproduce in New Jersey waters, but that does not make them native. A *native* species is one naturally occurring within the geographical region in which it evolved, whereas *non-native* species have been dispersed by humans (intentionally or unintentionally) beyond their original geographical region.

With the exception of our native sportfish such as chain pickerel, brook trout, pumpkinseed, redbreast sunfish, yellow perch, American shad, American eels, white catfish and bullheads—the majority of our native fishes are relatively unknown. Some of the most interesting, rare and important fishes are those native species that may never take a hook.

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NATIVE NEW JERSEY FISHES

One of New Jersey's most interesting species is the American brook lamprey. They spend the first four to five years of their life blind, buried into the substrate, filter-feeding upon small particles. During the last year-and-a-half of their lives, functional eyes develop and their hood-like mouth transforms into a toothed, disk-like structure, similar to their relative the sea lamprey. However brook lamprey are not parasitic; they neither eat nor have a functioning digestive system in this adult stage, where they reach a maximum length of just over 12 inches. Because they require specific water conditions with a silt-free substrate, the American brook lamprey also serves as an indicator species, acting as a marker for this particular habitat feature.


American brook lamprey


slimy sculpin

Often tied by fly fishermen, the muddler minnow imitates a small native fish known as the slimy sculpin, a well-camouflaged swift-moving fish. Fluke fishermen may see the sculpin's resemblance to a sea robin. The sculpin serves as the ultimate indicator species of clean, cold water and pristine habitat quality.


John Bunnell
pirate perch

Although not a true perch, the pirate perch may appear to have no unique characteristics, until viewed from its underside. This fish has a migrating anus. (Really!) As a juvenile, the anatomic arrangement of this fish resembles that of most other species, but as a pirate perch matures, its vent moves forward until it finds a permanent residence under the throat.


bridle shiner
Dr. Joseph Colosi, DeSales University


ironcolor shiner

Minnows such as the ironcolor shiner and bridle shiner were once found in many clear, vegetated waters throughout more than 20 states. Now rarely encountered, these fish appear on several states' threatened and endangered species lists. Never larger than 2.5 inches, these straw-colored shiners are vulnerable to habitat loss and predation from non-native species.


dace
longnose
blacknose

A master of swift waters, blacknose and longnose dace are two of the most common minnows found in streams of the northern portion of the state. They are frequently found in trout streams.


cutlips minnow

The cutlips minnow seems harmless enough, but this fish has been known to pluck out the eyes of other fish. But there is no reason to fear; this native fish has evolved and coexists with other New Jersey fishes since the last Ice Age.


blackbanded sunfish

Possibly the most beautiful group of all New Jersey freshwater fish, the acid-tolerant family of sunfish includes the bluespotted, banded, blackbanded and mud sunfish. Apart from the mud sunfish, these tiny sunfish rarely attains even four inches in length. With the exception of the bluespotted sunfish, these species are primarily restricted to minimally-disturbed lakes and slow-moving streams in south Jersey inhabited by few non-native sunfish and bass, as found in the Pinelands.


bluespotted sunfish


banded sunfish
John Bunnell


mud sunfish

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Beyond the value we enjoy from having a fish on the end of a rod, on the dinner plate or in an aquarium, native fishes—both large and small—are an important piece of a complex, ecological puzzle. Over millions of years, evolutionary processes resulted in an uncountable variety of fish species worldwide, all with a different appearance, behavior and tolerance for environmental changes. Each native species forms a strand in the food web, sharing their preferred waterbody with other aquatic life as an integral component in a dynamic ecosystem. The presence (or absence) of a particular native species—or groupings of species—can serve as a biological health indicator, reminding us of the fragile nature of our aquatic resources.

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On a global scale, numerous native fishes have gone extinct and many more are declining. Human population growth has caused drastic land use changes resulting in degradation of both terrestrial and aquatic habitat (including water quality), reducing the number of suitable waterbodies for their survival. Cumulative effects from dams, stormwater runoff, fertilizers, pesticides, water supply depletion and sewage discharge—to name just a few—impact our fisheries resources. The influx of invasive plants, animals and diseases threatens the existence of native fishes. Widespread distribution of many non-native species exerts tremendous competition and predation pressures, unlike any our natives have faced in their evolutionary history. In addition, if global warming results in a rapid change in conditions, these pressures may exceed the ability of native fishes to adapt in time.

Back in New Jersey, the Division of Fish and Wildlife's Bureau of Freshwater Fisheries conducts hundreds of fisheries surveys, providing valuable data to better understand the status and distribution of our native fishes. Fish and Wildlife is working toward creating species distribution maps, formally evaluating our native fishes resource and developing management strategies to guide research and management activities into the future.

Our waters give rise not only to sport fish that tip the scales, but also to an assortment of miniature wonders. On your next trip, take a closer look. Be curious. Several native species may scurry among the cobble with your next wading step. You may find it intriguing to identify and learn more about a less-familiar fish. While many may be common species, others might be brilliantly-colored, absurdly unique or increasingly rare. Whether in your bait bucket, on the end of your line or in the waters below, ask yourself if this fish is a true New Jersey native. 

For a checklist of New Jersey freshwater fishes, visit www.NJFishandWildlife.com/chkfish.htm.