

Illegal Fish Introductions – The **Largest Threat** to Maine's Fish Populations and Fishing Heritage

In recent years Maine's lakes and rivers have experienced dozens of illegal fish introductions that pose real and immediate threats to our native fish populations and our traditional fisheries.

Unauthorized introductions of invasive, exotic fish species are particularly destructive to Maine's native fish species, especially brook trout populations. Introductions of invasive fish cause irreversible changes to entire aquatic ecosystems. Strategies to eliminate or control invasive fish are difficult to design and implement, costly, and are only effective in limited situations.

Recent news about strange South American fish (pacu) in Limestone, Maine or snakeheads in New York grab people's attention, but the spread of more commonly know species (largemouth bass, northern pike, rainbow smelt, black crappie) constitutes the greatest threat in Maine.

How wide spread is this problem?

Since May 2006 approximately 80 new introductions have been documented by MDIFW fisheries biologists throughout the state.

Where do these introductions occur?

In the past the vast majority of introductions occurred in southern, central, and coastal Maine. In recent years invasive fish are being established at a higher rate in western and northern regions where most of Maine's wild brook trout and Arctic charr populations are located.

When a non-native or invasive species is illegally introduced into a waterbody the following impacts can occur:

- 1) Prey upon existing fish species in that waterbody.
- 2) Compete with existing fish species for food and habitat.
- 3) Spread to other waterbodies (upstream and downstream) that are connected to the original water. This expands the range of the new species and continues impacting other existing fish populations.
- 4) Increase the potential for fish diseases to be spread and for the introduction of new diseases from outside of Maine. Existing Maine regulations on the importation of live fish and health screening requirements for authorized transfers have prevented the spread of most fish diseases into Maine from neighboring states.
- 5) Once an introduced fish species becomes established in a waterbody the fish community is **FOREVER CHANGED!**

What can you, the angler, do?

Properly dispose of unused bait. Always dispose of unwanted baitfish on land or in the trash. **DO NOT** release any live baitfish into a waterbody!

Follow fishing regulations. – Regulations that restrict anglers to fly-fishing only , artificial lures only , or preclude the use or possession of live fish are often intended to prevent the introduction of new fish species to sensitive areas of the state. Please follow all regulations in regards to the use of terminal gear (tackle) as stated in the fishing lawbook.

Report introductions.

- 1) If you observe a person releasing live fish into a waterbody, gather any information on the person's description, boat hull number or vehicle license plate number if applicable. Report your observation by calling Operation Game Thief at 1-800-253-7887.
- 2) If you catch a fish species that you believe is not known to inhabit a waterbody take a picture and/or kill the fish and freeze it immediately of the fish and contact the nearest regional MDIFW Office (listed in the fishing lawbook).

Which species are most often introduced and the problems that they cause?

Largemouth bass – If a waterbody already contains smallmouth bass, largemouth bass commonly outcompete smallmouths reducing their overall abundance. If a trout stocking program is active in a waterbody that largemouth bass become established in, the bass prey upon the stocked trout. This decreases angler catch rates for trout and may prompt MDIFW biologists to stop stocking trout altogether if predation rates on stocked trout become unacceptably high. Introduced largemouth bass have also decimated baitfish populations in many waters, eliminating excellent opportunities to harvest baitfish, both recreationally and commercially.

Northern pike – Pike introductions create a significant change to the fish population structure within a waterbody. They will prey upon any available forage species (smelt, shiners, fallfish, and perch) as well as game fish (bass, pickerel, and both wild and stocked trout and salmon species). This reduces the overall abundance of both forage and game fish, which has drastic impacts to anglers over time.

Muskellunge – Muskies negatively impact wild brook trout populations in Maine. Due to their preference for cool-water habitat muskie actively prey upon native minnow species and brook trout, while also pushing out brook trout from slow water habitat. This reduces the overall abundance of brook trout in ponds and rivers where muskie are present, which greatly reduces angler catch rates of trout over time.

Black crappie – Black crappie compete for forage with existing fish species when introduced to a waterbody. Due to their fast growth rates and high productivity, crappie can quickly become abundant. A unique life history trait exhibited by crappie is large-scale downstream movement of young-of-year fish. This allows for quick colonization of downstream waters.

Smallmouth bass – When smallmouth bass are introduced into waters with wild brook trout populations they prey upon the brook trout and compete with trout for food and available habitat. As the bass population becomes more abundant they will reduce or extirpate brook trout and spread into accessible waters upstream or downstream.

Landlocked alewife – Landlocked alewives compete with smelt populations, often reducing the abundance of smelt in a waterbody. This change produces a profound negative impact to landlocked salmon because smelt are the primary forage for salmon. Reduced smelt abundance decreases salmon growth and abundance, along with angler satisfaction.

Rainbow smelt – Smelt are common in many waters and are native to Maine. Though often used for bait, their introduction into wild brook trout ponds and small-sized Arctic charr waters cause significant negative impacts to trout and charr because adult smelt prey on the young of both species.

Why is it difficult to remove fish once introduced?

The removal of unwanted organisms from aquatic environments (water) is much harder to address compared to the terrestrial environment (land). Special fishing regulations to limit population growth of an introduced species are generally ineffective over the long term. The use of rotenone to chemically reclaim a waterbody is highly effective, but its use is limited to smaller lakes and ponds due to the high costs and the impracticality of achieving complete removal in larger waterbodies with extensive tributary systems.

The illegal introduction of any fish into any Maine water is a Class E crime, punishable by fines up to \$10,000! The Maine Department of Inland Fisheries and Wildlife is offering a minimum reward of \$2,000 for information leading to the apprehension of persons responsible for the illegal introduction of fish. Call Operation Game Thief at 1-800-253-7887.