

Invasive Aquatic Species Control



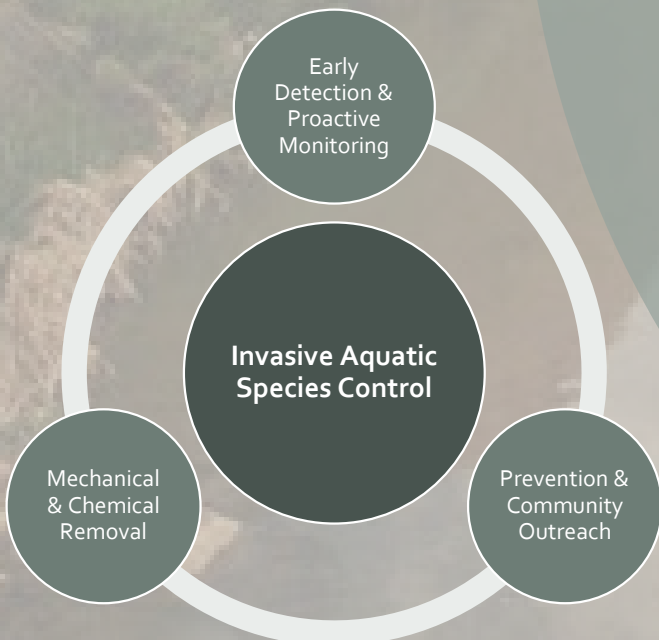
A proactive strategy defends the Virgin River Basin against invasive aquatic species to prevent irreparable ecological and economic damage in southwestern Utah.

Utah's Least Wanted

Invasive species are implicated in 70% of recent native aquatic extinctions and up to \$150 billion in damages in North America. In many cases, invasive species have ruined **sport fisheries**, requiring expensive chemical treatments and hundreds of hours in planning and restoration.

In the Virgin River Basin, invasive species such as Red Shiner, Smallmouth Bass, and Fathead Minnow can thrive in the region's warm, productive waters. Unchecked populations **devastate native fish** species, including the endangered Woundfin and Virgin River Chub. Illegally introduced aquatic species can also negatively alter **water quality**, irrigation systems, and **water delivery infrastructure**.

In response to the ongoing threat from aquatic invasive species, the Virgin River Program developed a strategy emphasizing **early detection**, community **outreach**, and non-native **removal**.



Red Shiner were the primary cause of the decline & federal listing of Woundfin & Virgin River Chub. They are currently eradicated from the Virgin River in Utah.



© Tennessee Aquarium



© Duane Raver, Jr.

Smallmouth Bass are voracious predators that have been illegally introduced in the Virgin River Basin.

Fathead Minnows are a common bait & pond fish that compete with native fish. They are currently eradicated from the Virgin River in Utah.



© Maynard Reece

AN OUNCE OF PREVENTION

Prevention is the best way to stop aquatic invasive species. Once populations are established, removal is almost always **difficult** and **expensive**. Consequently, detecting and removing invasive species *before* they become widespread is critical.

The Virgin River Program has implemented an **early-detection strategy** throughout the Virgin River Basin. Biologists regularly survey fish populations in the river, tributaries, reservoirs, and off-channel ponds for invasive aquatic species. This proactive early detection strategy helps identify new invasions and respond quickly to prevent their spread.

Dealing with these problems early allows flexible management options and **saves tremendous money and effort** by eliminating the need for expensive eradication programs.

Aquarium fish released into the Virgin River Basin harm native fish through predation, competition, & disease transmission.



© Jennifer Clausen

The **Virgin River Program** controls invasive aquatic species using a proactive approach emphasizing regular monitoring, **early detection**, & non-native removal. This multi-faceted strategy helps maintain the integrity of sport fisheries and protect native Virgin River fish.

Prevention & Community Outreach



Don't ditch a fish!

Transporting and releasing live fish—including aquarium species—into ponds, lakes and streams is illegal.

It can harm fisheries, native species and fragile ecosystems.

Fishing with live baitfish is also illegal.

Visit wildlife.utah.gov/dont-ditch for information on disposing aquarium fish and reporting violations.



UTAH DIVISION OF WILDLIFE RESOURCES



The Virgin River Program's community outreach efforts discourage the release of non-native fish into local waterbodies. The **Don't ditch a fish!** campaign raises awareness of the harm caused by non-native fish. Informational signs (above) have been installed along the banks of ponds and reservoirs throughout the basin.

The Program also cooperates with local **bass clubs** to support tournaments and inform anglers about Smallmouth Bass regulations in the Virgin River Basin.



Smallmouth Bass have been illegally introduced in local reservoirs © NDOW

Early Detection & Proactive Monitoring

Regular, proactive monitoring for non-native aquatic species is conducted throughout the Virgin River Basin. Each year during monitoring efforts, biologists seine rivers and streams, trap off-channel ponds and marshes, and electro-shock reservoirs. This proactive strategy allows the Virgin River Program to quickly **detect** and **remove** invasive species *before* they can cause serious ecological and economic damage.



UDWR biologists use a seine to capture fish in the Virgin River © UDWR

During non-native monitoring efforts, biologists also evaluate the health of native Virgin River fish populations, including the endangered **Woundfin & Virgin River Chub** (below). Native fish populations can recover quickly in river sections where invasive fish have been removed.



Woundfin
Jon Wagner



Virgin River Chub
Jon Wagner

Mechanical & Chemical Removal

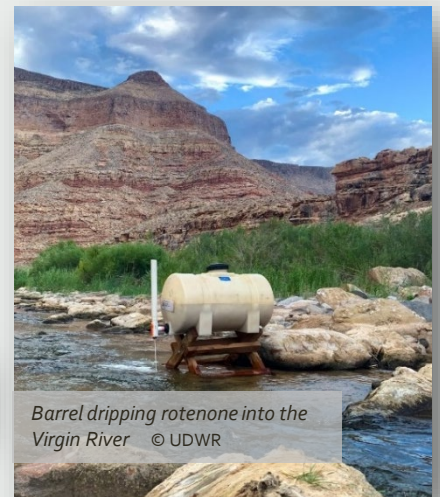


Chemical treatments were used to successfully eradicate invasive Red Shiner from the Virgin River in Utah.

Several non-native species are established in the Virgin River Basin. The Program assesses threats and determines if **mechanical** or **chemical removal** is necessary.

After nearly three decades of intensive eradication effort, UDWR and partners successfully removed invasive Red Shiner from the Virgin River in Utah, including over **100 miles** of rivers, creeks, canals, drains, marshes, and ponds.

Chemical treatments have also successfully removed illegally introduced non-native fish from reservoirs and ponds within the Virgin River Basin.



Barrel dripping rotenone into the Virgin River © UDWR

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