

## GAME FISH OF HEMLOCK STREAMS



The eastern hemlock tree is a keystone species that provides numerous ecosystem services, and provides crucial food, shelter, and habitat for over 120 species of vertebrates, including fish.

Streams lined by hemlock trees are colder, cleaner, and more oxygenated than deciduous streams, and support many species of game fish that support multi-million-dollar fishing industries in New York and Pennsylvania, which funds conservation programs as well as fish and wildlife agencies. These fish include:

**Brook Trout**, which are native fish that are highly sensitive to changes in temperature and water quality, and are found frequently in the cool, fast-flowing waters of hemlock streams.



**Brown Trout**, which are found frequently in hemlock streams due to the cold, clean water and abundance of insects and other invertebrates.

**Rainbow Trout**, which use overhanging hemlock branches for protection, cover, and shade, and may be attracted to the abundance of macroinvertebrates in hemlock streams.



**Smallmouth Bass**, which are often found in higher abundance in hemlock streams since the shade provided by these trees increases their potential for population growth.

### Hemlock Woolly Adelgid

Hemlock trees are currently threatened by hemlock woolly adelgid, or HWA, an invasive, sapsucking insect with the potential to kill trees in less than a decade. In some parts of the country, like the Great Smoky Mountains National Park, HWA has already wiped out entire stands of hemlock trees and devastated local ecosystems.

With HWA currently spreading through the native range of hemlock trees, including forests in New York and Pennsylvania, many of the fish that rely on them could be in danger.

### What Can We Do?



There is still hope of managing HWA infestations with the use of insecticides, biological controls, or a combination of both. But HWA must be detected early to save hemlock trees, which means forests must be consistently monitored to determine where the insect has spread, and assess which trees are the highest priority.

While you are out in the forest, please keep an eye out for HWA, and help protect our hemlock forests! The animals that live there may depend on it.

### Identifying HWA

From November to April, HWA forms small woolly masses on the underside of hemlock branches. These are sometimes confused for spider sacs or spittle bugs.



Spittle bugs (left), spider sac (middle), and HWA (right)

**If you believe you have found HWA, report your findings!** Contact the NYSDEC or the DCNR.

Alternatively, you may use the iMapInvasives app or website to record your findings in New York or Pennsylvania.

- ❖ PA homepage: [www.paimapinvasives.org](http://www.paimapinvasives.org)
- ❖ NY homepage: [www.nyimapinvasives.org](http://www.nyimapinvasives.org)

For more information about HWA and other invasive species in New York and Pennsylvania, visit:

- ❖ <https://www.dec.ny.gov/animals/265.html>
- ❖ <https://www.dcnr.pa.gov/Conservation/ForestSAndTrees/InsectsAndDiseases/Pages/default>

