

The Idaho Department of Fish and Game and the Henry's Fork Foundation have launched a study investigating gill lice in the Upper Snake River region after receiving reports of anglers observing gill lice in rainbow trout in the Henry's Fork. We need your help to gather information on the presence *and* absence of gill lice in trout caught in the Henry's Fork, Teton River, South Fork Snake, and any other regional waters you may fish.

What are gill lice?

Gill lice are a parasitic type of copepod, which is a large subclass of common marine and freshwater organisms related to shrimp and crabs. Although we have not definitively identified the species present in the Henry's Fork, they are most likely *Salmincola californiensis*, which is native to streams west of the Continental Divide but has spread widely throughout the U.S. This species is known to infect rainbow trout, cutthroat trout, kokanee salmon, and other species of salmonids native to western North America. The lice have a simple life cycle that involves only one host—a salmonid fish. After hatching, the larval lice, called *copepodids*, swim freely in the water for a period of 2-17 days in search of a host. They usually attach to the gills of the host, after which they undergo several molts to become reproductively mature. After fertilizing the eggs of a female, the male detaches from the host. The female remains attached for the remainder of her life and can produce two broods. Eggs are contained in two sacs, which are about the size of small grains of rice and are readily visible on an infected fish. As with most cold-water aquatic organisms, growth and reproduction of lice ceases when water temperatures are too cold (less than about 40 degrees) and increases as the water warms, up to about 70 degrees.



How can gill lice affect trout?

Typical lice infestations are light—less than 10 individuals per fish. At this intensity, there is little long-term effect on the individual fish. However, the lice inhibit the fish's ability to take up oxygen through its gills, so as the number of lice increases, the potential effect on the fish increases, especially in water with low dissolved oxygen or if the fish undergoes strenuous physical exertion. Very heavy infestations can reduce survival and reproductive ability of individual fish. At the population level, the additional stress of the parasite can allow non-susceptible fish species to gain a competitive advantage over the susceptible species. For example, a species of gill lice that infects brook trout but not brown trout has been suspected to have accelerated displacement of native brook trout in Wisconsin streams by nonnative brown trout. In both Wisconsin and Colorado, lice infestations have been linked to warming water temperatures. Although some biological and chemical treatments have been proven effective at reducing lice infestations in fish hatcheries, there is currently no feasible treatment for lice in wild trout populations, other than maintaining good streamflow, water temperature, and habitat conditions for wild trout.

What can you do to help?

We need you to help us collect data on prevalence of gill lice in the Henry's Fork and surrounding water bodies! You can fill out a paper data form by hand, complete it electronically, or submit your data online—go to <http://henryfork.org/>

- Please complete each row in the table once per location fished on a given day. If you fish multiple locations on the same day, please report information for each additional location on a separate row.
- Please report location fished from the list of locations provided on the back of this sheet.
- As you net trout, please quickly inspect its gills for the presence of gill lice.
 - For rainbow trout:
 - Record in the “heavy lice” column the number of rainbow trout with 50% or more of its gill edge covered with lice (see reverse side for photo reference).
 - Record in the “light lice” column the number of rainbow trout with less than 50% of its gill edge covered with lice (see reverse side for photo reference).

- Write in the “no lice” column the number of rainbow trout with no lice.
 - For brown trout and cutthroat trout:
 - Record the total number of fish caught with lice and the total number with no lice.
- Please share additional observations or comments in the space provided, for example size of infected fish, condition or health of infected fish compared to uninfected, and if you encounter any dead infected fish.

Note: It is extremely important that we collect data on trout with AND without gill lice. Regardless of whether or not the trout you catch are infected, we want to know! The number of trout caught without lice is critical for an accurate estimate of the proportion of infected fish in the population.



Return information: When you have completed your data sheet, please return printed copies to Henry’s Fork Anglers or TroutHunter in Island Park or to the Henry’s Fork Foundation office at 512 Main St in Ashton. For electronic copies, please email Rob Van Kirk at rob@henrysfork.org. Go to <http://henrysfork.org/> if you want to report your data online.

What’s next? The Henry’s Fork Foundation will collect, compile, and analyze the data you provide to assess prevalence and distribution of gill lice in the region. In addition, HFF will use water-temperature and other data from its water-quality monitoring network to investigate risk factors for lice infestation (e.g., water temperatures and streamflow) and to assess where and when infected fish are most susceptible to effects of the lice. Together, HFF and Idaho Dept. of Fish and Game will use the data to evaluate potential population-level effects of lice and prepare an appropriate management response.

Thank you for taking the time to complete this form. This study could not be conducted without the participation of anglers like you.

Questions: If you have any questions concerning this form or the gill lice study itself, please feel free to call Rob at 208-652-3567 or via email at rob@henrysfork.org.

Locations for data sheet:

- Henry’s Lake
- Henry’s Fork – upstream of Island Park Reservoir
- Island Park Reservoir
- Henry’s Fork – Box Canyon
- Henry’s Fork – Last Chance
- Henry’s Fork – Harriman State Park (including Harriman East)
- Henry’s Fork – Pinehaven to Riverside
- Henry’s Fork – Riverside to Warm River
- Henry’s Fork – Warm River to Ashton
- Ashton Reservoir
- Henry’s Fork – Ashton Dam to Chester Dam
- Henry’s Fork – Chester Dam to St. Anthony
- Henry’s Fork – St. Anthony to South Fork Confluence
- Teton River – upstream of Harrop’s Bridge
- Teton River – Harrop’s Bridge to Old Dam Site
- Teton River – Old Dam Site to Henry’s Fork Confluence
- South Fork Snake – Pallisades Dam to Heise
- South Fork Snake – Heise to Menan
- Other waters in Snake River drainage
- Waters in Montana
- Other (please specify)