

The New Zealand mudsnail (NZMS) is a priority invasive species in Washington State. It was first detected in 2015 in Spirit Lake, located north of Mount St. Helens, where its population is quickly expanding. Studies have found NZMS to provide no dietary benefit to Spirit Lake consumers, potentially affecting growth rates of rainbow trout, the only fish species in the lake. NZMS also place the ecosystem at risk of trophic collapse due to its lack of natural predators, voracious herbivory, and interspecies competition with native snails. In order to track the spread of NZMS and its ecological impacts on Spirit Lake, sampling of vegetation and sediment was carried out throughout the lake from July-September 2022. Snail counts of all species were used to calculate population density, spatial variability, substrate preference, presence in sediments, and interspecies competition. Results suggest that NZMS populations remain spatially isolated along the south shore of Spirit Lake with evidence of expansion towards the lake's outlet tunnel. There is also strong evidence of interspecies competition in addition to NZMS and native snail species exhibiting resource and habitat overlap. These results raise concerns regarding proposed construction plans by the US Forest Service related to the Spirit Lake tunnel intake gate, including the construction of a shoreline staging area in the heart of NZMS-infested waters. These actions pose a serious threat of spreading NZMS into the Toutle River, Cowlitz River, and Columbia River drainages, causing irreparable damage to the aquatic ecosystem.