Abundance of Invasive New Zealand Mudsnails in Coldwater Lake and Coldwater Creek, Mount St. Helens National Volcanic Monument

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Abstract:

Spirit Lake is part of the landscape still recovering from the devastating eruption of Mount St. Helens in 1980. The progression of ecological recovery has been marked by new disturbances, including the introduction of the invasive New Zealand mudsnail (NZMS) (*Potamopyrgus antipodarum*). NZMS were first noted visually in 2016 in Spirit Lake by researchers working along the southwestern shore of the lake. Archived fish gut samples collected from Spirit Lake were then analyzed and the first occurrence of NZMS in fish guts was found to be 2015 (Myers et al. 2024). The presence of NZMS is important due to the possible ecological impacts it could have on Spirit Lake and other aquatic ecosystems. NZMS has been found to be able to outcompete other aquatic invertebrates and native snails for food, including aquatic vegetation. Rainbow trout (*Oncorhyncus mykiss*) will ingest NZMS with most snails passing alive through their digestive system (Myers et al. 2024). With fish and humans as possible vectors for spreading NZMS, there is growing concern that NZMS may spread to other bodies of water downstream of Spirit Lake, such as Coldwater Lake and Coldwater Creek. In summer 2025, we sought to identify the extent to which NZMS has made its way to these bodies of water. We collected environmental media that comprise NZMS habitat, including aquatic vegetation samples from various points within Coldwater Lake and sediment samples along Coldwater Creek. Results from these samples show that the NZMS has not made its way into Coldwater Lake yet but have been found within Coldwater Creek. These results show that preventative measures are needed to further reduce the spread of the NZMS and protect Coldwater Lake and the Toutle River system further downstream.