

Aquatic Invasive Species Lake Monitoring 2021

Clearwater Resource Council

Introduction:

The Columbia River Watershed is currently the only major river basin in the continental United States that has not been impacted by invasive zebra or quagga mussels. The Clearwater, Swan, and Blackfoot Watersheds, along with much of Western Montana, are within this basin, which includes portions of seven states and parts of Canada. As of August 26, 2021, Montana Fish, Wildlife, and Parks boat check stations had intercepted 50 mussel-fouled boats in the state of Montana, more than any other year since implementing mandatory watercraft inspection stations.

Next to prevention, early detection and rapid response provide the best opportunity to ameliorate the impacts of an introduction of an aquatic invasive species (AIS) in Montana. If caught quickly enough, we can potentially avoid further spread of AIS after an introduction occurs. One of the biggest threats to Montana’s waterways is the introduction of zebra and quagga mussels, collectively referred to as dreissenid mussels.

The purpose of CRC’s AIS program is to monitor for the presence of veligers in the lakes by straining large volumes of lake water through a fine mesh net to collect planktonic and microscopic materials in the lake water, including mussel veligers, if present. Veligers are the free-swimming, microscopic juveniles of zebra and quagga mussels. While dreissenid mussels can spawn when water temperatures are above 9 °C, their peak spawning efforts occur when water temperatures are above 16 °C.

Methodology:

This field season, monitoring occurred on 10 lakes in the Swan, Clearwater, and Blackfoot drainage basins (Figure 1).

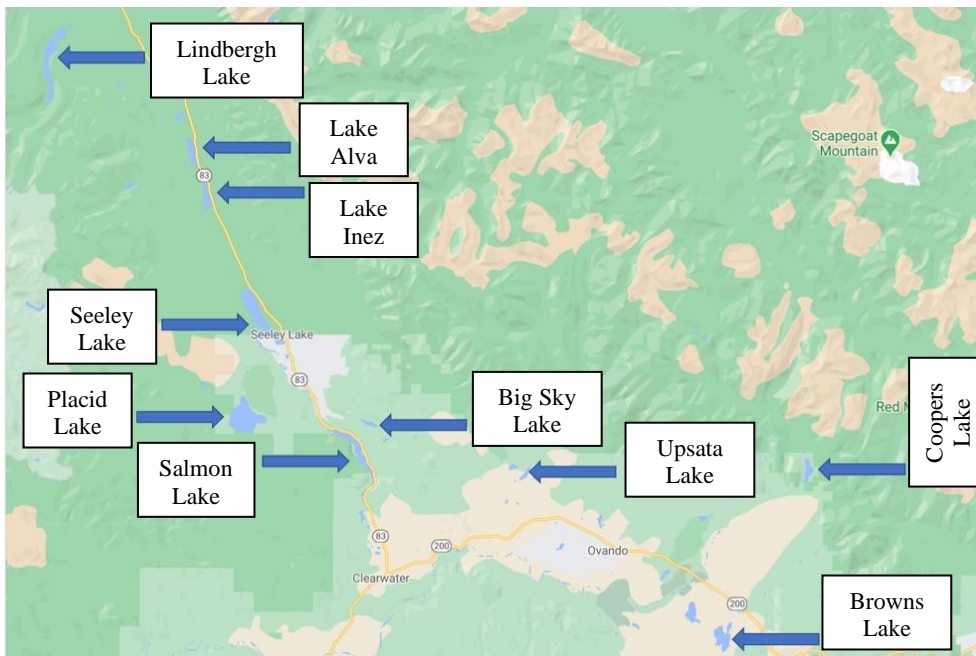


Figure 1: 10 lakes in the Swan, Clearwater, and Blackfoot drainage basins were monitored for AIS in 2020. In order, as labeled, these lakes include: Lindbergh, Alva, Inez, Seeley, Placid, Big Sky, Salmon, Upsata, Coopers, and Browns.

Each lake was sampled at 2-week intervals for 5 rounds, beginning in July and ending in early October. Generally, CRC staff or volunteers took net tows at the inlet,

outlet, deep holes, and boat launches on each lake. For the inlet, outlet, and boat launches, the net was towed 100 feet horizontally through the water near the surface. For the deep holes, the net was dropped

to approximately 10 feet above the lake bottom and towed vertically or obliquely to the surface. There was a total of 57 sites, spread out over the 10 lakes, totaling 238 samples over the course of the 2021 field season. All site samples were then filtered, preserved in isopropanol, and submitted to MT FWP for analysis by cross-polar light microscopy.

Conclusion:

We are happy to report that zebra and quagga mussel veligers were undetected in all of the samples collected and analyzed in 2021.

Currently, no effective treatment exists for invasive zebra or quagga mussels. Once invasive mussels invade a watershed, eradication is impossible. Therefore, CRC's AIS strategy emphasizes prevention in order to avoid any scenario that would trigger a rapid response action, especially given the interconnectedness of the Clearwater chain-of-lakes. While CRC has never reported a positive mussel detection as a result of our monitoring efforts, it is important to highlight the limitations of monitoring both in the Clearwater Valley and statewide. Generally, the number of samples collected, as compared to the total volume of water to be sampled, hinders detection efforts.

Montana has already been infested by several AIS, including whirling disease, New Zealand mud snails, and Eurasian Watermilfoil, just to name a few. Monitoring, along with extensive prevention efforts have helped to increase our knowledge and awareness of the issues posed by AIS introductions. CRC is dedicated to preventing the spread of invasive species through monitoring and community education, and we hope to continue these efforts into the future.

We want to thank all of the dedicated volunteers who were involved in AIS monitoring this year: Jeff Harrits, Cathy Harrits, Jeff Holm, Tom Joehler, Craig Tredik, Joann Wallenburn, David Wallenburn, April Woodhouse, Steve Woodhouse, Jud Binley, Dave Johnson, Martin Dehaven, Kristjan Johnson, and Lindy Gracey.