

The Rusty Crayfish: Is it Beneficial in Minnesota's Waterways?

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Abstract

The rusty crayfish is an invasive species to the waters of Minnesota. It was discovered 1967 in southern Minnesota, and has since expanded via human travel. The ecological impacts of the rusty crayfish are harmful. However, as part of managing their negative impacts, we need to consider that they could provide benefits as well. By interviewing Lake Association members, biologists, and an invasive species specialist, as well as examining the literature, I was able to explore both benefits and drawbacks of the rusty crayfish. The research suggests that there are potential benefits to the rusty crayfish. There is also no effective means of managing the rusty crayfish population within an aquatic system at this point in time.

Rusty Crayfish as an Invasive Species

According to the Minnesota Department of Natural Resources, non-native species that cause ecological or economic problems are termed invasive or harmful exotic species. The sign below is an example of DNR efforts to prevent the spread of the rusty crayfish and other invasive aquatic species.



Impacts

Crayfish to Crayfish Competition

- Habitat— excludes native crayfish from preferred habitat, which affects feeding, protection, and reproduction
- Food— outcompetes native crayfish for food
- Hybridization— Interbreeding between species may eliminate native crayfish genes from ecological systems

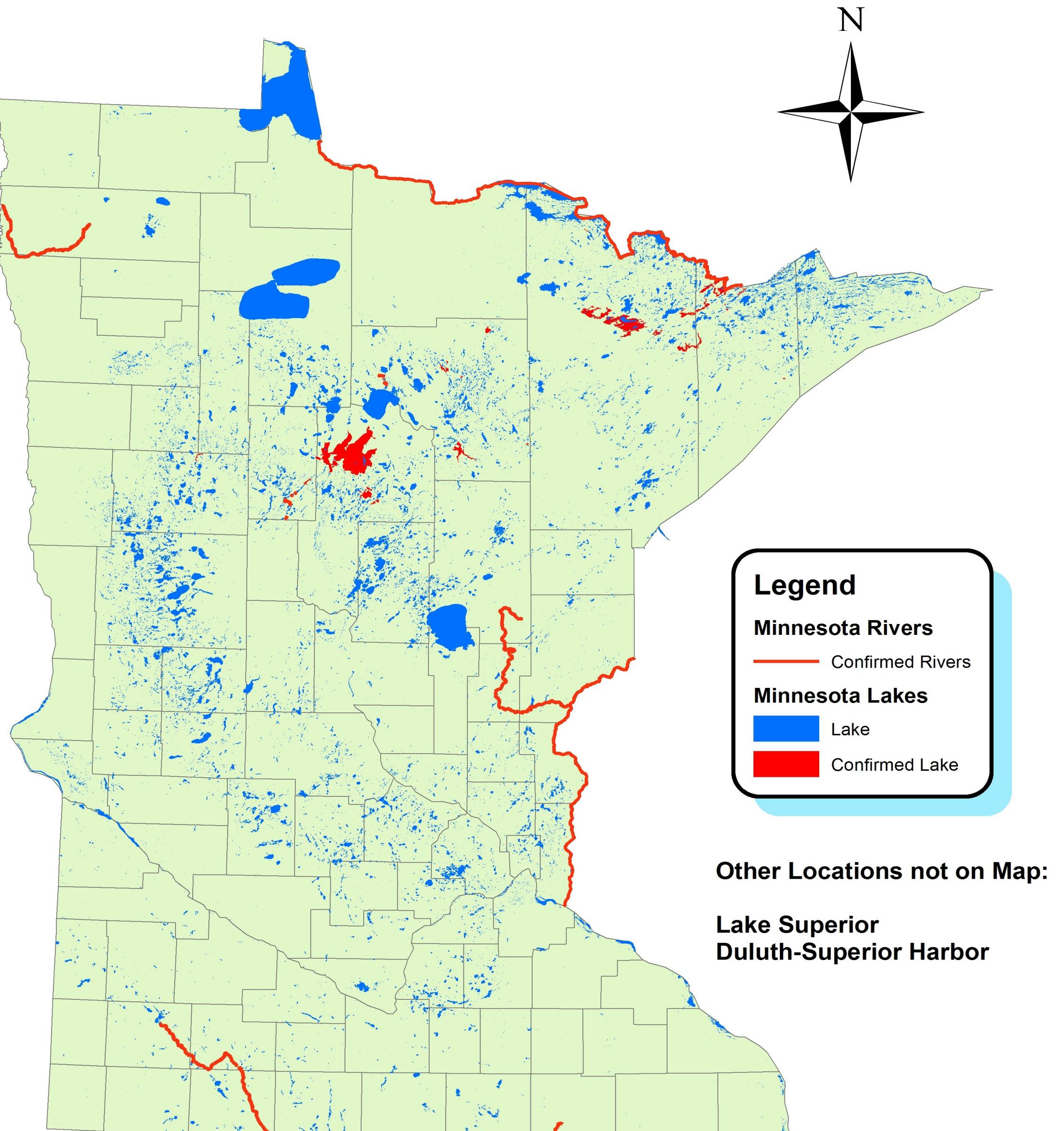
Loss of Macrophytes (aquatic vegetation)

- Omnivore diet— eats vegetation, which affects other aquatic species that use the aquatic vegetation as habitat.

Predation on Fish Eggs

- Studies have suggested they have been known to eat fish eggs, which could affect the success rate of those species of fish

Rusty Crayfish Locations in Minnesota



Rusty Crayfish Spread via humans:

- Ballast water— intake and outtake of water for floatation purposes of vessels
- Anglers dumping bait buckets
- Unscrupulous commercial fishermen trying to create viable fishery
- Dumping of rusty crayfish from school projects

Management Techniques

Top-down control involves manipulating the food chain in the upper trophic levels to control the food chain in the lower trophic levels. This would mean using fish species or other interventions as a force in controlling the population of rusty crayfish. The smallmouth bass is a natural predator of crayfish, creating a viable predator for a top-down control method. Increasing size restrictions and lowering harvest limits will increase the size of the fish, and will likely create a trophy caliber fishery for anglers who enjoy sport fishing for such a species.

Commercial Fishing involves trapping and selling the rusty crayfish for food. The crayfish have been known to taste like lobster and shrimp, and are a healthy source of protein. This creates incentives for local establishments to use the rusty crayfish as a dish. However, the market in Minnesota is weak, therefore it is not profitable for small commercial outfits that trap rusty crayfish. Minnesotans need to be educated about the edibility of the rusty crayfish in order to make a commercial fishing industry for it viable in Minnesota.



<http://whatscookingamerica.net/Seafood/CrawfishBoil.htm>



Figure 1—Wisconsin Department of Natural Re-

Conclusion

By the nature of being an invasive species, the rusty crayfish will most likely continue to spread in Minnesota. However, we do have some potential benefits and management techniques, top-down control and commercial fishing, that could help reduce the impacts of the rusty crayfish. As a result, continued education on invasive species such as the rusty crayfish will be the best management tool to effectively manage their impacts in Minnesota.