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I am Dr. John Morton, the supervisory biologist at Kenai National Wildlife Refuge. I am here to speak about my six years of experience managing elodea infestations on the Kenai Peninsula.

Elodea was first found on the Kenai Peninsula during September 2012 in Stormy Lake near Nikiski. A quick windshield survey of other lakes detected a single strand of elodea in nearby Daniels Lake that October just before ice-in. Recognizing the ecological and economic damage that elodea has wreaked in other parts of the world (UK, Scandinavia, Japan, New Zealand) where it has been introduced, a local interagency working group under the larger umbrella of the Kenai Peninsula Cooperative Weed Management Area was quickly established. Chaired by me, this group included representatives from the Alaska Division of Agriculture, Alaska Department of Fish & Game, Alaska State Parks, Homer Soil & Water Conservation District, Kenai Peninsula Borough, Cook Inlet Aquaculture Association, Kenai Watershed Forum, UAF Cooperative Extension Service, SePro (the company that makes fluridone), Dr. Lars Andersen (an aquatic plants management expert from UC-Davis), and several private landowners.

Our group responded rapidly to this new invasive threat. We conducted surveys for elodea by augering through the ice and had our first public meeting in Nikiski by February 2013 to discuss the problem and management solutions. In summer 2013, we surveyed ~100 waterbodies elsewhere on the Kenai Peninsula, finding elodea in a third lake (Beck Lake) near Nikiski but nowhere else. During that following winter (2013-2014), we developed an Integrated Pest Management Plan, completed an Environmental Assessment under NEPA, and applied for and received permits from DEC, DNR, ADF&G and KPB. Our plan called for four applications of two kinds of herbicides (fluridone, diquat) over three years to eradicate elodea from these three lakes. The estimated cost at that time was ~\$600,000 just for the herbicide, of which \$440,000 came from the Kenai Peninsula Borough and the remainder from the U.S. Fish and Wildlife Service. We applied our first treatment in June 2014, our last treatment in September 2015, and now consider these three lakes free of elodea. We were the first to use aquatic herbicides in Alaska and the first to eradicate elodea in Alaska.

Our group was successful despite several obstacles which included lack of dedicated funds, a lengthy permit process through DEC that is a minimum of 100 days including a 40-day “wait” period even after the permit is approved, initial uncertainty about which state agency actually had statutory authority to treat aquatic invasive plants, and the uncertainty of using new technology. While some of these constraints have since been ironed out, the lack of funds and the cumbersome permitting process continue to plague efforts elsewhere in the State.

One other reason I believe we achieved success in only two years of herbicide treatment is biological in nature. Elodea is a dioecious species, meaning that male and female parts are on different plants. To the best of my knowledge, elodea has not produced seeds anywhere in the state, suggesting that while both sexes may be in the state, they do not co-occur in the same population. The significance of this, from a management perspective, is that we have not yet had to deal with a persistent seed bank in a waterbody that would then require years of treatment for successful eradication. This is a ticking time bomb – once the two sexes get together, management costs will skyrocket and the feasibility of eradicating elodea from the state will be greatly diminished.

Since our initial success, elodea infestations were found in two new waterbodies on the Kenai Peninsula in 2017. The first was in Sports Lake in Soldotna, an infestation that we are fairly certain was introduced recently by one of five resident floatplanes. The second was in an unnamed waterbody adjacent to Beck Lake in Nikiski that I believe is a long-time infestation but was missed during our early surveys in 2013. We were able to apply the first of several herbicide treatments in 2017 by getting a permit exemption from DEC, modifying an existing Environmental Assessment, and using existing funds. I believe we will be able to eradicate elodea from these two lakes by the end of 2018.

The goal of the Kenai Peninsula Cooperative Weed Management Area partnership is to keep the peninsula free of elodea because we know it will have a significant impact on all fisheries including salmon. Dr. Toby Schwoerer, with the UAA Institute of Social & Economic Research, estimates that elodea will likely cost the commercial sockeye fisheries \$100 million per year in lost opportunity if elodea is allowed to spread statewide. To date, \$3.2 million has been spent on its management since 2010, of which less than 11% was by the State of Alaska. Although our partnership has figured out a viable approach for eradicating elodea, we expect it will be increasingly more difficult in the near term to address new infestations that may be introduced to the Kenai Peninsula from elsewhere in the state.

Thank you for the opportunity to share my experience.

Relevant citations:

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