AQUATIC INVASIVE SPECIES MONITORING PROJECT

Rusty Crayfish

PROJECT GOAL

The goals of the Aquatic Invasive Species (AIS) Monitoring project are to understand the pathways of invasive species introductions into Storm Water Management Ponds (SWMP) and to help prevent future introductions and spread through public education. The objectives of this project are to survey SWMPs for the presence/absence of aquatic invasive species, to educate the public about how aquatic invasive species can harm our natural ecosystems, and to post educational signs at sampled SWMPs throughout the Greater Toronto Area (GTA).

THE NEED

Both the aquarium and garden trade industries are experiencing accelerated growth and as such, have been deemed a significant contributor of aquatic invasive species through accidental and intentional introductions of non-native aquatic plants and animals into the wild. The general public often does not realize that many, if not all of the species sold in these industries are not native to this area. While not all non-indigenous aquatic species can survive the climate and habitat conditions to which they are introduced, there are a small percentage of species that can become established, with potentially devastating impacts on the biodiversity of our lakes, rivers and wetlands, as well as the economy, tourism, and even human health.

ACCOMPLISHMENTS

In 2009 and 2010 Ontario Streams sampled SWMPs across the GTA within the Lake Ontario Basin (Credit, Humber, Don, and Rouge watersheds). The results were as follows:

- A total of 59 SWMPs were seined in 2009, with aquatic invasive species (AIS) recorded in 37 (63%) of the sampled ponds.
- AIS observed included; goldfish, koi, rosy-red minnows, Chinese mystery snails, curly-leaved pondweed, yellow iris, and yellow floating heart (the first instance of an established population in Ontario).
- In 2009, a subset of SWMPs were stocked with predatory largemouth bass to trial their ability to control invasive fish species within infested ponds.

- In 2010, 19 SWMPs from 2009 were re-sampled, with an additional 6 SWMPs that were new to the study. In total, 16 out of 25 (64%) of the sampled SWMPs contained aquatic invasive species.
- Re-sampling of stocked SWMPs took place in 2010, and results were positive. Decreases in goldfish and koi populations show support for the idea that largemouth bass can effectively control AIS.
- 2010 sampling also incorporated electrofishing downstream of online SWMPs to determine whether or not AIS had the ability to escape SWMPs and travel further downstream. Results from these efforts found that in many cases, AIS were present in the streams connected to SWMPs.

Ontario Streams Seining Storm Water Ponds

In 2011, Ontario Streams extended the sampling of SWMPs to the Lake Simcoe Basin within 10 subwatersheds (East Holland, West Holland, Uxbridge Brook, Maskinonge River, Black River, Georgina Creek, Jackson's Point Creek, Barrie's Creek, Lover's Creek and Hewitt's Creek). The results were as follows:

- A total of 33 SWMPs were seined during the summer of 2011, with aquatic invasive species in 8 of the 33 (24%) sampled ponds.
- AIS observed included: goldfish, rosy-red minnows, curly-leaved pondweed, European frog-bit, and yellow iris.
- Two parameters were examined in this study: instances of invasive species in ponds located in residential areas vs. commercial/industrial areas, as well as fenced ponds vs. open ponds with no fencing.
- This study sampled a total of 10 commercial/industrial ponds and 23 residential ponds. Out of all the sampled ponds, 3 of the commercial ponds were fenced and locked and 9 of the residential ponds were fenced and locked. The remainder of the ponds were open access.
- There were no AIS observed in any of the commercial/industrial ponds.
- All 8 instances of observed AIS were found to be within residential ponds, and of these 8 invaded ponds all but one had open access.
- Overall, 50% of the sampled ponds in residential areas with open access were found to contain AIS.
- A possible correlation between instances of AIS in SWMPs and urbanization was also observed: subwatersheds with high populations (i.e. >21,000 people) had SWMPs that contained AIS, while subwatersheds with low populations (i.e. < 21,000 people) had SWMPs free of AIS.

A total of 77 awareness signs were installed at 57 SWMPs throughout the Lake Simcoe Basin. Ponds located in residential communities with open access were considered high risk and signs were installed to increase awareness and to help deter people from releasing AIS into their local SWMPs.

Partners

The Ontario Federation of Anglers and Hunters (OFAH) in partnership with the MNRF established the Invading Species Awareness Program (ISAP) in 1992. This program aims to raise public awareness of invasive species and encourage public participation in preventing their spread while monitoring, tracking, and conducting research on

invading species. The ISAP recognizes the need to better understand the aquarium/water garden pathway of introduction, as well as the importance of public education. ISAP has been conducting outreach initiatives within this industry in partnership with Ontario Streams since 2007. Monitoring, eradication, control, and public education for this SWMP sampling project were conducted with the support of the ISAP. ISAP materials will be used for signage near SWMPs to prevent future introductions of AIS.

The Horticultural Outreach Collaborative was established in 2009 as a partnership between Credit Valley Conservation, Toronto and Region Conservation Authority, ISAP, Ontario Invasive Plant Council, Landscape Ontario, Ontario Steams, and other like-minded organizations. This collaborative builds upon outreach work conducted by the ISAP and focuses on horticultural invasive species. Their support will be vital in public education and eradication programs associated with this project.

Vital funding and in-kind support over the years has been provided by the OFAH, OMNRF's Canada-Ontario Agreement Funding, Environment Canada, local municipalities and Conservation Authorities.

For more information about invasive species please also visit: www.invadingspecies.com