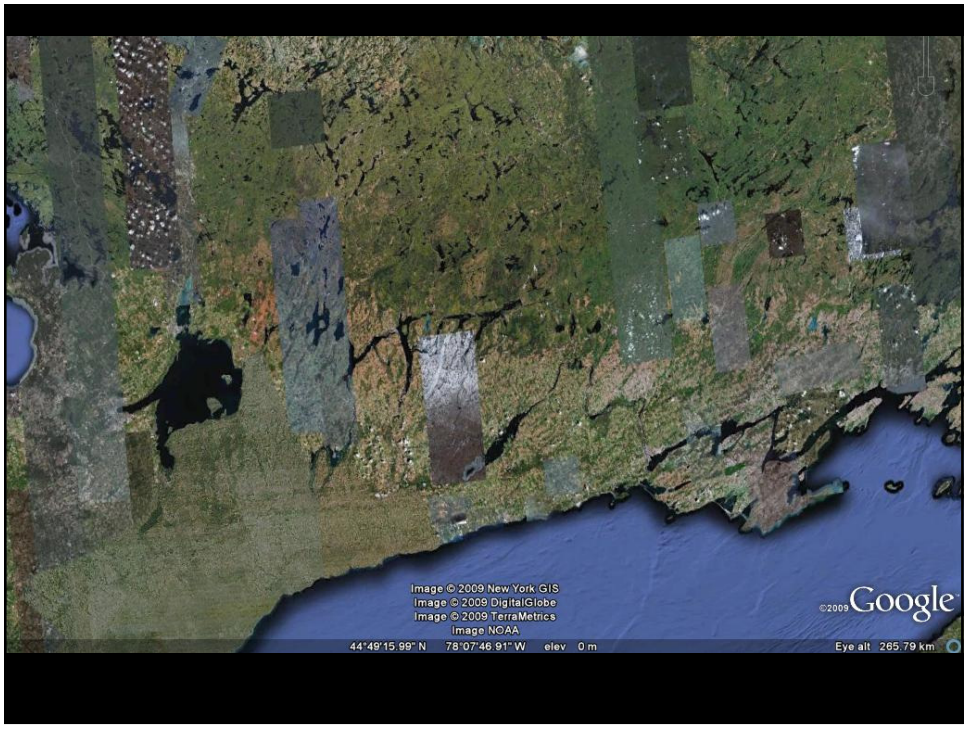
Submersed macrophytes and the **Kawartha's**



Where do they grow?

- limited to waters that have appropriate temperature, pressure, and light.
- minimal turbulent motion – availability rooting substrate
- biotic factors
  - herbivores
  - plant – plant competition
  - Epiphytes and other attached algae
  - phytoplankton

Role of macrophytes in lakes "+"

- fish and wildlife habitat/forage
- dissipate the energy of wind and wave action which reduces the potential for shoreline erosion
- roots reduce the amount of bottom sediment resuspension
- Taller macrophytes create a "settling" environment for suspended particles.
  - These particles often contain important plant nutrients and thus the macrophytes are actually creating a more fertile rooting substrate for themselves and are reducing the availability of nutrients to phytoplankton

Eutrophication "-"

- Increased light levels due to non-native mussel filtering activity
- excessive nutrient inputs accumulate in the sediments where they are available for plant growth
  - Perhaps enhanced by zebra mussel pseudo-feces?
- often combined with introductions of non-native species which are able to exploit these nutrient-enriched conditions
  - i.e. Eurasian milfoil

- with the excessive growth of non-natives, many of the benefits provided by the native macrophyte species are lost and replaced by:
  - temporal (diurnal or seasonal) reductions in dissolved oxygen (DO) owing to plant respiratory demands for oxygen and decay of dead organic matter by aerobic bacteria,
  - changes in benthic habitat for fish and invertebrates,

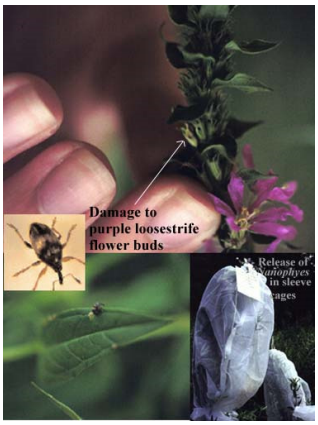
Concerns raised by shoreline residents…..



Aquatic Plant Management Approaches

- Biological
  - Augmenting native and introducing non-native herbivorous species
- Mechanical/Physical
  - Harvesters, diver assisted dredging
- Chemical
- Cultural
  - Prevention, education, Lake BMP

Little information available that documents the effectiveness of these measures in the Kawarthas or the impacts that they have on other components of the lake ecosystems…..



Ministry of Natural Resources (MNR)

If your property is south of Highway 7 or Highway 401 on the map (white area), is not part of the TSW, and you wish to remove plants from an area less than 100 metres square, no permit is required

If your property is north of Highway 7 from Lake Huron to Sharbot Lake, or north of Highway 401 from Kingston to the Quebec border (grey region on the map), and not located on the TSW, contact your local MNR office for a permit

Herbicide Permits
No matter where you live in Ontario, if you wish to use a herbicide to control aquatic plants along your waterfront you must have a permit from the Ontario Ministry of Environment (OMOE), both to purchase the herbicide and to apply it. This OMOE permit is in addition to any other permit requirements listed.

Department of Fisheries and Oceans (DFO)
DFO administers the federal Fisheries Act, which prohibits the harmful alteration, disruption or destruction of fish habitat (HADD). They do not issue permits, but rather provide advice to other agencies as well as to the public for preventing or mitigating HADDs. Following DFO's "Friendly Practices" guidelines, found on their "Working Around Water?" fact sheets will simplify your application for a permit

Conservation Authorities (CAs)
Conservation Authorities provide approval for building projects close to and affecting water bodies but do not have jurisdiction for work below the high water mark. Consequently, they do not have authority over aquatic plant removal, unless it is part of a project at the shoreline. As noted, however, they can stand in for DFO in advising the permit granting agencies.