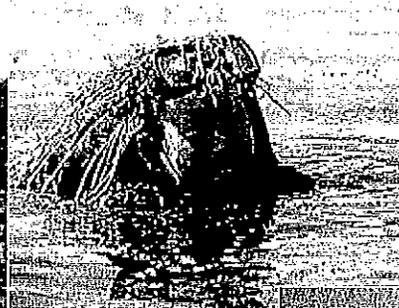
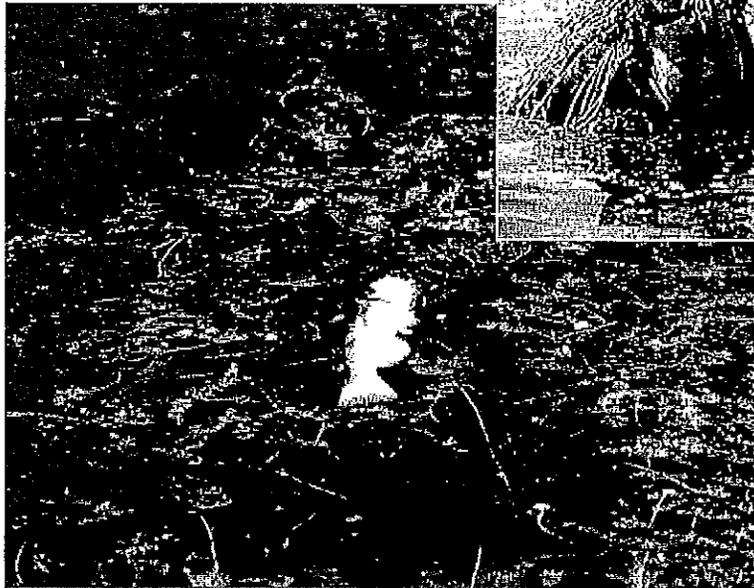


# Milfoil Control at Yarrow Point



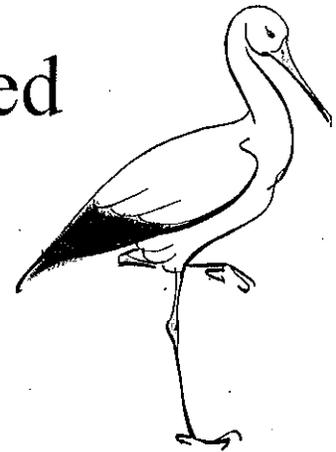
# My Qualifications

- Master of Science Degree in Aquatic Ecology.
- 20 years experience as statewide aquatic plant expert for WA Dept. of Ecology
  - Project management
  - Scientific research
  - State Weed Board
  - Aquatic herbicide/invasive species permitting



# Focus of Talk

- Talk will focus on milfoil management & methods suitable for Yarrow Point.
- *Be Aware:* Any milfoil removal in Lake Washington is short-term because unmanaged milfoil will fragment and recolonize managed areas.
- All methods require permits.

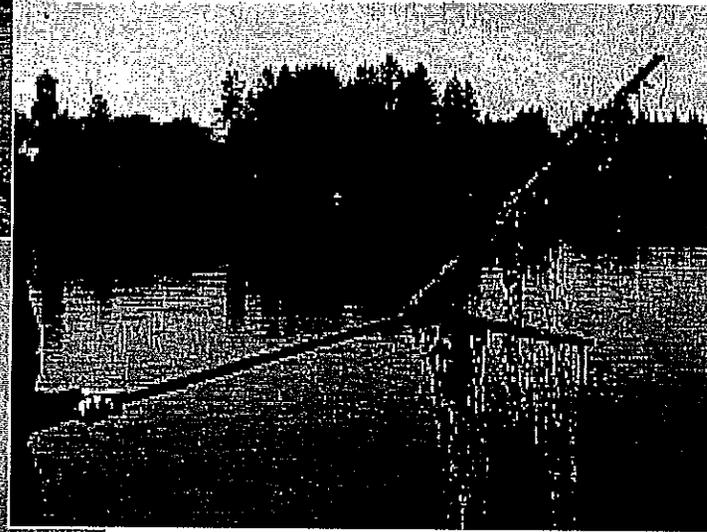
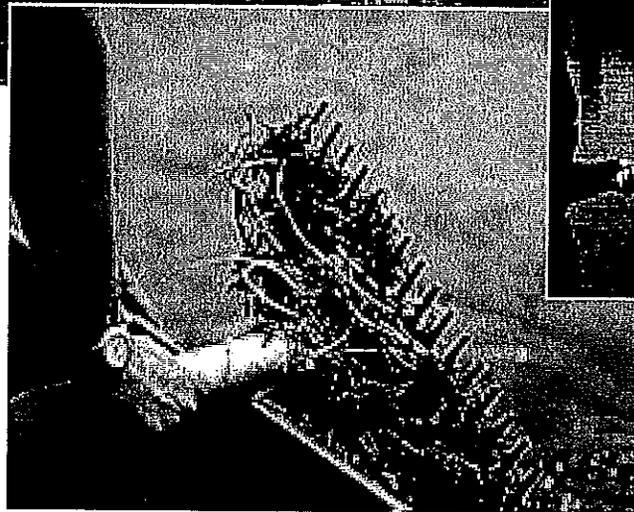
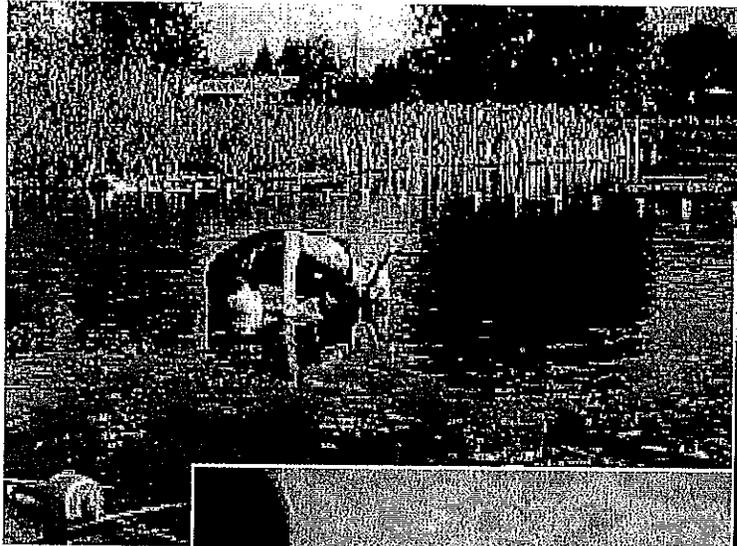


# Lake Washington Issues

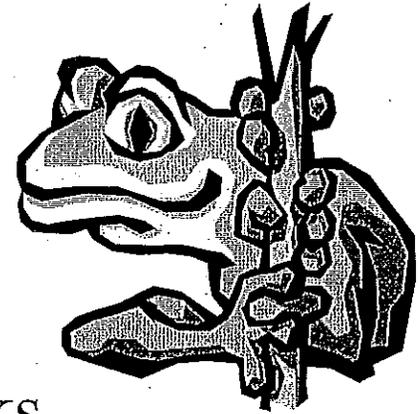
- Range of plant control options limited for Lake Washington
  - Multiple jurisdictions – no lake-wide approach to weed management
  - Salmon –ESA issues
  - Divided opinions of residents about control methods



# Hand Removal Methods



# Hand Pulling



- Hand pulling is like underwater weeding.
- Deeper water needs SCUBA
- Remove fleshy root crown for best control
- Drawbacks include:
  - Fragment creation
  - Labor intensive
  - Stirs up the water making it hard to see

# Cutting

- Commercial weed cutters available
- Attached to a rope and thrown into the water
- As cutter is pulled along the lake bottom, it cuts the plants
- Drawbacks include:
  - Fragment creation
  - Cut plants need to be removed from water



# Bottom Screens

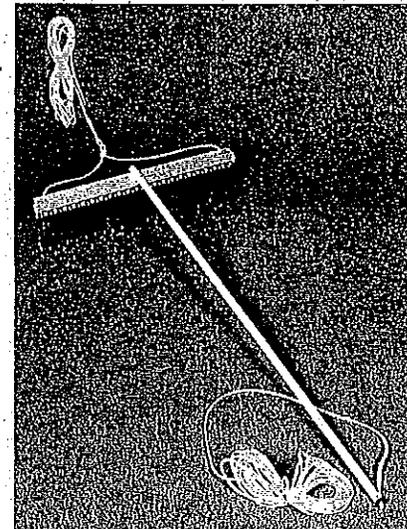
- Laid like underwater blankets on the lake bottom
- Block light, and compress plants
- Commercial fabrics available



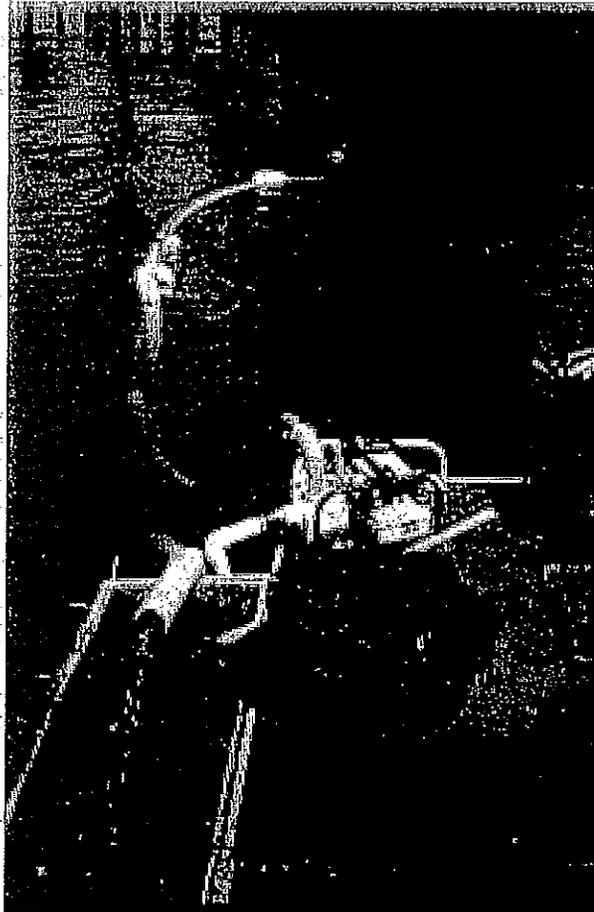
Bottom barriers are materials that are laid across sections of lake or river bottoms infested with this noxious weed. These barriers are attached to the bottom by pins or sandbags. Common bottom barrier materials are geotextile ground cover cloth or erosion control materials. A number of commercial bottom barriers have been marketed over the years. Aquascreen and Texel are two that are commonly used. These, however, carry a premium price as they are advertised for aquatic use. Similar or identical materials can be obtained from erosion control suppliers at a fraction of the cost.

# Raking

- A rope can be attached to a study rake.
- The rake is thrown into the water and pulled towards shore.
- Many plants are pulled up by roots.
- Drawbacks include:
  - Fragment creation
  - Labor intensive
  - Turbid water



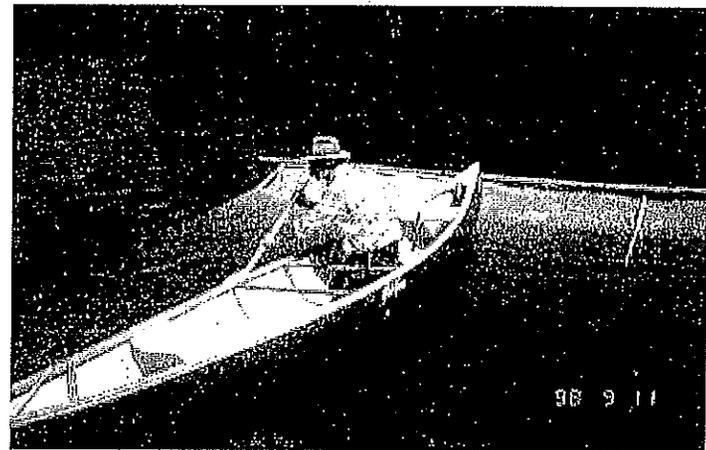
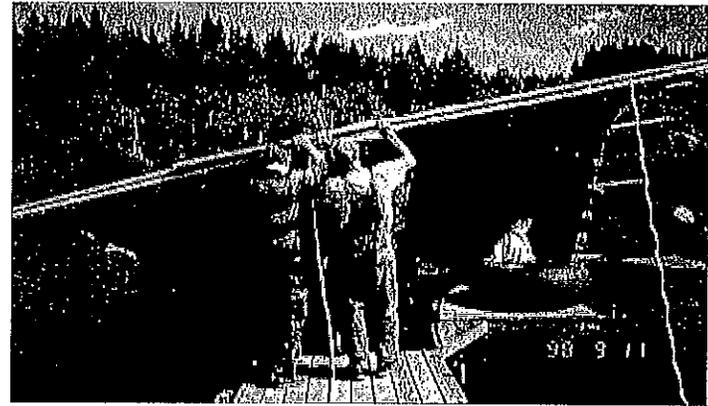
# Diver Dredging (Disposal)



- Divers use small dredges to assist in transporting plants to the surface
- Plants are retained and disposed of
- Water discharged to water body

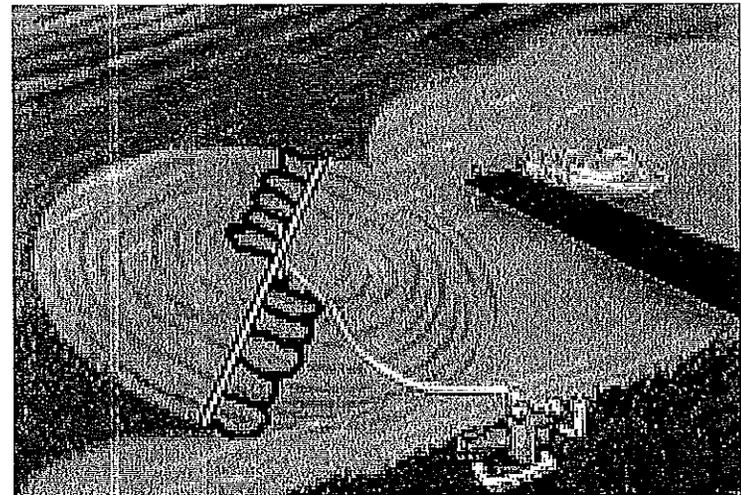
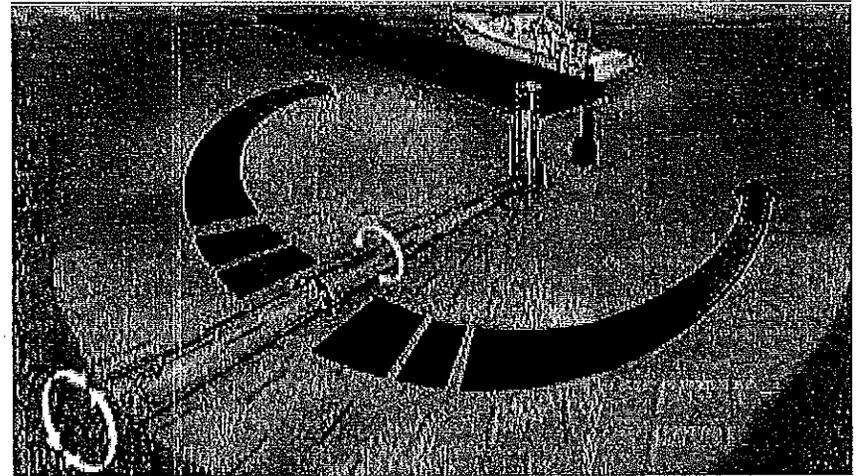
# Bottom Screens

- Drawbacks include:
  - Maintenance
  - WDFW requires removal after 2 years
  - Not suitable for some sites
  - Can be swimming or navigation hazard
  - May harm bottom organisms



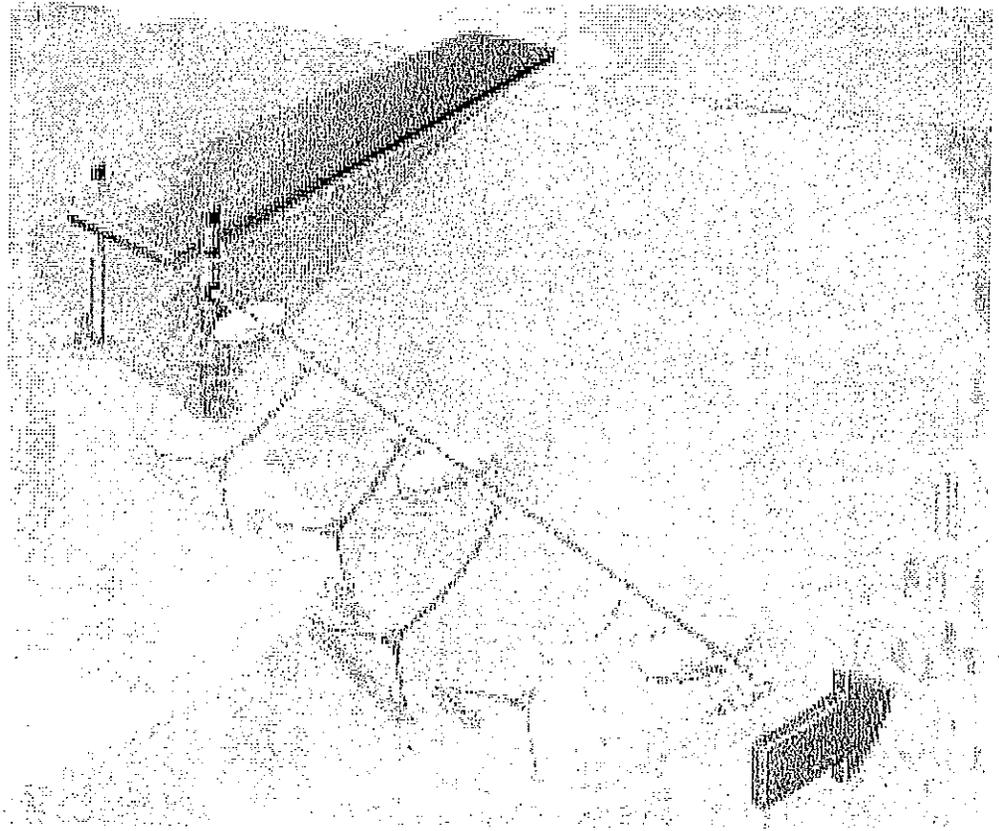
# Sediment Agitation

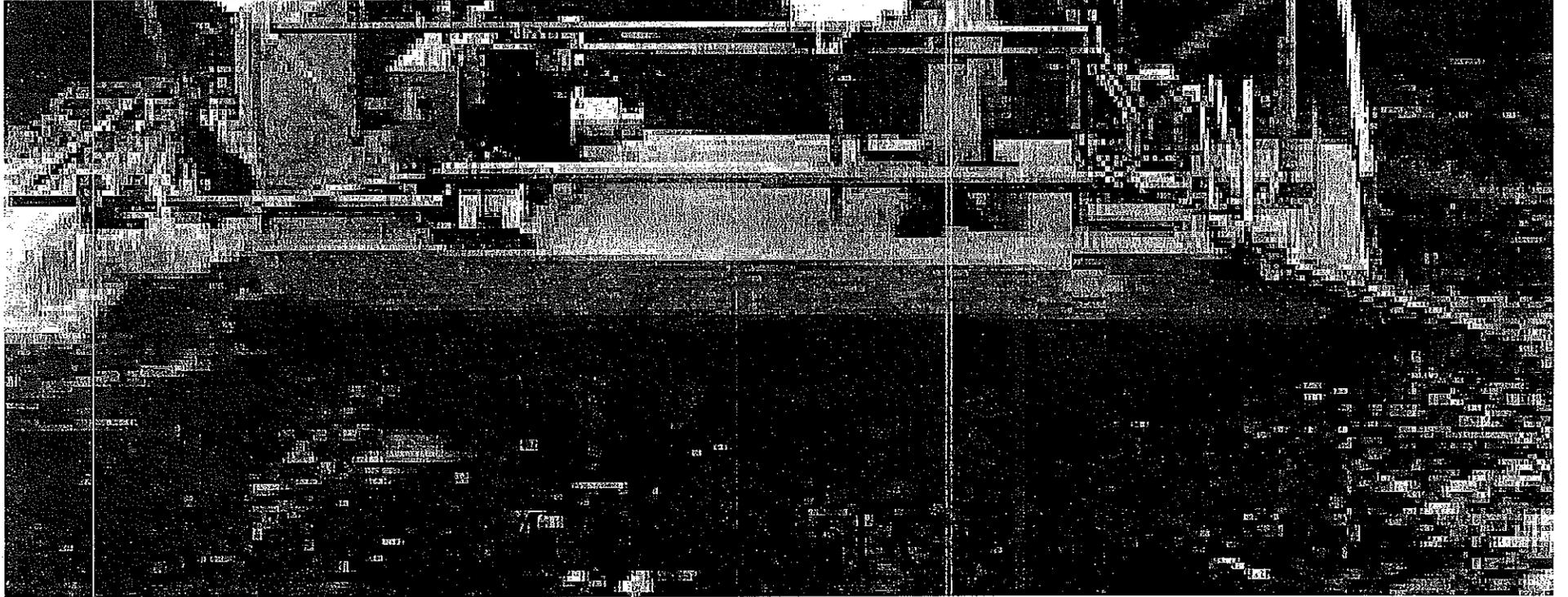
- Analogous to wearing a path
- Devices placed on lake bottom and move around a central point or dock.
- This detaches plants and keeps the area free of new plant growth



# Sediment Agitation

- Drawbacks include:
  - Initial expense
  - May create depression in sediment
  - Eliminates all plants



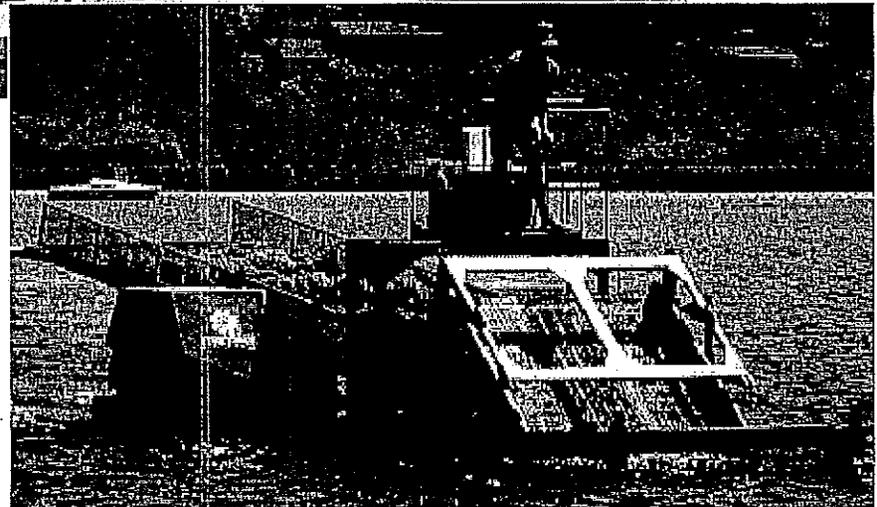
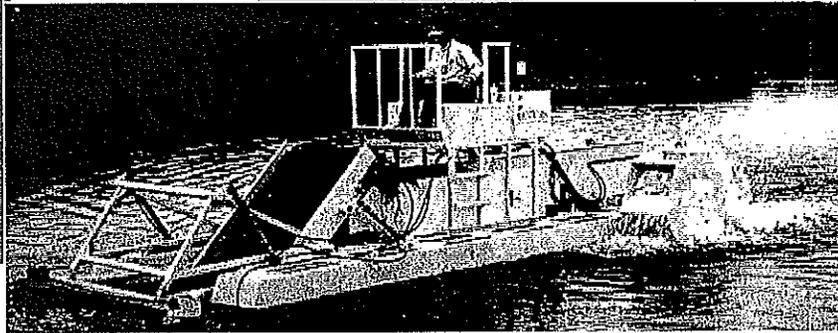
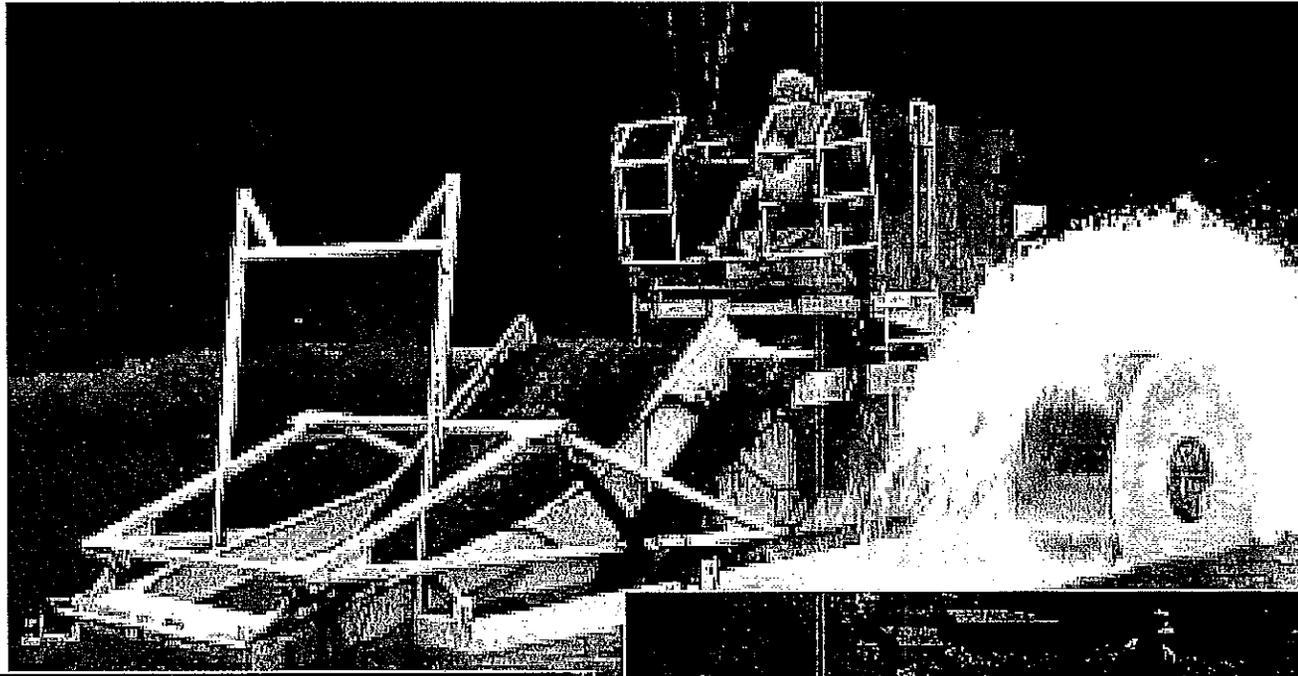


# Mechanical Cutting

- Drawbacks include:
  - Cut plants need to be removed from the water
  - Several cuts per season
  - Creates fragments
  - Maneuverability around docks



# Mechanical Harvesting



# Mechanical Harvesting

- Drawbacks include:
  - Similar to lawn mowing
  - Machines expensive, not maneuverable
  - Fish/critters also collected and killed
  - Off loading sites needed



# Aquatic Herbicides

- Chemicals registered by EPA that kill or burn back plants
- Also registered by WA Agriculture
- Only state-licensed applicators can apply aquatic herbicides
- Ecology conducts independent risk assessment/EIS for each chemical
- Must have NPDES permit from Ecology



# Aquatic Herbicides

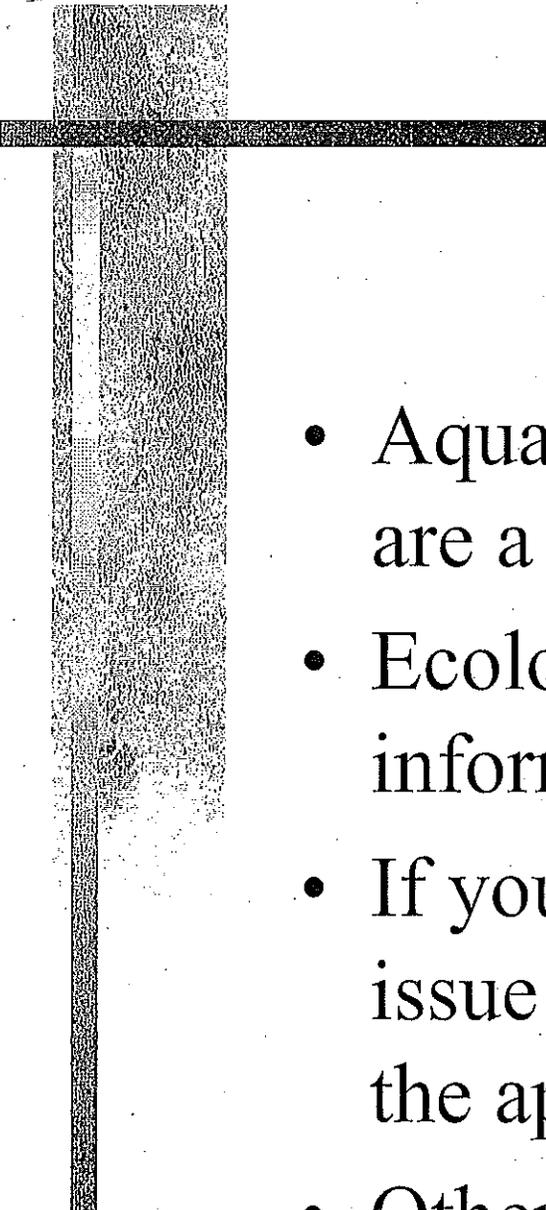
- Drawbacks:
  - Often controversial
  - Non targeted plants may be killed
  - Low oxygen conditions may develop
  - Use restrictions, particularly for irrigation
  - Need adequate contact time to achieve good control



# Lake Washington

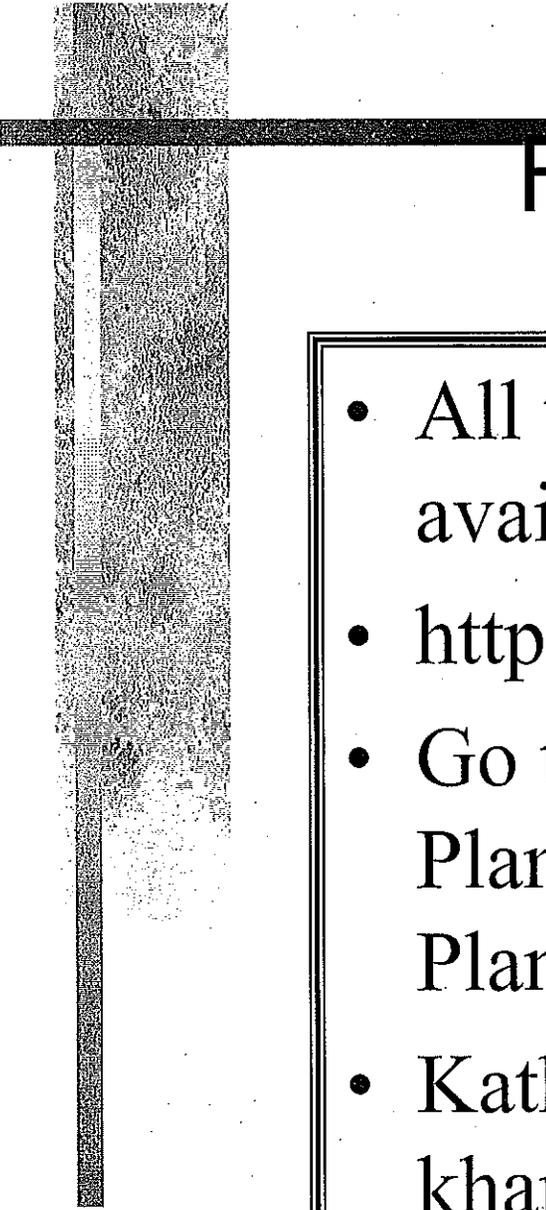
- Herbicides more regulated in Lake Washington than other lakes
- Any projects at Yarrow Point are control projects – Permit allows
  - 100 percent treatment using any herbicide in high use areas
  - 100 percent treatment using selective herbicides (2,4-D or triclopyr) in non high-use areas





# It's Your Choice

- Aquatic plant management methods are a local decision.
- Ecology's role is to provide information about all methods.
- If you choose herbicides, Ecology will issue permit coverage and may inspect the application site for compliance.
- Other methods under Fish and Wildlife jurisdiction.



# For Further Information

- All this information and more is available at Ecology's web site
- <http://www.ecy.wa.gov/ecyhome.html>
- Go to Water Quality, select Aquatic Plants and Lakes, and select Aquatic Plant Management Methods
- Kathy Hamel - (360) 407-6562  
[kham461@ecy.wa.gov](mailto:kham461@ecy.wa.gov)