

Crystal Lake Annual Meeting 2004

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&

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Crystal Lake Annual Meeting Agenda



2003 Activities Summary

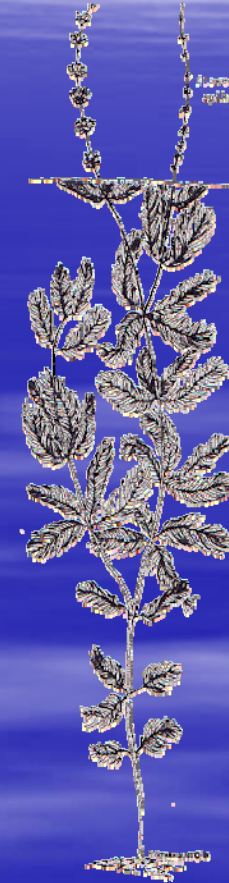
- Spring and Fall milfoil surveys to monitor progress in control of lake weeds
- Spring application of herbicides for the beaches and west end of the lake
- Newsletter article regarding milfoil management
- Continued monitoring of surface flows to and from the lake by the City of Crystal Lake

2003 Activities Summary

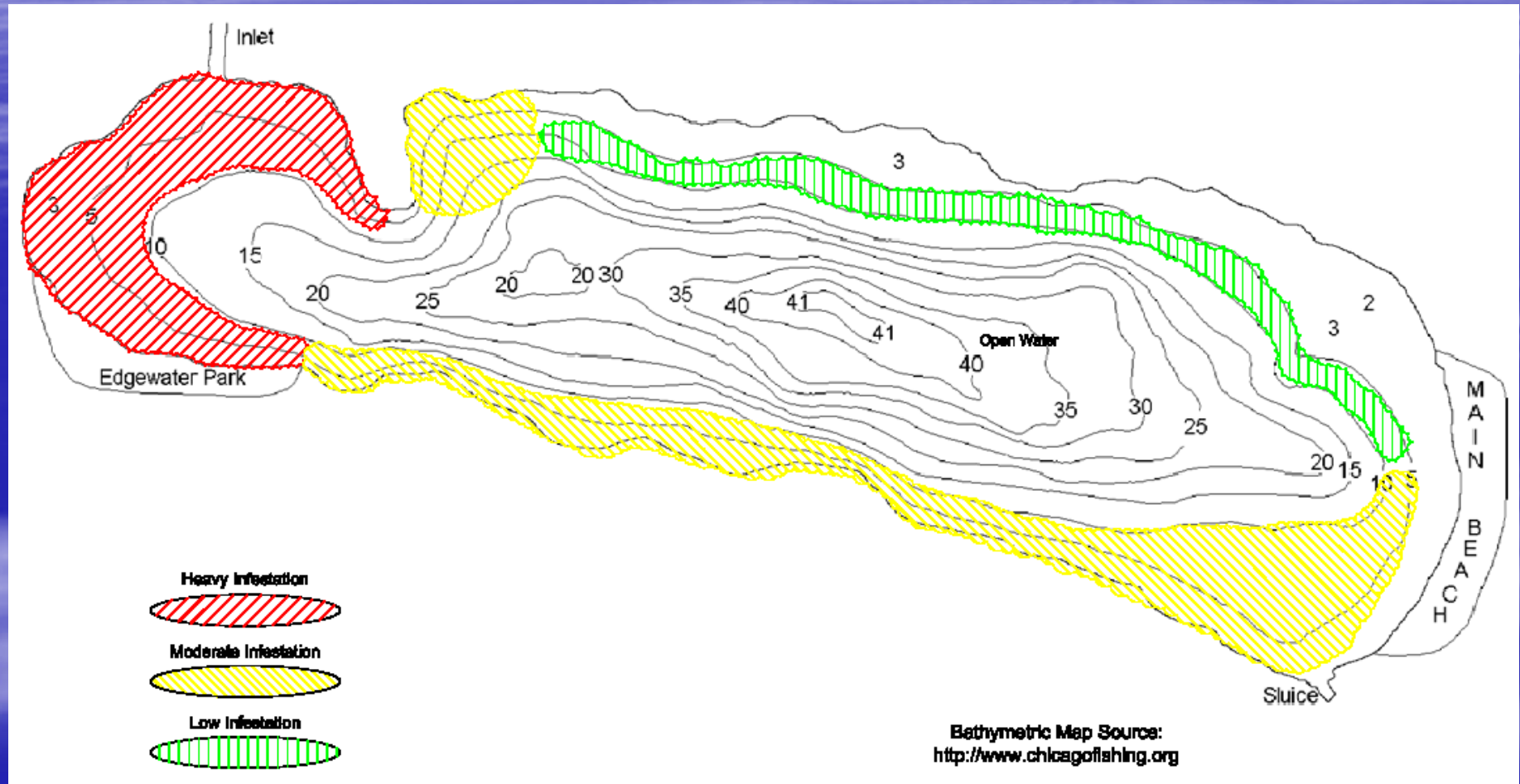
- Volunteer Lake Monitoring (VLMP)
- Phase I Clean Lakes grant application to IEPA
- Annual Lake Meeting
- Investigation of beach sand regulatory issues
- Lake Advisory Committee Meeting
- Investigation of aquatic organisms



Eurasian Watermilfoil Eradication Project



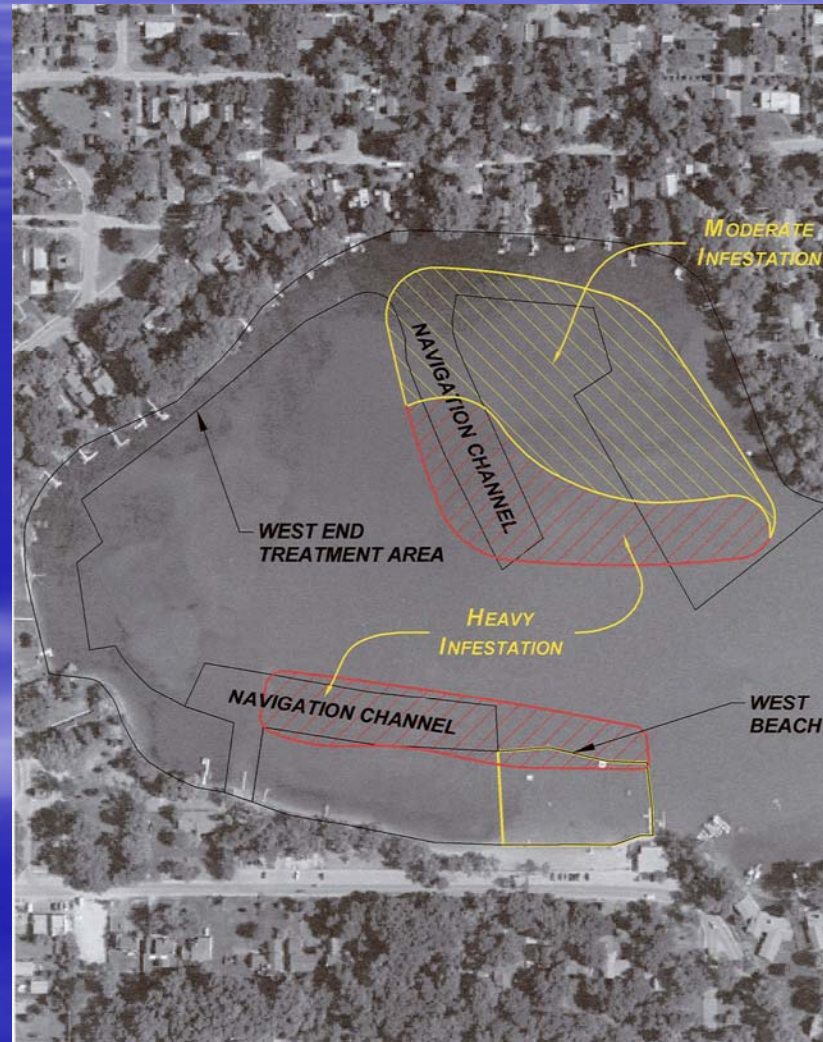
Eurasian Watermilfoil Infestation Areas in 2002



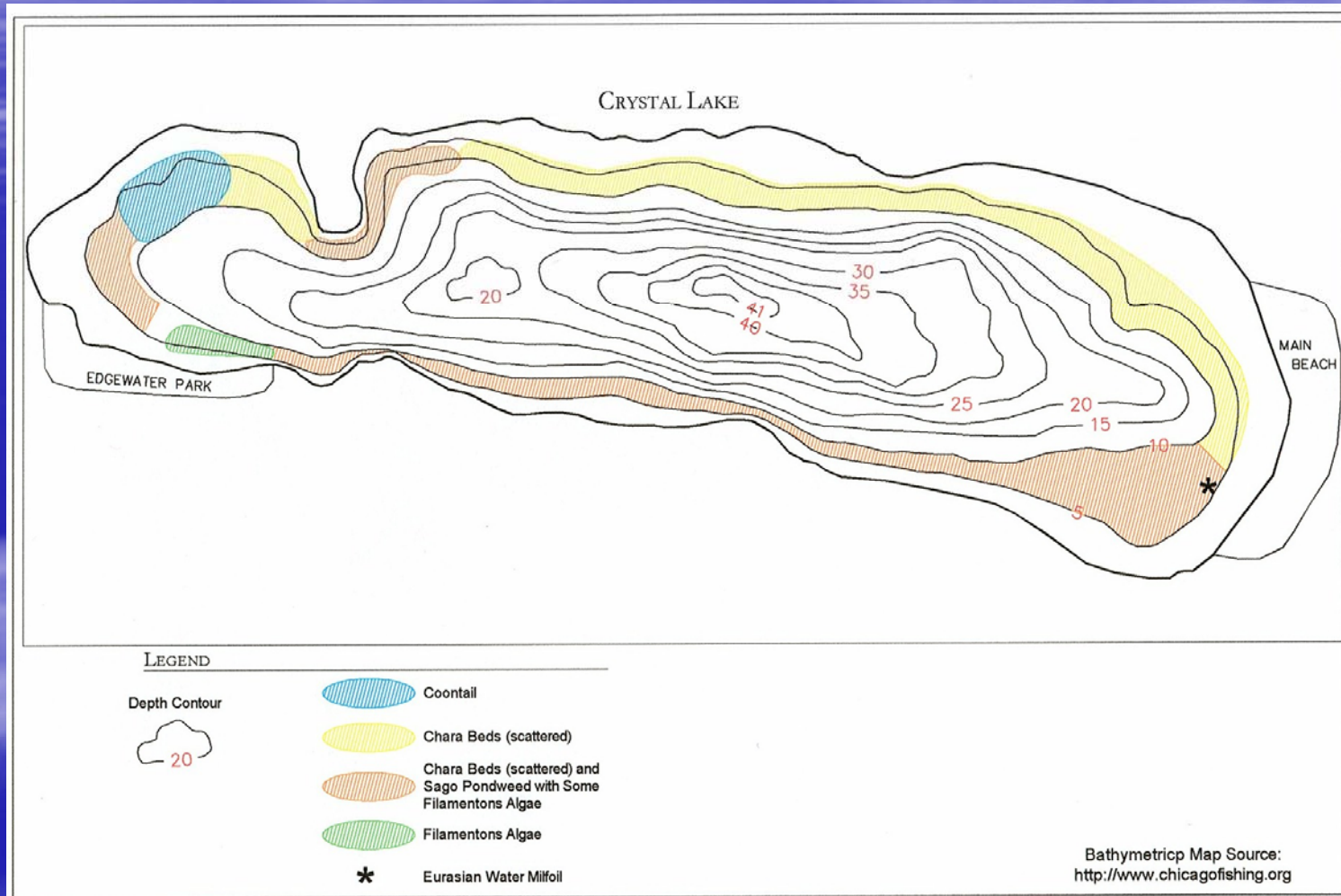
Eurasian Watermilfoil Areas Treated in 2003



Eurasian Watermilfoil Areas Treated in 2003



Eurasian Watermilfoil Infestation Areas in 2004



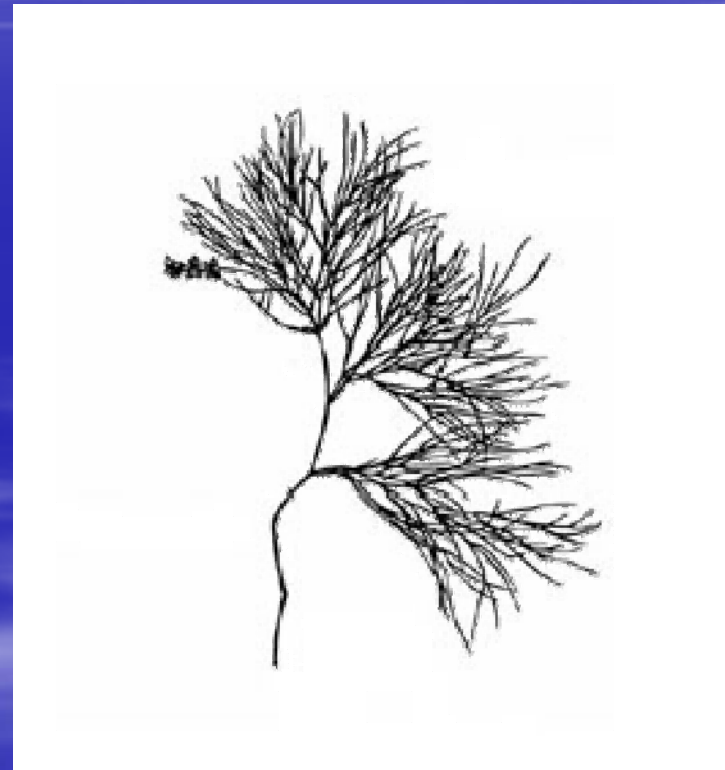
Chara



Coontail



Sago Pond Weed



Eel Grass



Clean Lakes Grant



Clean Lakes Grant

- In-lake water quality monitoring
- Bacterial monitoring of the beaches (McHenry Health Dept.)
- Aquatic plant survey
- Fish survey (IDNR)
- Bathymetric and sediment mapping
- Bottom sediment core sampling
- Storm event monitoring (City of Crystal Lake)

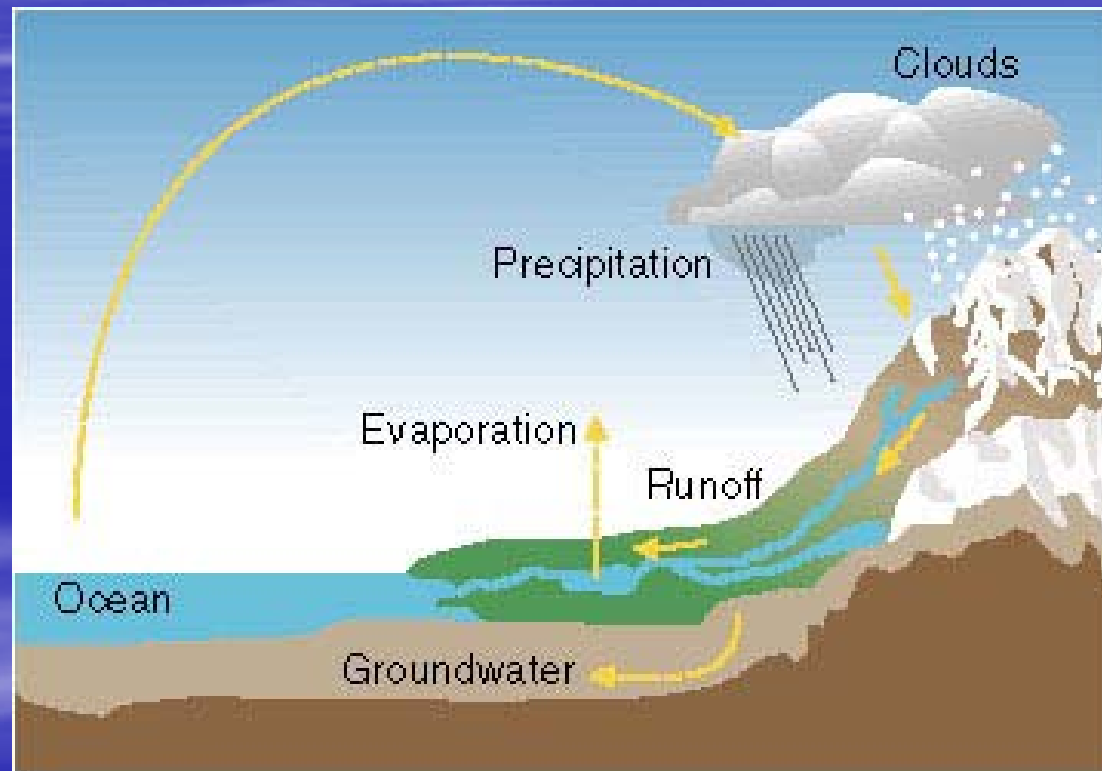
Clean Lakes Grant

- Water level monitoring
- Preparation of water, sediment and nutrient budget
- Summary of historic water quality
- Evaluate management alternatives
- Prepare management plan
- Public participation

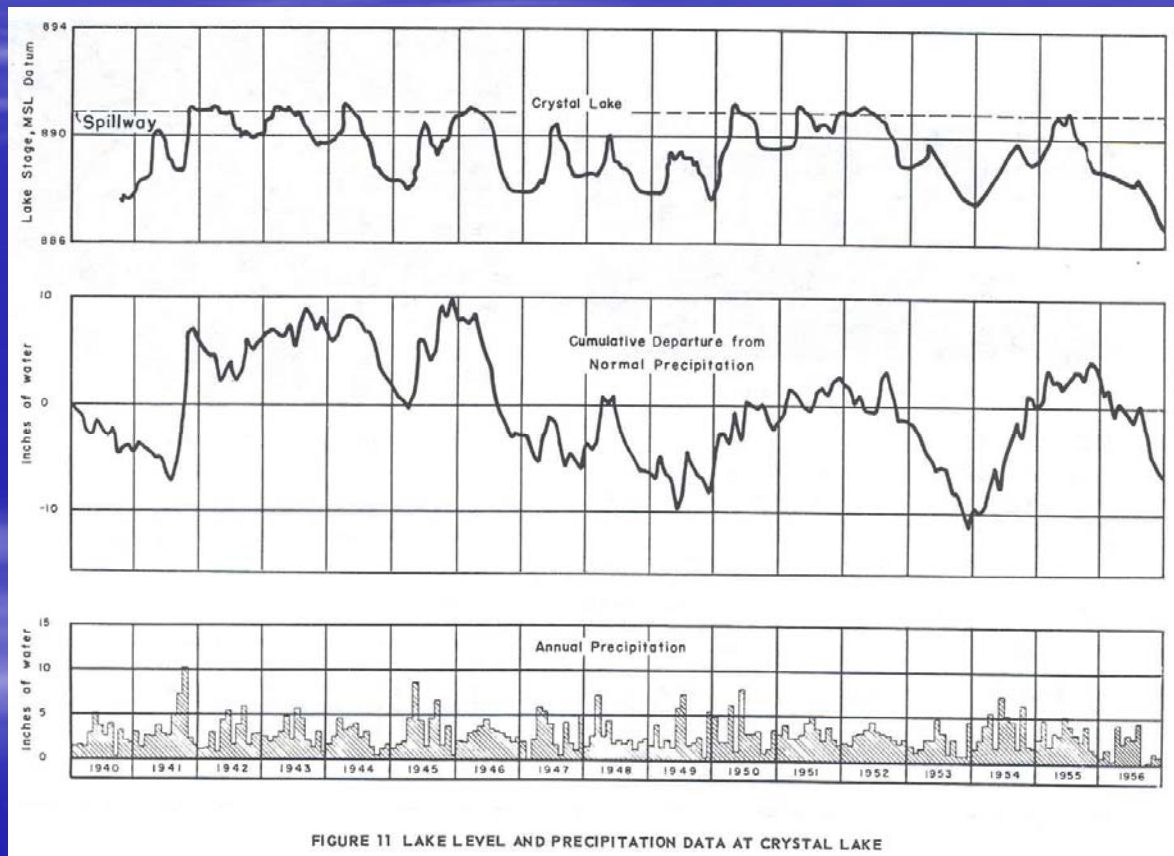
Water Level Observations



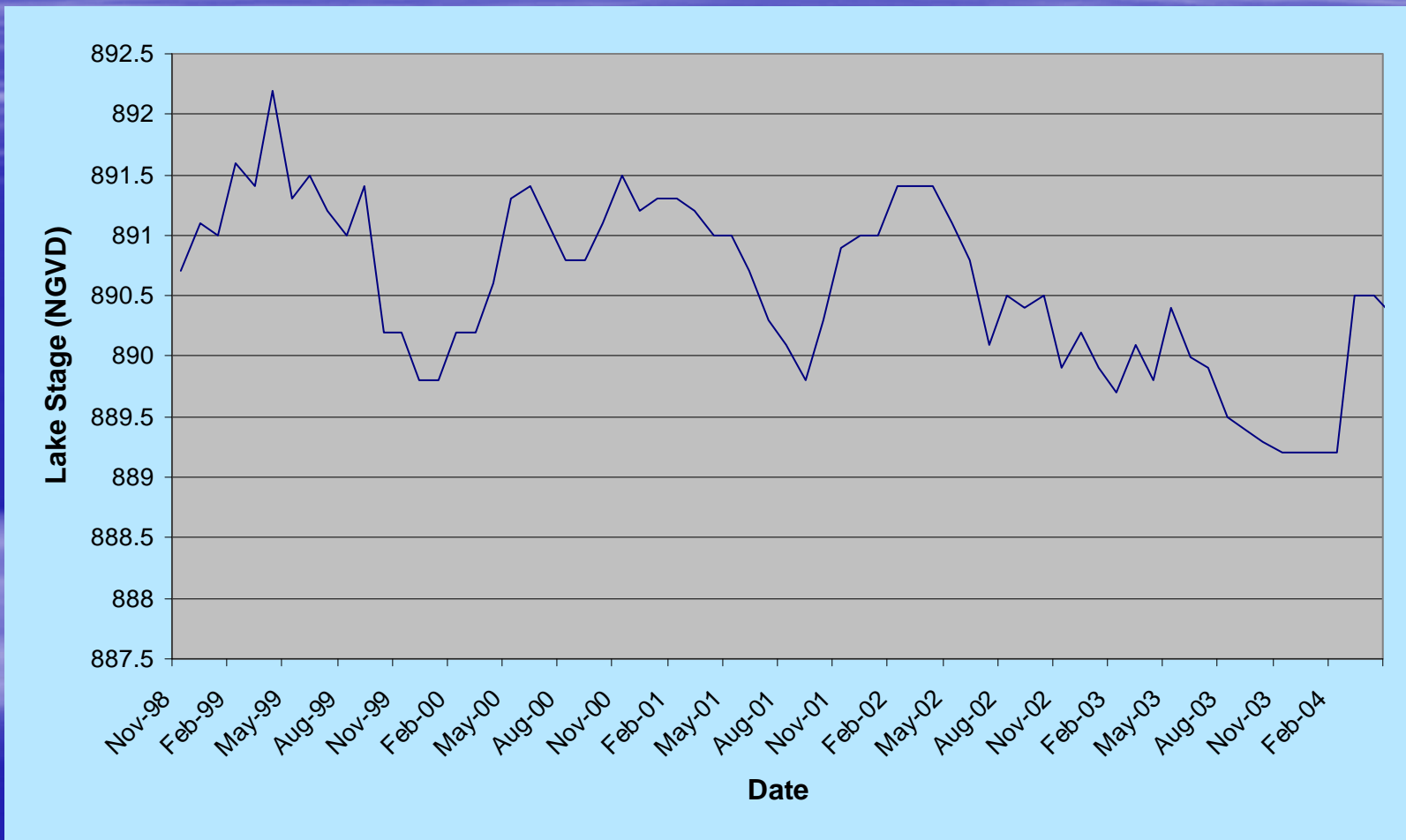
Hydrologic Budget



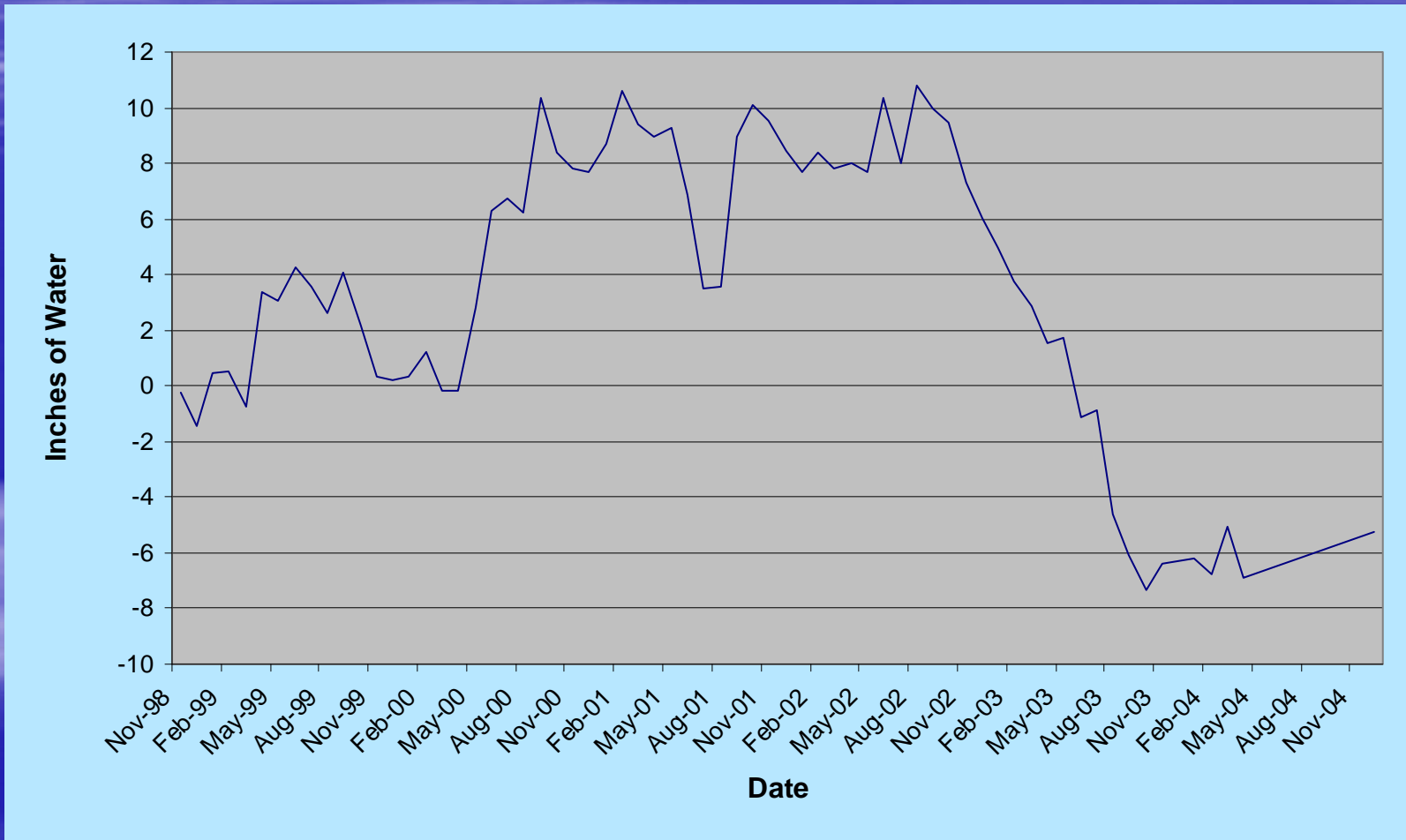
Historic lake Level and Precipitation Data



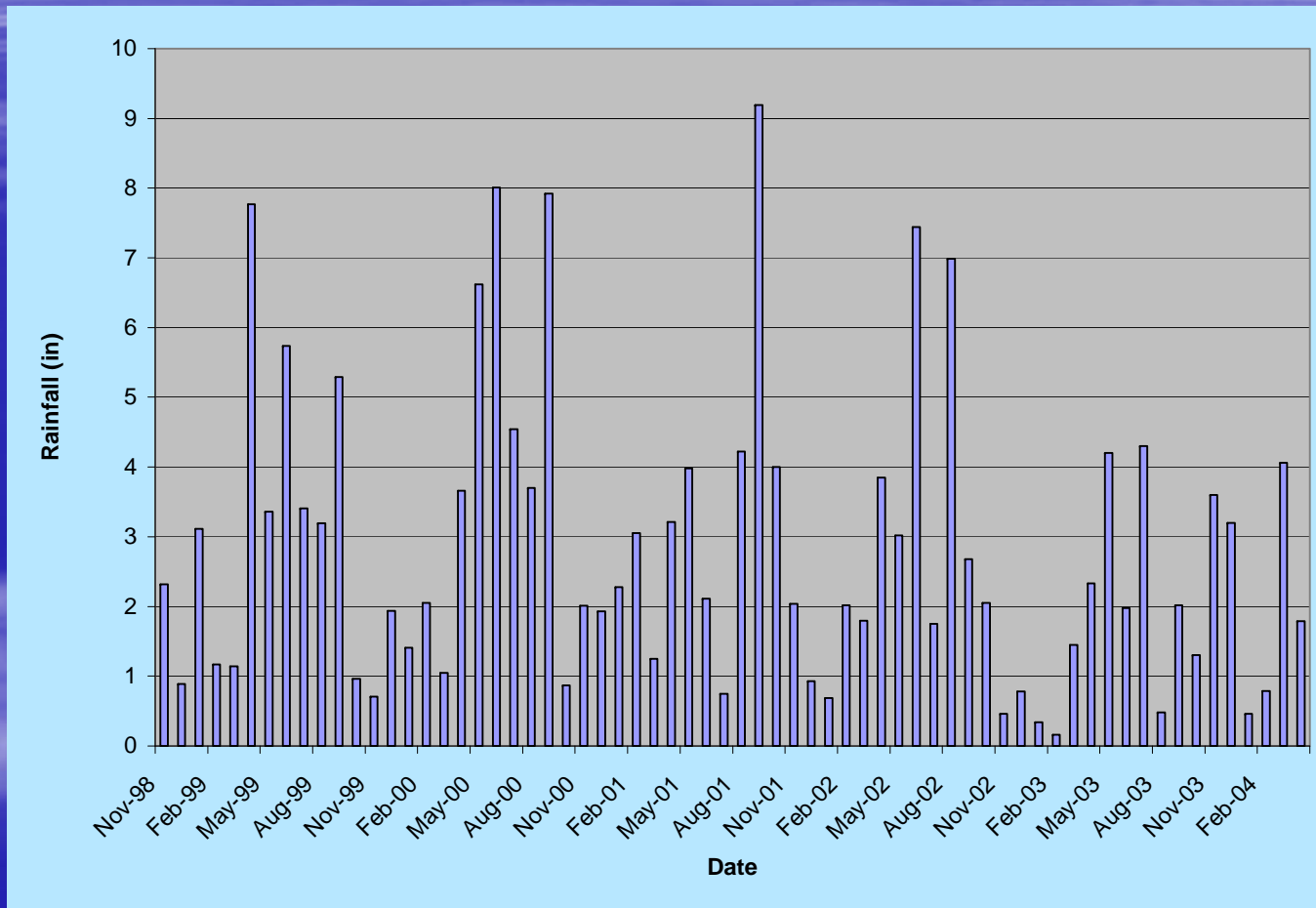
Crystal Lake Stage (NGVD)



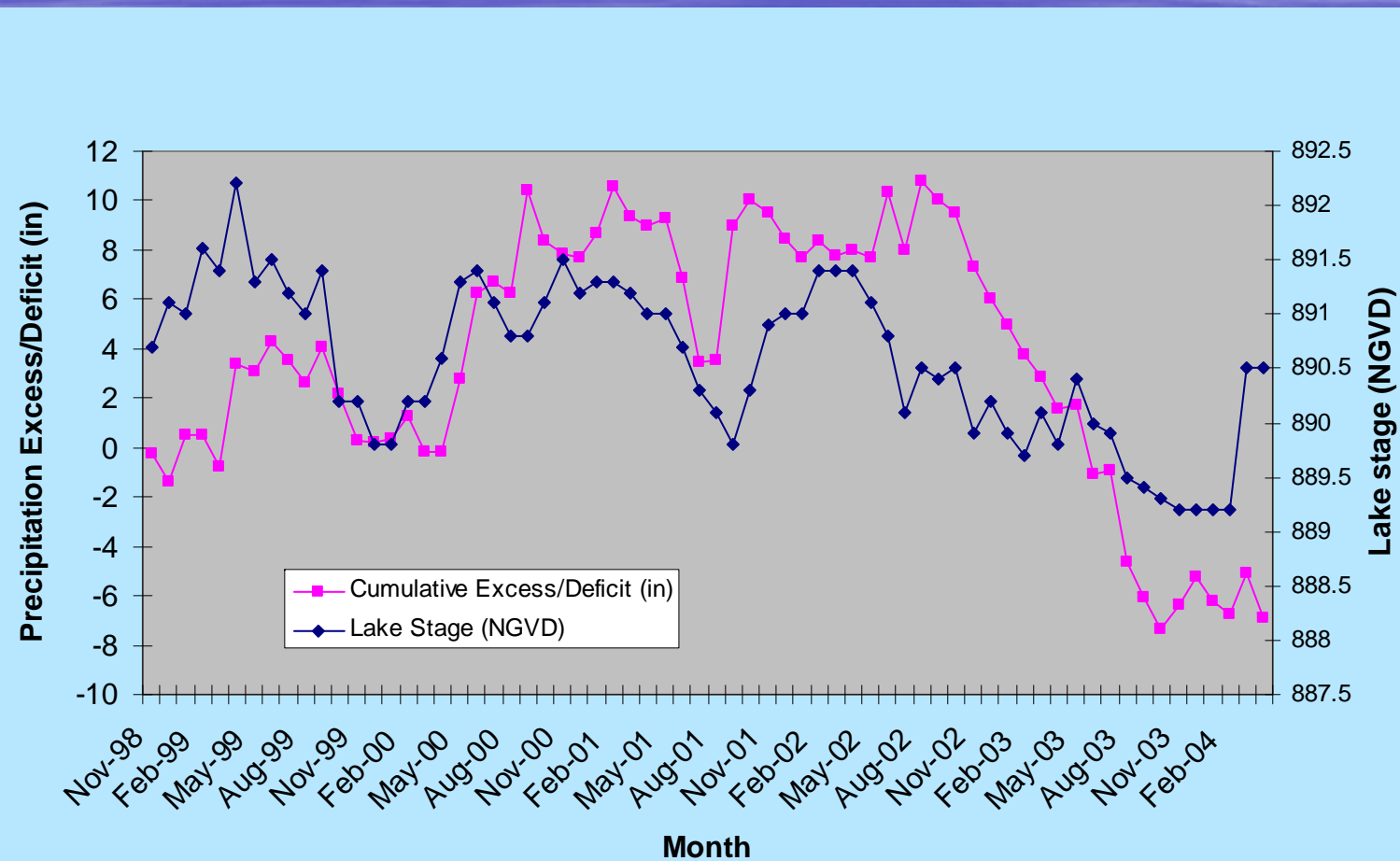
Cumulative Departure From Normal Precipitation (in)



Monthly Precipitation (in)



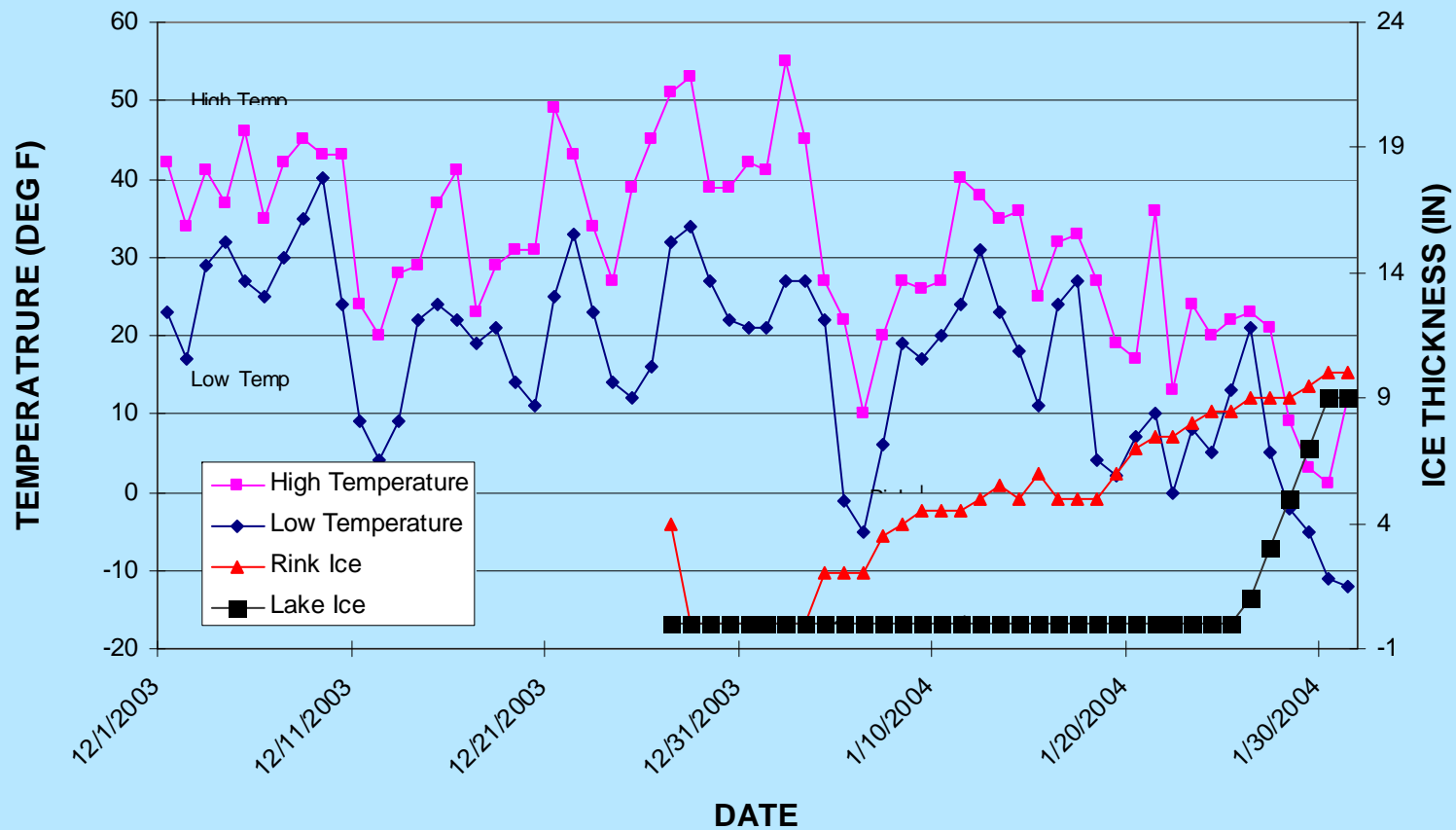
Precipitation v. Lake Stage



Lake Freezing Issues



Temperature v. Ice Formation



Exotic Species

“We are under attack”



Exotic Species

Plants (18)

- Eurasian Watermilfoil, *Myriophyllum spicatum*
- Purple Loosestrife, *Lythrum salicaria*
- Curly-leaf Pondweed, *Potamogeton crispus*
- Hydrilla, *Hydrilla verticillata*
- Salvinia, *Salvinia* spp.
- Water Hyacinth, *Eichhornia crassipes*
- Phragmites, *Phragmites* spp.
- Western Salt Cedar, *Tamarix*.spp.
- Parrot Feather, *Myriophyllum aquaticum*
- Brittle Naiad, *Najas minor*
- Alligator Weed, *Alternanthera philoxeroides*
- Floating primrosewillow, *Ludwigia peploides*
- Uruguayan primrosewillow, *Ludwigia uruguayensis*
- Chinese Tallow Tree, *Triadica sebifera*
- Flowering Rush, *Botumus umbellatus*
- Japanese Knotweed, *Polygonum cuspidatum*
- Australian Water Clover, *Marsilea mutica*
- Asian Spiderwort, *Murdannia keisak*



Exotic Species

Microorganisms (3)

- Carp Spring Viremia, *Rhabdovirus carpio*
- Yellow Perch Parasite, *Heterosporis*
- Whirling Disease, *Myxobolus cerebralis*

Crustaceans (4)

- Spiny Waterflea, *Bythotrephes cederstroemi*
- Rusty Crayfish, *Orconectes rusticus*
- Fish Hook Waterflea, *Cercopagis pengoi*
- Red Swamp Crayfish, *Procambarus clarki*

Mollusks (5)

- Zebra Mussel, *Dreissena polymorpha*
- Asian Clam, *Corbicula fluminea*
- Quagga Mussel, *Dreissena bugensis*
- New Zealand Mud Snail, *Potamopyrgus antipodarum*
- Southern Mapleleaf Mussel, *Quadrula apiculata*



Exotic Species

Fish (15)

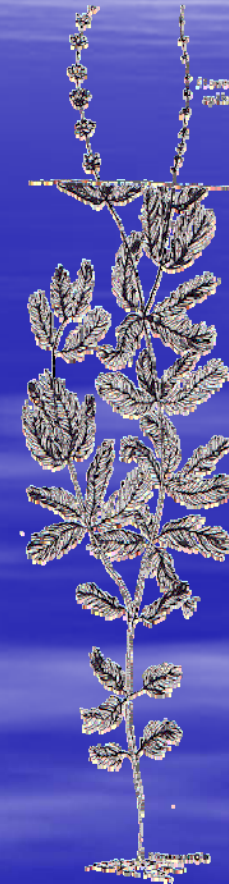
- Common Carp, *Cyprinus carpio*
- Bighead Carp, *Hypophthalmichthys nobilis*
- Silver Carp, *Hypophthalmichthys molitrix*
- Black Carp, *Mylopharyngodon piceus*
- Grass Carp, *Ctenopharyngodon idella*
- Round Goby, *Neogobius melanostomus*
- White Perch, *Morone Americana*
- Ruffe, *Gymnocephalus cernuus*
- Alewife, *Alosa pseudoharengus*
- Sea Lamprey, *Petromyzon marinus*
- Rudd, *Scardinius erythrophthalmus*
- Blueback Herring, *Alosa aestivalis*
- Nile Tilapia, *Oreochromis niloticus*
- Red Shiner, *Cyprinella lutrensis*
- Rainbow Smelt, *Osmerus mordax*



Eurasian Watermilfoil



Eurasian Watermilfoil



Zebra Mussels



Zebra Mussels

- A European species, was first discovered in Lake St. Clair in June 1988
- Have caused major ecological shifts in the Great Lakes
- Concern they may cause imbalances with other native species



Zebra Mussels

- Block water intakes
- Have sharp edges and can cut feet and hands
- Crust over on boat hauls and piers



Goby Fish



Goby Fish

- **Common Names:** Round goby, goby
- **Length:** 4 to 10 inches
- Is a freshwater fish native to Eurasia
- The round goby is an aggressive bottom dwelling fish



Goby Fish

- Found in Lakes: Michigan, Huron, Erie, and Superior and Illinois River
- They had not been found in the Great Lakes prior to 1990
- Presumably, the fish arrived in ballast water discharged by trans-oceanic ships

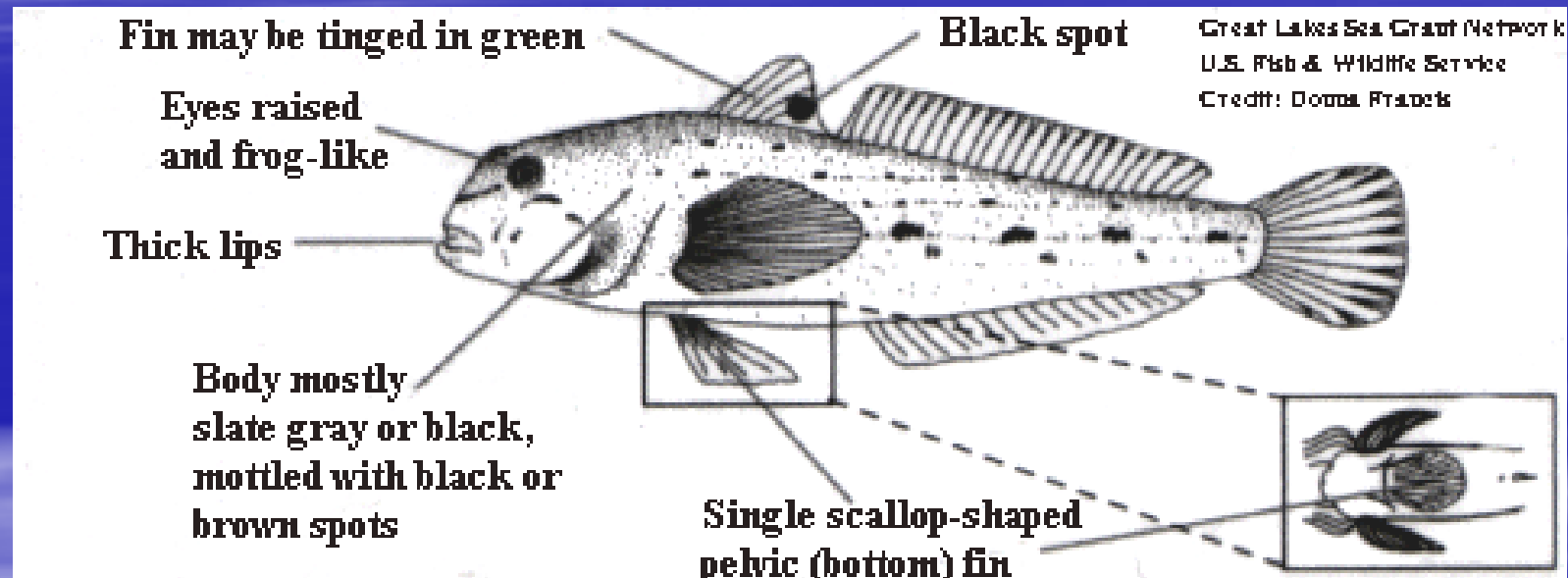


Goby Fish

- Their aggressive nature and ability to become abundant quickly may allow them to out compete some of our native species for food resources and spawning habitat
- They will feed on small native fish, including darters, and native fish eggs
- Their aggressive feeding nature will be a nuisance to fishermen who have difficulty catching target sport fish in areas where goby are present

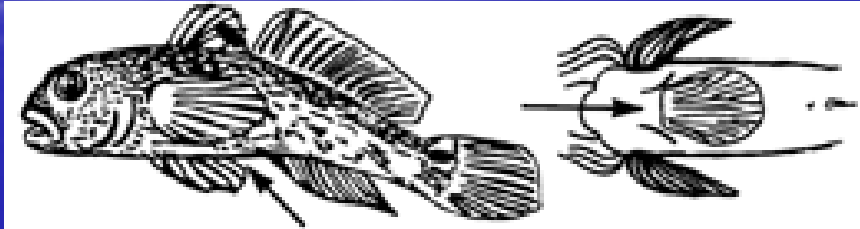


Goby Fish



Goby Fish

- Round Goby



- Sculpin



Ruffe

- **Length:** 4 to 6 inches(25 cm)
- **Common Names:** Eurasian ruffe, river ruffe, pope
- It was introduced into Lake Superior's Duluth/Superior harbor area in the mid-1980s in the ballast water of an trans-oceanic ship



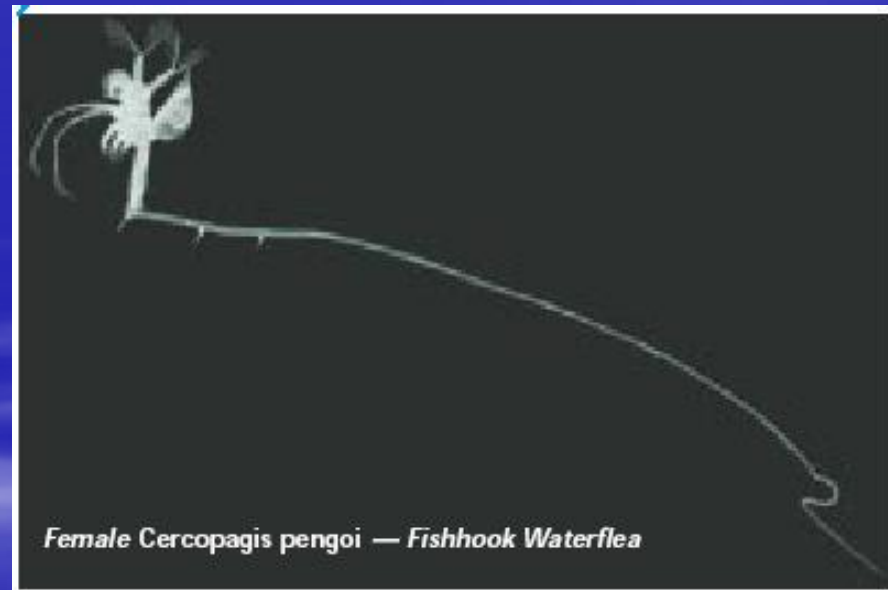
Ruffe

- A relative of the perch
- Because the ruffe grows very fast, has a high reproductive capacity and adapts to a wide variety of environments, it is considered a serious threat to commercial and sport fishing.
- It also has the potential to seriously disrupt the delicate predator/prey balance vital to sustaining a healthy fishery.



Spiny and Fishhook Waterfleas

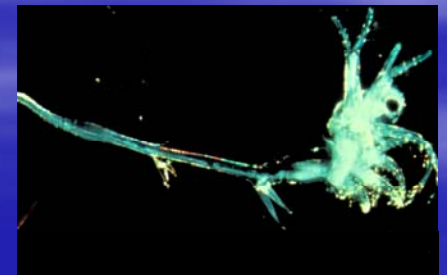
- (*Bythotrephes cederstroemii*)
- (*Cercopagis pengoi*)



Female *Cercopagis pengoi* — Fishhook Waterflea

Spiny and Fishhook Waterfleas

- Both are already a notorious nuisance for fouling fishing lines - indicative of their astonishing abundance
- The biggest threat they pose is at the very foundation of the native food web, where they prey voraciously on native zooplankton and thus deprive larval fish of food, while larger fish find them unpalatable as prey because of their namesake spiny and fishhook tails.



Cylindrospermopsis

- Group of blue green algae
- In high numbers can causes taste and order problems
- Can cause ear, eye and skin irritation in bathers



Cylindrospermopsis

- Spreading north from subtropical regions
- Has been found in 8 lakes in Southeastern Wisconsin, and several reservoirs in northern Indiana
- No known method to to safely and effectively rid a lake of Cylindrospermopsis



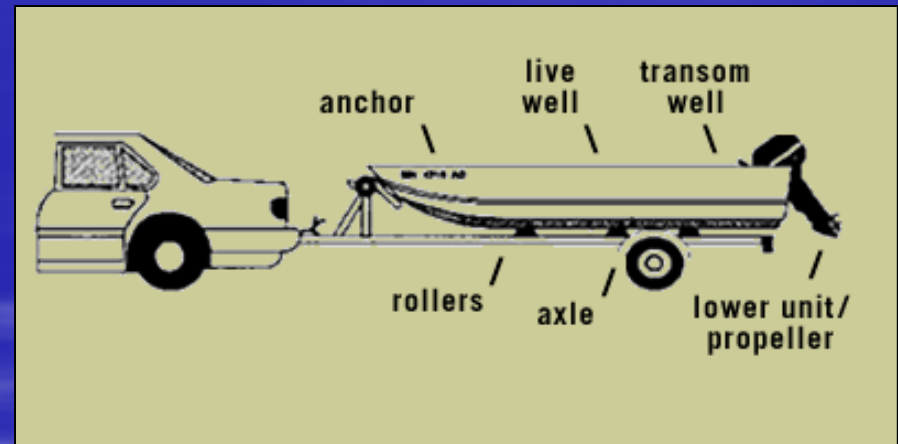
What Can You Do to Stop the Spread of These Exotics

- Learn about these exotics, how they spread, how to identify them, and the threats they pose, and share this information with others.



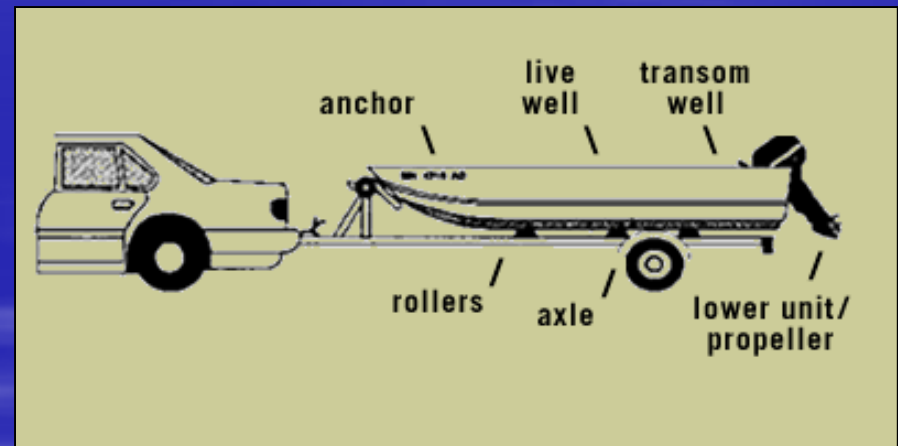
What Can You Do to Stop the Spread of These Exotics

- Inspect boat, trailer, and other recreational equipment carefully for mussels and aquatic vegetation. Remove and discard in the trash.



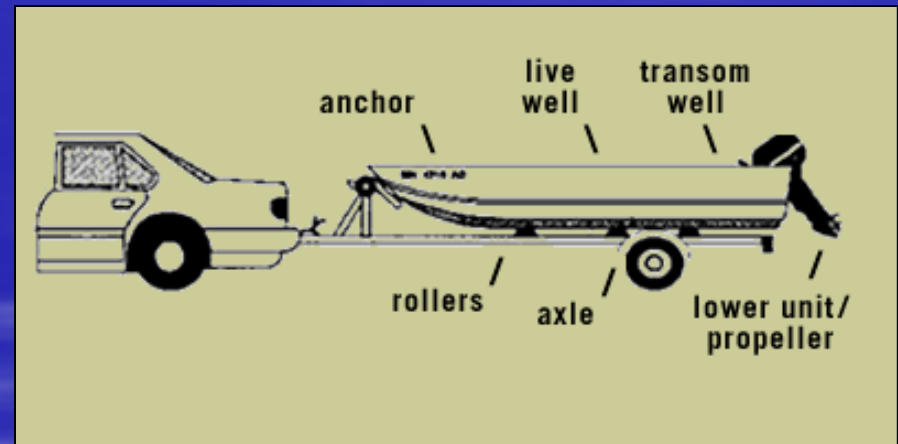
What Can You Do to Stop the Spread of These Exotics

- Drain all water from boat, including bilge, live well and engine cooling system, and other recreational equipment that might trap water.



What Can You Do to Stop the Spread of These Exotics

- RINSE your boat and equipment with hot (104°F) high pressure tap water or
- Dry boat and trailer in sun for at least two days or if using boat sooner, rinse off boat, trailer, anchor, anchor rope and chain, bumpers, engine, etc... with tap water or at a car wash.



What Can You Do to Stop the Spread of These Exotics

- Leave live aquatic bait behind--either give to someone using the same waterbody, discard in the trash, or dump it onto the land when you are finished fishing. Do not dump it into the water. Live bait is collected and transported all over the Midwest, and once released into new waters non-native fish may grow and reproduce.



Goby Fish

- If you can find an exotic species:
 - Keep it and place it in a bag with a label noting the date and location where it was captured. It is important for us to have the actual specimen in order to confirm the sighting
 - Place it in the refrigerator or freezer
 - Contact IDNR or the Crystal Lake Park District



Lake County Lake With Eurasian Watermilfoil

Sand Pond (IDNR)
Diamond Lake
Gages Lake
Butler Lake
Gray's Lake
Lake Minear
Countryside Lake
Liberty Lake
Druce Lake
Third Lake
Crooked Lake
Hastings Lake
Fourth Lake
Lake Miltmore
Lake Charles
Spring Lake
Sun Lake
Lake Catherine
Fox Lake
Bangs Lake
Round Lake
Channel Lake
Long Lake
Cedar Lake
East Loon Lake
Slocum Lake

Grass Lake
Lake Marie
Lake Zurich
Antioch Lake
Pistakee Lake
Nippersink Lake
Redhead Lake
West Loon Lake
Tower Lake
Duck Lake
Wooster Lake
Island Lake
Highland Lake
Timber Lake (South)
Little Silver Lake
Lake Fairview
Lake Napa Suwe
Seven Acre Lake
Grandwood Park Lake
Peterson Pond
Lake Leo
White Lake
Timber Lake (North)
Lambs Farm Lake
Pulaski Pond
Nielsen Pond

Dugdale Lake
Schreiber Lake
Drummond Lake
Old Oak Lake
Lake Lakeland Estates
Fairfield Marsh
Cross Lake
Lake Tranquility
McGreal Lake
Lake of the Hollow
Ames Pit
International Mining and
Chemical Lake
Werhane Lake
Harvey Lake
Deep Lake
Dunn's Lake
Bluff Lake
Fish Lake
Fischer Lake
Petite Lake
Turner Lake
Taylor Lake
Salem Lake
Old School Lake
Sterling Lake



Lake County Lake With Zebra Muscles

- Gages Lake
- Lake Minnear
- Third Lake
- Spring Lake
- Lake Catherine
- Fox Lake
- Bangs Lake
- Cedar Lake
- Grass Lake
- Lake Zurich
- Pistakee Lake
- Nippersink Lake
- West Loon Lake
- Tower Lake
- Independence Grove
- Bluff Lake
- Petite Lake
- Sterling Lake



Other Issues



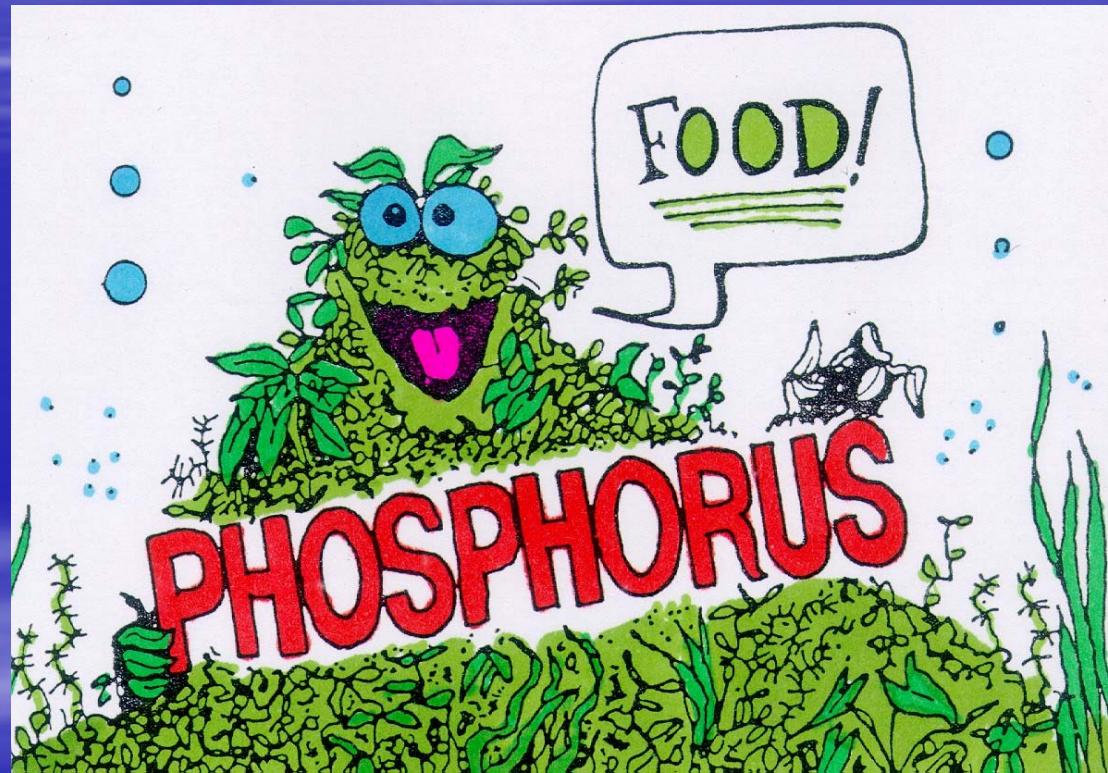
Shoreline Stabilization



Shoreline Stabilization



No Phosphorus Fertilizer



Storm Sewer Stenciling

DUMP NO WASTE



DRAINS TO LAKE



Ice Safety



2004 Proposed Work Program

- Spring and Fall milfoil surveys to continue to monitor progress in control of lake weeds
- Spring application of herbicides for the beaches and west end of the lake as needed
- Installation of water level recorder
- Four newsletter or website articles regarding lake management and lake status



2004 Proposed Work Program

- Continued monitoring of surface flows to and from the lake by the City of Crystal Lake Fishery survey (IDNR)
- Monitoring of lake water column quality for eight sample dates spread through the year
- Volunteer Lake Monitoring (VLMP)
- Annual report on lake quality using data collected by City and VLMP data

2004 Proposed Work Program

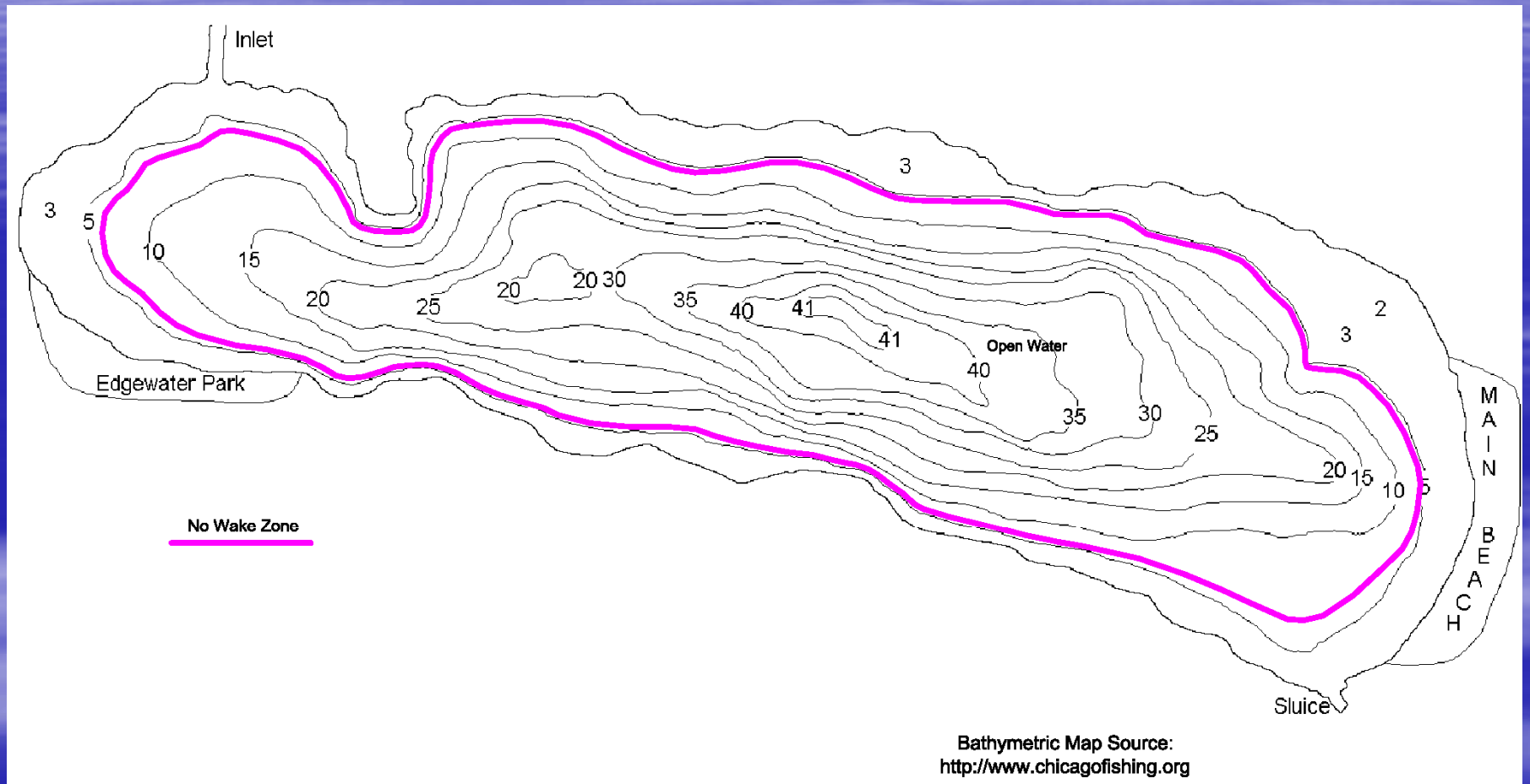
- Boat count (volunteer effort)
- Bird survey (volunteer effort)
- Phase I Clean Lakes work when funded by IEPA
- Annual Lake Meeting
- Aggressive management of invasive species



An aerial photograph of a golf course and surrounding area. The foreground shows several green fairways, sand traps, and small ponds. A large, irregularly shaped lake is prominent in the middle ground. In the background, there is a dense residential area with many houses and trees. The sky is clear and blue.

Public Comments and Questions

No-Wake Areas



Fungus Crystal Lake Fall 2003

