A Tour of the Arlington Reservoir

Arlington Reservoir Committee

Version 2 Spring 2003

THE ARLINGTON RESERVOIR

A greatly valued and much loved community resource.

*The initial motivation for this guide was the **Arlington Reservoir Art Project** – a collaborative effort between the Arlington Public Schools art program, the Arlington Center for the Arts (ACA) and the Arlington community, which took place in the fall of 2002.*

Through this program, the fifth grader students from several local schools explored the ecosystem of the Arlington Reservoir, as part of the art and science curriculum.

Wendy Campbell, art teacher in the Arlington Public Schools, was the primary organizer of this project. But many others volunteered and participated in numerous ways, including teachers, parents, grandparents, subject matter experts and other community members.

The Arlington Reservoir Art Project was funded by a grant from the Arlington Educational Enrichment Fund (AEEF), as well as by the Stratton and Bishop PTO's and library committees. Production of the booklet, "A Tour of the Arlington Reservoir," was funded by Arlington Vision 2020.

Table of Contents

The Arlington Reservoir

Many people in Arlington are familiar with the Reservoir or "the Res," as it is also known. We can swim there in the summertime. But, the Res is much more than a swimming beach! Let's explore the Res and the many different environments and issues that make it a very special place in our town.

Some Basic Facts

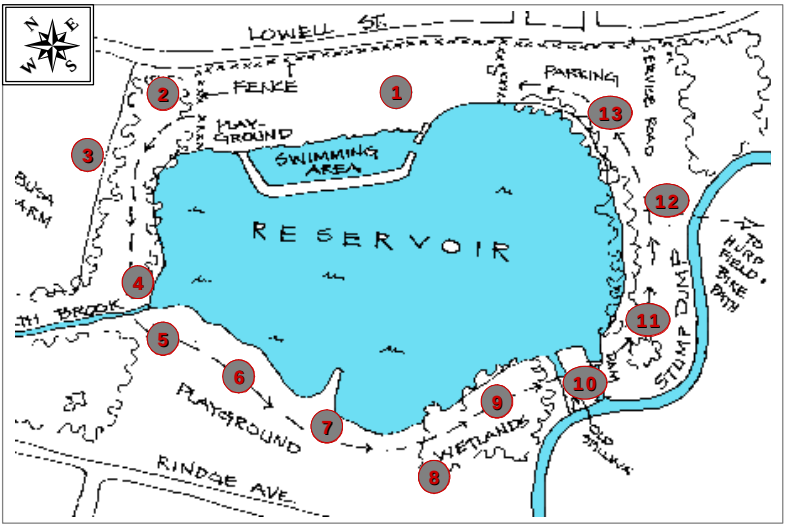
Did you know that…?

- *The actual swimming area is about 1½ acres, which is the size of almost 4 ice rinks.*
- *The total Reservoir water area is 28 acres, and that's the size of almost 72 ice rinks or about 21 football fields (including the end zones).*
- *The water and land area around the Res, owned by Arlington, is 65 acres or a bit more than 49 football fields (about half of this is actually located in the town of Lexington).*

- *The watershed area draining into the Res is 1,120 acres (847 football fields!) and contains parts of both Arlington and Lexington.*
- *The Reservoir hasn't been used as a source of drinking water since the 1890's.*
- *The Res is part of the Mystic River watershed that drains into the Boston harbor.*
- *The Reservoir is a body of water that is actively managed by humans. Its depth is raised and lowered each season, and it is 6 feet higher in summer than the rest of the year. This helps to keep water in the swimming area.*
- *When the water is low, many mud flats are exposed and the deepest part of the Res near the dam is only 6 feet deep.*
- *The variation in the water level creates a very appealing habitat for a variety of birds in different seasons – nearly 150 species have been seen in the area!*
- *The Res acts as part of an avian flyway system. Migrating birds stop here on their way north in the spring and on their way back south again in the fall.*
- *Muskrats, turtles and several different kinds of fish, including Largemouth Bass and Bluegill, live in the Res.*

Let's Take a Walk Around!

The Arlington Reservoir is a place of great natural beauty. If you walk along the shoreline of the Res, you will find many habitats. Each of them is a special place with much to observe, as well as problems that we all need to understand and work to correct. Let's explore each of these areas and discuss some of the issues.



A Map of Our Tour

1. Reservoir Beach

Let's begin our tour at the beach itself. If you look around this area, you will see a space in nature that human beings have adapted for their use and needs. The beach area was first developed in 1935 and renovated to include the berm and water filtering equipment in 1983. Here you find a bathhouse, a playground, benches, picnic tables, a concrete walkway and handrail leading into the water, a berm that separates the swimming water from the rest of

the Res and equipment to clean and treat the water for swimmers. The berm is a favorite bird watching spot, after the beach is closed. The northern half of the beach is actually in Lexington.

Issues: You are probably most familiar with problems at the beach. Geese, ducks and dogs leave their droppings in the sand, grass, and water, making it very unpleasant for swimming and walking in bare feet. Ducks often try to steal your food when you picnic at the beach. People don't always use the trashcans, and the litter left behind is unattractive and can be hazardous. Chlorine is put into the swimming water to make it safe for swimming, and there is a filter to help keep the water clean, but it looks murky when bathers stir up the natural silt. Can you think of other problems that exist at the beach? Are there ways to correct these problems?

(Science Topics: Human impact on the environment, resource management, water chemistry, phosphorous cycle, & water quality testing)

2. Wooded area next to Lowell Street

As we walk out of the beach area, toward Lexington, we are following a trail that leads into a natural area of woods and brush. From the main walking trail, several trails lead uphill through the woods and out onto Lowell Street.

Issues: The woods near the road have been littered with trash that people have dumped there. Volunteers have helped to clean it out. Water run-off from the road has caused

erosion at the entrance to the trails. In this area, along Lowell Street, there are no or very poor sidewalks, making walking on Lowell Street unsafe. What ideas do you have for making this area better?

(Science Topics: Human impact, erosion, and infrastructure development)

3. Busa farmland

As the path that we are following turns to the left, you can see land that is used for farming, as it has been for many, many years. The Busa family owns this Lexington farmland, and after the fall harvest, many birds like to gather in these fields to eat leftover seeds, other vegetation or insects.

Issues: Here the path can become overgrown by weeds, and tree roots are bare because of soil compaction and erosion. This can make walking difficult. In recent years, housing developers have been very interested in the farmland. Can you imagine how this area would change if houses were built on all or even some of the open space? What types of stress do buildings and pavement put on the environment?

(Science Topics: Erosion, human impact, and open space)

4. Munroe Brook area

Following further along the path, we see Munroe Brook, the major Reservoir water source. This area includes a path that goes about 1/4 mile

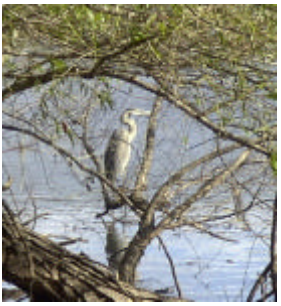
up the stream. It is a beautiful quiet natural area, and you can climb down along side the small arched bridge to watch the stream flow or water birds swimming and feeding.

Issues: The water that flows into the Reservoir here carries with it anything that flows into it from the roads, yards and fields upstream. Excess lawn and garden fertilizers, road salt and leaking oil are some of the contaminants that can pollute an urban watershed. Do you think people living upstream realize that what they do in their yards or on their streets can cause problems for the Res and the brooks?

(Science Topics: Human impact, watersheds, and water cycle)

5. More woods and marshy areas

Leaving the stream area, the path turns left and you are walking in a wooded area. The section on the left between the path and the Reservoir is marshland. Herons and other birds are known to hide among the taller grasses and cattails in this part of the Res.



Issues: Poison ivy grows in the overgrown areas beside the trail. Do you know how to recognize the poison ivy plant? Do you know what can happen if you touch the poison ivy plant? Watch out for it along other parts of the path, as well.

(Science Topics: Human interaction, plant defenses and adaptations)

6. Public park with grassy field

As you emerge from the woods, you find yourself in an open grassy space that's great for running around or spreading a blanket and enjoying a picnic. This is the

Rindge Avenue playground, located in Lexington. If you walk to the bench near the edge of the water, you will see a broken storm drain and soil erosion.

Issues: Most of the Reservoir water comes from Munroe Brook, but when it rains a lot of water from street drains also flows into the Res. This storm water can bring along a lot of trash and dirt from the streets. Is there anything that can be done to prevent this from happening?

(Science Topics: Water cycle, watershed and human impact)

7. Houses on an embankment & mud flats

Just beyond the park on the right of the path, houses are built on a slope overlooking the Res. What a lovely view! When the water level is low, the mudflats to the left attract certain types of birds, and visitors can walk out onto the peninsula opposite the beach area.

Issues: If you look out over the water in late spring and throughout the summer, you will likely see plants growing on the water. This is the invasive water chestnut weed, which is very bad for the Reservoir because it prevents sunlight from getting into the water and reduces the level of much-needed oxygen. And it isn't even considered good food by the birds! You may have seen the seedpods that line the shore. They are dark and very hard with sharp spikes that really hurt if you step on them! The Arlington Conservation Commission hired a contractor with special harvesting machines to remove the weeds from the water. The machine works very well in the deep water, but can't reach the weeds that grow in the

shallow water near the shore. Last spring, a group of volunteers went out on the water in canoes and kayaks and pulled out lots of these weeds, and they will do it again next spring. We don't want water chestnuts in the Reservoir.

(Science Topics: Bioinvaders, seed cycle, seed adaptations, photosynthesis and co^2-o^2 cycle)

8. Path along Sickle Brook

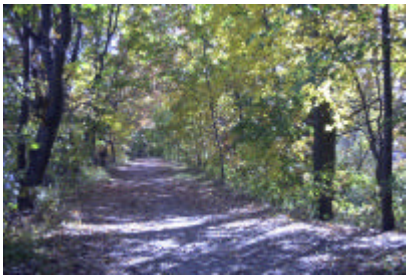
A little way up the main path, you can turn off to the right and follow another path. This leads into Lexington's Cataldo Reservation and follows along Sickle Brook, coming out near the bikeway. This is a place worth exploring sometime. It leads you into an area of very tall grass and next to a small pond. Sickle Brook flows from Arlington's Great Meadows, a natural area of 183 acres that is owned by the Town of Arlington but is located entirely in Lexington.

Issues: There is often a lot of trash at spots along this path. During heavy rains, a lot of water can flow down Sickle Brook into Mill Brook, causing flooding in Arlington. What kind of damage can a flood cause? Have you ever seen an area that was flooded?

(Science Topics: Human impact, watersheds, and water cycle)

9. Wetlands along Sickle Brook & Drake Village

We're going to follow along the main path. As you walk along this section of the path, you probably don't realize that you are actually walking on top of the Reservoir dam. To your left is the water and to your right are wetlands. The Drake Village housing complex



is located beyond the wetlands. This is a very peaceful walk with lovely trees and lots of greenery. It almost feels as though you are walking through a tunnel of trees, and if you're quiet you should be able to hear the birds singing.

Issues: For many decades, trees have been growing on the Reservoir dam. Since it is an earthen dam, trees and other vegetation growing on it anchor the soil and provide stability and erosion control. In recent times, however, engineers have decided that it isn't always safe for a dam to have trees growing on it. If a really huge storm, like a hurricane, were to knock over a tree growing on a dam then the roots might pull up, which would make a hole in the dam that water could flow through. Also, as trees die and their roots decompose, water can get into the dam and weaken it. So, while the dam at the Reservoir is safe today, the Town is trying to figure out how to keep it that way. This means that some of the trees and shrubs may be removed. But no one knows yet exactly how many trees may be cut down or what creative ideas there might be to make sure that the dam is kept safe while keeping the area wooded. Do you have any ideas for making this area attractive without using deep-rooted plants and trees?

"No one knows yet exactly how many trees may be cut down."

(Science Topics: Human impact and resource management)

10. Dam gate for Res outflow & Mill Brook start

We're now going to cross the iron bridge that goes over the dam's emergency spillway. Water flows through here when the water in the Res gets too high. Just past the bridge is the regular spillway gate. We can stop and look at the big metal plate that is

raised to let water flow out, or lowered to hold water in the Reservoir. The water flowing out from the Res meets with the water flowing in Sickle Brook to form Mill Brook. Mill Brook flows all through the middle of Arlington and into the

Lower Mystic Lake at Meadowbrook Park, near the cemetery. By raising and lowering the plate at the spillway, the Town controls the level of the water in the Res to keep it higher in the summer and lower the rest of the year. The Reservoir can be used to hold water during a big storm, which helps to reduce flooding downstream along Mill Brook. Are there other ways that you can think of to help reduce flooding downstream of the Reservoir in Mill Brook?

Issues: The spillway and gate areas are old and need to be modernized. There is a lot of work that needs to be done here and it will cost the Town a lot of money. Careful planning is being done to make sure that everything is fixed correctly.

(Science Topics: Human impact, resource management, water cycle, and watershed)

11. Stump dump area above Hurd Field

The "Stump Dump" is the wide area along the Res, as you walk past the dam spillway gate. You can see the ruts and tire marks made by the trucks that have driven in this area. Sometimes it's really muddy here. Mill Brook flows

along beside the “Dump,” opposite the Res, and you can look down at Hurd Field on the other side of the brook.

Issues: For many years, the Town used this area to dump soil and tree debris. In earlier years, coal ash was dumped here. People are still dumping trash into Mill Brook from the Hurd Field parking lot. Can you think of problems caused by dumping? The area is much wider now than it was originally because of all the dumping. In the last few years, the Town has stopped most of the dumping and has removed much of the old piles. It still looks very "dumpy", but better than before. In the future, some trees and bushes may be planted here to make it more attractive.

(Science Topics: Human impact)

12. Roadway and side path to Hurd Field

After passing the stump dump area on the main roadway, there is a path that goes off sharply to the right. This path crosses over Mill Brook and leads to Hurd Field and the Minuteman Bikeway. Further along on the left are several good spots for climbing down to the water for fishing and bird watching.

Issues: The ground here is covered with gravel and not much grows here. However, on the side away from the water is a thick growth of invasive Japanese Knotweed that has strangled out other plants. What are some ways to get rid of invasive plants? This area is also part of the dam and some trees may have to be removed.

(Science Topics: Bioinvaders)

13. Parking area for the beach

Now, here we are back at the beach parking lot! When we reach the gate to the beach, we will have completed a 1-mile walk. Did you ever think that there was so much to see in a 1-mile walk so close to home?

Issues: During heavy rains, the water will wash whatever is in the parking area into the Res. This may include trash or oil that has dripped from cars.

(Science Topics: Watersheds, water cycle, erosion, and soil)

Reservoir Goals & Committee

The Reservoir area needs thoughtful oversight and vision, so that the many residents, both old and young, who enjoy it will continue to do so for many generations. To help safeguard this space, on Monday, May 6, 2002 Arlington's Town Meeting approved the following Selectmen's recommendation:

That the Town hereby endorses the goals for the Arlington Reservoir area as recommended by the Reservoir Committee of the Vision 2020 Environmental Task Group and Vision 2020 Standing Committee, calculated to protect the ecosystem of the Arlington Reservoir area. In particular, the Town supports the following goals for the Arlington Reservoir and its role within the Mystic River Watershed:

1. **Water Quality:** To attain and maintain, in an ecologically sensitive manner, the appropriate water quality standard.

2. **Water Management**: To manage the Reservoir and its drainage to minimize downstream flooding, support wildlife habitat, and allow recreational uses.

3. **Flora and Fauna:** To protect and enhance the health and diversity of native plants and wildlife consistent with protecting public safety and recreational uses.

4. **Public Use and Open Space:** To promote and enhance public access for passive and active recreational uses while maintaining and protecting the unique natural setting of the Reservoir.

5. **Public Awareness:** To enhance awareness of the ecological, economic, recreational, and esthetic values of the Arlington Reservoir and its setting.

Vision 2020's Arlington Reservoir Committee is a group of concerned citizens working to implement these goals and solve the Reservoir's problems. Monthly meetings are held to discuss projects, news and priorities. These meetings are advertised in *The Arlington Advocate* and on the town's website calendar. Anyone with an interest in the Reservoir is welcome and encouraged to attend or to join us at one of the special clean-up events generally held in spring and fall.

Birds at the Arlington Reservoir

Swimmers:

Pied-billed Grebe
Double-crested Cormorant
Great Cormorant
Mute Swan
Canada Goose
Brant
Greater White-fronted Goose
Mallard
American Black Duck
Gadwall
Common (Northern) Pintail
Green-winged Teal
Blue-winged Teal
Northern Shoveler
Eurasian Wigeon
American Wigeon
Wood Duck
Redhead
Ring-necked Duck
Canvasback
Greater Scaup
Comnmon Goldeneye
Bufflehead
Ruddy Duck
Hooded Merganser
Common Merganser
Red-breasted Merganser
American Coot
Great Black-backed Gull
Herring Gull
Ring-billed Gull

30 swimmers

Nonswimmers:

Great Blue Heron
Green Heron
Great Egret
Black-crowned Night Heron
Lesser (American) Golden Plover
Semipalmated Plover
Killdeer
Greater Yellowlegs
Lesser Yellowlegs
Solitary Sandpiper
Spotted Sandpiper
Hudsonian Godwit
Semipalmated Sandpiper
Western Sandpiper
Least Sandpiper
White-rumped Sandpiper
Pectoral Sandpiper
Common Snipe
Turkey Vulture
Sharp-shinned Hawk
Red-shouldered Hawk
Broad-winged Hawk
Red-tailed Hawk
Osprey
Merlin
American Kestrel
Rock Dove
Mourning Dove
Common Nighthawk
Chimney Swift
Belted Kingfisher
Ruby-throated Hummingbird

Northern Flicker
Yellow-bellied Sapsucker
Downy Woodpecker
Hairy Woodpecker
Eastern Kingbird
Willow Flycatcher
Eastern Phoebe
Great Crested Flycatcher
Purple Martin
Tree Swallow
Northern Rough-winged Swallow
Bank Swallow
Barn Swallow
Blue Jay
Common (American) Crow
Black-capped Chickadee
Tufted Titmouse
White-breasted Nuthatch
Brown Creeper
Carolina Wren
House Wren
Northern Mockingbird
Gray Catbird
American Robin
Ruby-crowned Kinglet
Golden-crowned Kinglet
Cedar Waxwing
Brown Thrasher
European Starling
American Pipit
Warbling Vireo
Red-eyed Vireo
Nashville Warbler
Black-and-white Warbler
Northern Parula
Yellow Warbler
Magnolia Warbler
Black-throated Green Warbler
Blackburnian Warbler
Yellow-rumped Warbler
Chestnut-sided Warbler
Blackpoll Warbler
Palm Warbler
Northern Waterthrush
Common Yellowthroat
American Redstart
Red-winged Blackbird
Rusty Blackbird
Orchard Oriole
Baltimore Oriole
Common Grackle
Brown-headed Cowbird
Scarlet Tanager
Northern Cardinal
Rose-breasted Grosbeak
Blue Grosbeak
Indigo Bunting
House Finch
American Goldfinch
Savannah Sparrow
Northern (Dark-eyed) Junco
Snow Bunting
American Tree Sparrow
Chipping Sparrow
Field Sparrow
Vesper Sparrow
White-throated Sparrow
Swamp Sparrow
Song Sparrow
Lincoln's Sparrow
House Sparrow

103 nonswimmers

Thanks for joining us on our tour of the Res today! We hope you enjoyed it and learned some new things. For more about the Arlington Reservoir, you can visit the Arlington Reservoir website. This website has information about the Reservoir and about what the Reservoir Committee is doing to help protect and preserve it.

Arlington MASSACHUSETTS VISION 2020

A Proud Past, A Focused Future

Visit us on the Web!

www.arlington2020.org/reservoir/

Version Date:
April 2003
Prepared By:
Leslie Mayer and **David White**
Photos By:
Leslie Mayer
Edited By:
Ann LeRoyer,
Nancy Blasi and
Arlington Vision 2020 Reservoir Committee

Cover art mural of the Reservoir done by Wendy Campbell's Bishop School students