

1992

### ARCH CREEK RESTORATION PROJECT:

(Slides # 1, 2, 3) The problem with Arch Creek is mostly a biological one. That is, it has become an EUTROPHIC System. This means that the chemical conditions (very high concentration of Nitrogen and Phosphates = NUTRIENTS, very low concentration of Oxygen) (Slide # 4) favor a bloom of aquatic plants (Slide # 5) (mostly algae and duck weed) (Slide # 6). This condition does not allow the natural existence of aquatic animals which prevents the existence of a healthy trophic chain (Slide # 7) of an OLIGOTROPHIC System (= balanced coexistence of plants and animals). This promotes deterioration and the poor conditions presently existing in the creek, not to mention the sickly green color of the water. Also, the salt water leakage at the salinity structure (Slide # 8) is further deteriorating the water quality.

We have measure up to 2.4% salt concentration (= 75% sea water salt concentration) at the salinity structure (Slide # 8).

At DERM, we have been studying the situation in Arch Creek for some time now. And we have come up with two proposed actions to restore the creek to its former balanced condition; a Biological one and an Engineering one. The first one involves three different aspects:

First, we need to increase the Oxygen level in the water, to this end we are going to use water/air blowers (Slide # 9) along the creek. The second aspect involves the use of a special strain of bacteria that competes with the algae for nutrients and that eventually over comes them. The third aspect involves the use of a tiny brine shrimp (**Artemia**) that EATS the micro-algae in the water. Both the bacteria and the shrimp are HARMLESS and pose no threat to humans, animals or the environment.

The Engineering action is going to be explained by someone else.

DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT, DERM.  
WATER MANAGEMENT DIVISION.  
STORMWATER MONITORING AND EVALUATION SECTION.

**ARCH CREEK PRESENTATION:**

**DATE:** July 6th 1992.

**PARTICIPANTS:**

- \* Dorian K. Valdes. Section Head.
- \* Mike Gambino. Pollution Inspector II.
- \* Sergio Fernandez. Engineer I.
- \* Rolando Rodriguez. Pollution Inspector I.
- \* James Oppenborn. Pollution Inspector I.

**PROPOSED ACTIONS:**

I) Engineering aspect:

- Televising of storm sewers.
- To dredge underneath threshold.
- Put Rip-Rap on shore line.
- Dredging can be done by Community Service people.
- Waterfall on wall ?
- Clean up area around the Salinity Structure (water surface).
- Clean up shore line.
- Put up signs prohibiting dumping of trash along shore line.
- Organize QUARTERLY clean ups.
- Promote voluntary participation of environmental organizations to do the clean ups.
- Dredging and clean ups can also be done by Community Service people.
- Open salinity structure at 135th Street and constructing one at 142nd Street.
- Deep well injection.

II) Biological aspect:

- Put Blowers to aerate sections along the creek. Will improve oxygen levels.

- Stock creek with a special nitrate consuming bacteria. Will stop algae blooms, and duckweed production..
- Stocking creek with brine shrimp (**Artemia**) to consume micro algae.
- stock creek with **Gambusia**, Bluegill, others.
- Use vacant lots on 142nd and 143rd Street to dig meanders or to plant native ornamental plants to be irrigated with water from the creek.
- Remove Australian pines and replace with native plants (Sea grape, Oak, Palm tree, etc.).