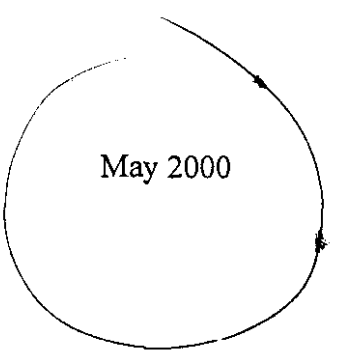
DRAFT -- AN INVESTIGATION OF COMPLAINTS OF WATER QUALITY PROBLEMS IN THE NORTH, WEST, AND EAST CORAL LAKES, OAKLAND PARK, FLORIDA

BROWARD COUNTY DEPARTMENT OF PLANNING
AND ENVIRONMENTAL PROTECTION

WATER RESOURCES DIVISION



compared to the 1975 City Maps, the 1998 City Maps, and the 1999 Mark Ups. Inlets and storm drains not shown on the 1998 maps were found. Saw cuts in the pavement were observed. The sumps of some inlets had been filled in with concrete to the approximate elevation of the pipe invert. The newer type of plastic drainage pipe was observed at some of the inlets. Very few road drainage swales were found. Remnants of grassy swales along some roadways were found, as evidenced by depressions in adjoining paved driveways. The benefits of swales are presented in the brochure, "Save the Swales," by the Florida Department of Environmental Protection. A copy of this brochure may be found in Appendix 8.

Residential lawns throughout the area appeared to be very well kept. Most lawns were green in color, mowed, and relatively weed free. Bulkheads or hard edges were observed in many areas around the lakes and waterway.

Signs posted in several lawns announced a meeting of the Corals of Oakland Park Homeowners Association (COPHA) on May 2, 2000. COPHA has formed a lakes committee to address the lake water quality concerns. One of the citizens on the Lakes Committee reported that an oily sheen had been observed recently on the surface of the northeast corner of West Lake. The sheen had disbursed before this inspection was conducted.

A drive through the Commercial Boulevard Industrial Park area was conducted on May 12, 2000, to look for any illicit discharges to the storm drainage system. Several auto repair facilities, screen printing & graphics, and other industrial use businesses are located in the area. No illicit discharges were observed at the time.

10.0 CONCLUSIONS

1. There are significant differences between what is shown on the City's 1998 Stormwater Master Plan and what was found during the field investigation. Additional inlets were found near 1801 NE 42nd Street, 4250 NE 16th Terrace, 4300 NE 15th Terrace, 4450 NE 15th Avenue, 4841 NE 15th Terrace, 1511 NE 48th Court, and 1360 NE 47th Court. Inlet sumps were found to be partially filled with concrete to the pipe invert elevation at 1511 NE 48th Court, 4830 NE 13th Terrace, and 1360 NE 47th Court. It is not sure why some inlet sumps were partially filled with concrete. One possibility is that standing water in the inlets may be believed to promote mosquito population. Saw cuts which indicate maintenance work in the vicinity of storm drain lines and inlets were found in numerous places. The saw cuts indicate activity since the roadway was last resurfaced, which could have been several years prior to the field inspection. The presence of plastic drainage pipe at some of the inlets indicates that older, corrugated metal pipe has been replaced with newer, HDPE pipe.

There are at least two explanations for these differences. The first explanation is that the inlets and storm drains in question could have been missed during the survey work accomplished for the 1998 Stormwater Master Plan. The second explanation is that these facilities were constructed or replaced after the plan survey work was accomplished. DPEP records do not indicate that these drainage improvements were licensed. If the facilities were constructed or replaced since the County requirements regarding surface water management were established, the City may be in violation of Chapter 27 of the Broward County Code.

If the inlet and storm drain system has been extended from the original drainage design for the Coral Heights subdivision, then the volume of fresh water entering the lakes and waterway will have increased. A change in the relative amount of fresh water versus salt water or the presence of a fresh water lens on top of the salt water could significantly impact aquatic life populations.

2. The restoration of grassy drainage swales along the roadways could enhance the water quality of the lakes and waterway. The removal of bulkheads or other hard edges around the lakes and waterway and the establishment of swales and berms along the edge of the water could also enhance water quality.

3. Additional investigations concerning potential illicit discharges from the Commercial Boulevard Industrial Park area should be pursued.

4. The potential storm drainage improvements should be licensed by the County where applicable. In particular, water quality provisions such as the suggested exfiltration trenches should be made for the potential drainage improvements.

5. There aquatic plant management activities appear to have been conducted within herbicide label instructions and accepted application practices. The application of 20 gallons of Aquathol K over an area of one acre on June 2, 1997, was at a rate significantly greater than the other applications. This may not be a concern if the depth of the hydrilla treated at the time was several feet or more rather than a foot or two.

6. The elevated copper levels found in the lake water and in the waterway on March 3 and June 3, 1999, are most likely due to the application of herbicides containing copper. The herbicide Clearigate contains copper. Portions of the North Lake had been treated with Clearigate on December 28, 1998, December 29, 1998, and January 8, 1999. Cutrine Plus also contains copper, but the last application of Cutrine Plus was reported to be May 4, 1998.

7. The elevated phosphorus levels found in the lake water and in the waterway on March 3 and June 3, 1999, are most likely due to the application of fertilizers in residential lawns and subsequent storm runoff containing dissolved phosphorus into the lakes and waterway. The green color of most lawns suggests that the lawns are watered and fertilized to achieve their appearance.

8. The City is meeting the requirements of and obligations under the EPA NPDES Municipal Separate Storm Sewer System Permit issued to Broward County and other co-permittees.

9. The purposes of the draft stormwater ordinance have competing goals. Improved drainage through the extension of storm drains, the addition of inlets, and the replacement of failed metal pipes may negatively impact water quality unless practices such as grassy swales or inlet filter devices are incorporated into the drainage system.

   An aggressive aquatic plant control program may negatively impact lake water quality, creating elevated levels of certain chemicals above water quality standards. Therefore, many residents have a stake in the ramifications of the stormwater ordinance, including those who live near a lake, those who live in areas of poor drainage, and those who will be asked to pay for the drainage improvements.

11.0 RECOMMENDATIONS

1. The City of Oakland Park should attempt to verify the accuracy of the 1998 Stormwater Master Plan drainage system maps and utilize City records such as work orders and payment records to determine when the drainage system improvements were accomplished. The Broward County DPEP should determine if and what enforcement actions should be pursued with the City concerning the improvements already constructed. Potential enforcement action should include conditions to retrofit water quality features into the drainage system. The City may wish to pursue an assessment of the biological and hydrodynamic flushing conditions of the lakes and waterway, which were beyond the scope of this investigation.

2. The City should investigate the feasibility of and implement where practical the restoration of grassy drainage swales along the roadways and bulkheads along the water.

3. The City should inspect the Commercial Boulevard Industrial Park area for potential City Code violations affecting storm runoff, and DPEP should investigate potential illicit discharges from the Commercial Boulevard Industrial Park.

4. The City should confer with DPEP concerning which potential drainage improvement projects require a surface water management license.

5. The City's aquatic plant control program records should include the depth of the water treated to help assure a proper application rate is achieved. The City should continue to use licensed herbicide applicators who properly apply the herbicides.

6. More frequent herbicide treatment for algae using copper products over smaller affected areas may result in lowered copper concentrations.

7. The City and DPEP should develop and distribute information to property owners concerning the proper use of fertilizers to reduce phosphorus inputs.

8. The City should continue to meet its requirements and obligations under the EPA NPDES MS4 Permit.

9. The City should finalize and adopt a stormwater ordinance. The City should consider enlisting the assistance of the COPHA and/or other citizen groups in completing the stormwater ordinance and in educating residents on the use of fertilizers, controlling car wash water discharges, and other means to promote good water quality.