SYNOPTIC SURVEY
CATFISH CREEK
DECEMBER 11, 1985
PALMER RANCH
SARASOTA COUNTY, FLORIDA

January, 1986

Prepared For:
PALMER VENTURE
7184 Beneva Road
Sarasota, Florida 33583

Prepared By:
CONSERVATION CONSULTANTS, INC.
Post Office Box 35
Palmetto, Florida 33561

Richard W. Odell
Field Services

Dorothy S. Morse
Laboratory Director

H. Lee Davis, Ph.D.
Principal Scientist
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1.0 INTRODUCTION

Palmer Venture received a Master Development Order (MDO) from Sarasota County which governs development activities on the Palmer Ranch, a planned unit development in west-central Sarasota County, Florida. One condition put forth in the MDO was that selected synoptic surveys be conducted in the Catfish Creek basin during at least two periods, wet and dry. Conservation Consultants, Inc. (CCI) was retained by Palmer Venture to perform a synoptic survey of Catfish Creek concurrent with the quarterly event for the Continuing Surface Water Quality monitoring Program performed in December, 1985.

2.0 METHODS

As required by the MDO, monitoring stations were selected such that data on the basin from the entry to the exit points of the property could be obtained. The general project location and the locations of the five (5) stations selected to accomplish this are shown in Figure 1. Simultaneous surface water quality grab samples were collected at approximate mid-depth and analyzed for the following parameters:

- Ammonia Nitrogen
- Ortho Phosphate
- Dissolved Oxygen
- Total Kjeldahl Nitrogen
- Nitrate
- Total Nitrogen
- Nitrite
- Total Phosphate
- Organic Nitrogen

Table 1 lists the methods used to collect, preserve, store and analyze all samples. Laboratory analyses are performed in
FIGURE 1. PROJECT SITE LOCATION AND LOCATIONS OF SAMPLING STATIONS.

PALMER RANCH, SARASOTA COUNTY, FLORIDA
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Collection</th>
<th>Handling</th>
<th>Laboratory Handling</th>
<th>Analytical Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Oxygen</td>
<td>Grab</td>
<td>Fixed</td>
<td>Immediate Analysis</td>
<td>APHA 421B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stored on Ice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen, Ammonia</td>
<td>Grab</td>
<td>Acidified to pH &lt; 2</td>
<td>Stored at 4°C</td>
<td>APHA 417A, B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stored on Ice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen, Nitrate</td>
<td>Grab</td>
<td>Acidified to pH &lt; 2</td>
<td>Immediate Analysis</td>
<td>EPA 352.1-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stored on Ice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen, Nitrite</td>
<td>Grab</td>
<td>Stored on Ice</td>
<td>Filtered Immediate Analysis</td>
<td>EPA 354.1-1</td>
</tr>
<tr>
<td>Nitrogen, Organic</td>
<td>Calculation</td>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>Nitrogen, Total</td>
<td>Grab</td>
<td>Acidified to pH &lt; 2</td>
<td>Stored at 4°C</td>
<td>APHA 420A</td>
</tr>
<tr>
<td>Kjeldahl</td>
<td></td>
<td>Stored on Ice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrogen, Total</td>
<td>Calculation</td>
<td>-----</td>
<td>-----</td>
<td>APHA 416</td>
</tr>
<tr>
<td>Phosphate, Dissolved</td>
<td>Grab</td>
<td>Stored on Ice</td>
<td>Filtered Immediate Analysis</td>
<td>EPA 365.2-1</td>
</tr>
<tr>
<td>Ortho</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphate, Total</td>
<td>Grab</td>
<td>Acidified to pH &lt; 2</td>
<td>Stored at 4°C</td>
<td>EPA 365.2-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stored on Ice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
accordance with the sixteenth edition of *Standard Methods* (American Public Health Association, 1985) and *Methods for Chemical Analysis of Water and Wastes* (U.S. Environmental Protection Agency, 1983). As required by Sarasota County, Appendix A provides statements of qualifications for the monitoring Team's members.

3.0 RESULTS

Water Quality grab samples were collected simultaneously at all stations on December 11, 1985. All analytical results are respectfully provided in Table 2.
Table 2. Analytical Results of Water Quality Grab Samples Collected in Catfish Creek During the Synoptic Survey on December 11, 1985.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CC-1</th>
<th>CC-2</th>
<th>CC-3</th>
<th>CC-4</th>
<th>CC-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Oxygen</td>
<td>6.2</td>
<td>0.6</td>
<td>&lt;0.1</td>
<td>0.1</td>
<td>3.4</td>
</tr>
<tr>
<td>Nitrogen, Ammonia</td>
<td>0.05</td>
<td>0.05</td>
<td>0.18</td>
<td>0.08</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Nitrogen, Nitrate</td>
<td>0.14</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Nitrogen, Nitrite</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Nitrogen, Organic</td>
<td>0.59</td>
<td>1.07</td>
<td>4.87</td>
<td>4.63</td>
<td>0.92</td>
</tr>
<tr>
<td>Nitrogen, Total Kjeldahl</td>
<td>0.64</td>
<td>1.12</td>
<td>5.05</td>
<td>4.71</td>
<td>0.92</td>
</tr>
<tr>
<td>Nitrogen, Total</td>
<td>0.78</td>
<td>1.12</td>
<td>5.05</td>
<td>4.71</td>
<td>0.92</td>
</tr>
<tr>
<td>Phosphate, Dissolved Ortho</td>
<td>0.10</td>
<td>0.29</td>
<td>0.11</td>
<td>0.55</td>
<td>0.07</td>
</tr>
<tr>
<td>Phosphate, Total</td>
<td>0.21</td>
<td>0.56</td>
<td>1.79</td>
<td>1.84</td>
<td>0.20</td>
</tr>
</tbody>
</table>

*aResults reported in mg/l unless otherwise indicated.*
APPENDIX A:

MONITORING TEAM

Presented below are statements of the qualifications of individuals that comprised the monitoring team for the Palmer Ranch Surface Water Quality Project:

H. LEE DAVIS, Ph.D.
Principal Scientist

FIELDS OF COMPETENCE


EXPERIENCE SUMMARY

Dr. H. Lee Davis has gained 20 years of applied research and environmental consulting experience in the field of water resources. Much of his applied research experience has been with evaluations of physical, chemical, and biological changes in natural systems resulting from watershed development and drainage, mining and cooling tower blowdown, point-sources and toxic waste effects, eutrophication, and dredge spoil disposal. In serving both the private and public sectors since 1971, he has employed this experience in planning and permitting studies for industry, utilities, municipalities, land developers and water management authorities. Many of these projects have involved stormwater management, wetland and stream restoration, expansion and protection of potable water supplies, harbor maintenance, and development of impoundments and marinas.

In addition, Dr. Davis has been responsible for the technical supervision and management of professional staffs of water resource scientists, engineers and chemists since 1968. Prior to joining CCI, Dr. Davis held the position of Water Resource Supervisor with Envirosphere Company, the environmental department of Ebasco Services, Inc. His experience from 1971 to 1978 was gained at Environmental Science and Engineering, Inc. where he was the Manager of the Environmental Sciences Division. During the first six years of his career, Dr. Davis was a research assistant at North Carolina State University and a research associate at the University of North Carolina. In these early positions he supervised field and laboratory operations for studies related to phosphate mining and barrier island development.
H. LEE DAVIS, Ph.D.
Principal Scientist

EDUCATION

YEAR SCHOOL
1971 North Carolina State University
1971 North Carolina State University
1968 North Carolina State University
1965 Wilmington College (University of
North Carolina - Wilmington, N.C.)

B.A., Chemistry and Biology

M.S., Zoology (Limnology)
Ph.D., Marine Science (Marine Chemistry)

EMPLOYMENT HISTORY

1981 - Present Conservation Consultants, Inc.
1971 - 1978 Environmental Science &
Engineering, Inc.
1970 - 1971 University of North Carolina
1965 - 1970 North Carolina State University
Biology Department
Pamlico Marine Laboratory

Wilmington, North Carolina
Aurora, North Carolina
Research Associate
Research Assistant

Supervisor, Water Resources/
Envirosphere - Atlanta, Georgia

Director, Environmental Sciences
Division ('75-'78)
Director, Tampa Regional Office
('77-'78)
Project Manager ('73-'78)
Leader, Aquatic Sciences Group
('73-'75)
KEY PROJECTS

City of Bradenton: Project Manager for Pre-Construction Background Water Quality Monitoring and Assessment of Water Quality Impacts related to Reservoir Expansion; Ward Lake (Bradent River), Manatee County, Florida.

Ramar Group Companies, Inc.: Project Manager for Water Quality Impact Assessment related to Stormwater Management Plan for 500-acre, planned residential community on the Caloosahatchee River; Lee County, Florida. Project scope included background monitoring, literature review to determine probable pollutant loadings for undeveloped and developed site, projection of mass loading impacts on water quality, and technical report.

Tara, Ltd.: Principal Investigator to prepare report characterizing background water quality on a 1,100-acre tract; performed statistical analysis of data from one-year water quality/water flow program (11 sites, monthly sampling); performed literature review and was primary author of report.

Southwest Florida Water Management District: Principal Investigator to characterize surface water quality of the Delaney Creek Watershed and to evaluate the proposed Stormwater Management Plan including a comprehensive evaluation of alternatives and the development of mitigative measures. Hillsborough County, Florida.

City of Bradenton: Principal Scientist to prepare a report of the existing and anticipated aquatic weed problems of the Bill Evers Reservoir and an analysis of the weed control programs. Submitted to the Evers Reservoir Management Committee, Bradenton, Florida.

Fowler, White, Gillen, Boggs, Villareal, & Banker, P.A.: Principal Scientist to perform a data search, review, and analysis of annual cycles and spatial trends in dissolved oxygen and related parameters reported by past and ongoing studies performed in the tidal reach of the Manatee River. Manatee County, Florida.

American Cyanamid Company: Principal Investigator to perform a water quality impact assessment of six dragline and utility line crossings of the South Prong Alafia River during construction, operation, and reclamation phases. Subsequently served as the Senior Advisor on the construction and reclamation water quality monitoring program for the actual crossings. Hillsborough County, Florida.
KEY PROJECTS (continued)

American Cyanamid Company: Principal Scientist to perform a water quality baseline characterization of significant temporal and spatial trends in nutrient loads, dissolved oxygen, pH, fluoride, and other water quality parameters, for a 42-mile stretch of the South Prong Alafia River from Hookers Prairie to its confluence with the North Prong Alafia River during the period of 1965-1984. Hillsborough County, Florida.

American Cyanamid Company: Project Manager of the Supplement to the Development of Regional Impact Application related to various significant deviations from the original approved mine plan including floodplain crossings, mine expansion, and additional clay settling areas. Four Corners Mine, Hillsborough County, Florida.


American Cyanamid Company: Project Manager for the baseline characterization of surface and ground water quality of three subbasins of the South Prong Alafia River Basin as related to permit applications to mine within jurisdictional wetlands. Subsequently served as a Principal Scientist on the reclamation monitoring programs of the mined streams. Hillsborough County, Florida.

Holland and Knight: Principal Scientist for the assessment of potential adverse water quality impacts of proposed mining operations in selected wetlands and streams of the Alafia River Basin and an assessment of the feasibility to successfully reclaim mined watersheds. Hillsborough County, Florida.

AMAX Chemical Corporation: Principal Scientist for an evaluation of spatial and temporal trends of the saltwater-freshwater interface in Bishop Harbor and a contiguous tributary as related to permit renewal. Manatee County, Florida.

Agrico Chemical Company: Principal Investigator to evaluate the cause of an extreme range in pH in a chemical plant, wastewater holding pond. Subsequently developed and evaluated conceptual alternatives to control pH and related non-compliance parameters. Polk County, Florida.

Honeycomb Company of America: Project Manager to evaluate the quality of industrial wastewater from an aluminum honeycomb manufacturing facility as related to its suitability for discharge into a public sewer system. Manatee County, Florida.
KEY PROJECTS (continued)

Manatee County Planning and Development Department: Principal Scientist to evaluate the proposed Cooper Creek Development with respect to the possible impacts it could have on the quality of the drinking water supply of the Bill Evers Reservoir as well as its source waters. Manatee County, Florida.

Knepper & Willard, Inc.: Principal Scientist to characterize baseline water quality conditions for a 2,500-acre, residential, commercial, and industrial development site and to evaluate the anticipated level of mitigation expected to be achieved through the implementation of a stormwater management plan. Saddlebrook Ranch, Pasco County, Florida.

Beker Phosphate Corporation: Principal investigator for An Evaluation of Environmental Significance of Phosphorus Levels in the discharge of clay settling pond effluent into Wingate Creek, Manatee County, Florida.

Pan American Plant: Project Manager to conceptually design a source of low conductivity irrigation water for a plant nursery in lieu of high conductivity pond water sources. Manatee County, Florida.


Smith-Douglass Division of Borden Chemical: Project Manager for the preparation of Development of Regional Impact Application - Impact on Environment and Natural Resources. Wastewater discharge permits and baseline water quality monitoring program. Big Four Mine, Hillsborough County, Florida.

KEY PROJECTS (continued)

Mobile District, Corps of Engineers: Principal Investigator for the Development of a water quality and fishery assessment in the tailrace waters of West Point Dam, Georgia.

South Carolina Public Services Authority: Co-principal Investigator for site ranking and evaluation of various candidate power plant sites in South Carolina.


Jacksonville Electric Authority: Principal Investigator for a two-year assessment of entrainment and impingement rates, fish return system effectiveness and thermal loading at the Northside Generating Station, a once-through cooled 1200 MW plant. St. Johns River, Jacksonville, Florida.


Southern States Energy Board: Co-principal Investigator; feasibility and impact assessment of a 16 Unit Nuclear Energy Park - Impact on water resources. Lake Hartwell, South Carolina.
SELECTED REPORTS


MEMBERSHIPS

American Society of Limnology and Oceanography
Southeastern Estuarine Research Society
Ecological Society of America
FIELDS OF COMPETENCE

Chemical Analysis of Surface and Ground Water, Wastewater, Soil, Marine Water, Air, Vegetation, and Animal Tissue; Bacteriological Analysis of Water; Analytical Quality Control and Assurance Procedures; Statistical Analysis of Data.

EXPERIENCE SUMMARY

Mrs. Morse joined Conservation Consultants, Inc. in 1979 and has been in charge of the daily operation of the water chemistry lab since that time. Her work includes both supervision and performance of analytical testing on surface, ground, and marine waters; Project Management; management of quality control functions for laboratory procedures and equipment, including preparation of Quality Assurance plan; and preparation of laboratory and project reports.

Prior to joining Conservation Consultants, Inc. in 1979, Mrs. Morse worked at the Manatee County Health Department Pollution Control Laboratory. From 1974-1978 she was in charge of a commercial laboratory in Manatee County which tested drinking water and wastewater. Her previous experience included positions with the University of Florida Soil Chemistry Research Laboratory and the Upstate Medical Center Biochemistry Research Laboratory in Syracuse, New York.

EDUCATION

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SCHOOL</th>
</tr>
</thead>
</table>
| 1964-1968 | Indiana University  
             Bloomington, Indiana  
             Bachelor Degree - Physiology & Chemistry |
| 1972 | University of Florida  
          Gainesville, Florida  
          Correspondence Course - Soil Chemistry |
<table>
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<tr>
<th>Year</th>
<th>Employment History</th>
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| 1979 - present | Conservation Consultants, Inc.  
Chief Chemist  
Environmental Engineering Division |
| 1979       | Manatee County Health Department  
Pollution Control  
Laboratory Technician |
Laboratory Supervisor  
Bradenton, Florida |
| 1972-1974  | Bradenton Research Center  
University of Florida,  
Agricultural Center  
Soil Chemistry Technician II |
| 1968       | Upstate Medical Center  
Technical Specialist II  
Syracuse, New York |

**SOCIETY MEMBERSHIPS**

American Society for Testing and Materials (ASTM)
FIELDS OF COMPETENCE

Water Quality Monitoring, Biological Sample Collection/Processing, Automatic Instrumentation, Data Acquisition, Field Methodology/Quality Assurance, Marine Biology, Air Quality Sampling, Visible Emissions

EXPERIENCE SUMMARY

Mr. Odell has five years of experience in environmental technical services. He has worked directly in the areas of water resources, aquatic biology, wetlands, and air quality. He has served as a coordinator, field team member, and quality assurance officer for numerous field sampling projects. He has completed all phases of surface water quality investigations including in situ measurements, grab samples, flow determinations, solar irradiance and light attenuation, automatic data acquisition, and composite sampling. He has monitored groundwater via well installations, water level measurements, and grab samples. He has collected and processed aquatic biological samples, participated in wetland jurisdiction determinations, and revegetated wetlands for mitigative purposes. His air quality experience includes stack sampling and visible emissions evaluations. Additionally, Mr. Odell has been active in data management and report preparation.

EDUCATION

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SCHOOL</th>
</tr>
</thead>
</table>
| 1975 | Delta State University  
       Cleveland, Mississippi  
       B.S. - Biology |
| 1978 | University of Southern Mississippi  
       Hattiesburg, Mississippi  
       60 credit hours in Graduate Level Marine Biology, Environmental Physiology |
| 1982 | Andersen Samplers, Inc.  
       Stack Sampling and Particle Sizing Seminar |
EMPLOYMENT HISTORY

1980 - Present

Conservation Consultants, Inc.

KEY PROJECTS

American Cyanamid Co.: Field Services Coordinator for background and post-reclamation monitoring of three wetland streams. Duties included project mobilization, grab and biological sample collection, automatic water quality data acquisition, data management, and report preparation.

American Cyanamid Co.: Field Technician for background assessment of wetland sources in the Little Manatee River drainage basin. Duties included stream flow measurements and grab sample collection.

American Cyanamid Co.: Field Team Leader for revegetation of wetland with native plant species. Duties included mobilization, site survey, and planting.

Applied Optics, Inc.: Field Technician for beryllium emissions evaluations during two-year period. Duties included equipment calibration and installation, in stack sampling, sample recovery, and data management.

CF Mining Corp.: Field Team Leader for background aquatic biological assessment of freshwater stream. Duties included installation and recovery of artificial substrate sampling devices and sample processing.

City of Bradenton: Field Team Leader for pre-construction and construction phase water quality monitoring of Bill Evers Reservoir. Duties included project mobilization, grab sample collection, in situ measurements, flow measurements, light attenuation and solar irradiance measurements, data management, and report preparation.

Florida Power and Light Co.: Field Technician and Field Team Leader for particulate emissions evaluations during three-year period. Duties included equipment installation, in stack sampling, and data management.

Honeycomb Co. of America: Field Technician for investigation of industrial wastewater discharge. Duties included mobilization, flow measurements, in situ water quality measurements, and preparation of flow-proportional composite sample.
RICHARD W. ODELL  
Associate Scientist

KEY PROJECTS (Continued)

Loral American Beryllium: Field Technician for beryllium emissions evaluations during two-year period. Duties included equipment calibration and installation, in stack sampling, sample recovery, and data management.

Lynnette, Inc.: Field Team Leader for background biological and water quality assessment in Little Sarasota Bay. Duties included benthic biological sampling, water quality profile measurements, grab sample collection, and data management.

Manatee Canvest Corp.: Project Manager and Field Services Coordinator for post-construction water quality monitoring of a marina. Duties included automatic water quality data acquisition, grab sample collection, data management, and report preparation.

Marcove Venture: Field Technician for revegetation of mangrove ecosystem. Duties included mobilization, site survey, and planting.

Miller Trailers, Inc.: Field Technician for compliance visible emissions evaluations of industrial plant during two-year period.

Tara, Ltd.: Field Team Leader for background assessment of water quality and stream flow on 1,100-acre planned residential development site. Duties included grab sample collection, flow measurements, time-series composite sampling, data retrieval from continuous rainfall recorder, and data management.

U.S. Army, Corps of Engineers: Field Services Coordinator of daily monitoring project in association with dredge and dredge material disposal operations of the Tampa Harbor Deepening project. Served as Project Field Technician initially and as Field Services Coordinator for one year of three-year program. Participated in grab sample collection, scheduling, training, and data management.