

Pollution Control Division

AMBIENT WATER QUALITY

SARASOTA COUNTY,
FLORIDA

POLLUTION CONTROL DIVISION

OF

ENVIRONMENTAL SERVICES

JULY 1979

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INTRODUCTION FROM THE DIRECTOR
OF THE SARASOTA COUNTY
POLLUTION CONTROL DIVISION

This is our first ambient water quality report. We have both good news and bad news in this report. The good news is that in our bay sampling program, we performed 1,079 analyses on 170 samples and found no violation of state or local standards. The bad news is that we performed 2,513 analyses on 141 samples in our freshwater creeks and ditches and found 98 violations of state or local standards. The lower quality runoff that we find in our ditches is typical of urbanized areas, reflecting the runoff from our streets, lawns, parking lots and wastewater (sewage) treatment plants, to name only a few.

We hasten to add that although no violations of standards were found, the bays are not free from pollution. Many local sources document a downward trend in bay water. We at Pollution Control consider the bays our prime resource and are concerned about their long-term ecological health.

We have several new plans for the coming year which are outlined below:

We have purchased some equipment that will greatly expand our capabilities for chemical analysis, including nutrients.

We have received a grant of \$250,000 from the Federal Government to participate in a study with Mote Marine Laboratory of the pollution in Phillippi Creek, which is our most polluted basin.

We have proposed an ordinance which will control the spreading of wastewater treatment plant sludges.

We plan to expand the frequency with which we sample wastewater treatment plants.

This report is presented in three major sections. The first section presents the standards, both state and local that apply to

our waters. The second presents the summary of how we did in 1978 as compared to these standards. The final part of the report summarizes our domestic wastewater treatment plant program.

AMBIENT WATER QUALITY STANDARDS

A classification system has been established by the Florida Department of Environmental Regulation to help protect and enhance the quality of the surface waters in the state. This system classifies all surface waters into five classes and, for each class, standards have been established. In addition, Sarasota County has established additional, more stringent standards. The standards specify the levels of pollutants and other water quality parameters allowable for each class of water. The presence of the mentioned pollutants in excess of concentrations established by the standards is considered evidence of pollution and is expressly prohibited. The five classes of water are:

- Class I Surface waters that are or could be used as public drinking water supplies.
- Class II Waters of such quality that shellfish harvesting is permitted.
- Class III Waters used for recreation (e.g. swimming) and the propagation and management of fish and wildlife.
- Class IV Waters used for agricultural and industrial water supply.
- Class V Waters which are used for navigation, utility and industrial use.

Appendix I presents the standards set by the Florida Department of Environmental Regulation for the concentrations of pollutants in each water class. Appendix II lists the Sarasota County standards.

Most waters in Sarasota County are designated Class III permitting recreation and fishing. Portions of Sarasota Bay, Lemon Bay and Myakka River are Class II permitting shellfish harvesting in those areas (Figure 1). The rest of the marine areas are not open

to shellfish harvesting. The Big Slough Canal to U.S. 41, Myakka Lakes and most of Myakka River are Class I, designated for public water supply.

A classification delineating outstanding public waters deserving special protection has been proposed by the Florida Department of Environmental Regulation. In Sarasota County, the waters within Myakka River State Park and Oscar Scherer Recreation Area would come under jurisdiction of the Florida Outstanding Public Waters because they are of exceptional recreational and ecological significance.

AMBIENT WATER QUALITY MONITORING PROGRAM

Purpose

Sarasota County has established an Ambient Water Quality Monitoring Program to provide a check of how our water bodies compare to the County and State standards. Besides the basic need, there are many other uses of the data collected. They also provide "Background" data and spot checks on point and area sources of pollution. On the local level, the Division's Monthly Report distributes the data to concerned citizens and organizations, thereby making it available for use by students, planners, and other local interest groups. It also serves as a vehicle for public education and information. Over the long range the data is useful as a planning tool, lending itself to modeling, trend analysis and area studies such as EPA's "208 Program". The state and federal agencies store and report our data through the computerized "STORET" system which provides raw data as well as some analysis to anyone in the County upon request.

Sampling Program

The sampling station network is comprised of 167 stations within the County, 80 of which are sampled on a regular basis and 87 are sampled as required. Each regular station is sampled bi-monthly.

The 40 stream (freshwater) stations, which are sampled on a bi-monthly basis, are established by a number of factors including water depth, flow, accessibility, location and size of discharges from point and area sources and the land use in the watershed area. Where possible, these points have been located upstream of the high salinity zones to prevent the influx of bay water from diluting and masking the water quality problems of the drainage and runoff. This

changes seasonally, and the program must be flexible enough to compensate for these changes.

The 40 monthly bay (saltwater) stations have been selected in much the same way as the stream stations. Samples are taken from a boat and therefore, are somewhat dependent on climatic conditions.

Summary of Ambient Water Quality Results

During 1978, this Division collected 311 ambient samples, 170 in the bays and 141 in the creeks and streams. The total number of parameters analyzed was 3,592 with 2,513 in the streams and 1,079 in the bays. No violations of standards were found in the bays (Tables I and II). In the streams and creeks 98 violations were found (See Appendix IV).

Details of the Bay Program Results

The estuarine waters within Sarasota County can be divided into four general areas: Big Sarasota Bay, Little Sarasota or Robert's Bay, Blackburn Bay and Lemon Bay (Figures 2-5). The bay waters are classified according to water quality and usage. The Class II waters are those approved for shellfish harvesting, (Clams and oysters), and are of great importance. Class III waters, those used for recreation and fish propagation, comprise the vast majority of our estuarine system (Figure 1).

TABLE 1

COLIFORM MEASUREMENTS - ESTUARINE AREAS, 1978

LOCATION	Class II Waters Shellfish Harvesting		Class III Waters Recreation-Propagation & Management of Fish & Wildlife	
	Highest	Average	Highest	Average
Big Sarasota Bay	50/100 ml	10/100 ml	500/100 ml	100/100 ml
Little Sarasota Bay	No Shellfish Area		600/100 ml	100/100 ml
Blackburn Bay	No Shellfish Area		700/100 ml	100/100 ml
Lemon Bay	30/100 ml	10/100 ml	600/100 ml	100/100 ml

Table 1 presents the highest and average counts of coliform bacteria for Class II and Class III waters in each of the bay systems in Sarasota County for 1978. No violations of state or local standards were found.

Table 2

WATER QUALITY STANDARDS

	Class II Waters Shellfish Harvesting		Class III Waters Recreation-Propagation & Management of Fish & Wildlife	
	<u>Total Coliform</u>		<u>Total Coliform</u>	
	Highest	Average	Highest	Average
State Standards ¹ 17-3 D.E.R. Rules	230/100 ml*	70/100 ml	2400/100 ml	1000/100 ml
Local ² Standards Co. Ord. 72-37	230/100 ml	70/100 ml	2400/100 ml	1000/100 ml
State Standards ³	<u>Fecal Coliform</u> (MPN)			
16B D.N.R. Rules	43/100 ml*	14/100 ml	None	

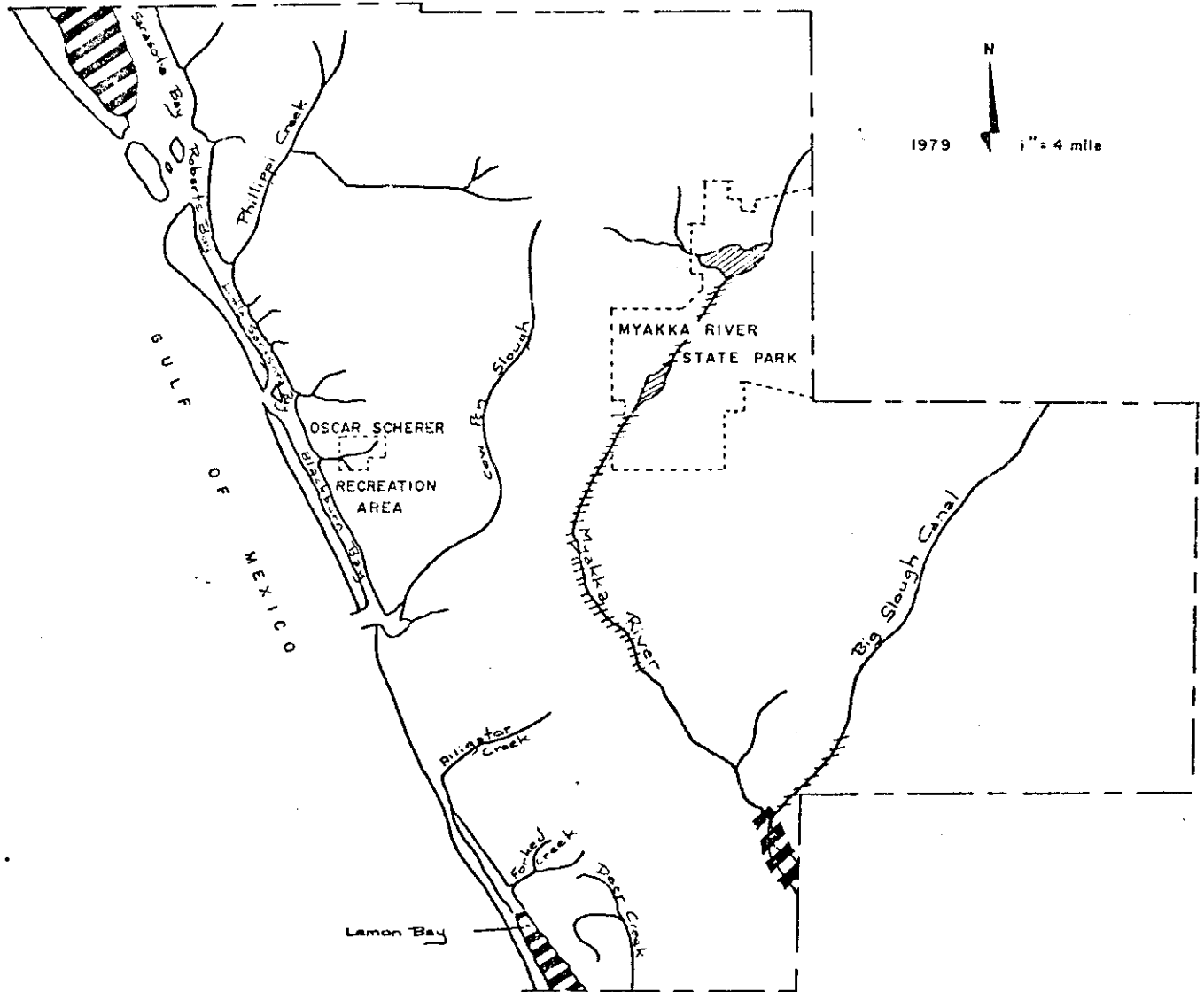
1 See Appendix I for complete text of regulations.

2 See Appendix II for complete text of regulations.

3 See Appendix III for complete text of regulations.

CLASSIFICATION OF SURFACE WATERS

SARASOTA COUNTY, FLORIDA





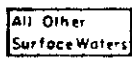
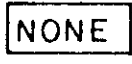

-  CLASS I. Public Drinking Water Supply
-  CLASS II. Shellfish Harvesting
-  CLASS III. Recreation & the Propagation & Management of Fish & Wildlife
-  CLASS IV. Agricultural & Industrial Water Supply
-  CLASS V. Navigation, Utility & Industrial Use

Figure 1. This map delineates the surface water classifications in Sarasota County, Florida, according to Florida Department of Environmental Regulation Chapter 17-3 and Sarasota County Ordinance No. 72-37.

The normal parameters that we monitor are dissolved oxygen, conductivity, pH, oxidation-reduction, temperature and total coliform. Of these, the two best indicators of general water quality for the ambient monitoring of estuarine waters are dissolved oxygen and total coliform.

In an aquatic environment, oxygen is produced by plants and absorbed by animals. Oxygen is also depleted by organic decomposition; decaying vegetation, decomposing dead animals, and man's waste. Temperature influences the ability of the water to hold oxygen as does the salinity. Studies have shown a dissolved oxygen content of 4.0 mg/l as the minimum to sustain a fish population. Some more active species require much more. Dissolved oxygen standards, temperature standards and salinity standards are, therefore, based on providing a suitable habitat for marine organisms that man wants for his use.

Conductivity is an indirect measure of salinity. This parameter is applicable to freshwater as well, and provides an indication of the dissolved solids.

The pH expresses the acid-base condition; 7.0 is considered "neutral", higher readings are basic, lower are acidic. To the environmentalist, it indicates the type of possible contamination when viewed in conjunction with other information.

Oxidation-reduction potential is an indicator of the entire ionic activity in a body of water, and gives clues to what may be, "out of balance" in a natural system.

Bacteriological activity in an aquatic system provides the basis of at least one food chain in that particular environment. Some bacteria are introduced into the system by the activities of terrestrial creatures and become "pollutants" in the aquatic environment.

Since it would be practically impossible to check for all of the bacteria present in a given sample, standard methods have been developed and are used universally to culture and count a select few which would indicate fecal contamination. Bacteriological standards are set in order to protect human health and well-being.

Big Sarasota Bay

Class II waters are designated as safe for shellfish harvesting and are, therefore, the most critical areas in our bay system because they pose the greatest potential for danger to human health. The Pollution Control Division samples the waters in those areas, as well as the rest of the bay; while the Department of Natural Resources is responsible for the entire shellfish program (Figures 1 & 2). The rest of Big Sarasota Bay is designated Class III, waters to be used for recreation and the propagation and management of fish and wildlife.

In 1978, sampling data showed that the total coliform bacteria in Big Sarasota Bay was well within the limits of both state and local standards. Total coliform counts in the shellfish harvesting areas showed a high count of 50 colonies of organisms per 100 millimeters (50/100 ml) with an average of less than 10/100 ml. Total coliform counts in the rest of Sarasota Bay indicated a high of 500/100 ml and an average of less than 100/100 ml. The maximum allowable average for Class III waters is 2400/100 ml (Tables I and II).

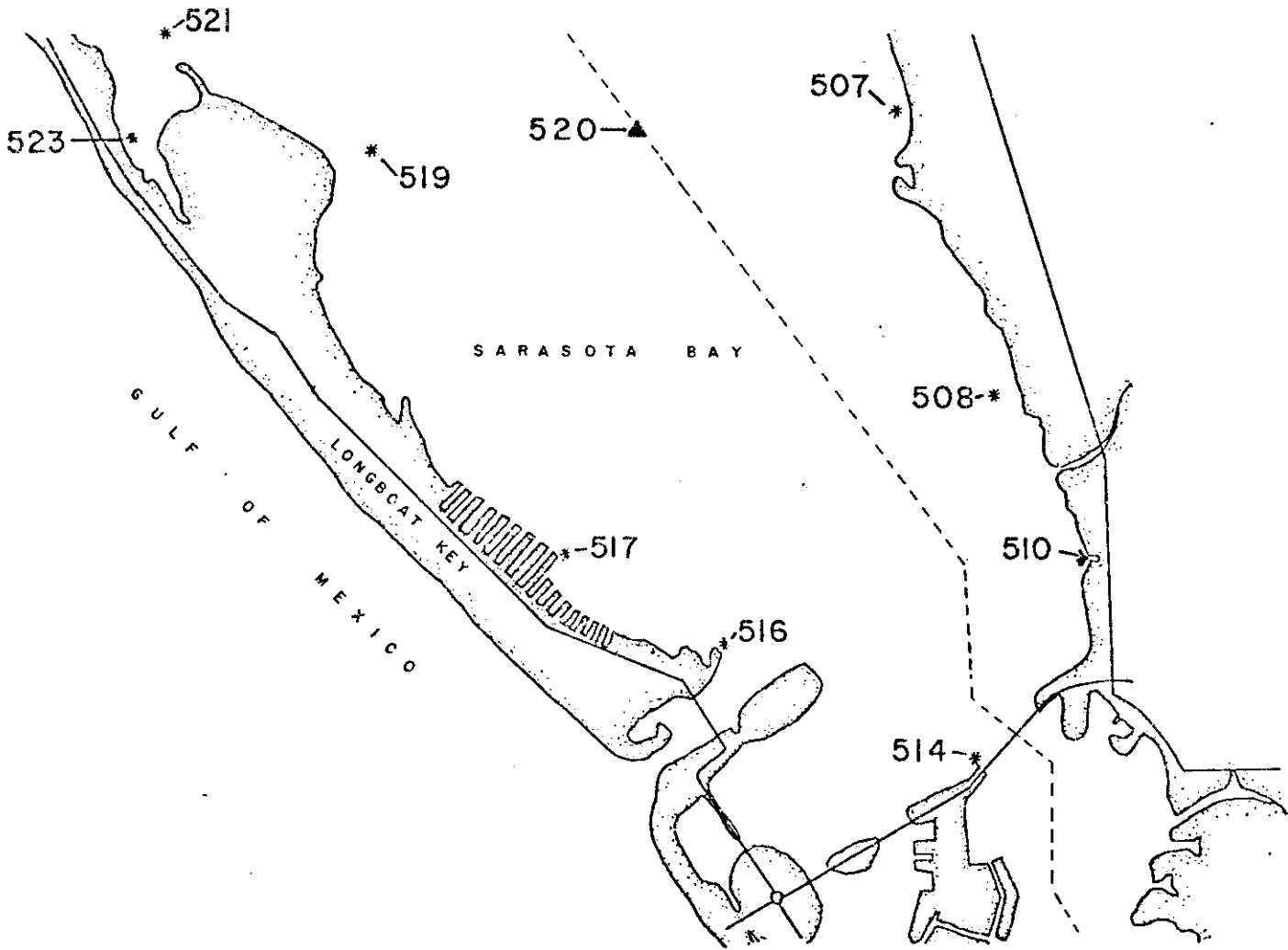
Little Sarasota Bay

The high coliform count of 600/100 ml and an average of less than 100/100 ml show no violation of standards; indicating the water is safe for body contact (Figure 3).

Blackburn Bay (To Hatchett Creek, Venice)

Coliform counts in this area were somewhat higher with a high of

Figure 2



SARASOTA COUNTY, FLORIDA

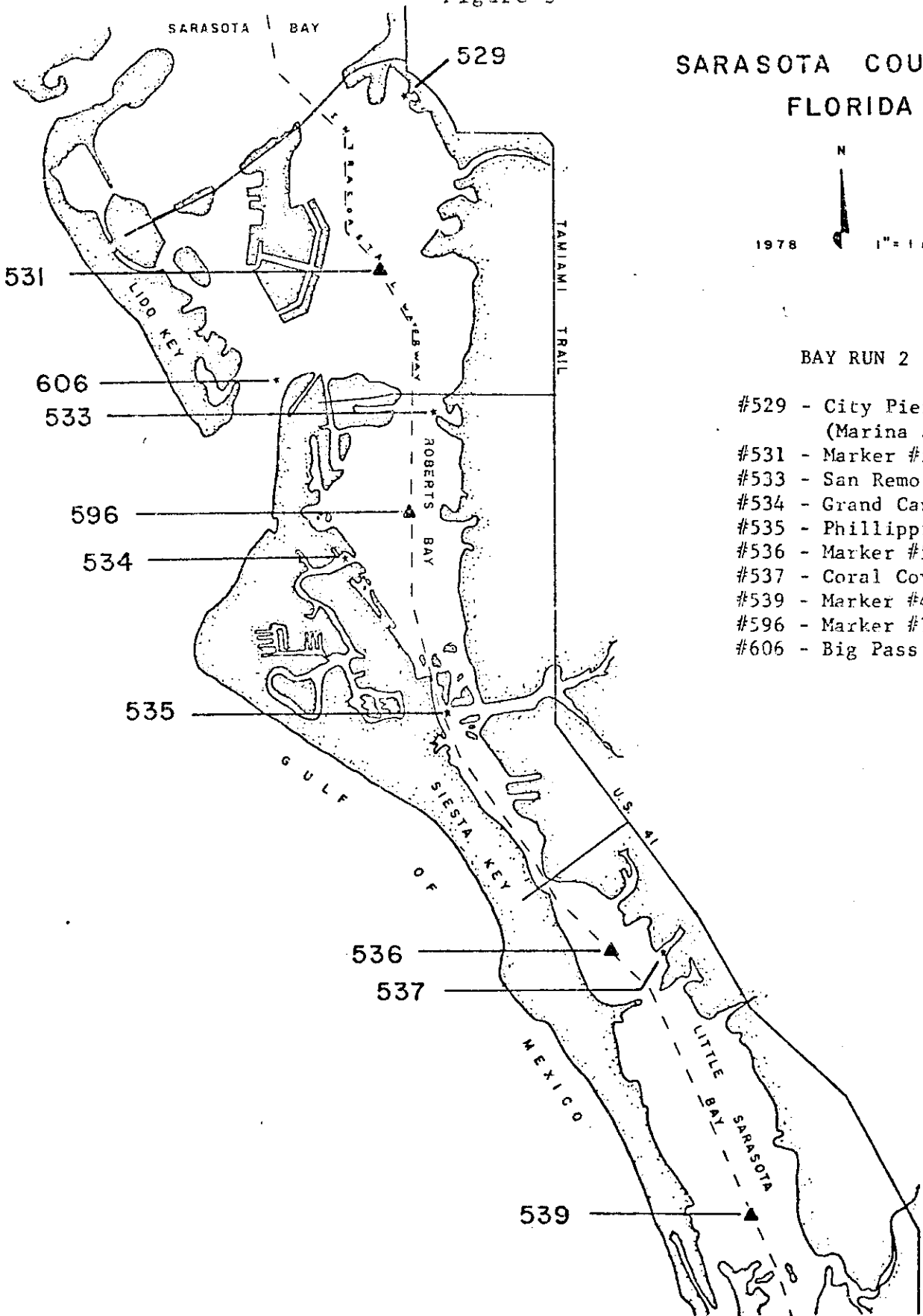


BAY RUN I

- #507 - Off Ringling Mansion
- #508 - Off Indian Beach Drive
- #510 - In Payne Terminal
- #514 - N.W. End Ringling Bridge
- #516 - Quick Point
- #517 - E. End Halyard Lane
- #519 - 0.5 Mile E. Bishops Point
- #520 - Marker #15
- #521 - Marker #6 - Buttonwood Harbor
- #523 - S. of Gulf to Bay Mobile Home Park Seawall

Figure 3

SARASOTA COUNTY,
FLORIDA



N
1978 1" = 1 mile

BAY RUN 2

- #529 - City Pier
(Marina Jack)
- #531 - Marker #5
- #533 - San Remo Cove
- #534 - Grand Canal
- #535 - Phillippi Creek
- #536 - Marker #57
- #537 - Coral Cove
- #539 - Marker #48
- #596 - Marker #79
- #606 - Big Pass

700/100 ml and an average of 100/100 ml. This area is not as well flushed as the bay systems to the north and yet, receives a similar amount of runoff. The water is acceptable for body contact (Figure 4).

Lemon Bay

(Figure 5) Shellfish harvesting is permitted in the southern portion of Lemon Bay (Figure 1). As is true with all Class II waters designated for shellfish harvesting, this area is a major concern because of the potential of danger to human health. Counts of coliform bacteria present in the Class II areas of Lemon Bay showed a high of 30/100 ml with an average near 10/100 ml. The rest of Lemon Bay had a high of 600/100 ml with an average of less than 100/100 ml indicating the water is acceptable for use as classified.

Details of Creek and Stream Program Results

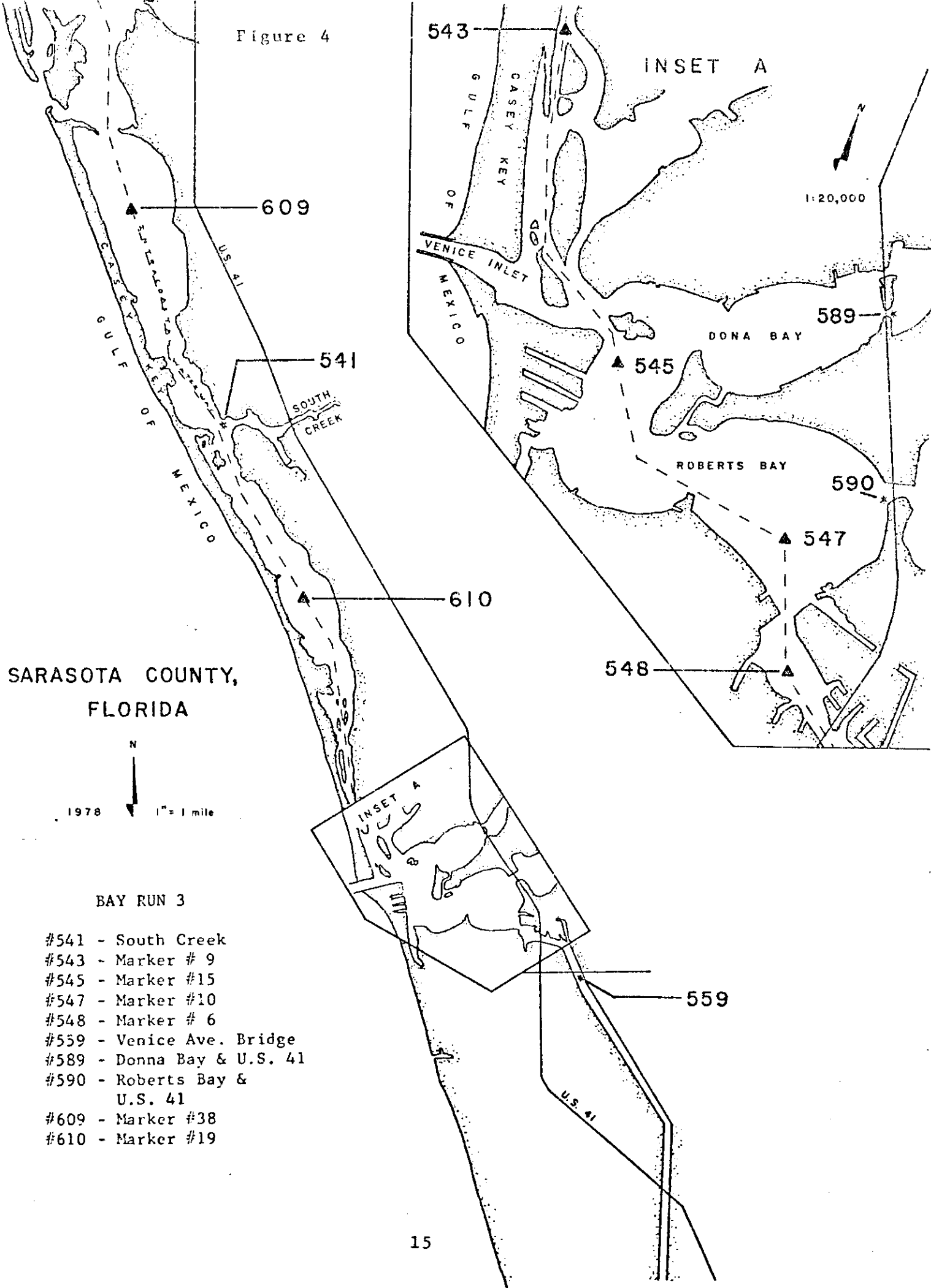
The surface waters in western Florida travel to the bays and Gulf carrying with them the wastes of man, animals and plants. If proper management practices such as those now required on development in the County are used in wetlands, drainage basins and surface streams, the impact of pollution on the bays, Gulf and oceans can be minimized.

The network of ambient sampling stations (Figures 6 thru 11) in the inland waters is sampled with less frequency than the bays; however, more parameters are analyzed.

The temperature, dissolved oxygen, pH, conductivity and oxidation-reduction potential are taken along with a bacteriological sample. Besides the total coliform test, the sample is also tested for fecal coliform and fecal streptococci.

Additional kinds of chemical tests are run on a quarterly basis, especially "nutrients", phosphorus and the nitrogen series.

Figure 4



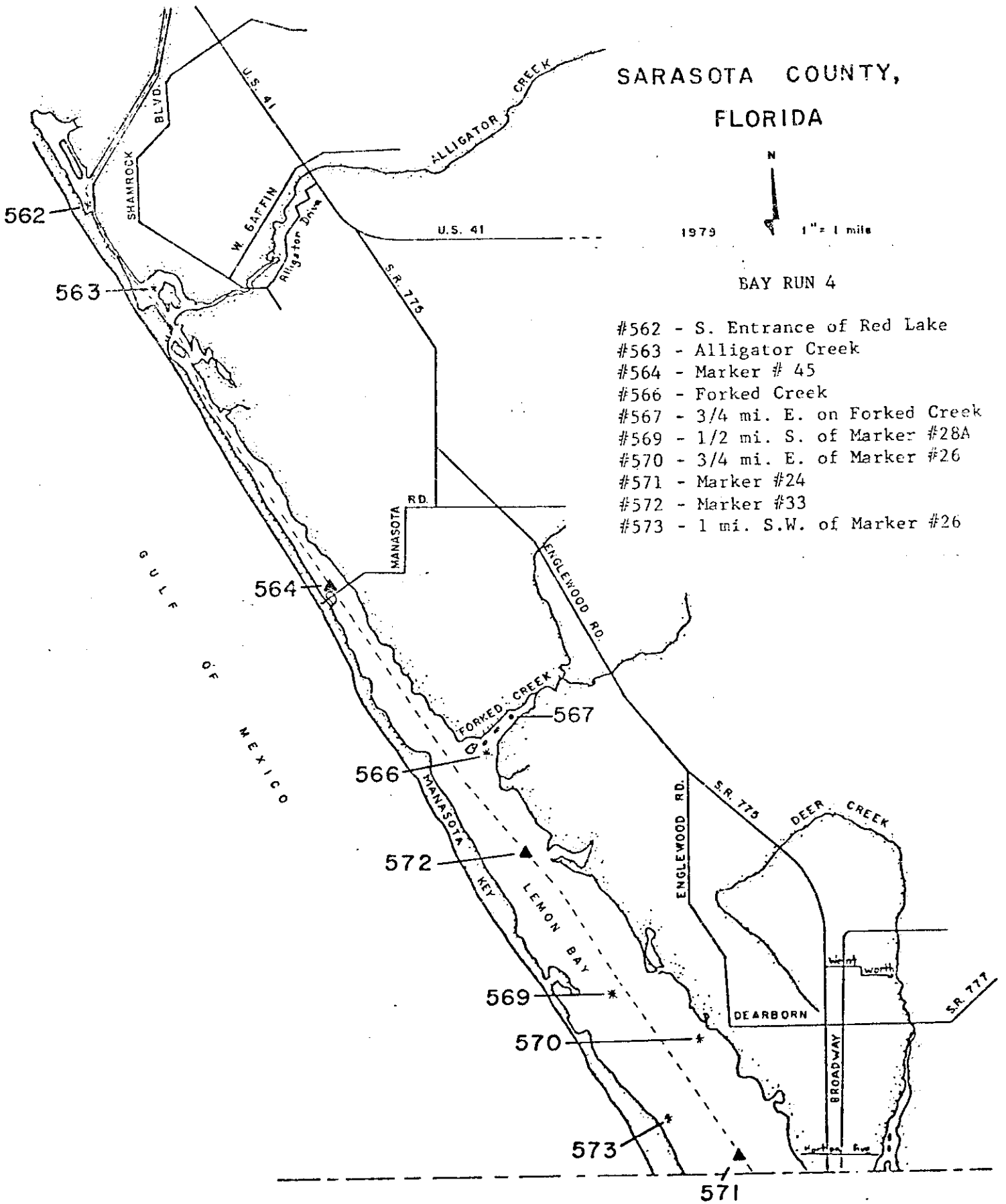
SARASOTA COUNTY,
FLORIDA

1978
N
1" = 1 mile

BAY RUN 3

- #541 - South Creek
- #543 - Marker # 9
- #545 - Marker #15
- #547 - Marker #10
- #548 - Marker # 6
- #559 - Venice Ave. Bridge
- #589 - Donna Bay & U.S. 41
- #590 - Roberts Bay & U.S. 41
- #609 - Marker #38
- #610 - Marker #19

Figure 5



With the previous discussion in mind, the following section will define the surface water basins and attempt to assess the water quality within each. Data is supplied in Appendix IV. The entirety of collected data is available for all at the Pollution Control Division or through the computerized STORET System.

Whitaker Bayou

Whitaker Bayou drains a portion of the City of Sarasota from the county line south to 10th Street. The area is served by the City of Sarasota sewage collection and treatment facilities. The water quality testing in the basin resulted in 20 water quality violations out of 150 analyses of 14 samples (Figure 6).

Two sewage treatment plants outfall into Whitaker Bayou, Dolomite Utilities and the City of Sarasota.

Hudson Bayou

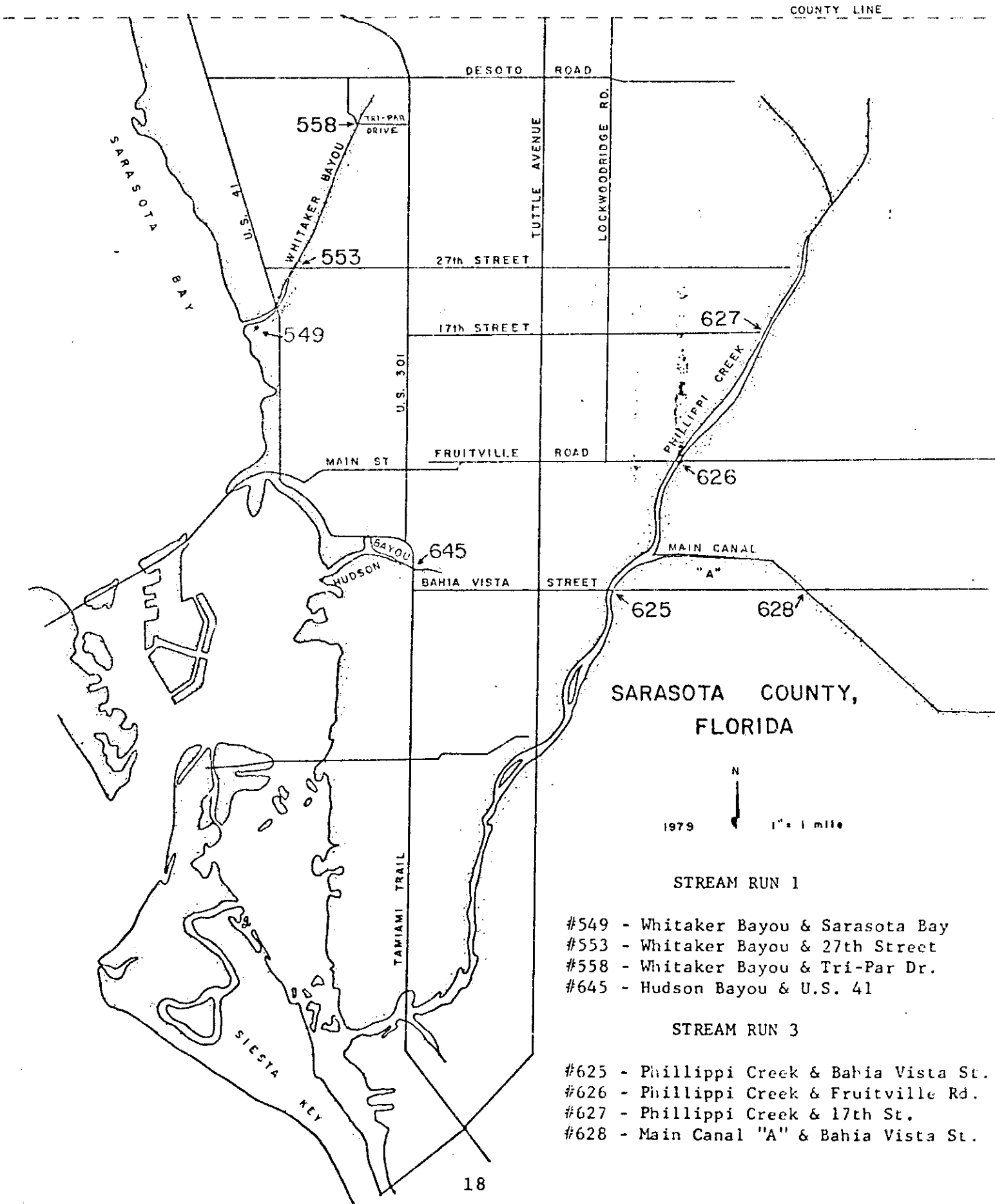
Hudson Bayou drains that portion of the city south of 10th Street to Hyde Park Street. Sampling showed eight violations in 57 analyses of 5 samples. Total coliform counts are consistently high, especially considering the high salinity at the sampling location (Figure 6).

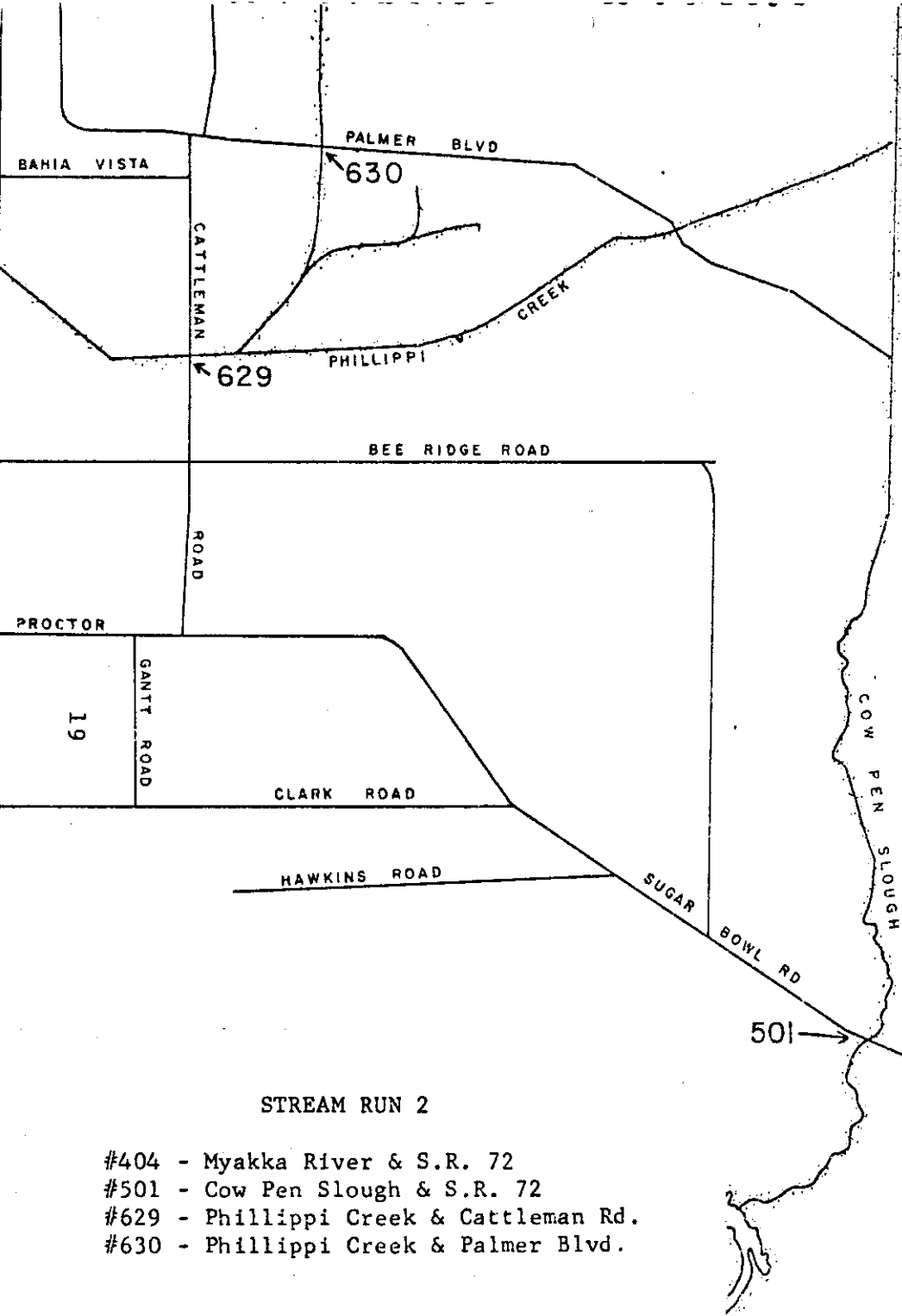
Phillippi Creek

The third largest drainage basin in the County, Phillippi Creek, is also the most developed and most affected by man's activities (Figures 6 & 7). There were 38 violations of standards in 376 analyses of 32 samples.

In 1978 five sewage treatment plants were discharging treated effluent into the creek. Each was closely monitored by this department and were not violating standards. At least four overflow pipes from sewage collection systems are located within the basin.

Figure 6





- #404 - Myakka River & S.R. 72
- #501 - Cow Pen Slough & S.R. 72
- #629 - Phillippi Creek & Cattleman Rd.
- #630 - Phillippi Creek & Palmer Blvd.

SARASOTA COUNTY,
FLORIDA

1978
1" = 1 mile

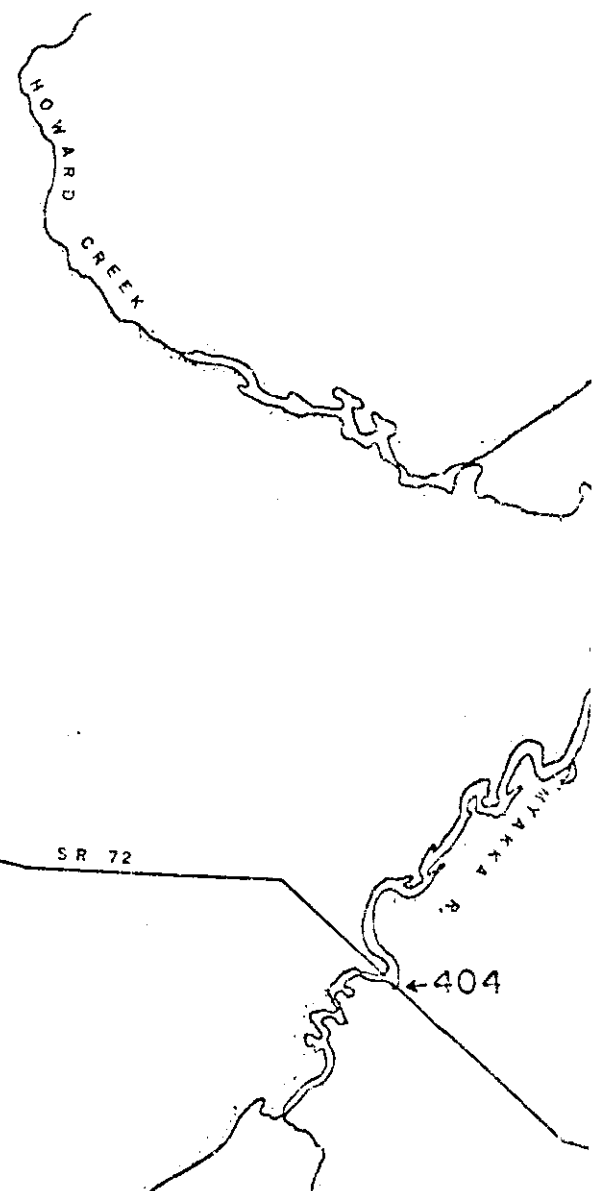


Figure 7

Due to the naturally low flow of the creek and man's activities in the basin, Phillippi Creek is probably the most polluted water body in the county. Because of this, the Phillippi Creek drainage basin is being investigated under an Environmental Protection Agency "208" study program.

Matheny Creek

The Gulf Gate area is drained primarily by Matheny Creek and generally all of the area south of Clark Road to approximately Sandalwood Drive and U.S. 41 in Coral Cove (Figure 8). Water quality monitoring showed 7 violations in 60 analyses of 5 samples.

One private sewage treatment plant discharges into the creek just south and west of U.S. 41, and has not been found to be a problem. Some septic tanks still exist in the northern area of the basin. All sewage collection system outfalls were closed as of May, 1978 and no known overflows or breakdowns have occurred.

Elligraw Bayou

A small, low flow creek until it joins an estuarine section just west of U.S. 41 at Southpointe Drive, Elligraw Bayou drains a very small area.

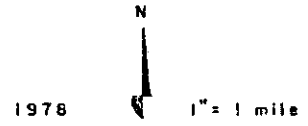
The water quality monitoring showed 6 violations in 60 analyses of 5 samples. Two of these were low dissolved oxygen, and four coliform counts exceeded standards. The area is serviced by septic tanks.

Clowers Creek

The general area of Sarasota Square Mall and Pelican Cove Condominium, U.S. 41 and Beneva Road/Vamo Road is drained by Clowers Creek. Due to low water and low flows, only one sample was taken with no violations in 20 analyses. No point sources are located in the drainage basin.

Figure 8

SARASOTA COUNTY,
FLORIDA

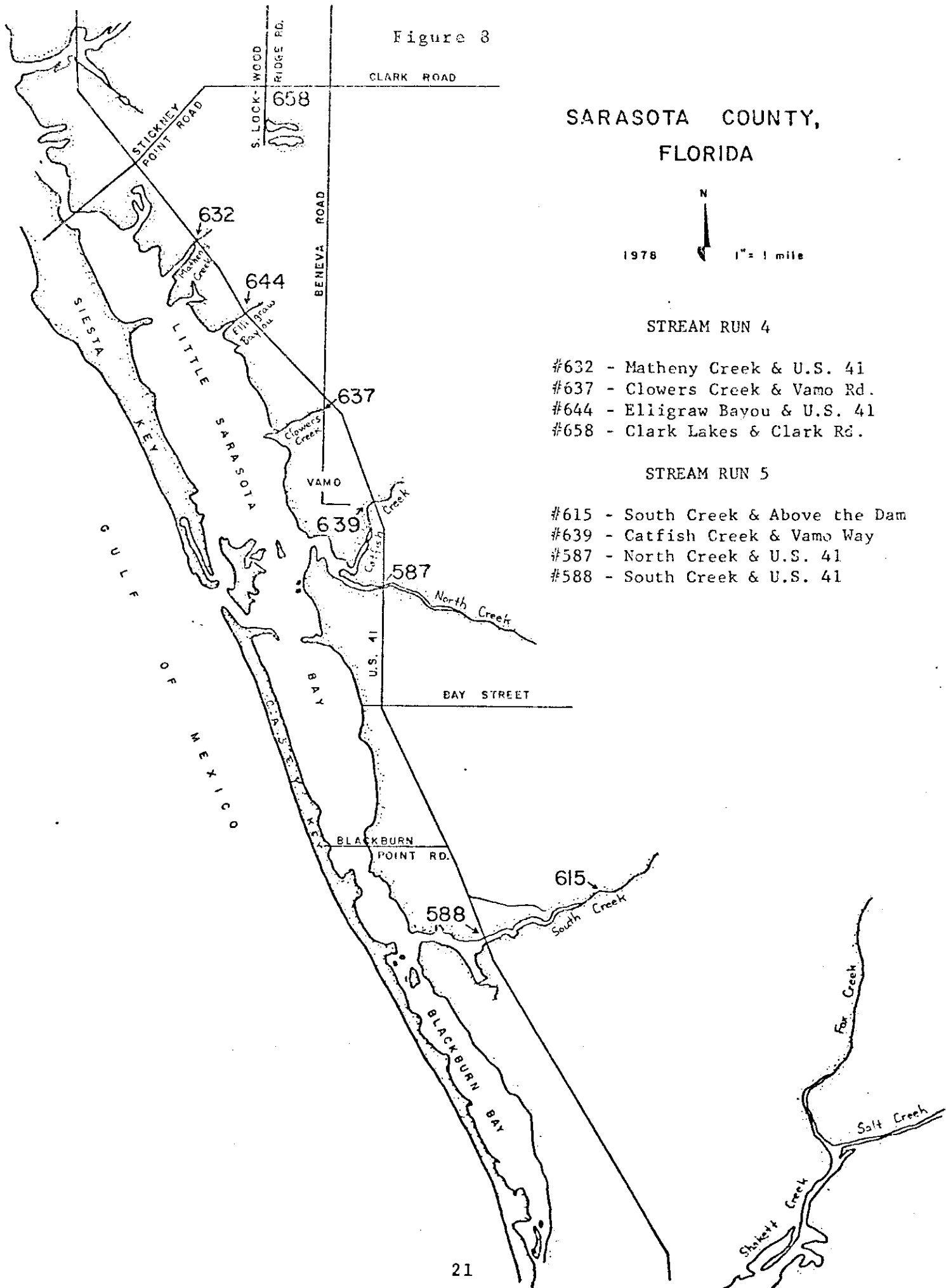


STREAM RUN 4

- #632 - Matheny Creek & U.S. 41
- #637 - Clowers Creek & Vamo Rd.
- #644 - Elligraw Bayou & U.S. 41
- #658 - Clark Lakes & Clark Rd.

STREAM RUN 5

- #615 - South Creek & Above the Dam
- #639 - Catfish Creek & Vamo Way
- #587 - North Creek & U.S. 41
- #588 - South Creek & U.S. 41



Catfish Creek

The area between the Clowers Creek Basin and North Creek is drained by the small, low flow Catfish Creek. The basin is primarily low density and agricultural use. Dissolved oxygen is consistently low (4 violations) in the estuarine area that meets North Creek just south of Vamo Way. There were 5 water quality violations recorded in 73 analyses of 5 samples. No discharges are in the area. Storm-water run-off is the only known pollutant source.

North Creek

Just north of Osprey near Cordes Street and U.S. 41, North Creek crosses U.S. 41. It drains a small area which is mostly agricultural useage and relatively undisturbed by man. The estuarine area is a shallow salt marsh where it joins Catfish Creek and westerly to the bay.

The water quality monitoring showed 2 violations in 52 analyses of 4 samples. One was a low dissolved oxygen. The other was total coliform.

South Creek

South of Osprey and through Oscar Scherer Park, heading north-easterly is the South Creek basin. The water quality showed 10 violations in 134 analyses of 9 samples. Of these, 4 were low dissolved oxygen and 6 coliform violations. A natural condition of low flow and high iron and sulfate concentrations probably caused the low oxygen content, and probably does not result from man's activities. No sources discharge in the basin and a large portion of what has been developed is served by two sewage treatment facilities.

Cow Pen Slough

Cow Pen Slough and Shakett Creek drain a large portion of central Sarasota County, probably the second largest drainage basin in the

County (Figures 7 & 9).

The slough meanders south from near the northern county line to Dona Bay in Venice. The area is largely low density in the upper, agricultural portion and moderate near Venice. The water quality of the upper portion, north of S.R. 72 (Clark Road) showed no quality violations in 47 analyses of 4 samples.

Shakett Creek

A small portion of the basin is drained by Shakett Creek. It is mostly estuarine in nature. There was 1 violation found in 63 analyses of 4 samples. It was a high fecal coliform count. The developed areas of the basin are served by community sewage treatment facilities. There are some septic tanks in the area.

Curry Creek

The area directly east of Robert's Bay in Venice is drained by Curry Creek. The basin is only moderately developed at this time. In 52 analyses of 4 samples, 2 violations of coliform limits were noted. The area is served primarily by septic tanks (Figure 9).

Hatchett Creek

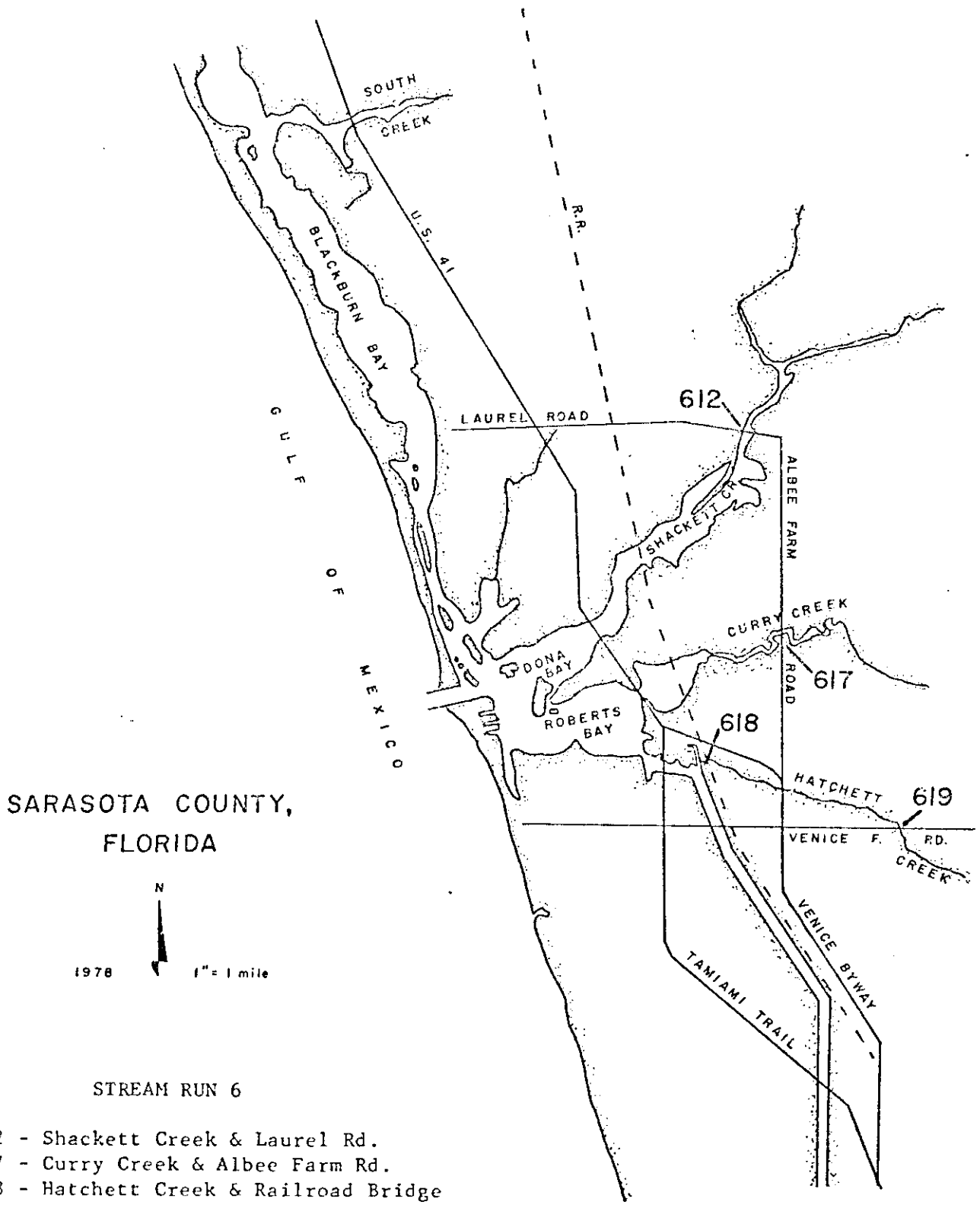
A small portion of the City of Venice in the area of Venice Bypass and U.S. 41 northern junction and southeasterly is drained by Hatchett Creek, which meets the intra-coastal waterway at Business U.S. 41. The area is heavily developed, with about half served by on-site septic tank disposal systems.

Water quality testing indicated 12 violations in 110 analyses of 8 samples. Of these 5 had low dissolved oxygen and seven had high coliform concentrations. No point sources are permitted in the basin.


Alligator Creek

South of Center Road to approximately U.S. 41 and S.R. 775 in

Figure 9



SARASOTA COUNTY,
FLORIDA

1978  1" = 1 mile

STREAM RUN 6

- #612 - Shackett Creek & Laurel Rd.
- #617 - Curry Creek & Albee Farm Rd.
- #618 - Hatchett Creek & Railroad Bridge
- #619 - Hatchett Creek & Venice Farm Rd.

Venice, is drained by Alligator Creek. The western area of the basin is developing rapidly. In 73 analyses of the 5 samples, 3 showed coliform counts higher than standards, none of which could be attributed to human contamination.

The area is served by community sewage treatment facilities and a number of on-site septic tank systems which are mostly in the southwestern portion. There are no longer any known point source discharges in the basin (Figure 10).

Forked Creek

Just north of Englewood, approximately between U.S. 41 and S.R. 775 and south to Englewood Road and 775 then northeasterly, is the approximate Forked Creek basin. The area is partially developed, with the highest density in the western section. Water quality testing showed no violations in 51 analyses of 4 samples.

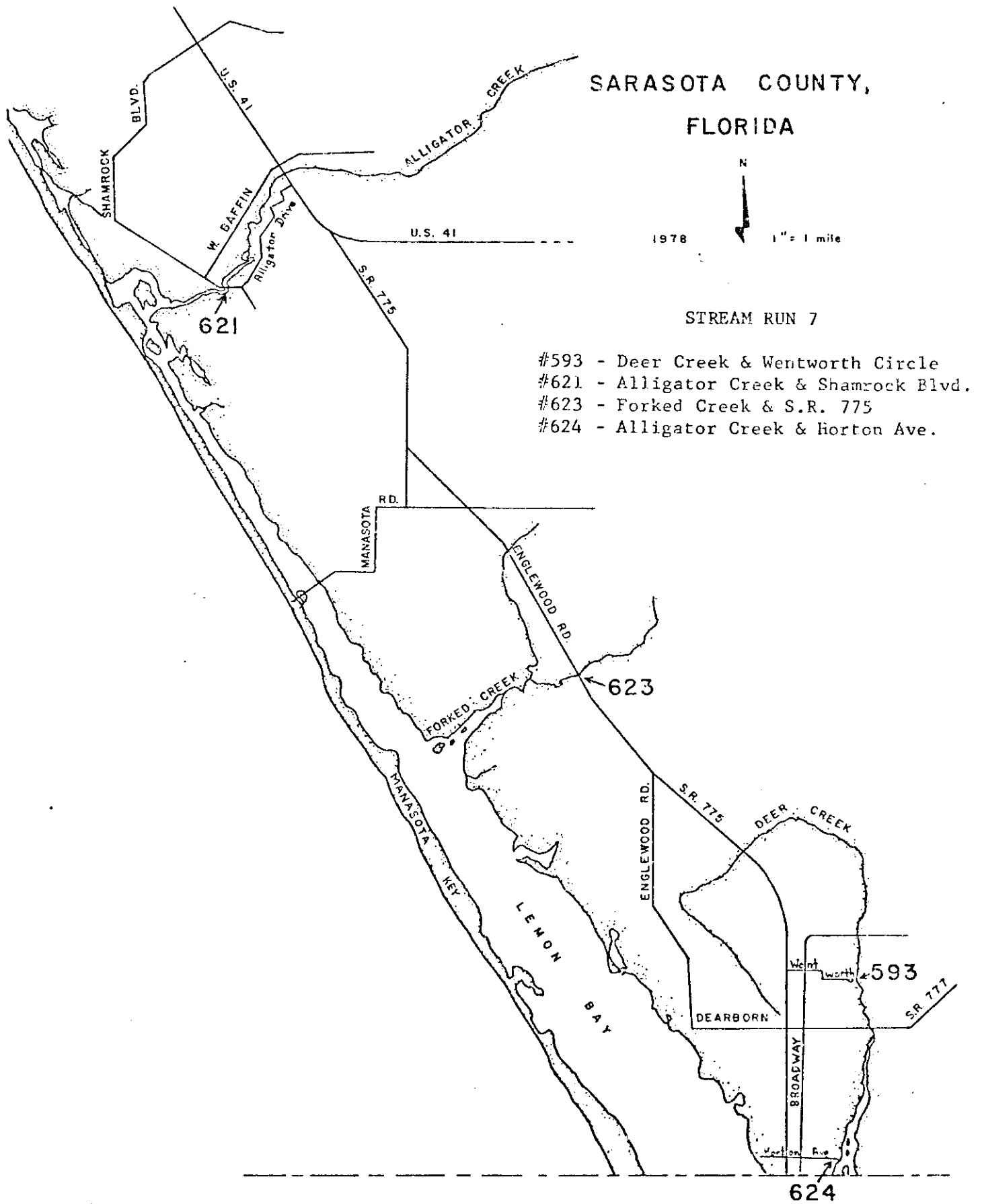
Deer or Godfrey Creek

A section of the southern corner of the county, including most of Englewood, makes up the Deer Creek basin. The area has only moderate development in the southwest portion of the basin and sparse to the north. Water quality showed 2 dissolved oxygen readings below standards in 103 analyses of 8 samples. Septic tanks serve a majority of the area along with a few small sewage treatment plants. No point source discharges are permitted within the basin.

Myakka River Basin

The entire eastern half of Sarasota County makes up the Myakka River basin. It includes Spring Run (Warm Mineral Springs Creek), Big Slough, Myakkahatchee Creek, the Cocoplum Waterway, and the Myakka River. The northern area is primarily undeveloped and only moderate density exists in the southern quarter within the City of North Port. The river is typically low flow with high seasonal

Figure 10

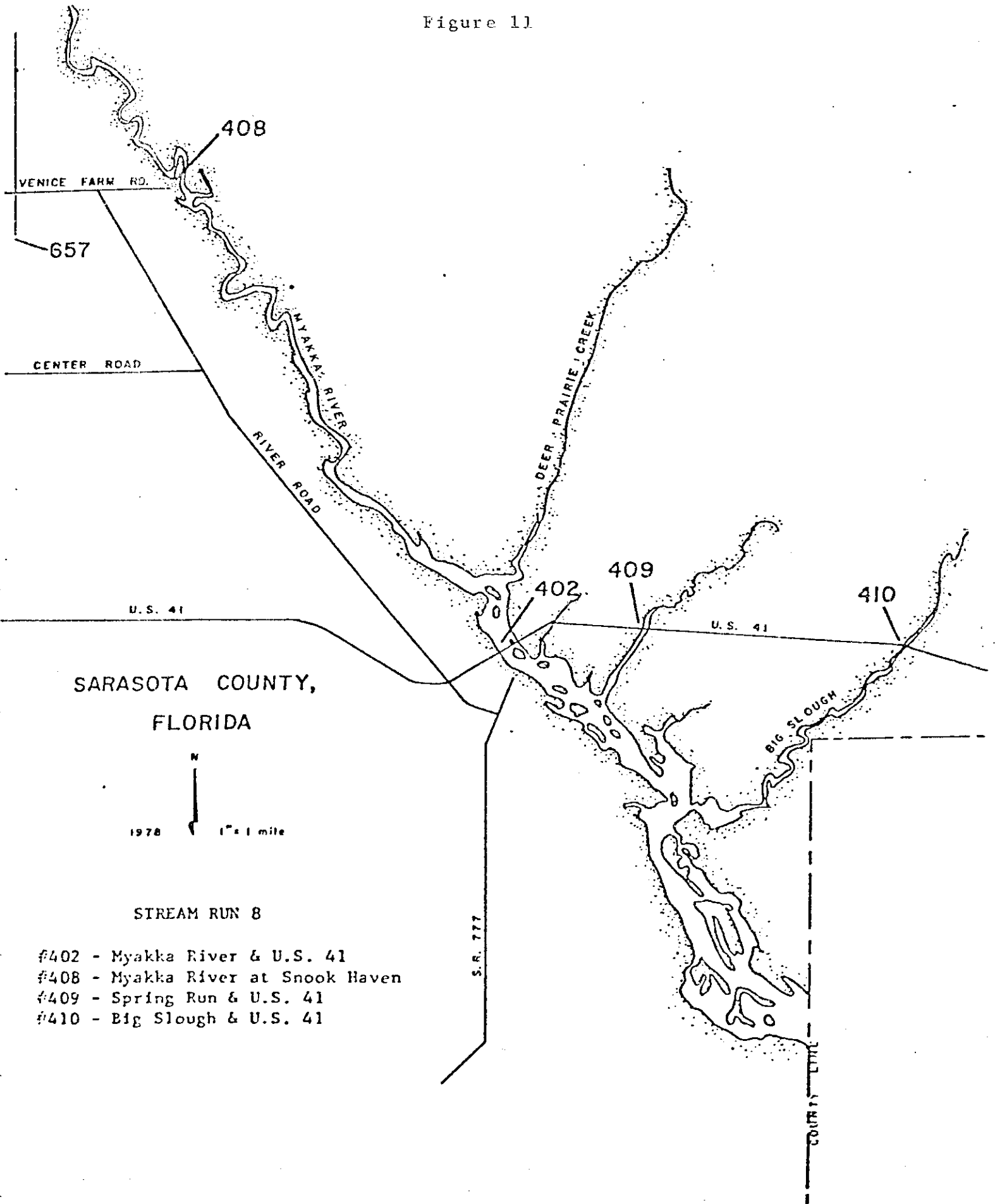


variation. It is of prime concern to many and it is presently being studied as a possible wild and scenic river by the U.S. Department of the Interior. It flows through Port Charlotte and joins Charlotte Harbor to the south, another environmentally sensitive area.

In testing the water quality, a total of 24 samples with 232 analyses showed 9 violations of standards. Of these, 2 were low dissolved oxygen and 7 were high coliform counts.

The developed southerly portion is served by sewage treatment facilities with a few septic tanks. One point source discharges into the Myakka River near the south county line. Myakka River State Park is served by two sewage treatment plants.

Figure 11



WASTEWATER TREATMENT PLANTS

Permitting Program

In order to maintain control over all phases of wastewater sewage treatment plant construction and operation, Sarasota County and the Department of Environmental Regulation requires that the owners of the plants obtain construction and operation permits.

The Sarasota County Pollution Control Division, being a local program, oversees the permitting process through its Plans Review and Permitting Section. The process begins when a developer submits a preliminary plat to the County for review. Everything from the site location to the potentially polluting stormwater runoff is reviewed for its environmental impact to the area involved.

Before construction of a plant or sewage collection system may begin, a Construction Permit must be obtained. This permit is issued only after the construction plans and specifications are reviewed and all state and local requirements are met. After the plant has been in service for a reasonable period of time, its overall operation is reviewed, and if satisfactory, an Operating Permit is issued for a period of five (5) years. The permit includes all state and county requirements.

In addition to state and local controls over wastewater treatment plants, the Federal Environmental Protection Agency, under the authority of the Federal Water Pollution Control Act of 1972 as amended by the Clean Water Act of 1977, requires permits for all plants discharging into surface waters. The National Pollution Discharge Elimination System, (NPDES) permit, limits the amount and type of pollutants allowed to be discharged.

Monitoring Program

One of the important functions performed by the Pollution Control Division is monitoring the County's many sewage treatment plants for compliance with the standards set forth in the County ordinances. Sarasota County has a total of 94 domestic waste treatment plants, with 29 of these having a capacity of .05 MGD (50,000 Gal/Day) or greater.

A monitoring program is maintained in order to determine the level of performance achieved by each plant. Every plant is inspected a minimum of once a month. During these inspections, the clarity of the effluent is checked and a chlorine residual is taken. The plant and its equipment are examined for proper operation, overall appearance and good housekeeping. When the inspection is completed an inspection report is prepared.

Plants with a capacity of .05 MGD (50,000 Gal/Day) and greater are selected for an in-depth sampling program. A 24 hour composite sample of the effluent is taken. The samples are analyzed for bio-chemical oxygen demand, total suspended solids and nutrients. A bacteriological sample is also taken and analyzed for total coliform and fecal coliform. The respective plant owners are subsequently notified of all test results.

At the present time, 17 plants are sampled on a rotating basis with one plant being checked each week. In the near future 12 additional plants will be sampled with a frequency of 2 plants per week.

Enforcement Program

When a plant does not meet the required standards, an enforcement program is initiated. This often takes the form of a letter to the owner of the plant, explaining what standards were not met

and requiring appropriate measures be taken to correct the problem. Usually a meeting of all concerned may be all that is needed to agree upon what action should be taken to alleviate a given problem, occasionally legal action is required.

There is more to the enforcement program than requiring plants to meet state and local standards. Presentation of annual awards to the outstanding treatment plant's overall monitoring and enforcement programs. The Department of Environmental Regulation has selected Florida Cities Gulf Gate and South Gate advanced waste treatment plants as "Co-Winners In Their Class" two years in a row in D.E.R.'s award program for superior plants.

Appendix V lists all domestic wastewater treatment plants in the County. The type of treatment employed, design capacity, average of twelve months daily flow, type of effluent disposal and the discharge standards required, are given for each plant.

Appendix I. Water quality standards established by the Florida Department of Environmental Regulation (Chapter 17-3) for each surface water classification.

	CLASS I	CLASS II	CLASS III	CLASS IV	CLASS V
pH	of receiving waters shall not be caused to vary more than one (1.0) unit above or below normal pH of the waters; and lower value shall not be less than six (6.0) and the upper value not more than eight and one-half (8.5). In cases where pH may be, due to natural background causes, outside limits stated above, approval of the regulatory agency shall be secured prior to introducing such material in waters of the state.			not more than one (1.0) unit from the normal or not less than six (6.0) nor greater than 8.5.	not lower than 5.0 nor greater than 9.5 except certain swamp waters which may be as low as 4.5.
Sewage, Industrial Wastes, or Other Wastes	Any industrial or other wastes shall be effectively treated by the latest modern technological advances as approved by the regulatory agency.			None which are not effectively treated or controlled to the satisfaction of the regulatory agency.	
Odor	Threshold odor number not to exceed 24 at 60° C. as a daily average.		See deleterious.	See color, odor, and taste producing substances...	Odor producing substances - only in such amounts that will not unreasonably interfere with the use of the water for the designated purpose of this classification.
Deleterious				free from materials attributable to municipal, industrial, agricultural, or other discharges producing color, odor or other conditions in such degree as to create a nuisance.	

Appendix I. (Continued). DER Water Quality Standards

	CLASS I	CLASS II	CLASS III	CLASS IV	CLASS V
Color, odor, and taste producing substances and other deleterious substances, including other chemical compounds, attributable to domestic wastes, and other wastes.				only such amounts as will not render the waters unsuitable for agricultural irrigation, live-stock watering, industrial cooling, industrial process water supply purposes and fish survival.	
Toxic substances		free from substances attributable to municipal, industrial, agricultural or other discharges in concentrations or combinations which are toxic or harmful to humans, animal or aquatic life.			
Turbidity				shall not exceed fifty (50) Jackson units as related to standard candle turbidimeter above background.	
Dissolved oxygen		the concentration in all surface waters shall not average less than 5 mg/l in a 24-hour period and never less than 4 mg/l. Normal daily and seasonal fluctuations above these levels shall be maintained. Dissolved oxygen concentrations in estuaries and tidal tributaries shall not be less than 4.0 mg/l except in naturally dystrophic waters. In those cases where background information indicates prior existence under unpolluted conditions of lower values than required above, lower limits may be utilized after approval by the regulatory authority. Sampling shall be performed according to the methods approved by the Florida Pollution Control Board.		shall not be depressed below the value of four (4.0) mg/l unless background information available to the regulatory agency indicates prior existence under unpolluted conditions of lower values. In such cases, lower limits may be utilized after approval by the regulatory authority.	sufficient to be aerobic. The term "aerobic" is defined as "being not less than one (1.0) mg/l with an average value of not less than two (2.0) mg/l".

Appendix I (Continued). DER Water Quality Standards

Bacteriological
quality

CLASS I	CLASS II	CLASS III	CLASS IV	CLASS V
<p>coliform group not to exceed 1,000 per 100 ml as a monthly average, (either MPN or MF counts); nor to exceed this number in more than 20% of the samples examined during any month; nor exceed 2,400 per 100 ml (MPN or MF) on any day.</p>	<p>Coliform Group - areas classified for shellfish harvesting, the median coliform MPN (Most Probable Number) of water cannot exceed seventy (70) per hundred (100) ml., and not more than ten (10) percent of the samples ordinarily exceed an MPN of two hundred and thirty (230) per one hundred (100) ml in those portions of areas most probably exposed to fecal contamination during most unfavorable hydrographic and pollutional conditions.</p>	<p>in those waters designated for body contact recreation, fecal coliform shall not exceed a monthly average of 200 per 100 ml of sample, nor exceed 400 fecal coliform per 100 ml of sample in 10 percent of the samples, nor exceed 800 fecal coliform on any one day, nor exceed a total coliform count of 1,000 per 100 ml as a monthly ave., nor exceed 1,000 per 100 ml in more than 20% of the samples examined during any month; nor exceed 2,400 per 100 ml on any day. In those waters not normally used for body contact recreation, fecal coliform shall not exceed a monthly average of 500 per 100 ml of sample, nor exceed 750 fecal coliform per 100 ml of sample in 10% of the samples. Monthly averages shall be expressed as geometric means based on a minimum of 10 samples taken over a 30 day period. MPN of MF counts may be utilized.</p>	<p>no standard</p>	<p>no standard</p>

Appendix II Department of Natural Resources Water Quality Standards for Shellfish Harvesting Areas.

Class I Public Water Supply	Class II Shellfish Harvesting	Class III Recreation-Propagation and Management of Fish & Wildlife
None	<p>16B-28.03 Standards, water. Shellfish harvesting area- the median fecal coliform Most Probable Number (MPN) of water shall not exceed fourteen (14) per one hundred (100) ml. and not more than ten (10) per cent of the samples shall exceed a fecal coliform MPN of forty-three (43) per one hundred (100)ml. in those portions of areas most probably exposed to fecal contamination during most unfavorable hydrographic and pollutional conditions.</p> <p>Specific Authority 370.021, 370.071, 20.25(6), 20.06(4), 381,031(1)(g)3, 381.061(8)FS. Law Implemented 20.25(6), 381.031(1)(a)(b)(c)(d)(e)(f), 381.061(2)(3)(4)(5)(6)(9), 381.031(1)(g)6, 381.071, 381.111, 381.121, 381.351, 381.411(1)(2)(3), 386 FS. History - New 7-28-77.</p>	None

Appendix III Water quality standards as established by Sarasota County Ordinance No. 72-37.

	CLASS I Public Water Supply	CLASS II Shellfish Harvesting	CLASS III Recreation-Propagation and Management of Fish and Wildlife
Odor	same as state regulations*	same as state regulations *	
Deleterious			same as state regulations*
Sewage, Industrial and Other Wastes	same as state regulations*	any industrial wastes or other wastes shall not be discharged into Class II waters.	same as state regulations*
pH	same as state regulations*	of receiving waters shall not be caused to vary more than one (1.0) unit above or below normal pH of the waters; and the lower value shall be not less than six (6.0) and the upper value not more than eight and one-half (8.5).	
Dissolved Oxygen	dissolved oxygen shall not be artificially depressed below the value of four PPM (4.0) (unless back- ground information available to the Pollution Control Officer indicates prior existence under unpolluted conditions of lower values). In such cases, lower limits may be utilized after approval by the Pollution Control Officer.		
Toxic Substance	same as state regulations*	same as state regulations*	same as state regulations*
Bacteriolog- ical Quality	same as state regulations *	same as state regulations *	not to exceed 1,000 per 100 ml as a monthly average (either MPN or MF counts); nor to exceed this number in more than 20% of the samples examined during any month; nor exceed 2,400 per 100 ml (MPN or MF count) on any day. This criteria shall apply only to waters used for body contact activities.

* see Appendix I

Appendix III (Continued). Sarasota County Standards

	CLASS I	CLASS II	CLASS III
Temperature		shall not be increased so as to cause any damage or harm to the aquatic life or vegetation of the receiving waters, or interfere with any beneficial use assigned to such waters.	
Turbidity			shall not exceed twenty-five (25) Jackson Units as related to standard candle turbidimeter above background.

APPENDIX IV VIOLATIONS OF SARASOTA

COUNTY WATER QUALITY STANDARDS 1978

Station #	Date	D.O.	Total Coliform	Fecal Coliform
<u>Whitaker Bayou</u>				
553	3-27-78	(4.3)	2800	820
553	7-11-78	2.2	26000	7000
553	10-9-78	3.2	12000	3600
553	12-26-78	2.7	72000	5900
558	1-17-78		6600	(700)
558	3-27-78		6400	4600
558	7-11-78	3.9	3400	1400
558	10-9-78	3.4	9000	-
558	12-26-78	3.7	(1200)	480
<u>Hudson Bayou</u>				
645	1-17-78		(2100)	(290)
645	3-27-78		80000	(700)
645	7-11-78		8000	5500
645	10-9-78	3.3	3000	1700
645	12-26-78	2.9	2860	3600
<u>Phillippi Creek</u>				
608	2-7-78		10000	770
608	4-11-78		1000	160
625	2-7-78		44000	5100
625	4-11-78	3.5	76000	9000
625	10-3-78		19000	7900
625	11-13-78		64000	9800
626	2-7-78		(1000)	20
626	4-11-78	1.4	(2300)	10
626	10-3-78		5000	3400
626	11-13-78	2.8	(1500)	130
627	2-7-78		(2000)	(220)
627	4-11-78		(1500)	(140)
627	10-3-78		4000	1500
627	11-13-78		2600	(760)
628	10-3-78		8000	2500
628	11-13-78		32000	3400
629	1-24-78		2500	330
629	4-4-78		(1800)	36
629	8-28-78		(1700)	>600
629	10-30-78		3900	380
630	1-24-78		22000	1200
630	4-4-78		6500	(70)
630	8-28-78		5300	3600
630	10-30-78	3.6	(2100)	(610)
658	7-25-78		12000	1000
658	12-19-78		3600	(40)

APPENDIX IV VIOLATIONS OF SARASOTA
COUNTY WATER QUALITY STANDARDS 1978

Station #	Date	D.O.	Total Coliform	Fecal Coliform
<u>Matheny Creek</u>				
632	5-2-78	2.7	3400	(250)
632	7-25-78	3.5	8000	4200
632	11-6-78	2.4	(1400)	(140)
632	12-19-78	4.8	(2000)	(82)
632	2-14-78		2800	(280)
<u>Elligraw Bayou</u>				
644	5-2-78	3.3	(1000)	520
644	7-25-78	(4.1)	20000	5500
644	11-6-78	2.9		
644	12-19-78	(4.3)		
<u>Clower Creek</u>				
637	5-2-78		(2000)	
<u>Catfish Creek</u>				
639	2-14-78	1.7	(1900)	
639	5-8-78	3.9	(1000)	
639	8-14-78	3.9	7000	
639	12-11-78	0.3	(1000)	
614	2-22-78		(2200)	(60)
<u>North Creek</u>				
587	2-22-78		4800	(240)
587	8-14-78	3.0		
<u>South Creek</u>				
588	2-22-78		4400	1200
588	8-14-78	2.5	(1500)	(640)
615	2-22-78		3700	1000
615	5-8-78	3.0	(1300)	(73)
615	8-14-78	2.2	46000	> 6000
615	12-11-78	1.7	(1100)	(600)
<u>Cow Pen Slough</u>				
501	8-28-78	(4.1)	(1300)	490
501	1-24-78		(1800)	(160)
501	4-4-78		(1000)	< (10)

APPENDIX IV VIOLATIONS OF SARASOTA
COUNTY WATER QUALITY STANDARDS 1978

Station #	Date	D.O.	Total Coliform	Fecal Coliform
<u>Shakett Creek</u>				
612	2-28-78		(14000)	(140)
612	9-5-78		(1100)	940
<u>Curry Creek</u>				
617	2-28-78		2500	(150)
617	9-5-78		(1700)	900
<u>Hatchett Creek</u>				
618	5-16-78	3.7	2700	(700)
618	9-5-78		4500	(2000)
618	11-20-78	(4.9)	(1700)	(510)
618	2-28-78		(2200)	(620)
619	2-28-78	3.8	3300	(360)
619	5-16-78	1.4	3700	(180)
619	9-5-78	0.6	14000	4200
619	11-20-78	0.6	(700)	(90)
<u>Alligator Creek</u>				
620	3-7-78		3300	(140)
621	6-6-78	(4.8)	(1700)	(600)
621	10-23-78		3100	800
<u>Forked Creek</u>				
623	3-7-78		(1900)	(160)
623	10-23-78	(4.6)	(1100)	(110)
<u>Deer Creek</u>				
593	3-7-78		(1800)	140
593	6-6-78	3.6		
593	10-23-78	3.7	(1200)	90

APPENDIX IV VIOLATIONS OF SARASOTA
COUNTY WATER QUALITY STANDARDS 1978

Station #	Date	D.O.	Total Coliform	Fecal Coliform
MYAKKA RIVER BASIN				
<u>Spring Run</u>				
409	9-19-78	3.5	2700	(620)
<u>Big Slough/Myakkahatchee Creek</u>				
410	1-10-78		(2300)	(310)
410	3-13-78		(600)	(120)
410	9-19-78		9000	4900
410	12-4-78		(2100)	1100
<u>Myakka River</u>				
402	1-10-78		(1900)	(350)
402	3-13-78		2900	(64)
402	9-19-78	(4.6)	(1800)	(540)
404	1-24-78		3900	(160)
404	4-4-78	(4.7)		(10)
404	8-28-78	0.3	2900	1100
404	10-30-78		4300	(600)
408	1-10-78		(2000)	(70)
408	3-13-78		(600)	(120)
408	9-19-78	(4.3)	2800	(610)
408	12-4-78		(1500)	(450)

Values in parentheses are "Borderline" or "Near" exceeding the standards.

Appendix V

SARASOTA COUNTY DOMESTIC WASTEWATER TREATMENT PLANTS

Name of Plant	Type of Treatment	Design Capacity MGD	12-Month Ave. Flow 4/78-3/79 MGD	Effluent Disposal	Discharge Standard
Arbors, The	Extended Aeration	.030	.010	Percolation Pond	1
Ashton Bliss School	Extended Aeration	.010	.004	Drainfield	1
Bahia Vista Estates	Extended Aeration	.040	.023	Drainfield	1
Barclay House Apts.	Extended Aeration	.015	.007	Percolation Pond	1
Bath & Racquet Club	Extended Aeration	.005	.001	Drainfield	1
Bay Lake Estates	Contact Stabilization	.040	.012	Percolation Pond	1
Bee Ridge Drive-In	Extended Aeration	.004	.001	Percolation Pond	1
Blue Gate Restaurant	Extended Aeration	.005	.003	Drainfield	1
Brook to Bay	Extended Aeration	.020	.008	Drainfield	1
Burzenski Nursing Home	Extended Aeration	.008	.005	Percolation Pond	1
Cajun Club	Extended Aeration	.007	.006	Drainfield	1
Childrens Haven	Extended Aeration	.008	.007	Perc. Pond to Ditch to Phillippi Creek	2
Circlewoods of Venice	Contact Stabilization	.080	.029	Perc. Pond to Drainfield	1
Country Club of Sarasota	Contact Stabilization	.150	.006	Perc. Pond to Spray Irrigation	1
Deer Creek M.H.P.	Extended Aeration	.016	.006	Drainfield	1
Elks Club	Extended Aeration	.005	.003	Drainfield	1
EMR	Trickling Filter	.020	.020	Spray Irrigation	1
Englewood Golf Condo	Extended Aeration	.025	.015	Percolation Pond	1
Englewood Isles	Contact Stabilization	.400	.087	Percolation Pond	1
Englewood Oyster Bar	Extended Aeration	.005	.002	Drainfield	1
Englewood School	Extended Aeration	.015	.010	Drainfield	1
Englewood Shopping Center	Extended Aeration	.010	.002	Drainfield	1
Fairwinds	Contact Stabilization	.030	.007	Polishing Pond to Drainfield	1
Field Club	Extended Aeration	.008	.003	Drainfield	1
Florida Cities/Gulf Gate	Activated Sludge	1.80	1.02	Matheny Creek	3
Florida Cities/South Gate	Activated Sludge	1.36	.801	Phillippi Creek	3
Florida Pines	Extended Aeration	.011	.004	Percolation Pond	1
Fruitville School	Extended Aeration	.009	.004	Drainfield	1

Appendix V (Continued)

SARASOTA COUNTY DOMESTIC WASTEWATER TREATMENT PLANTS

Name of Plant	Type of Treatment	Design Capacity MGD	12-Month Ave. Flow 4/78-3/79 MGD	Effluent Disposal	Discharge Standard
Gator Creek Golf Course General Dev./North Port	Extended Aeration	.005	.003	Percolation Pond	1
	Contact Stabilization	.950	.503	Percolation Pond to Spray Irrigation	1
Gulf & Bay Resort	Trickling Filter	.020	.006	Percolation Pond	1
Happy Haven M.H.P.	Extended Aeration	.008	.003	Percolation Pond	1
Hilton Industries	Extended Aeration	.005	.002	Percolation Pond	1
Hynautic Inc.	Extended Aeration	.005	.002	Percolation Pond	1
Japanese Gardens	Extended Aeration	.047	.045	Percolation Pond	1
Kansas City Royals	Extended Aeration	.015	.007	Percolation Pond	1
Kensington Park	Contact Stabilization	.560	.369	Ditch to Phillippi Creek	2
Kings Gate Club	Extended Aeration	.050	NA	Percolation Pond	1
Kings Gate Travel Tr. Pk.	Extended Aeration	.040	.019	Percolation Pond	1
Lake Tippicanoe	Contact Stabilization	.060	.030	Percolation Pond	1
Lake Village M.H.P.	Contact Stabilization	.050	.022	Percolation Pond	1
Lyons Cove	Extended Aeration	.005	.004	Drainfield	1
Manasota Beach Gardens	Extended Aeration	.010	.003	Drainfield	1
Meadows, The	Extended Aeration	.350	.046	Percolation Pond to Spray Irrigation	1
Mission Valley Golf Club	Extended Aeration	.005	.001	Spray Irrigation	1
Myakka M.H.P.	Extended Aeration	.008	.005	Percolation Pond	1
Myakka State Park #1	Extended Aeration	.015	.0006	Landlocked Swamp	1
Myakka State Park #2	Extended Aeration	.015	.0006	Percolation Pond	1
Myakka Utilities	Contact Stabilization	.400	.074	Percolation Pond to Myakka River	3
Nokomis School	Extended Aeration	.015	.005	Percolation Pond	1
Oak Grove M.H.P.	Extended Aeration	.018	NA	Drainfield	1
Oakwood Garden Apts.	Extended Aeration	.010	.003	Drainfield	1
Orange Acres	Trickling Filter	.036	.023	Percolation Pond	1
Oscar Scherer State Park	Extended Aeration	.015	.001	Drainfield	1
Palm & Pines M.H.P.	Extended Aeration	.014	NA	Percolation Pond	1
Pelican Cove (Vamo W & S)	Contact Stabilization	.240	.097	Percolation Pond	1
Peterson Manufacturing	Extended Aeration	.003	.001	Percolation Pond	1

Appendix V (Continued)

SARASOTA COUNTY DOMESTIC WASTEWATER TREATMENT PLANTS

Name of Plant	Type of Treatment	Design Capacity MGD	12-Month Ave. Flow 4/78-3/79 MGD	Effluent Disposal	Discharge Standard
Polynesian Village	Extended Aeration	.040	.003	Drainfield	1
Quails Run	Extended Aeration	.075	.003	Percolation Pond	1
Ramblers Rest	Extended Aeration	.025	.008	Percolation Pond	1
Rexnord	Extended Aeration	.006	.002	Percolation Pond	1
Royal Coachman	Extended Aeration	.035	.013	Percolation Pond	1
Royal Palms	Extended Aeration	.018	.006	Perc Pond to D.Field	1
Sarasota, City of	Contact Stabilization	9.10	8.88	Whitaker Bayou	2
Sarasota Co. Juvenile Home	Extended Aeration	.003	.001	Drainfield	1
Sarasota Square Mall	Contact Stabilization	.175	.087	Percolation Pond	1
Shady Haven M.H.P.	Extended Aeration	.006	.004	Drainfield	1
Siesta Key Utility Authority	Contact Stabilization	2.70	1.53	Grand Canal	3
Skyline Corp.	Extended Aeration	.003	.004	Percolation Pond	1
Sorrento Shores	Contact Stabilization	.200	.072	Percolation Pond	1
Southbay Yacht & Racquet Club	Contact Stabilization	.250	.028	Drainfield	1
South County Courthouse	Extended Aeration	.005	.002	Drainfield	1
Southern Gulf Utilities	Contact Stabilization	.900	.413	Phillippi Creek	2
Southeast Shopping Plaza	Contact Stabilization	.092	.082	Phillippi Creek	2
Southeastern Development	Extended Aeration	.750	.155	Percolation Pond to Spray Irrigation	1
Spanish Lakes	Extended Aeration	.060	.044	Percolation Pond	1
Sun & Fun Club	Extended Aeration	.100	.068	Percolation Pond to Spray Irrigation	1
Sunnyside Rest Home	Extended Aeration	.010	.004	Percolation Pond	1
Sunrise Golf Condo	Extended Aeration	.060	.011	Percolation Pond to Spray Irrigation	1
Tameron	Contact Stabilization	.155	.027	Percolation Pond	1
Terra Cove	Extended Aeration	.020	.004	Percolation Pond	1
Tri-Par Est. (Dolomite Util.)	Contact Stabilization	.200	.139	Ditch to Whitaker Bayou	2
Tri-State M.H.P.	Extended Aeration	.010	.006	Percolation Pond	1
Venetian M.H.P.	Extended Aeration	.030	.020	Percolation Pond	1
Venice Bowl	Extended Aeration	.006	.002	Drainfield	1
Venice Campgrounds	Extended Aeration	.010	.002	Percolation Pond	1