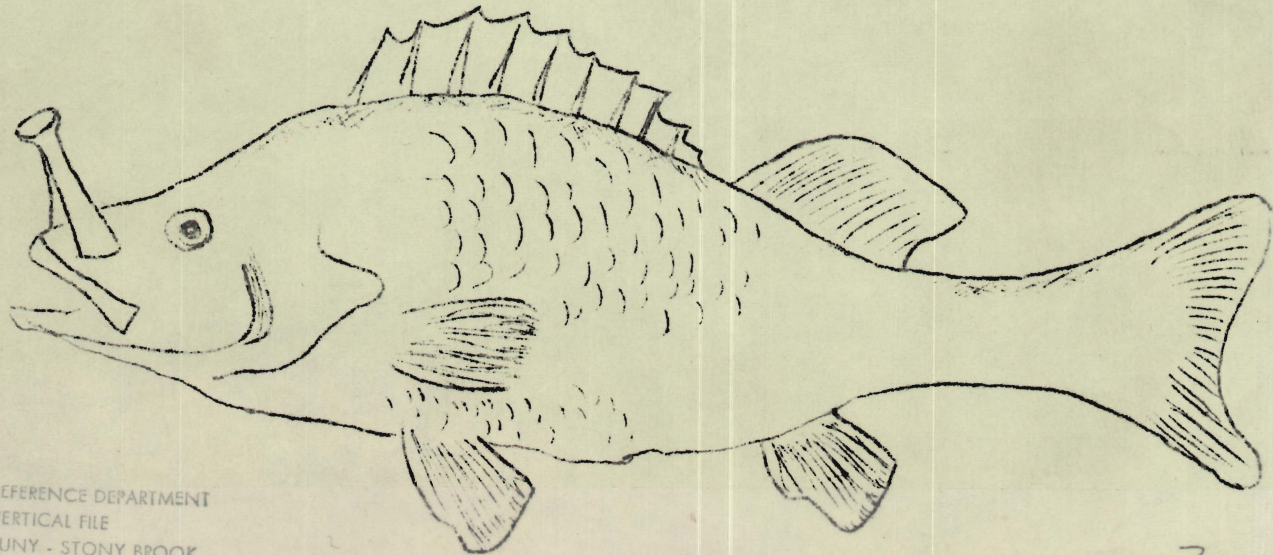


PORT JEFFERSON'S TROUBLED WATER



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THE GREAT
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P O R T J E F F E R S O N ' S T R O U B L E D W A T E R S

Prepared

By

THE NORTH BROOKHAVEN LEAGUE OF WOMEN VOTERS

Mrs. Frank Erk, President

Mrs. Clifford Swartz, Chairman,

Committee for Environmental Quality



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Port Jefferson Harbor has long been recognized as one of the most important harbors on L.I. Situated on the north shore, its waters and adjacent wetlands have been the subject of much concern, partly because of its location and partly because of the many levels of government which have some jurisdiction over this area. These include agencies of the United States, the State of New York, Suffolk County, the Town of Brookhaven, and the villages of Port Jefferson, Poquott, Old Field and Belle Terre. Each has its own special jurisdiction and regulating powers.

GOVERNMENTAL AGENCIES WITH JURISDICTION OVER PORT JEFFERSON HARBOR

Federal Government: Among other powers, it controls dumping of all refuse and thermal effluents into the Harbor: through the Army Corps of Engineers the federal government permits dredging and filling, and assists in the construction of jetties and other navigational aids: the federal government regulates maritime shipping, including the licensing of vessels and operating personnel: the Coast Guard issues navigation ordinances, based on the amount and type of traffic in the area.

State of New York: Among its powers, the State Conservation Department licenses and inspects equipment on boats: several agencies including the Health and Conservation Departments have regulations over the temperature and quality of effluents flowing into

the Harbor: although the State has the power to control navigation in its other waters, Suffolk County is exempt from most of the provisions of the Navigation Laws.

Suffolk County: The County has the power to examine and advise on all requests for changes in zoning within 500 feet of the municipal boundaries of the 4 villages on the Harbor: in addition, the County police enforce all applicable ordinances of the 4 villages, the Town, the County, and when so asked, of the State and U.S.

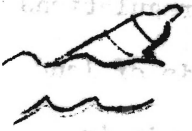
Town of Brookhaven: As the governmental agency of the lands abutting the Harbor but not included within the incorporated villages, the Town is responsible for highways, judicial proceedings, zoning, the wetlands in adjacent areas, and dredging and filling: the entire harbor bottom is owned and zoned by the Town: approval for constructing fillings in the harbor bottom must come from the Town: the Town leases underwater as well as shoreline properties, and just recently increased rental fees for these areas by approximately 200 %: the Town owns and operates a Marina on the waterfront: and in addition to the navigation ordinances of the Coast Guard, the Town has some powers over the navigable waters, such as forbidding excessive speeds and dangerous wakes.

Village of Port Jefferson: The Village has jurisdiction over the lands adjacent to the Harbor within village boundaries and over the surface waters to a line approximating high water level. This includes navigation rules, fire regulations, zoning, street regulations and the like; the Village owns a small strip of land on the southeast side of the Harbor but the rest of the harbor frontage is in private hands.

Villages of Poquott, Old Field and Belle Terre: They have similar powers to those enjoyed by Port Jefferson: they, too, can control the surface waters, including navigation to a distance of 1500 feet from shore, along with sanitation, moorings, hazards to navigation, and the operation of boats.

1. The information was composited from the Ordinances of the Villages of Port Jefferson, Old Field, Poquott and Belle Terre; the Ordinances of the Town of Brookhaven; summaries of the applicable ordinances of the State of New York and the federal government; NEWSDAY, July 9, 1970; NEWSDAY, August 28, 1970; from interviews with Dr. John Bateman, Dr. Robert Sisler, and Mr. G.W. Totten for the Village of Port Jefferson; with Councilmen Robert Reid and John Bellport and Mr. Louis McLean for the Town of Brookhaven; with several policemen connect with the Suffolk County Police, Marine Division, and with Mr. Lee Koppelman for the County; with Mr. Quentin Bennett, Mr. Albert Jensen, Mr. Anthony Taormina, Mr. Revelander, and Mr. John Flynn for the State; and with a member of the Coast Guard for the federal government.

POLLUTION AND PORT JEFFERSON



For some months now there have been charges that the waters of Port Jefferson Harbor are badly polluted. Various institutions have been blamed for this condition, including the sewage treatment plant and the State University at Stony Brook.

Polution Means Different THINGS to Different People: To some, the indication is the presence of sewage wastes: to others, it is the presence of nutrients such as phosphates, nitrates and carbon: to others it is eel grass or algae or discolored water: to still others, the index is the coliform count. All of these represent some aspect of pollution.

However, no water is completely pure. It contains such things as dissolved gases, minerals and other matter. Some substances such as pesticides, grease, oil, chemicals, metals, and certain bacteria and viruses may be harmful. Other substances such as dissolved oxygen and nutrients are necessary for life itself. Yet any substance if present in a disproportionate amount can be lethal. A Public Health Service definition states,

1. PORT JEFFERSON RECORD, May 7, 1970. Dr. Charles Scnee, Letters and Petitions to federal, state and local officials.

"Water is polluted if it contains substances that make it unclean or unfit for use."¹

The New York Water Resources Commission has classified all State waters according to their best usage. Port Jefferson Harbor, according to this classification, is best used for fishing and shellfishing, a high classification, although any harbor will be used for recreation if possible. The Conservation Department keeps strict surveillance of its waters to be sure that they continue to be pure enough for their assigned use. About 15 years ago, part of Port Jefferson Harbor was closed to shellfishing because of a high coliform count there. The high count, though not in itself dangerous, can indicate the presence of other bacteria which may be harmful such as typhoid, salmonella and hepatitis. Furthermore, shellfish tend to concentrate bacteria, metals, radionuclides and other poisons which, in concentrated form, may prove dangerous if consumed in quantities. In the adjacent waters of Setauket Harbor the Narrows and Conscience Bay, the coliform count remains low enough to constitute² no danger to shellfishing now.

1. National Association of Counties Research Foundation, WATER POLLUTION CONTROL, vol. 1, p. 4.
2. Environmental Control Unit, New York State Conservation Department, PORT JEFFERSON HARBOR REPORT, Sept. 30, 1966, pp. 8-9; Jan. 30, 1970, pp. 15-16. Mr. Quentin Bennett, Conservation Department, talk with committee, 6-1-70.

HOW BADLY POLLUTED IS THE HARBOR? Coliform counts, the usual measure of pollution, are very high in parts of the Harbor, ranging from a low of 9 to a high of 91,800, and with average counts running between 1100 and 1600 per milliliter. These counts include coliform bacteria from human and animals waste, and materials from vegetation. The coliform bacteria is merely a convenient indicator that conditions which encourage the growth of coliform bacteria can also encourage the growth of harmful bacteria. Coliform counts allowable for shellfishing are low, between 70 and 100, while bathing beach standards allow as high as 2400.

Mr. John Flynn, formerly with the Suffolk County Health Department and currently Deputy Commissioner of the Department of Public Works, Sanitation Division, does not consider the Harbor as polluted as many have made it out to be. He thought that if all sources of pollution could be found and stopped, it would take no more than 2 years to clean up the Harbor.

Mr. Quentin Bennett of the Bureau of Marine Fisheries in the State Environmental

1. Environmental Control Unit, State Department of Conservation, REPORT ON THE WATERS OF PORT JEFFERSON HARBOR, Jan. 30, 1970, Appendix, gives the coliform count for all areas in Port Jefferson Harbor, Setauket Harbor, the Narrows and Conscience Bay
2. Mr. John Flynn, talk with study committee, 6-17-70.

Conservation Department thought there had been a significant increase in the pollution there. He noted, however, that the Harbor was still an important part of the ecosystem, producing clams and nurturing a variety of fish, and that if all sources of pollution were stopped, tidal action, in his opinion, could clean up the Harbor in a matter of weeks.¹

Mr. Anthony Taormina, also with the State Environmental Conservation Department, stated that the Harbor was still a fine wintering area for such birds as duck, loon, tern, gull, swan and grebe. In addition, the entire area produced shellfish, oysters, clams and lobster in abundance. However, he pointed out that in L.I. Sound there were large amounts of pesticides and metals which break down very slowly and because of tidal flow constituted a potential source of contamination to marine life in the Harbor. In addition, oil spills and sedimentation from erosion are a constant danger to marine life, by clogging gill tissue or settling on nursery beds. While the dangers to the Harbor were potentially great, he estimated that no more than a season would be needed to clean up the Harbor at present if all sources of pollution could be

1. Mr. Quentin Bennett, talk with study committee, 6-1-70.

1
found.

Dr. G. Grant Gross of the State University's Marine Sciences Research Center, was even more optimistic about the Harbor. He noted the presence of a great deal of organic matter which might come from sewage, ships, or the natural growth of marine life. However, he stated that it was "one of the cleaner harbors around here," and had much less oil than New York Harbor, for example.

POTENTIAL SOURCES OF POLLUTION: While such statements are reassuring, it would appear that potentially the Harbor is in danger of pollution from a number of sources. The League of Women Voters has tried to identify these sources of pollution and suggest a variety of constructive ideas for improvement. From our investigation, it appears that a number of conditions have caused or contributed to the present pollution problem. Among them are the SEWAGE TREATMENT PLANT, THE CREEK, STORM SEWER RUN-OFF, BUSINESSES ADJACENT TO THE HARBOR, and BOATS, BOTH PLEASURE AND COMMERCIAL.

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1. Mr. Anthony Taormina, talk with study committee, 7-1-70.
 2. Dr. G. Grant Gross, statement to committee, 8-5-70.

THE SEWAGE TREATMENT PLANT: The Port Jefferson sewage treatment plant is located on Beach Street. The original plant was built in 1918 to service a very narrow district of the Village. Because the soils contain clay and other non-porous materials, septic tankd and cesspools were found to be inadequate. Residents feared that the sewage would empty directly into the Harbor or that the ground water, only 3 or 4 feet below the surface, would become contaminated. In the 1930's the district expanded with subsequent expansions in 1956, 1961 and 1967. The treatment plant now serves half of the Village, including homes, businesses, garages, restaurants, laundromats, and schools. In addition, there are 17 contracts with outlying areas and institutions, including the Lace Mill in Port Jefferson Station, Mather and St. Charles Hospitals, several nursing homes, Heatherwood Apartments, and the State University at Stony Brook, bringing the number of facilities served to almost 600. Present sewage inflow of 1.3 mgd (million gallons per day) is distributed as follows:

| | |
|-----------------------------------|---------|
| Port Jefferson District | 25.7 % |
| State University | 46.0 % |
| Thomas Wilson Lace Mill | 11.0 % |
| Hospitals | 10.5 % |
| Heatherwood Apartments | 6.8 % |
| <hr/> | |
| TOTAL | 100.0 % |

The rated capacity of the treatment plant is 1.5 mgd but the law requires the overall capacity of the plant to be more than this in order to handle peak loads of sewage inflow.¹

In 1969 the operating budget for the sewage treatment plant was \$75,575.00 plus \$96,000. for debt service. The State pays 30 % of the district operating costs, which in 1969 amounted to \$18,536.72. Residents of the district pay a tax on their property which varied between \$0.397 to \$1.024 per \$100. of assessed valuation in 1969. The difference in the tax rate stems from the new construction costs of 1967, most of which were for sewer lines and which are borne only by the users of those facilities. The areas outside the sewer district which have contracted to use the treatment plant provide their own sewer lines and pay an amount commensurate with the volume of their flow, plus a small amount for debt service on the cost of the plant itself. For example, the State University paid \$29,734.66 in 1969. Of this, \$26,237.48 paid for their share of the inflow to the treatment plant (46 %), while the remaining \$3,497.1² was their contribution to the debt service.

1. Mr. Robert McCambridge and Mr. Barry Andreas, 5-6-70. John J. Baffa, REPORT ON PORT JEFFERSON SEWER DISTRICT, March 1970, Sect. 1, p.1; Sect. 6, p. 2.
2. Mr. Cliff Decker, 6-16-70. Mr. Bruce Matzner, 8-6-70; 8-17-70.

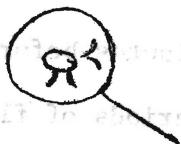
The Port Jefferson plant (see diagram p. 15) is a primary treatment plant designed to remove nearly 60 % of the settleable solid materials through settling tanks. The solid materials are piped to a sludge digester where some further break-up occurs, and then the sludge is trucked to the plant at Manorville for further treatment. Out of a weekly inflow to the Port Jefferson plant of 9 million gallons of sewage, about 12,000 gallons of sludge are trucked away. A small additional amount of solids are piped to a drying bed where the dried sludge can then be used for fertilizer.¹

After settling occurs, the liquid materials are piped to a chlorine contact tank where a minimum of 1 to $1\frac{1}{2}$ milligrams (mg.) of residual chlorine per liter of water is added to kill most bacteria. The State Health Department requires only $\frac{1}{2}$ mg per liter. The liquid remains in the chlorine contact tank 15-20 minutes before passing through the outfall pipe into the Harbor. During maximum periods of flow when the liquid remains in the tank for the shorter time, the operator adjusts the

1. PAFFA REPORT, Sect. 10-2, Table 10-1. Mr. Robert McCambridge, 5-6-70. Mr. Bruce Matzner stated (8-6-70) that although there were times when the plant could not meet the standards of the Interstate Sanitation Commission (which urges 90 % re-

chlorine content up to 7 mg. of residual chlorine per liter. The outfall pipe extends approximately 300 feet into the Harbor. However, it is broken in several places and the effluent now flows out about 70 feet from shore. Recent budget requests from the Suffolk County Department of Public Works, Sanitation Division, included ¹ monies for the repair of the pipe.

The plant was originally under the control of the Town of Brookhaven, but in January 1970, the Town turned over the management of the plant to the Suffolk County Sewer Agency. The Port Jefferson plant is run by several operators who are licensed by the State Health Department after having completed 30-90 hours of education and passing a test. 2-3 times a day the operators sample the effluent, testing for suspended solids, dissolved solids, BOD, residual chlorine and coliform count. The



solids test indicate how efficient the plant is in removing solid wastes from the sewage. The BOD refers to the amount of oxygen used

by bacteria during a stated time and is a convenient measure of the

removal of settleable solids), the Port Jefferson plant generally removes 80-90 % of the settleable solids from the sewage.

2. Mr. Robert McCambridge and Mr. Barry Andreas, 5-6-70. Mr. Bruce Matzner, 8-6-70: 8-21-70. NEWSDAY, Aug. 8, 1970.

number of such bacteria still present after treatment. The residual chlorine test indicates how much extra chlorine was added beyond what was needed to kill the bacteria present in sewage. A coliform count is taken to be sure there are no coliform bacteria in the treated effluent.¹

In addition, the Suffolk County Health Department, the State Health Department, and the Interstate Sanitation Commission check the plant periodically. Automatic records on inflow, amount of chlorine used, and the daily analyses are on file at the plant and with the State Health Department. In April of this year, the County Health Department took additional samples of the effluent, this time at the outfall pipe break. Results showed a coliform count of 9 MPN (most probable number) per 100 ml. of effluent. An independent 2-year study conducted by Professor Edwin Battley's Biology ^{class found no living coliform} bacteria after treatment in the chlorine contact tank. This compares most favorably with the coliform count of $4 \frac{1}{2}$ ² million MPN per 100 ml. before chlorination.

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1. Mr. Robert McCambridge and Mr. Barry Andreas, 5-6-70.
 2. Mr. Robert McCambridge and Mr. Barry Andreas, 5-6-70. Professor Edwin Battley, 8-11-70.

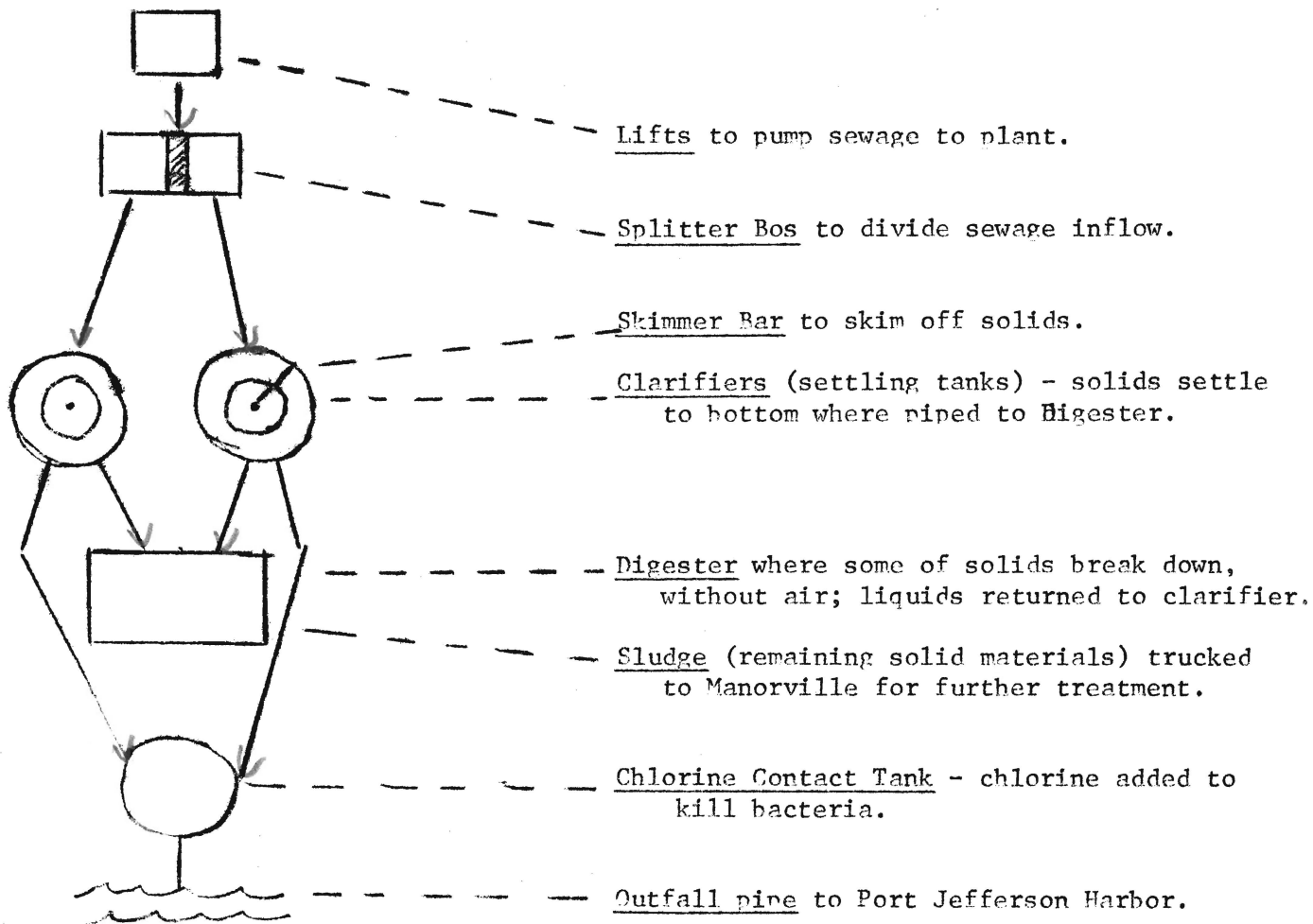
The Lace Mill and the University pre-treat their wastes before pumping the sewage to the district plant. The sewage from the Lace Mill is highly alkaline and contains dyes and solids which would interfere with the operation of the district plant. The Lace Mill bubbles air through its sewage and then adds chlorine before sending it to the collection sewers. Since the University sewage must travel about 3 miles before reaching the treatment plant, it passes through a macerator-chlorinator which shreds the solids and adds chlorine, to prevent the material from going septic. Failure to chlorinate such sewage would result in excessive odor. The Suffolk County Health Department regularly inspects the operation of the University macerator-chlorinator and a recent inspection indicated compliance with all regulations. Should there be a problem at the Port Jefferson treatment plant, enough additional chlorine can be added at the Lace Mill and the University upon request to chlorinate the entire sewage flow for the whole district.

TREATMENT PLANTS, TYPES AND METHODS:

Primary - Port Jefferson Sewage Treatment Plant, schematic drawing:

A primary plant is intended to remove most of the settleable solids but only

1. Mr. Robert McCambridge and Mr. Barry Andreas, 5-6-70. Mr. Cliff Decker, 6-16-70.

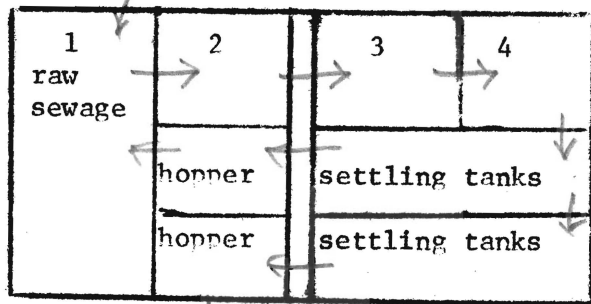
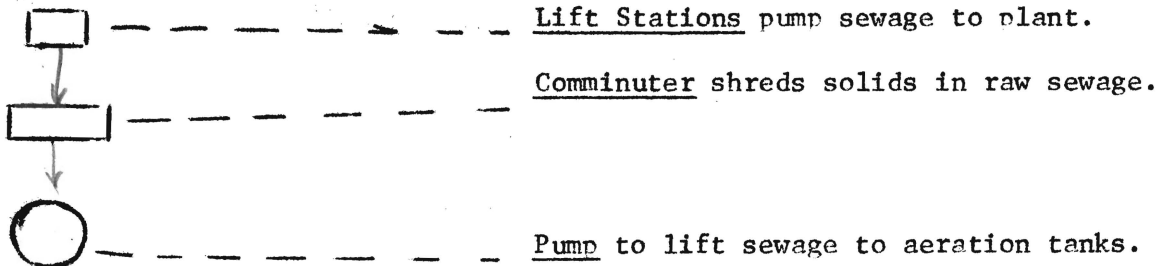


some of the dissolved and suspended solid materials from the liquid. After separation, some plants chlorinate the effluent, mandatory if it is discharged into a harbor, stream, river or lake. Sometimes the sludge is deposited in a land fill site. A primary plant cannot remove such sewage constituents as nitrates, phosphates, pesticides, metals, grease, or tars.

Secondary - Strathmore Sewage Treatment Plant, schematic drawing:

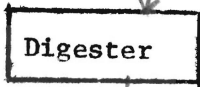
Secondary treatment consists of biologically treating the sewage to break up the organic materials. This can be done with trickling filters or by bubbling compressed air through the liquid before the settling stage of treatment, as is done at Strathmore. This process is called aeration. The air enables certain bacteria to survive in the sewage which then feed upon the organic materials, providing more complete disintegration of the solids than is possible with primary treatment. Chlorine is added to the effluent to kill remaining bacteria, and then the liquid is piped to catch basins where the waste may be returned to the ground,

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1. NEWSDAY, Aug. 4, 1970; July 14, 1970 indicate the dangers of nitrates in the ground water of Nassau County. There is no treatment against lead contamination, cadmium, cyanide or DDT. NEWSDAY Aug. 25, 1970.



Aeration tanks (numbers 1, 2, 3, and 4).
air is pumped into tanks to speed
bacterial decomposition.

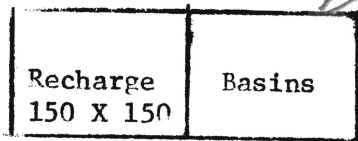
Settling tanks - some sludge returned via
Hoppers to raw sewage in number 1; rest of
sludge to Digester.
Liquid chlorinated and diverted to recharge
basins.



Digester where air added to speed up further
decomposition of solids.



Drying Beds - each 30 X 70, fed from digester.



Recharge Basins (8 altogether) where water
is returned to ground. Major recharge
basin has crushed stone (6 inches) over
85 feet of sand; others have only sand.

or piped to rivers, lakes or harbors. In the activated sludge process (which can be part of secondary treatment), compressed air is added to the sludge digesting stage to encourage additional bacterial action in breaking down the solids. As in primary treatment plants, sludge is pumped to drying beds, removed for further treatment, or disposed in land fill sites. Like primary treatment, also, secondary treatment is ineffective in removing nitrates, phosphates, metals, pesticides and tars.

Tertiary -

Tertiary treatment is a basket phrase, indicating 1 or more additional processes used to treat specific problem materials found in some sewage, such as pesticides, industrial chemicals, metals, oils, tars, detergents, fertilizers, other nitrates and phosphates, and the like.

Types of Tertiary Treatment:

1. Filtering:

- a) with sand removes some of the phosphates and oils:
- b) with multimedia (sand and coal) removes carbon:
- c) with micro-screens removes suspended solids and oxygen-consuming organisms.

2. Adsorption, usually in the form of:

- a) powdered carbon
- b) granular carbon (larger particles of carbon)

Both remove 70-80 % of dissolved compounds. Powdered carbon adsorbs more readily but the end product is more difficult to work with. Granular carbon, however, can be reactivated for use again, which makes it more economical to use.

3. Coagulation: uses chemicals like lime to precipitate out some of the phosphates.

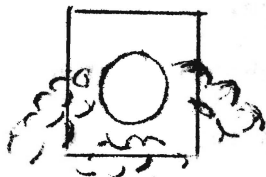
4. Flocculation: uses compounds like alum to collect suspended solids into larger groups for easier removal.

5. Ammonia Stripping: a method for removing nitrates and other nitrogen compounds by adding lime to form dissolved ammonia gas. Vigorous aeration or splattering the liquid releases the ammonia gas into the air.

6. Deminerlization: reduces the total mineral content of the wastewater through several complicated and expensive processes, such as ion exchange, electrodialysis, or reverse osmosis. The first two processes electrically separate out the minerals, while reverse osmosis forces the liquid through a membrane to strain out the minerals. Deminerlization could remove most all of the problem constituents, but the process has not been perfected yet for large-scale use.

OTHER PROBLEM MATERIALS IN SEWAGE:

There have been a number of materials added to washing products whose effects on the environment are not definitely known. Phosphates, added to improve the washing power of detergents, for example, have been fingered as one of the causes of eutrophication in lakes and rivers. However, there is some evidence that phosphates alone are not responsible, but rather require the addition of nitrates and carbon materials to produce widespread growth of plants. These in turn become so numerous that they almost literally choke to death and then descend to the bottom of the water to decompose by the action of bacteria. These bacteria us:



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1. Robert W. Holcomb, "Waste-water Treatment: The Tide is Turning," SCIENCE, July 31, 1970, pp. 457-459, has a good summary article on present methods of waste water treatment. ADVANCES IN WASTE-WATER TREATMENT, Pilot Plant, Lebanon, Ohio, Federal Water Pollution Control Administration, U.S. Dept. of Interior. Walter J. Weber, J. Charles B. Hopkins, and Ralph Bloom, Jr., "Physicochemical Treatment of Wastewater JOURNAL WATER POLLUTION CONTROL FEDERATION, Jan. 4/ 1970, pp. 83-99. RELEASE from the Blue Plains Water Pollution Control Plant. John L. Rose, "Advanced Waste Treatment in Nassau County, N.Y.," WATER AND WASTES ENGINEERING, Feb. 1970. Russell L. Culp and Harlan E. Moyer, "Wastewater Reclamation and Export at Lake Tahoe," CIVIL ENGINEERING, June 1969. WASTEWATER PURIFICATION AT LAKE TAHOE, Release from the Lake Tahoe Treatment Plant. Board of Directors, South Tahoe, SOUTH LAKE TAHOE WATER RECLAMATION SYSTEM. Harlan E. Moyer, "The South Lake Tahoe Water Reclamation Project," PUBLIC WORKS, CITY, COUNTY AND STATE, Dec. 1968. "Waste Processes: A Little More Oxygen," CHEMICAL AND ENGINEERING NEWS, March 23, 1970, pp. 16-17. Bruce Matzner, 8-31-70.

up the available dissolved oxygen in the waters during the decomposition process which "kills" both the waters and the marine life. Eutrophication, as it is called, is a natural process, but the presence of the nutrients (carbon, phosphates and nitrates) greatly hastens the process. The nutrients, present in large quantities in sewage, are not removed in a primary treatment plant, although a secondary plant could remove the carbon materials, and under such circumstances, it becomes increasingly urgent to have a sewage treatment plant which can remove as much of these materials as possible.

New substances are being developed for detergents to replace the cleaning power of phosphates. As yet, we cannot know what effects these will have on the waters, marine life or human life.

The Suffolk County Legislature is currently considering a ban on all detergents in the County. So-called "hard" detergents do not break down under ordinary circumstances and remain to pollute the waters in which they are emptied. They are generally not available to the public now. The substitute "soft" detergents (biodegradeable)

1. Mr. Bruce Matzner, 8-6-70. Professor Edwin Battley, 8-11-70. NEWSDAY, Editorial, June 22, 1970; Aug. 18, 1970. Dr. Erwin Ernst, 7-21-70.

do break down, but since they require oxygen for decomposition, they must pass through a secondary sewage treatment plant in order to decompose. Unfortunately, biodegradable detergents remain intact in cesspools, septic tanks and primary treatment plants.¹

Enzymes are another substance newly added to cleaning compounds. Since they are the product of bacterial action, they themselves are decomposable and seem to offer no adverse effects on the quality of the water.²

Mandated Upgrading of the Port Jefferson Plant:

About 3 years ago, recognizing the inadequacies of primary treatment, the State Health Department required ALL primary treatment plants in the State to be upgraded to at least a secondary system. Unfortunately, secondary treatment does not remove many of the persistent substances either.

In response to the Health Department mandate, the Brookhaven Town Board engaged the Ruffa engineering consultants to survey the projected population growth, the

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1. NEWSDAY, Aug. 21, 1970; Aug. 18, 1970. NEW YORK TIMES, Aug. 17, 1970; Aug. 21, 1970. L.I.PRESS, Aug. 19, 1970.
 2. Dr. Edwin Battley, 8-11-70. Soap and Detergent Association, FACTS ABOUT DETERGENTS, # 7170, p. 2.

types of treatment plants available, estimated costs, and possible effects of the discharged effluent, and to then make recommendations for upgrading the Port Jefferson plant. The BAFFA REPORT, published in March 1970, proposed a conventional "activated sludge" secondary treatment plant. The system would have a capacity of 4.5 mgd with potential expansion to 8 mgd. Plans called for a scavenger wastes (cesspool pump-outs) materials) to be pretreated in a separate facility before being added to the main treatment plant. The outfall pipe would discharge into either L.I.Sound or the Harbor, although the L.I.Sound location was preferred by the firm because of the additional dilution expected. Estimated costs for the entire project were \$7,391,250. which included \$100,000. for land, \$380,000. for scavenger waste treatment, and \$2,300,000. for the outfall pipe into the Sound. An alternative outfall pipe into the Harbor would cost \$200,000.

At present the Suffolk County Legislative Sewer Committee is considering alternative methods of treatment for Port Jefferson. Among them is a proposal suggested by Dr. John Dawson of the University's Health Services Center, which combines

1. BAFFA REPORT, pp. Sect. 1, pp. 5-8; Sect. 12, pp. 1-4.

a primary treatment plant with activated charcoal (the physicochemical process), to remove such problem ingredients as nitrates and phosphates. There are a number of such plants in operation in the country.

Predicted Advantages of the Physicochemical Process:

1. It occupies only $\frac{1}{4}$ of the land area required for a conventional secondary plant.
2. The effluent is of a high quality, pure enough to drink or to return to the water table if needed, because it removes up to 95 % of the nitrates (normally exceedingly difficult to remove), up to 90 % of the phosphates, 100 % of the suspended solids, and 95 % of the total organic carbon.
3. There is no noticeable odor as there is with conventional secondary plants.
4. It does not depend on bacterial action to remove undesirable constituents, and hence acids and alkalines in the sewage inflow will not interfere with effective treatment. In conventional biological systems, such interference can curtail effective treatment for periods up to several weeks.
5. It can be built rapidly (estimated construction time is less than 1 year), with flexibility in design, and additional types of treatment could be added later.
6. The sludge produced in this type of plant contains less water and can be disposed

of by burning without air pollution. The carbon dioxide formed in the burning process is captured for use in another part of the treatment.

7. The estimated cost of building a physicochemical plant is considerably less than the conventional primary and secondary plants.

ESTIMATED WASTEWATER TREATMENT PLANT COSTS, BASED ON 1967 DATA: ¹

| Plant size (mgd) | 0.1 | 0.5 | 1.0 | 10.0 | 100.0 |
|---|------------|------------|------------|-------------|--------------|
| ESTIMATED CONSTRUCTION COSTS IN 1000 of \$ | | | | | |
| PHYSICOCHEMICAL PROCESS | | | | | |
| Preliminary treatment | 4 | 10 | 15 | 65 | 250 |
| Coagulation-sedimentation | 10 | 30 | 52 | 400 | 3200 |
| Filtration | 20 | 57 | 90 | 410 | 1900 |
| Granular carbon | 100 | 250 | 380 | 1600 | 6800 |
| Chlorination | 3 | 9 | 15 | 70 | 320 |
| TOTAL | 137 | 386 | 552 | 2545 | 12470 |
| OTHER PROCESSES | | | | | |
| Primary treatment | 80 | 220 | 350 | 1750 | 9000 |
| Activated Sludge | 100 | 310 | 550 | 3100 | 20000 |
| Activated Sludge plus Tertiary treatment | 230 | 647 | 1072 | 5510 | 31000 |

The plant at Cortland, New York, a 10 mgd plant, now under construction, will

1. Figures from Walter J. Weber, Jr., et al., "Physicochemical Treatment of Wastewater," JOURNAL WATER POLLUTION CONTROL FEDERATION, Jan. 1970, p. 97.

cost at 1970 prices \$4,550,000. A conventional primary and secondary system would cost \$6,160,000, without the high quality effluent obtainable with the physico-chemical method. Additional savings can be made on interest on bonds, since the amount borrowed in the first place would be less. A physicochemical plant currently being built in Syracuse will process 10.5 mgd. and will cost \$3 million. A third physicochemical plant at Poughkeepsie with a design capacity of 8 mgd will run \$4,880,000., compared to a conventional plant costing \$5,144,000.

8. Operating and maintenance costs are also less for a physicochemical plant than for a conventional secondary treatment plant.

1

ESTIMATED OPERATING COSTS IN CENTS PER 1000 GALLONS

| Plant size (mgd) | 0.1 | 0.5 | 1.0 | 10.0 | 100.0 |
|--|-----|-----|-----|------|-------|
| Physicochemical Process | 58 | 36 | 29 | 16 | 10 |
| Primary Treatment | 21 | 14 | 12 | 7 | 4 |
| Activated Sludge Process | 31 | 22 | 19 | 11 | 7 |
| Activated Sludge Process Tertiary Treatment | 87 | 56 | 47 | 26 | 16 |

1. The advantages of the physicochemical system were composited from 2 position papers by Dr. John Dawson, which he submitted to the Suffolk County Legislative Sewer Committee in August; from Walter Weber, Jr. et al., "Physicochemical Treatment of Wastewater," JOURNAL WATER POLLUTION CONTROL FEDERATION, Jan. 1970 and from the Lake Tahoe Studies, see footnote 1, p. 20. The chart is from Weber

Funding for the Port Jefferson Plant:

1. State: In 1967 voters approved the Pure Waters Bond Issue which allocated \$1 billion to clean up the waters of New York State. Under this program, the State agrees to pay up to 30 % of the cost of the proposed treatment plant.
2. Federal: Under the Federal Water Pollution Control Act, Port Jefferson could receive up to a total of 30 % of the cost of the new plant while part of the cost of collection sewers could be reimbursed from the Housing and Urban Development Agency. In all likelihood, however, the total federal contribution would not be the allowable 55 %.
3. University: Approximately 25 % of the cost of the plant can be funded by the University. The State, Federal and University funding is assured to the district only if the University contracts to use the sewage treatment facility. If the University were to build its own treatment plant, the district would lose the expected 85 % Federal, State and University aid, although there might be a small amount available from State and Federal agencies. In addition, the County Health Department has urged the University not to build its own plant. Since

piping the effluent from the University to L.I.Sound would be prohibitively expensive, a University plant would utilize recharge basins, which could endanger County wells, located on the University grounds and distributing water to the public

4. The District: The remaining 15 % of the cost of the plant and sewers must be borne by the residents and businesses in the sewer district.

Procedures for Upgrading the Port Jefferson Plant:

1. Preliminary Study: The Baffa consultants have already studied the district's needs but proposed only a method of treatment. The Department of Public Works accordingly, has selected another firm, Havens and Emerson, to evaluate several alternative methods for Port Jefferson, one of which will be selected for presentation to the Health Department. Legislators Sydney Askoff, chairman of the Legislative Sewer Committee, and Walter Hazlitt have received assurances from Mr. John Flynn, in charge of this phase of the study, that all methods, including
1. Mr. Ernest Warnke, of the State Pure Waters Authority, now part of the State Environmental Conservation Department, 6-24-70. U.S.Dept. of Health, Education and Welfare, FOCUS ON CLEAN WATER, Sect. 5 and 7. Mr. Bruce Matzner, 8-6-70. Mr. Sheldon Ackley, 6-16-70.

the physicochemical method, will receive a fair evaluation.

2. Eligibility Hearings: State and Federal agencies then determine if the plans are acceptable and the proportions of the estimated costs which can be borne by State and Federal funds.
3. Final Plans: Once funding is assured, detailed plans must be submitted to the State and local Health Departments, the Federal Water Quality Administration, the Army Corps of Engineers, and other federal agencies for final approval.
4. Bids and Actual Construction: Under the State and Federal regulations, construction must be started and money paid out by the District before March of 1972 in order to receive state and federal funds for the new treatment plant.¹

No matter which type of treatment is selected, however, there is no method which avoids all undesirable consequences. There are always exchanges in the waste treatment process, for there is merely separation of undesirable materials from the water, not destruction of potentially harmful materials. These substances so separated from the waste water require disposal, to a land fill site as sludge, to the atmosphere in the form of gases, or dumped off the Continental Shelf. Each

1. Suffolk County Legislative Sewer Committee meetings, 8-7-70; 8-21-70. Mr. Ernest Warnke, 6-26-70.

"solution" poses its own problems.

THE CREEK has two main tributaries which drain the hilly areas in Port Jefferson and combine into a single stream which emptiesthrough a little wooden spillway next to the Brookhaven Town parking lot on the Harbor. There is a good flow from Suassa Park down past the motel but the eastern tributary is sluggish. In recent months the Village has dredged the creek to improve the flow.

According to Dr. Erwin Ernst, the creek was a nursery with many bait fish coming in on the tide. Now, with part of the creek drained and filled, and the outlet raised above its natural level, there is no tidal flush and material accumulates in the creek, increasing bacterial count and spilling over into the Harbor. Iron bacteria, for example, which are usually associated with high protein decomposition, are in great concentration in the creek, he stated, and may be connected with sewage discharge which has seeped out of cesspools or which is piped directly to the creek.

A study in April 1970 by the Suffolk County Health Department confirmed the existence of pollution in the creek. In the area from Brook Road north and East to

1. Suffolk County Legislative Sewer Committee, discussion, 8-6-70.
2. Dr. Erwin Ernst, 7-21-70.

Main Street there has been an increasing amount of free ammonia, detergent materials iron, calcium carbonate, solids, and coliform recorded, most of which are "specific to wastes of domestic origin."¹

The Health Department indicated that a program has been initiated to locate illegal discharges into the creek and to require persons responsible for these to connect into the sewage treatment plant. According to Mr. Bruce Matzner, all known illegal discharges have been found and are now connected to the plant.²

STORM SEWER RUN-Off - The storm sewer system, formerly connected with the sewage treatment plant has 3 drains into the Harbor: into the creek, under the Port Jefferson Yacht Club, and near the Ferry dock. Grease and oil from automobiles, asphalt, and sand and sedimentation collect on the roads, and during rains, these flow into the storm drains and on into the Harbor. Similarly, fertilizers from lawns and gardens, as well as pesticides, are flushed into the storm drains. These products can upset the nitrate-phosphate balance in the Harbor and be injurious to life.³

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1. Suffolk County Health Dept., WATER SUPPLY AND SURVEILLANCE, REPORT # 2, p. 11, Table 7.
 2. Ibid, p. 11. Mr. Bruce Matzner, 8-6-70.
 3. Mr. Anthony Taormina, 7-1-70. L.I.PRESS, July 9, 1970. Dr. John Bateman and Dr. Robert Sissler, 8-10-70, confirmed the presence of oil in the creek.

During the expansion of the sewer district in 1956, 1961 and 1967, some home owners inadvertently connected to the storm sewer lines instead of the sanitary sewer to the treatment plant. When this situation was discovered, extensive tests were conducted by the Town and later by the County to locate these violations. According to Councilman Robert Reid and Mr. Bruce Matzner, all known violations have been corrected.

The storm sewers and the sanitary sewer lines run parallel for some distance and there may be an exchange of waters from the storm lines to the sewer lines. Pesticides, fertilizers, automobile products and asphalt which then enter the treatment plant do not break down with treatment and enter the Harbor intact. There is no good guess as to the amounts of storm drainage entering the Harbor in this manner but during the flash flood of Saturday, August 3, the amount of input to the sewage plant rose dramatically, which interferes with the proper treatment of sewage.

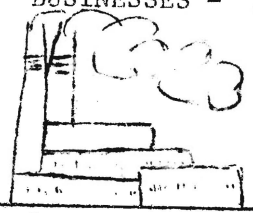
Studies by the County Health Department in April 1970 found large amounts of nitrogens, chlorides, total solids, calcium carbonate, iron and a high coliform count

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1. Mr. Robert Reid, 8-10-70. Mr. Bruce Matzner, 8-6-70.
 2. Mr. Bruce Matzner, 8-6-70. Suffolk County Legislative Sewer Committee meeting, 8-9-70.

(although the latter represented "natural soil run-off not domestic contamination")
1
in the storm drains.

Although fertilizers, pesticides and automotive products constitute a hazard to marine life, there has been no study to determine the amounts of such materials present in the storm drain run-off. Tertiary treatment specific for these materials could take care of some of these substances if the storm sewers were connected to the treatment plant. However, the State Health Department has directed sewage treatment plants to separate storm and sanitary waste lines in order to prevent overloading and inadequate sewage treatment. Until studies have been made of the amounts and types of materials carried into the Harbor through storm drains, we cannot know to what extent these substances create a serious problem for marine
2
life in the Harbor.

BUSINESSES - Several commercial establishments on the Harbor dump effluents into the waters. Although some still pass their sewage wastes and other materials into septic tanks or cesspools near the Harbor, almost all businesses will be hooked into the district sewage treatment plant



1. Suffolk County Depart. of Health, WATER SUPPLY AND SURVEILLANCE, REPORT # 2, April 1970.
2. Mr. Bruce Matzner, 8-6-70. Mr. Anthony Taormina is quoted as saying that road run-off "could put 137 chemical pollutants" into the receiving waters. NEWSDAY, Aug. 24, 1970.

within the year.

The nature of the materials poured into the waste disposal systems also should be considered. Garages, gas stations, and automotive repair shops have a sizable quantity of oil, grease and gasoline which may find its way into septic tanks and cesspools, where no break down occurs before discharge of the effluent. While hook-up with the district sewage plant would improve sanitary waste treatment, the plant could not break down other materials without special treatment, and so would pass into the Harbor virtually unchanged. A further problem can develop if gasoline is mixed with sewage or vapors accumulate in sewer lines for they may accidentally be ignited.

Heated effluents may be another problem affecting the Harbor. The LILCO plant at Port Jefferson uses 300,000 gallons of harbor water per minute to cool its condensers, discharging the salt water near the Consolidated dock, at a temperature about 15 degrees C. above the normal water temperature at the point of discharge.

Although marine scientists have expressed concern about the potential long-

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1. Mr. Bruce Matzner, 8-6-70. LILCO, 7-28-70. Environmental Control Unit, State Conservation Dept., REPORT ON PORT JEFFERSON HARBOR, p. 10.

term effect on marine life from exposure to such thermal discharges, no specific studies have been undertaken to determine the effects in the Harbor. Spokesmen at LILCO reported large numbers of fish directly at the point of discharge which, in their opinion, indicated that the heated water did not adversely affect the fish. They also found no increased plant growth on the screens which filter the coolant water at the intake point.¹

Studies of thermal discharge in the Connecticut River showed little change in the fish population and river bacteria throughout most of the River, with the exception of the area immediately around the discharge point. There a greater variety of organisms appeared than ever before. Similar studies done in Washington (state) on the Columbia River indicated "no demonstrable effect on the fishery resource" there.²

Dr. Erwin Ernst, a member of the study team examining the effects of thermal discharge at the Northport power station, however, found definite signs of ecological damage there which he linked with the heated discharge. Furthermore, when the

1. LILCO, 7-28-70.

2. Daniel Merriman, "The Calcification of a River" SCIENTIFIC AMERICAN May 1970,

harbor water first enters the LILCO plant, it is "pasteurized", which Dr. Ernst thought might destroy certain vitamins which are critical in the marine food chain. He also suggested that the heat from the power plant discharge at Port Jefferson in conjunction with the nutrients from the sewage plant discharge could result in greater algal growths in the harbor. This in turn could lead to an anaerobic situation (a decrease in the amount of oxygen dissolved in the water and available to marine life), which could destroy large numbers of fish, such as occurred recently at Kings Point and other beaches on L.I. ¹ Dr. Peter Weyl of the University's Marine Sciences Research was similarly concerned with changes in the oxygen levels. Dr. George C. Williams also thought increased temperature might encourage marine life to breed out of season without an adequate food supply available to young, or delay emigration until too late for survival. While there is still too little evidence on the effects of thermal discharge on marine life, there appears to be even less documented change in the Port Jefferson Harbor area. ²

pp. 42-52. N.Y. TIMES Aug. 13, 1970.

1. Dr. Erwin Ernst, talk with committee, 7-21-70; NEWSDAY, Aug. 10, 1970; Aug. 11, 1970; Aug. 15, 1970. N.Y. TIMES, Aug. 11, 1970.

2. Dr. Peter Weyl, talk to committee, 6-18-70. Dr. Peter Weyl, Text of Remarks on Thermal Pollution, Nov. 26, 1969. Feb. 6, 1970 pp. 4, 6 Thermal Pollution, L.I. Sound,

BOATS, PLEASURE AND COMMERCIAL: According to the Federal Water Pollution Control Administration, Recreational Boating is one of the sources of pollution in L.I.



Sound and its harbors. With a ten-fold increase in the number of boats used for recreation in the past 10 years, even a very small increment in what goes overboard can add enormously to the problem of pollution. The marina areas in the Harbor are at times heavily fouled with suspended solids, floating solids and recognizable odor, and while there are laws forbidding such discharges from boats, it is clear that at least some of the craft have disposed of waste materials while in the Harbor. In addition, oil and gasoline from both outboard and inboard engines add a film to the water. The lighter part usually volatilizes readily, but the heavier materials sink to the bottom where they decompose slowly and may poison marine life.

Commercial Vessels also use the Harbor, including sand, gravel and trap-rock barges, tankers for the Consolidated dock, and oil barges supplying the LILCO plant, and the 3 independent tank farms on the waterfront. The Port Jefferson-

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1. Observations by the study committee. Talks with people on the docks, including Suffolk County Marine Police. "Boating and L.I. Sound Pollution," THREE VILLAGE HERALD, July 24, 1970. Environmental Control Unit, New York State Conservation Dept., PORT JEFFERSON REPORT, Jan. 30, 1970, p. 10.

Bridgenort ferry is another commercial vessel using the Harbor, carrying approximately 17,000 cars and 140,000 passengers in 1969. It has no holding tank aboard the vessel to contain its sewage and raw sewage is flushed into L.I. Sound as the ferry makes its several trips to Connecticut each day. Attempts are made to lock the bathrooms while the ferry is in port to prevent wastes from flowing into the Harbor. All of these vessels add a small amount of oil to the waters. They are not required to have holding tanks although all sewage and garbage must be contained aboard until the vessel leaves the Harbor. Although there have been charges of violating these laws, there has been little documentation. A Canadian tanker, however, is alleged to have pumped its bilge while at the LILCO dock this past spring, and the Coast Guard has orders to board the vessel at any U.S. port to take action against the ship.



Laws Governing the Dumping of Materials Into Waterways:

1. Federal - Since 1888 Congress has forbidden the dumping of "refuse, debris, sludge, acid, oil or similar matter in New York Harbor or its adjacent waters." Garbage, trash, ballast water from fuel tanks and bilge water require a permit from the Army Corps of Engineers and must be discharged at designated dumping
1. Captain Tooker, 8-29-70. LILCO, 7-28-70. Observations of committee.

grounds. New regulations prohibit any discharge of oil great enough to cause a visible oil slick, the use of detergents to clean up such spills, and tightens controls against oil spillage.¹

2. State: The State Water Resources Commission has established standards forbidding the discharge of solids, garbage, cinders, ashes, sludge, toxic wastes, oils and other deleterious substances which affect the quality of the water in the Harbor. In addition, as of March 1, 1970, the State Legislature amended the State Navigation Laws to require boat owners to install holding tanks on board their craft rather than discharging untreated sewage into State waters. This aspect of the law applies to Suffolk County.²

3. Village: Port Jefferson, through its Boat Control Ordinance also forbids "discharging of toilets . . . in areas designated as boat basins, anchorages or bathing areas." The other villages have similar rules.³

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1. Corps of Engineers, SPECIAL NOTICE, May 20, 1960. REFUSE ACT OF 1899, Sect. 497, Title 33 of the U.S.Code. NEW YORK TIMES, July 25, 1970; August 5, 1970.
 2. BAFFA REPORT, Sect. 3, pp. 8-1, 8-2, 8-3. NEWSDAY, June 3, 1970; August 15, 1970.
 3. PORT JEFFERSON CODE, Chapter 28, "Boat Control," pp. 2801-2807. Ordinances of Village of Old Field, Chapter 8, "Use of Waterways," pp. 31-2.

4. Industrial Regulations: Both LILCO and the Consolidated dock have strict rules governing the disposal of refuse, mandatory safety precautions, and oil spills. To ensure compliance both companies have personnel on the dock at all times during unloading operations. LILCO tugs follow all LILCO tankers out of the Harbor for a distance of 3 miles to ensure against a ship running its bilge or illegally discharging its sewage or garbage.

Enforcement: The Coast Guard and the Suffolk County Police, Marine Division, are charged with overseeing these regulations. Both agencies have a large area to patrol and budget cuts have reduced the number of Suffolk County patrol boats to 2. The Coast Guard, the only marine agency with power to board a boat, has a team which spends full time inspecting boats and checking on violations.



There are other problems of enforcement as well. With numerous incorporated villages as well as Brookhaven Town, Suffolk County, and State and Federal regulations, there are overlapping laws and jurisdiction. and it becomes important to

1. Consolidated Petroleum Terminal, Inc., TERMINAL REGULATIONS. LILCO, Port Jefferson Power Station, FUEL OIL TANKER INSTRUCTIONS. Mr. George Soos, 8-18-70.

know the exact location where an alleged infraction occurred, since there is no single court which can handle all violations. Because Suffolk County is exempt from most of the provisions of the State's Navigation Laws, each village has had to enact these ordinances.¹

Despite the fact that the State has appropriated \$250,000. to provide pump-out stations throughout the State, there are only 15 such stations on L.I., and only 1 on the north shore, the 1 at Glen Cove. There is none in Port Jefferson, although Gudzik Marine has asked for a permit to build such a station. Merely installing pump-out stations is not the whole answer. What is done with the effluent after pump-out is equally important. Septic tanks or cesspools might very easily leech into the Harbor. Connection with the district's present sewage plant would assure some treatment of the materials prior to discharge into the Harbor.

The State Environmental Conservation Department, charged with the enforcement of the holding tank law, has 6 agents to police the whole state, and budget cuts eliminated another 7 scheduled for L.I. The agents are sent to the areas with the highest priority, which is based on the number of boaters, the size of the bodies
1. Suffolk County Police, Marine Division, 8-11-70.

of waters to be policed, and the uses to which the waters will be put. Since sources of drinking water take precedence over larger bodies of water used primarily for recreation, the lakes and rivers upstate received first attention. In addition, the laws are ambiguously worded and new Federal regulations will take precedence over state laws. Such conditions have discouraged ready compliance with the laws.

Port Jefferson Harbor covers an area of about 2 square miles. From the jetties to the Town Marina it is about 1.2 miles long and ranges from .2 to 1.2 miles in width. In 1903 the Harbor received federal monies to dredge a channel to a depth of 12 feet below mean low tide. In the intervening years this portion of the Harbor has been successively deepened until reaching its present depth of 26 feet in 1957. The channel now is 300 feet wide, 2.6 miles long and runs from the deep water of L.I.Sound to the area around the Consolidated dock on the west side of the Harbor. (see map) At the present time the channel is used primarily by tankers bound for the Consolidated dock, oil barges for LILCO, Swezey and Esso, and the sand and gravel barges. Since 1957 there has been a proposal to alter

1. "Boating and L.I.Sound Pollution," THREE VILLAGE HERALD, July 24, 1970. NEWSDA June 3, 1970; Aug. 15, 1970. Editorial, SOUNDINGS, Dec. 1968. "Water Pollution and Boats, YACHTING, June 1970, pp. 70-71.

the channel to provide for a depth of 40 feet, a width of 350 feet and a turning basin approximately 700 feet wide and 1400 feet long.

2

Projected Population Growth:

| Area | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Nassau-Suffolk | 2,225,000 | 2,600,000 | 2,750,000 | 3,300,000 | 3,750,000 | 4,205,916 |
| Suffolk | 900,000 | 1,140,000 | 1,400,000 | 1,662,608 | 1,800,000 | 2,059,000 |
| Brookhaven | 109,000 | 230,000 | 335,000 | 378,000 | 515,000 | 650,000 |
| Port Jefferson | 4,000 | 5,600 | 7,300 | 9,000 | 10,100 | 10,500 |
| University | ----- | 11,000 | 26,000 | ----- | ----- | 35,620 |

1. Lawrence A. Wills, Coordinator of Transportation Management, SUNY at Farmingdale, A PROPOSED WATER RESOURCE IMPROVEMENT IN PORT JEFFERSON . . . , Dec. 1969, p. 1.
2. Nassau-Suffolk population figures from NEWSDAY, July 13, 1970, LILCO estimates and Regional Planning Board.
Suffolk figures composited from NEWSDAY, July 13, 1970. N.Y.State Office of Planning Coordinator, L.I.WATER RESOURCES, p. 26, Table 10, Plate 11. N.Y. State Water Resources Commission, Bulletin # 62, AN ATLAS OF L.I.'s WATER RESOURCES, p. 10, p. 11, Figure 4.
Brookhaven figures from N.Y.State Office of Planning Coordinator, L.I.WATER RESOURCES, p. 26, Table 10, Plate 11. Regional Planning Board.
Port Jefferson figures from the BAFFA REPORT, Plate 2.
University's figures from Mr. Sheldon Ackley, 6-16-70. BAFFA REPORT, Sect. 4-5, Table 4 - 1. There are no projections for the years 1980 and 1985. In 1976 plans call for the opening of a 400-bed hospital, further increasing the numbers of people to be served, and by 1990, a V.A. Hospital, all of which would seem to indicate that the 1990 figure may be low.

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Current Petroleum Demand:

| Area | Product | Year | Gallons |
|----------------|--|------|-------------|
| Nassau-Suffolk | gasoline | 1967 | 633,894,750 |
| Nassau-Suffolk | # 2 oil (home heating oil) | 1968 | 996,396,600 |
| Port Jefferson | oil and gasoline coming through terminals | 1969 | 516,000,000 |
| Port Jefferson | oil and gasoline through Consolidated terminal | 1969 | 399,094,731 |
| Port Jefferson | oil and gasoline through Consolidated Terminal | 1970 | |
| | first 4 months | 1970 | 356,664,000 |

Projected Demand for Petroleum Products:

There has been a steady increase in the number of power boats in use on L.I. Sound. Local automobile registrations have increased at the rate roughly of 20,000 per year since 1959. As families have added power boats and second cars, per capita consumption of gasoline has been increasing, averaging 242 gallons per person in 1967. With increased population there will be an even greater increased

1. Professor Lawrence A. Wills, PORT JEFFERSON, N.Y., A POSITION PAPER ON THE PUBLIC NEED FOR HARBOR NAVIGATION IMPROVEMENT . . . , October 1969, p. 2-4. Mr. Harold Bernstein supplied the committee with figures on the amounts of petroleum that came into the Port Jefferson terminals during 1969 and 1970. Nearly 3 billion gallons of petroleum were used by the 2 counties in 1968. NEWSDAY, Aug. 20, 1969.

demand for gasoline.

The need for fuel oil will also increase. In 1963 almost 81 % of the homes in Suffolk County were heated by fuel oil. During 1969 the Consolidated tank farm in South Setauket supplied gas stations and oil companies with enough gasoline for 400,000 cars and fuel oil for 200,000 homes. In the first four months of 1970, Consolidated has received almost as much gasoline and fuel oil as it did during the whole of 1969. (see chart p. 44)¹

The Problem: At present most of the petroleum products used in the Port Jefferson area are brought in by tankers and barges, with some additional gasoline truck in from other terminals on L.I. In the Harbor there are 4 receivers of petroleum products: Consolidated Terminal, Mobil (which now takes its products through Consolidated), Esso (which also finds its dock facilities inadequate and uses the Consolidated Terminal for part of its unloading and for storage), and Swezey. Consolidated, the largest receiver in the Harbor, estimates that within 4-5 years

1. THREE VILLAGE HERALD, July 24, 1970. Ei County Regional Planning Board, TRANSPORTATION, p. 1, has a chart showing increases in vehicle registrations in Suffolk County from 1951-1966; p. 2 carries projected numbers of automobiles for 1970-1985; p. 28 gives the per capita consumption of gasoline; p. 29 contains information on fuel oil use in Suffolk County. Data on Consolidated's volume were supplied by Mr. Harold Bernstein. Senator Charles Goodell to Mrs. Clifford Swartz, 8-29-70.

its dock will have reached capacity, and , with fuel consumption increasing at the rate of about 5 % per year, petroleum deliveries by tanker will be inadequate to supply the needs of the population.

There are then several alternatives available to solve the problem: 1) the channel could be dredged to a depth of 40 feet which would allow fully loaded tankers to come into the Harbor, thereby increasing the total amount of petroleum for the area; 2) an off-shore terminal could be built which would alleviate some of the problems of the present docking situation and provide additional petroleum supplies; 3) pipelines could be built: from Northville, or from the metropolitan area, or from the Texas or California oil fields, which would increase the available petroleum supply to Port Jefferson; or 4) trucking could take up the slack.

DREDGING

1. feasibility - There seems little question about the feasibility of the dredging proposal. After examining other possible methods of supplying oil products, the costs of all methods, the benefits in economic terms, the compared advantages and disadvantages, the Army Corps of Engineers concluded that the dredging project would be the most economical, most feasible, and most bene-

1. Mr. Harold Bernstein, 5-12-70. NEWSDAY, Aug. 20, 1969 gave % increase of fuel consumption.

ficial means of supplying petroleum to the Port Jefferson area.

2. costs - The 1966 estimate for the dredging project, according to the Army Corps' SYLLABUS, was \$2,456,200. The project has received Congressional approval for federal funding but the funds have not been appropriated. At present the Senate has approved \$50,000. for a preliminary study of the project and that appropriation awaits action by the joint House-Senate Conference.

3. Proponents argue that:

a) It would assure the Port Jefferson area and central L.I. of an adequate petroleum supply for at least 30 years, and the Army Corps predicts 50 years. Dredging the channel would allow a fully loaded tanker to come into the Harbor. At present, the channel depth of 26 feet plus an additional 6 feet at high tide allow only small tankers or partially laden tankers to enter the Harbor without dragging the bottom. Under such conditions, it takes longer to receive a given amount of petroleum, and by 1975 without the dredging, Consolidated expects the tanker dock to be operating at full

1. Army Corps of Engineers, SYLLABUS, 1967 edition, p. 6.

2. Army Corps of Engineers, SYLLABUS, 1967, p. 6. NEWSDAY, August 18, 1970.

capacity.

- b) It would provide petroleum products at a considerably lower cost than present tanker delivery costs. A tanker with a full cargo must lighter (discharge part of its cargo into barges) out in the Sound, a procedure which takes 12-18 hours to complete. Even with lightering, a tanker depends on high tide in order to provide enough depth to enter the Harbor safely. If the lightering takes too long, the tanker may have to wait an additional 6-9 hours for high tide before entering the channel. The overall delay may be as much as 24 hours. Lightering and tidal delays are expensive, adding an additional \$8000. -plus to the cost of the cargo, which is passed on to the consumer. In addition, to bring in the amount of petroleum equivalent to a full tanker load, it is necessary now to bring in the partly loaded tanker plus 1 or 2 barges, all of which add extra and unnecessary expense to the cost of the product and increase oil traffic in the Harbor. While there is no assurance that savings in transportation costs would be passed along to the consumer, labor costs will continue to rise, which add to the consumer's cost. Trucking rates, for example, have recently rose enormousl

and the increase will be passed on to the consumer.

c) Dredging would reduce the chances for an oil spill. In the opinion of tanker captains, dockmen, Mr. Anthony Taormina of the State Conservation Department, Mr. Lee Koppelman and the owners of the Consolidated dock, the less often the cargo is transferred, the less is the likelihood of spills and/or fire. By eliminating the lightering operations in the Sound, at least 2 handlings of each cargo are also eliminated. Small tankers are old and have older equipment, less mechanical control over the cargo, and less adequate fire-fighting apparatus, all of which increase the chances for spillage. The present trend in tanker building is toward the larger size (about 700 feet long) with a carrying capacity of about 330,000 barrels. By utilizing the larger tankers, the company is assured of the newer and better equipped vessels, with more competent crews and more mechanical control of the cargo, thus reducing the chances for mis-handling.

1. Mr. Harold Bernstein, 5-12-70; 5-15-70. NEW YORK TIMES, Aug. 2, 1970.

PENN CHAMPION schedule: (335,000 barrels)

| | | | |
|------------|------------------------------|-----------|----------------------|
| 11:30 P.M. | 5-14-70 arrival | 7:30 P.M. | 5-16-70 hold emptied |
| 4:00 A.M. | 5-15-70 lightering began | 9:30 P.M. | 5-16-70 left port |
| 6:00 P.M. | 5-15-70 lightering completed | | |
| 7:30 P.M. | 5-15-70 at dock | | |

TOTAL 46.5 hours, 26 hours in port

d) With dredging, an adequate petroleum supply could be extended via pipeline to other areas of L.I., as suggested by the Bi-County Planning Board.

Trailer truck traffic could be eliminated from 1 full highway lane, a considerable savings in highway cost, traffic congestion and frayed nerves. 1

4. Opponents Argue That:

a) There is potential ecological damage to the Harbor. There is a difference of opinion as to whether dredging would constitute an environmental hazard, and if so, to what extent. Mr. Anthony Taormina of the State Environmental Conservation Department reported that the best depth for any dredging was 12 feet, since at that depth a good flow of water could be maintained and sunlight could still penetrate the water adequately for plant life. How-

GULF PANTHER schedule: (178,000 barrels)

6:00 A.M. 7-12-70 arrived at dock

5:00 A.M. 7-13-70 completed discharge

6:30 A.M. 7-13-70 out of Harbor

TOTAL 23 hours in the Harbor

2. Interview with Captain Wallace Morrow of the PENN CHAMPION, his third mate, 5-15-70. Interview with Captain Brewster of the GULF PANTHER, 7-12-70. Mr. John Reiff at the Consolidated dock, 7-12-70. Mr. Anthony Taormina, 7-1-70. Mr. Lee Koppelman, 8-28-70. Mr. Harold Bernstein and Mr. Howard Westfall of Consolidated, 5-12-70; 5-15-70. NEWSDAY, July 21, 1970; July 22, 1970; July 20, 1970.
1. NEWSDAY, July 13, 1970. Mr. Harold Bernstein, 8-24-70.

ever, if the dredging has already gone to a depth of 15 feet or more, as is the case with Port Jefferson, these considerations would no longer be applicable, he stated. Any biological damage to plant and other marine life would already have been done. Both he and Mr. Quentin Bennett, also of the State Environmental Conservation Department, expressed concern that there be no "rocket" dredging which might leave holes of stagnant, polluted water. To forestall this situation, Mr. Taormina advocated continuing the dredged channel well into the Sound to ensure proper flushing action of the tide.

Dr. Donald Squires of the University's Marine Sciences Research Center cautioned about the importance of the method used to do the dredging and warned that if silting occurred as a result of improper dredging, the shellfish beds would become encrusted with the fine materials, eventually hardening over the marine life there, and possibly ending the importance of these areas as a nursery, while potentially endangering the immensely productive areas of Conscience Bay. If hydraulic dredges could be used (which scoop up the fine silts before they have a chance to spread throughout the Harbor) and if a safe dumping ground

1. Mr. Anthony Taormina, 7-1-70. L.I.COMMERCIAL REVIEW, 7-2-70. Mr. Quentin Bennett 6-1-70.

could be found for the dredged materials, this danger to the Harbor could be minimized, a view with which Mr. Taormina and Mr. Bennett concurred.

Dr. Erwin Ernst, Research Associate in Estuarine and Coastal Ecology with the Osborn Laboratories of Marine Sciences at the New York Aquarium, suggested that the Harbor was a little cul-de-sac, getting only a little swish from the tide. Deepening the channel might result in less of a swish, in his opinion, and possibly an anaerobic situation might result in the dredged areas. Dr. Ernst also feared that the dredges might break through the clay barrier protecting the fresh water supply for this area, resulting in an outpouring of the fresh water, a lowering of the pressure head and salt water intrusion into local wells.

Mr. Phillip Cohen, Chief Hydrologist with the U.S.Coast and Geodetic Service, stated that no detailed geology and hydrology study of the Port Jefferson region had been made. He cautioned against the assumption that a clay barrier existed or even that it was a pertinent barrier. If it existed at all, it might

1.Dr. Donald Squires, 6-1-70. Mr. Anthony Taormina to Mrs. Clifford Swartz, 7-31-70. Mr. Quentin Bennett, 6-1-70.

2.Dr. Erwin Ernst, 7-21-70.

vary in thickness from 1 to 300 feet, he noted, and if thin, it might very well be an irrelevant barrier, existing between layers of salt water, rather than separating the salt from the fresh. He urged that studies be made before dredg-
1
ing to determine the importance of the clay layer.

According to Mr. Glenn H. Von Gunten, Chief of the Engineering Division of the Army Corps of Engineers, there are places in the Harbor which have already been dredged to a depth of 40-45 feet, and "whatever dredging has been accomplish-
ed has not given evidence of encountering any clay layer." He added that such environmental questions would be reviewed during the pre-construction study. He also thought the "problem of suspended silts caused by the dredging operations in Port Jefferson Harbor would probably be minimal since the bottom materials
2
are generally of sand size which settle out quite rapidly."

b) Dredging may commercialize the Harbor. There are 4 pieces of property on the waterfront which are zoned for industry: LILCO, Consolidated dock, Swezey, and Esso. All other properties immediately adjacent to the water-
front are zoned marine-waterfront, and the industries presently in opera-

1. Mr. Phillip Cohen, 8-7-70. Mr Taormina confirmed that there was always the possibility of breaking through such a barrier, but did not think the clay lenses had ever been inventoried and catalogued. Taormina to Swartz, 8-31-70.

tion on these properties represent a non-conforming use. As long as they continue their present operations, they can remain at their locations indefinitely, but they cannot legally expand these operations nor change the type of business on their property. ¹ With the exception of the Consolidated dock, all of the industrial operations now in existence on the waterfront do not need a deepened channel for their business. Their suppliers will continue to ply the Harbor, whether the dredging proceeds or not. The dredging should have no effect on this, one way or another.

There is some hope that the Swezey and Esso tank farms will move their storage operations away from the waterfront, either to a new tank farm or with the Consolidated tank farm in South Setauket. Such a project would beautify the western section of the Harbor and eliminate a potential fire hazard. If these companies utilized the Consolidated dock, with storage facilities inland, this might free these properties for other industrial uses. This could occur whether the Harbor is dredged or not. However, in order for these docks to

2. Mr. Glenn H. Von Gunten to Mrs. Clifford Swartz, 8-12-70.

1. Dr. John Bateman and Dr. Robert Sisler, 8-10-70.

utilize the channel, the dredging would have to be extended to their docks¹
an extension that is not embodied in the present proposal.

- c) Providing a dredged channel would turn Port Jefferson into a deep-water cargo port. Opponents argue that if ocean-going vessels can use the Harbor they will. Unless the channel is extended to other docks, however, such vessels would have no place to unload their cargo except at the Consolidated dock or LILCO. It is unlikely that LILCO will agree to their dock becoming an unloading facility for other than LILCO products and Consolidated has already turned down such a proposal.

In addition, roads out of the Harbor are inadequate for commercial traffic. Pipelines or conveyor belts would be needed to move freight inland and it is possible such lines or conveyor belts could be built. The Bi-County Regional Planning Board has in fact urged that a conveyor belt move the present sand and gravel operations in Port Jefferson away from the dock to some inland terminal.

1. Mr. Harold Bernsvein, 7-22-70, Army Corps of Engineers, SYLLABUS, contains a detailed description of the dredging proposal.

The Bi-County Planning Board, however, stated that there is "no economic justification for the often proposed general cargo port at either Port Jefferson or Greenport," citing the fact that Port Jefferson Harbor is "hampered by space and road considerations and should be adapted for more recreational use." Mr. Lee Koppelman, the chairman of the Planning Board, stated that no port on L.I. could compete with the port of New York because there is not enough diversity of trade nor anything like the volume needed to make bulk cargo pay. At present he contended, lumber, trap rock, sand and gravel, and petroleum were the only bulk cargoes which could be handled in sufficient quantities to be economically justified, and lumber moved more satisfactorily by rail to its destination here. He could foresee no change in the type of industries locating on the Island in the future to alter this view and under these circumstances, he stated, he could not possibly conceive that it would ever be profitable for Port Jefferson to become a deep water port.

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1. Mr. Harold Bernstein, 7-22-70; 8-18-70; 9-1-70. NEWSDAY, July 13, 1970. NASSAU-SUFFOLK COMPREHENSIVE DEVELOPMENT PLAN, A SUMMARY, proposed transportation routes. Mr. Lee Koppelman, 8-28-70.

d) Giant supertankers would come into the Harbor, if the Harbor is dredged.

The tankers currently using the Consolidated dock carry 125,000 to 335,000 barrels. The ships vary in length from about 550 feet to 700 feet, the most common being the jumbo-sized T-2, about 575 feet long and carrying about 178,000 barrels. Larger tankers could not be accommodated at the Consolidated dock because they would extend beyond the Consolidated property limit (their maximum frontage is 700 feet.) It is the opinion of Mr. Harold Bernstein, Vice-President of Consolidated, that it would be unsafe to bring in the giant supertankers which are 900-1000 feet long because of the narrowness of the channel and of the Harbor. Such vessels could not turn around to leave the Harbor because there is not sufficient depth outside of the dredged areas, and it would be too dangerous to exit in reverse through the Harbor mouth. In addition, supertankers cost in excess of \$12 million and no owner of such a vessel would risk damage to it by bringing it into a harbor as narrow as Port Jefferson. The ship owner, the ship captain and the L.I.Sound pilot must approve the Harbor before agreeing to bring a vessel in. When fully loaded, the supertankers draw 60-80 feet and could not enter the Harbor without

lightering, even on full tide.

- e) Tankers would interfere with the recreational use of the Harbor. Sail and power boats have to wait for the tankers to clear the Harbor, opponents argue, and a turning basin would destroy the private moorings. The Committee members interviewed boat owners in Setauket Harbor, Conscience Bay and Port Jefferson Harbor to determine the extent to which tankers presently interfered with recreation in the Harbor. Several pointed out that tanker use in the summer decreased and the boat owners hardly ever saw the tankers enter or leave. All those interviewed had never had to wait for a tanker nor did they know of any such instance. Although some feared that dredging would interfere with their moorings or that they might have to relocate their berths, a comparison of the U.S.Coast and Geodetic Survey map for Port Jefferson with the areas proposed for dredging demonstrates that exceptionally deep anchorages must be provided now if boats moor in that area because it is dredged to depths up to 42 feet. The moorings for the Setauket Yacht Club, for example, are in the shallow-

southeast end of the Harbor.

While dredging the channel will have no effect on the number of barges brought into neighboring terminals, it will eliminate such barge traffic to the Consolidated dock since it is cheaper and safer to use a fully loaded tanker than to rely on barges. In addition, the number of tankers will probably remain the same as are now brought in, at least until the demand increases. Only tankers supplying petroleum products to the Consolidated dock would be using the channel, and the number of large vessels in the harbor would thus be limited by the length of the dock and the time required to discharge their cargoes. At present, with booster pumps at the dock, it takes a tanker about 18-24 hours to empty its hold. This would mean a maximum of 1 tanker per day.

At the present time there is no dredged turning basin, and tankers turn wherever they wish before leaving the Harbor. Consolidated spokesman believe it is safer for all concerned to have a marked turning basin.

1. At the committee's request Consolidated Petroleum supplied them with a list of the vessels which came into the Harbor between Jan. 1, and April 30, 1970, their size, capacity, number of barrels delivered and dates. Mr. Bernstein's comments were made on 8-18-70. Vessel unloading time was supplied by tanker Captains and by Mr. Bob Williams of Consolidated. Several of the Committee visited 2 tankers in the Harbor for additional information.

Public Monies for the dredging project:

Congress has appropriated \$1.2 billion for all civil works projects in 1970-1971

How important is the Port Jefferson project?

1. without it, there would be an inadequate petroleum supply for the area and other parts of L.I.
2. who would benefit from the dredging project?

a) Consolidated Petroleum Terminal, Inc. - Although Congressman Pike has charged that Consolidated is a "very, very prosperous oil company," Consolidated Petroleum sells no oil. It provides docking space for tankers and a pipeline from the dock to a tank farm 3 miles away where there are buildings and storage tanks to rent. At present there are 13 gasoline and fuel oil wholesale dealers renting these facilities on a long-term lease, generally for a 20-year period, and for a stated amount, based on the quantity of storage rented and the number of gallons each company brings through the dock and pipeline. If during the 20-year period of the lease, labor costs and taxes increase, then there can be adjustments upward in the terms of the contract. If labor costs decrease, Consolidated passes along this

decrease to its tenants, as it did, for example, last spring when pipeline costs were reduced from 5¢ per barrel to 4¢.

- b) the oil company tenants - The wholesale petroleum dealers would be assured of an adequate gasoline and fuel oil supply for their customers. The 13 companies using the terminal are: Getty, British Petroleum, Shell, Mobil, Fumble, American, Meenan, Metropolitan, Chevron, Gulf, City's Service, Ashland Oil Co, and Northville Industries. More than 100 local retailers receive their products from the tank farm. Just as Consolidated's profit is based on transportation costs and the volume of products handled, so is this true of each fuel oil and gasoline wholesaler, and for each local gas station attendant and fuel oil deliverer. Savings in transportation costs are passed on by Consolidated to its tenants, although there is no guarantee that the retailer will pass along these savings to his customers.
- c) the consumer also benefits from the dredging - There would be a sufficient supply of petroleum for at least 30 years, and there is the possibility that prices would be lower. Trucking, the only other immediate alternative method of supply, costs more than tanker delivery, and this cost would be passed on to consumers. Mr. Bernstein of Consolidated estimates that about

1900

1901

1902

1903

1904

1905

1906

1907

1908

1909

1910

1911

1912

1913

1914

Belle Terre: The Port Jefferson Chamber of Commerce; and private citizens.

5. Why Should Public Monies Go to Benefit A Private Concern?

a) Proponents argue:

- 1- Every business has the right of access to his property, whether by water, road, rail or air. Dredging would provide that access.
- 2- Federal, state and local monies go to road construction. Why not to dredgin
- 3- Consolidated cannot and will not dredge the Harbor since there is no way to regain that money by charging increased rents to its tenants.
- 4- Consolidated's capital funds should go for the construction of pipelines² to supply a larger area and to stimulate the economy of L.I.

b) Opponents argue:

- 1- Private businesses should pay for their own expansion.
- 2- There is no guarantee that reduced transportation costs will be passed on to the consumer. They may line the pockets of the proponents instead.
- 3- Dredge tailings will be deposited on private property which will increase the value of this property. It should be sold at a fair price or be given

1. NEWSDAY, May 14, 1970; July 13, 1970; August 18, 1970. L.I. NEWS, Aug. 19, 1970. Harbor Liason Committee Minutes contain village opposition letters.

2. Mr. Harold Bernstein, 5-12-70; 5-15-70; 7-22-70; 8-7-70; 8-10-70; 8-18-70; 8-24-70.

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to public beaches.

AN OFF-SHORE OIL TERMINAL

1. Feasibility : The Army Corps of Engineers considered an off-shore facility as an alternative for Port Jefferson. The design facility calls for a mooring in the Sound, 8400 feet northwest of the inner harbor. It would consist of 5 mooring buoys for the stern with 2 anchor chains for the prow. 2- 16-inch pipelines would run under Old Field Beach and through the Harbor to the Consolidated dock. Flexible hose connections would couple the tanker discharge valves to the pipeline. There are 2 other off-shore installations nearby: at the LILCO plant in Northport and the other at Northville. The Northport facility, located nearly 2 miles into the Sound, consists of 3 decahed platforms standing on high steel pilings, embedded 45 feet below into the Sound bottom. The 2 end platforms which are raised above the water 15-20 feet, hold the tanker in place. Huge unloading arms, bolted to the tanker's discharge valves, carry the oil through the central platform to a 24-inch steel pipeline, encased in 2-inch thick concrete and buried 3 feet beneath the bottom. Tankers use the facility about once every 2 weeks.

1. NEWSDAY, Aug. 20, 1970. NEW YORK TIMES, Aug. 13, 1970. Interviews with gas station attendants, fuel oil distributors, and private citizens.

A loaded tanker, carrying about 300,000 barrels of oil, can berth and unload its cargo in 36 hours under good conditions.

The Northville off-shore terminal to the east is located about 7200 feet into the Sound at a depth of 67 feet. It is similar in design to the Corps proposal for Port Jefferson. Northville handles numbers 2, 4 and 6 fuel oil but has no line for gasoline or kerosene. The facility was designed for giant tankers and cannot handle the smaller ones.

2. Costs: Costs are hard to estimate. The LILCO facility, built in 1967, cost in excess of \$2 million, but it handles a different cargo than a similar facility at Port Jefferson would and different safety features are required. Estimates requested by Mr. Harold Bernstein of Consolidated for such a terminal ranged from \$1,750,000 to \$4,900,000, and both companies consulted stated that inadequate knowledge of the topography as well as problems encountered during the testing procedures might drastically alter their estimates upwards. The January 1966 Corps estimate was \$2,426,000. (2)
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1. Army Corps of Engineers, SYLLABUS, 1964, p. 31, paragraph 46. LILCO, NORTHPORT POWER STATION, TECHNICAL INFORMATION; LILCO, THIS IS NORTHPORT; LILCO NEWS, March 1970. Mr. George Soos, 8-4-70. Interview with Captain L.C. McKay in charge of the Northville dock, 7-12-70. Mr. Harold Bernstein, 8-18-70.
 2. LILCO, THIS IS NORTHPORT. Captain L.C. McKay, 7-12-70. Mr. Harold Bernstein, 7-22- Army Corps of Engineers, SYLLABUS, 1966, p. 33.

3. Proponents argue that:

- a) Fully loaded tankers could deliver their cargo to such a depot without light-wring or tidal delays.
- b) It could take part of the commercial activities out of Port Jefferson Harbor and away from recreational areas inside the Harbor.
- c) It would relieve the need for dredging the Harbor.
- d) In the event of an oil spill, it would be kept out of the Harbor.

4. Opponents argue that:

- a) The cost of the facility is high and spokesmen at Consolidated state that benefits would not be great enough to justify the expense.
- b) There would be an increased chance for oil spills, without jetties for protection from winds and rough seas. Neither LILCO nor Northville have had spills but Captain McKay acknowledges that the dangers of spillage are very great at an off-shore terminal. Tanker captains were vehement in denouncing off-shore facilities because of the unsteadiness of the ships during the unloading.
- c) The facility could not be used at all times. Unloading cannot occur when the winds are above 25 MPH nor if the seas are rough. The Coast Guard, which posts small craft warnings when 25 MPH winds, claim the warnings are up most of the winter.

d) There would be other delays.

1- Docking takes longer because of the unprotected slip and the danger of loosening mooring lines during unloading. (Docking time at the Northville terminal is $3\frac{1}{2}$ hours compared with 1 hour at Port Jefferson Harbor.)

2- Discharge time is longer because of smaller pipelines and farther distances to pump.

e) The net result of these factors would seem to be an inadequate petroleum supply, or at least no better than the present dock situation.

f) There are also potential environmental hazards. Very little is known of the ecology of L.I.Sound, the geology of the bottom or the damage which may occur digging a trench 1 mile long and 4-8 feet deep. Dredging of this area would produce the same problems of siltation as would occur in the Harbor and any seepage from the pipeline or breaks would expose the highly productive nursery areas of Setauket Harbor, and Conscience Bay to oil spillage .

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1. Mr. Harold Bernstein, 5-12-70; 5-15-70. Captain McKay, 7-12-70. Third Mate of the PENN CHAMPION, 5-15-70. Captain Brewster, 7-12-70. Mr. Phillip Cohen, 8-7-70. Dr. Donald Squires, 6-1-70. Dr. ERwin Ernst, 7-21-70. Mr. Anthony Taormina, 7-1-70; 7-31-70. John S. Gottschalk and John T.Gharrett (Regional Directors of the Bureau of Sport Fisheries and Wildlife and of Commercial Fisheries for the U.S.Dept. of Interior) to Army Corps of Engineers, May 2, 1963. in SYLLABUS.

PIPELINES

1. feasibility: Pipeline technology has been available since about 1925 and there are currently many lines in the country.

2. Pipeline from Northville:

a) At present Northville handles only fuel oils numbers 2,4 and 6, and there is no line for gasoline from the off-shore terminal. Costs to build a sub-marine pipeline for gasoline would be between \$1,440,000 and \$2,160,000 at 1967 prices. A pipeline from the Northville tank farm to Port Jefferson, about 25 miles, might cost an additional \$2,500,000 to \$3,750,000, at 1967 prices.

b) proponents argue:

1- Port Jefferson would not have to be dredged and could preserve its present character.

2- It could ensure an adequate supply of petroleum for Port Jefferson, at least until Northville reached capacity, which Northville spokesmen indicated was not too far away.

1. E.J.Jensen and H.S.Ellis, "Pipelines," SCIENTIFIC AMERICAN, Jan. 1967, p. 65, estimate \$100,000 to \$150,000 per mile for pipeline construction if no unusual difficulties appeared.

\$100,000 X 25 miles = \$2,500,000. \$150,000 X 25 miles = \$3,750,000.

Captain L.C.McKay of Northville estimated the cost of sub-marine pipeline at

- 3- Environmental damage could probably be kept at a minimum if the pipeline route avoided wetland areas and forested lands. The sub-marine line, however, embodies the same cautions as applied to the dredging and to the off-shore terminal line.

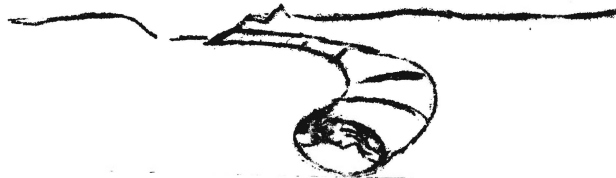
c) opponents argue:

- 1- The financial cost of the on-shore pipeline plus the sub-marine pipeline would be in excess of the dredging costs, a factor which weighs heavily with the Consolidated interests. The cost of tanker products delivered to Northville are approximately the same as when delivered to Port Jefferson, according to the Army Corps of Engineers, but the additional costs of trans-shipping the petroleum from Northville to Port Jefferson would add another \$217,000. to the cost of transportation during 1970 alone.
- 2- Northville has abandoned the proposed pipeline because of excessive public¹ opposition. Without a pipeline, this alternative is not feasible.

\$200. to \$300. per foot.

\$200. X 7200 feet = \$1,440,000. \$300. X 7200 feet = \$2,160,000.

1. Army Corps of Engineers, SYLLABUS, 1967, C28. Mr. Harold Bernstein, 8-18-70.



3. Pipelines from Texas, California or New Jersey:

There already are pipelines from Texas and New Jersey. The Colonial Pipeline which runs from Houston, Texas to the outskirts of New York City, contains 2600 miles of pipeline -- 1600 miles of main pipelining and 1000 miles of spurs. Constructed in 1963 at a cost of \$360 million, its 27 pumps can move 600,000 barrels of petroleum products a day. It is at capacity, with a rationed supply and new laws governing pipelines has forced an additional 11 % cut-back. The Buckeye Pipeline, from Linden, New Jersey to Kennedy Airport, was constructed in 1967 at a cost of \$90 million. There are 2 - 12-inch lines, each 35 miles long, running 30 feet below the bed of the Narrows and along the L.I. railroad across Brooklyn and Queens. It can pump 225,000 barrels per day and it is at capacity. Supplemental petroleum products are brought in to Kennedy by barge.

~~This~~ pipeline ^{is} ~~are~~ owned by the Penn Central. ¹

Because these lines are at capacity, they could not be used to supply Port Jeff.

1. E.J.Jensen and H.B.Ellis, "Pipelines," SCIENTIFIC AMERICAN, Jan. 1967, pp.62-70. H.B.Comstock, "All Steel and a Yrad Wide Colonial Pipeline," POPULAR SCIENCE, Oct. 1963, pp. 130-134 ff. Mr. Harold Bernstein, 8-10-70. "Hard Way to Lay a Pipe," BUSINESSWEEK, Dec. 21, 1963, pp. 37-8. "Pipelines Fear Poor Bargain," BUSINESSWEEK, Jan. 31, 1970, pp. 68-9.

erson. If such pipeline distribution is considered desirable for this area, a new line would have to be constructed. There is currently a proposed study for a line from California to New York City via Chicago, expected to cost \$1 billion costs: A rough idea of costs can be obtained by taking Jensen's figures of \$100,000 to \$150,000 per mile, but these are 1967 figures and they do not indicate special difficulties attending pipeline construction.

Environmental damage is hard to estimate. There is no indication whether the already owned rights-of-way could be utilized for a second line from Texas to New York City, nor to what extent deforestation, dynamiting, interference with stream flow, and such would constitute environmental hazards or represent minimal ecological and environmental damage. As with the other proposals, studies should be made before a new pipeline system is decided upon.

Proponents argue that:

- a) Port Jefferson Harbor would not have to be dredged, or at least it could be postponed, and the Harbor could remain as a marine-recreation facility.
- b) The pipeline could supply petroleum products for all of L.I., as envisioned

by the Bi-County Planning Board, thereby eliminating much of the heavy tractor

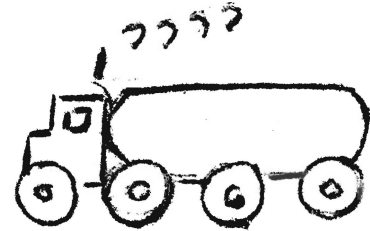
1. Jensen and Ellis, , SCIENTIFIC AMERICAN, Jan. 1967. NEW YORK TIMES, Aug. 28, 1970

- trailer truck traffic coming onto the Island.
- c) The population which could be served with a new line from the oil fields could be vast, and would probably welcome it since the present pipelines are at capacity.
 - d) With pipelines, it would seem that chances for accidents and oil spills would be less than with truck or tanker supply. Computer monitoring of pipelines is possible and leakage detected early would be a preventative.

Opponents argue that:

- a) The cost of a pipeline from the oil fields would be enormous. Who would fund it?
- b) It would take a long time to build and the problem in Port Jefferson is too close to wait for a pipeline. There is no concrete proposal to build a line so time estimates are non-existent. Mr. Lee Koppelman tentatively estimated it would take 7-10 years at best and could very well be longer.
- c) It would very likely become filled to capacity shortly after it opened. Pipelines are expensive and require near capacity operation to make them pay, yet some flexibility to meet future needs would be greatly desired.

especially in an expenditure that great.



TRUCKING

1. Feasibility: It requires no new technology to operate although there may be a question about the adequacy of the tractor-trailer fleet.
2. Costs: Each truck costs \$35-36,000 and the estimated life of a truck is about 5 years. There are 18 wheels on each tractor-trailer and each tire costs about \$100. Using diesel fuel, a tractor trailer gets between 3-5 miles per gallon. Truck transportation would add appreciably to the cost which the consumer pays for his fuel oil and gasoline. Truck distribution from Port Jefferson within a 15-mile radius for fuel oil and 20-mile for gasoline would add an estimated \$749,000. in 1970 to the cost of tanker transportation to Port Jefferson, according to the Army Corps of Engineers. Longer distances would add considerably more. In addition, labor costs are high, requiring about 60 % of a trucker's operating revenue and recently a "tremendous wage increase" was negotiated which will add about 25 % to the current rate of \$15. per hour for truck costs.

1. BI-BOUNTY PLANNING BOARD REPORT. NEWSDAY, July 13, 1970. Mr. Harold Bernstein, 8-10-70; 7-22-70; 5-12-70. SCIENTIFIC AMERICAN, Jan. 1967, pp. 67-8. Mr. Lee Koppelman, 8-28-70.
2. Army Corps of Engineers, SYLLABUS, 1967, p. C-20, paragraph c-32, and Table C-18. Robert E. Bedingfield, "Trucking Industry Faces Troubled Times," NEW YORK TIMES, Aug. 2, 1970. Mr. Harold Bernstein, 8-18-70. talk with a BP dealer, 8-21-70.

3. Proponents argue that:

- a) Dredging of Port Jefferson Harbor would not be necessary if trucks could supplement the petroleum supply.
- b) Trucking could be a temporary solution while allowing more time for a well-thought out permanent solution.

4. Opponents argue that:

- a) Tractor-trailers would have to issue from the metropolitan area, adding to the already heavy congestion of such highways as the L.I.Expressway.
- b) With increased trucks on the road, potential accidents from collisions correspondingly increase, perhaps at an even higher rate,,with resultant oil spillage, fire or both.
- c) Truck traffic takes a heavy toll in terms of highway repair, according to a federal investigating team. Headed by Bernard Sachs, the group concluded the "crucial factor is truck traffic" in the break-up of roads and requires "many hundreds of millions of dollars in repairs.
- d) There are environmental costs as well. Using diesel fuel which is high in sulphur content, trucks spew carbon monoxide, carbon dioxide and sulphur dioxide in great quantities into the air.