

YEASTED

8-23-84

PHILIP TUCKER GIDLEY  
PRESIDENT

GIDLEY LABORATORIES, INC.  
FAIRHAVEN, MASSACHUSETTS U.S.A.

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A SOLUTION FOR P.C.B.  
POLLUTION IN NEW BEDFORD HARBOR

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A recent news article and various others this past year imply that no-one knows how to clean up the harbor and cites such exotic billion dollar proposals as lining the floor of the harbor with a gigantic steel plate and burning a million tons of mud to destroy the P.C.B.s. The New Bedford Harbor contamination is complicated by the presence of both P.C.B.s and toxic heavy metals—both of which must be solved.

Contrarily, a reasonable method for cleaning up the harbor is known, and it is not an exotic billion dollar project. The solution is GIDLAB's proposed "Project Phoenix." "Project Phoenix" would require only well-known existing marine contracting equipment and technology, would save hundreds of thousands of dollars on adjunct projects and would incidentally create capital improvements worth hundreds of thousands of dollars per se; and by spin-off effects, create jobs, new taxable assets and new and expanded marine and industrial businesses.

The basic concept of "Project Phoenix" was originally proposed by Dr. Philip T. Gidley, President of Gidley Laboratories, Inc., to the New Bedford-Fairhaven Harbor Development Committee over six years ago (Harbor Dredging Proposal, March 15, 1972, by Dr. Gidley to Mr. Chester Hathaway, Chairman of the Harbor Development Committee). This initial proposal stressed the judgment that there was no sound chemical or scientific reason for pollution problems by using harbor dredging for bulk-headed fill and also proposed the treatment of dredging spoils by lime slurry separately or by dual Venturi suction. This concept was further developed by GIDLAB in 1974: "Criteria for Disposal Sites for Dredging Spoils"—GIDLAB Report EN-258-44 (Note: This Site Criteria report is included—pages 799091-799094 of GIDLAB's Report EN-799 of July 14, 1977, prepared under contract on Areawide Non-Point Pollution for the Southeastern Regional Planning and Economic Development District). This report developed GIDLAB's "The Cesspool Rule." Additionally, this concept and project plan was addressed in some specific detail by GIDLAB (10/12/74) in a report entitled "Dredging, Fly-Ash and Sludge Disposal: The Humpty-Dumpty Problem" (cf. pp. 799094-799095, GIDLAB Report EN-799, Ibid).

The Humpty-Dumpty report specifically concerns P.C.B., toxic heavy metals and other contaminants and particularly stresses the structural consolidation and enhancement of dredging by fly-ash (fly-ash is itself a contaminated waste product) and lime. The reaction of fly-ash, dredging spoils and lime not only increase structural stability of the "soil" mix but simulates a pozzolanic reaction which inhibits the migration of P.C.B. and heavy metals.

The segment toxic pollutants of New Bedford Harbor are shown in GIDLAB Drawing NP-2, 6/11/77, in GIDLAB Report EN-799 for SRPEDD.

A summary of GIDLAB's "Project Phoenix" plan is as follows:

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A. OBJECTIVES

1. Elimination of the toxic effects of the environmental pollutants in the sediments of the River-Harbor System.
2. Prevention of the continuing economic losses to the fishing industry, to port development, to public utilities, to marina construction, to channel maintenance, to waterfront business expansion, to new bridge construction from this chemical cesspool.
3. Development of a Master Plan for matched classification segments and disposal sites for all River-Harbor dredging spoils to greatly simplify the costs, delays, and duplication of effort of individual permits procedures.

B. "PROJECT PHOENIX" OUTLINE

1. A sediment core sampling on a grid pattern at various depths by harbor segments (cf. NP-2).
2. Chemical analyses of above cores to determine the types, quantities, and hazard rating of the toxicants at various depths and to determine the sediment pollutant "Bed-Level" (Note: GIDLAB defines the "SEDIMENT POLLUTANT BED-LEVEL"—SPBL—as that depth or plateau at which the type, quantity, and hazard of the toxicants has diminished to a point which represents substantially no environmental hazard. Beyond this "SPBL," it is environmentally unnecessary and economically unsound to excavate for removal or cleansing the "cesspool"). Below the "SPBL," further dredging would require only routine "Permitting," and dredging spoils could be safely sited in "normal" locations: e.g., landfills, ocean dumps, construction sites, highway fill, public projects inland, etc.
3. Identify and investigate all appropriate Harbor Disposal Sites (matched pairs) for each Harbor Toxicant Segment.
4. Establish design requirements, construction specifications, and monitoring program (what, when, how) for each disposal site appropriate to the particular hazards to be contained.
5. "Phoenix" Survey Area: Inner New Bedford Harbor, Acushnet River (Drawing NP-2) and immediate Outer Harbor (Drawing NP-3).

C. COMMENT

It should be realized and emphasized, that even if and when all toxicant discharges into the River-Harbor System have ceased, that the cesspool chemicals in the Sediment Column are a continuing source of pollution to

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C. COMMENT (Continued)

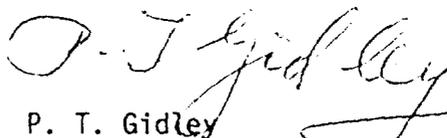
the Outer Harbor and Buzzards Bay which will contaminate and pollute shellfish, bottom-fish, bass, anadromous and catadromous fish. The eventual implementation of "Project Phoenix" would remove and quarantine this present toxic source.

This "Project Phoenix" proposal was officially presented to the Massachusetts Executive Office of Environmental Affairs on February 2, 1978 (acknowledged on July 7, 1978, for possible community assistance matching funds by CZM); further details sent by GIDLAB to O.E.A. on July 14, 1978. Further, upon specific request, GIDLAB submitted the "Project Phoenix" plan with adjunct data and reports to the Planning Department of the City of New Bedford in October 20, 1978. GIDLAB was not advised of any action either by the State or by the City of New Bedford on this Phoenix Project. Copies of the Phoenix Project were also sent to Dr. Farrington, Woodshole Oceanographic Institute and to Representative Goyette.

If the Master Plan of the Phoenix Project had been in effect, the recent gravel-filled area for the FRIONOR project by the City of New Bedford, involving over 120,000 cubic yards of fill, could have been accomplished with dredging spoils and fly-ash at a savings of thousands of dollars while, at the same time, safely cleaning up a considerable polluted segment of New Bedford Harbor. As piles to support the new building are, in any case, essential, the load bearing capacity of the filled land is not in question. Note: The Frionor site was filled with gravel and fill by truck loads from considerable distances away.

It is interesting to note the similarities of the P.C.B. studies and corrective plans for the Hudson River by the New York State Department of Environmental Conservation, Malcolm Pirnie, Inc. (Engineers), U.S.G.S., et alii (cf. "P.C.B. in the Upper Hudson River," Technical Paper No. 55, January 1979). Technical Paper No. 55 concepts of depth cores (p. 49), hot spots, >50 ppm P.C.B. (item #3, Table 14, page 36), and hydraulic dredging (p. 52—Technical Paper #51) follow GIDLAB Phoenix concepts of (1) Sediment Pollutant Bed Level, (2) Matched Pairs of toxic segments, and (3) Hydraulic Dredging—GIDLAB to O.E.A., July 10, 1978; respectively.

December 29, 1980

  
P. T. Gidley

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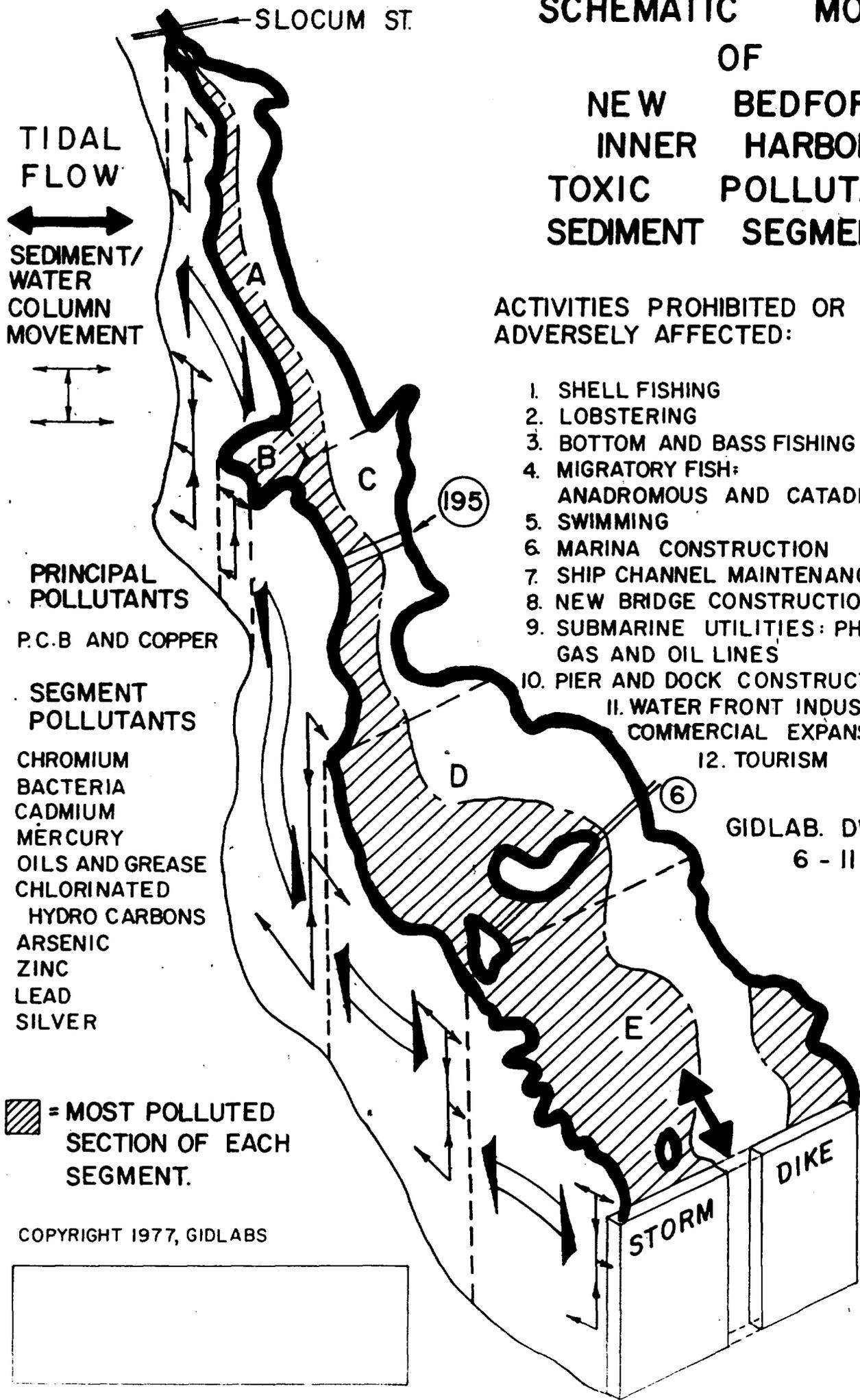
plp

# SCHEMATIC MODEL OF NEW BEDFORD INNER HARBOR TOXIC POLLUTANT SEDIMENT SEGMENTS

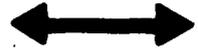
ACTIVITIES PROHIBITED OR  
ADVERSELY AFFECTED:

1. SHELL FISHING
2. LOBSTERING
3. BOTTOM AND BASS FISHING
4. MIGRATORY FISH:  
ANADROMOUS AND CATADROMOUS
5. SWIMMING
6. MARINA CONSTRUCTION
7. SHIP CHANNEL MAINTENANCE
8. NEW BRIDGE CONSTRUCTION
9. SUBMARINE UTILITIES: PHONE, ELECTRIC,  
GAS AND OIL LINES
10. PIER AND DOCK CONSTRUCTION
11. WATER FRONT INDUSTRIAL AND  
COMMERCIAL EXPANSION
12. TOURISM

GIDLAB. DWG. NP-2  
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TIDAL  
FLOW



SEDIMENT/  
WATER  
COLUMN  
MOVEMENT



PRINCIPAL  
POLLUTANTS

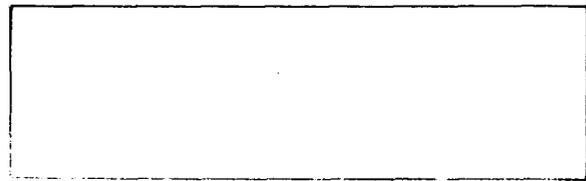
P.C.B AND COPPER

SEGMENT  
POLLUTANTS

CHROMIUM  
BACTERIA  
CADMIUM  
MERCURY  
OILS AND GREASE  
CHLORINATED  
HYDRO CARBONS  
ARSENIC  
ZINC  
LEAD  
SILVER

= MOST POLLUTED  
SECTION OF EACH  
SEGMENT.

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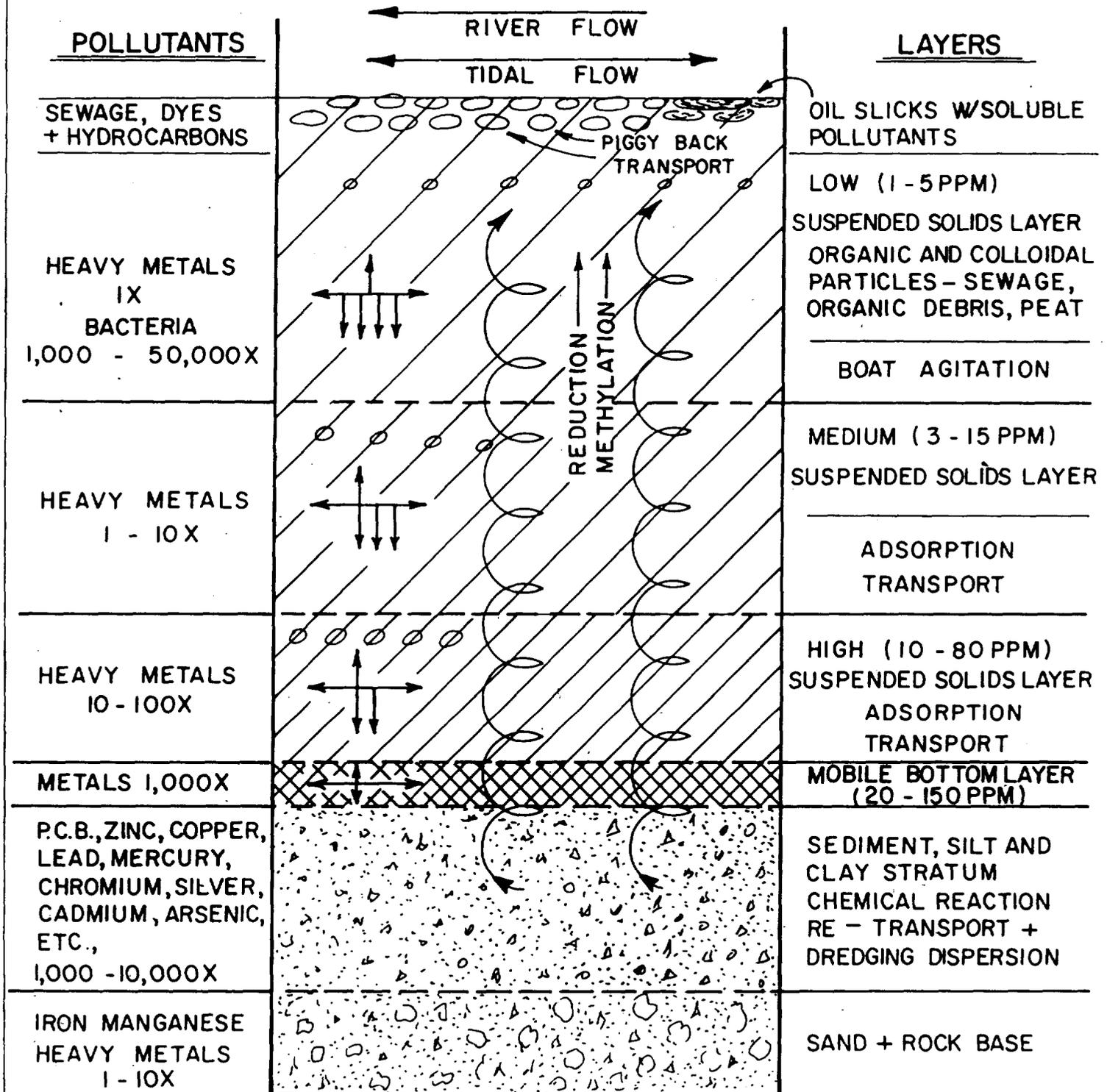
# WATER AND SEDIMENT COLUMN — SCHEMATIC

## FOR RIVERS, HARBORS AND ESTUARIES

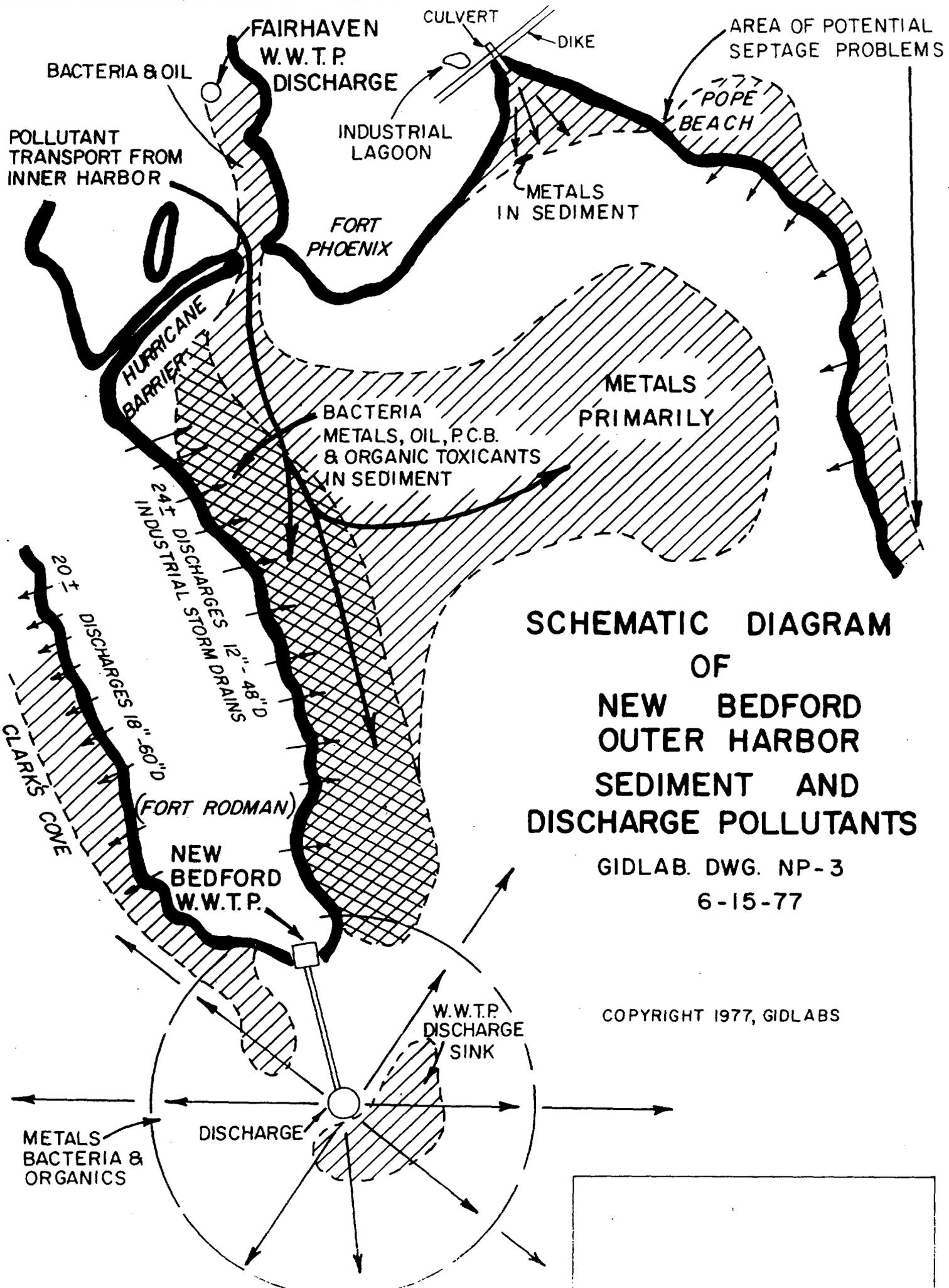
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GIDLAB. DWG. NP - 15

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NOTE:  
SEE TEXT ON "VERTICAL POLLUTION IN WATER COLUMNS" AND "METALS TRANSPORT SEAWARD"  
ALSO MODEL DWG. OF NEW BEDFORD HARBOR SEGMENTS.

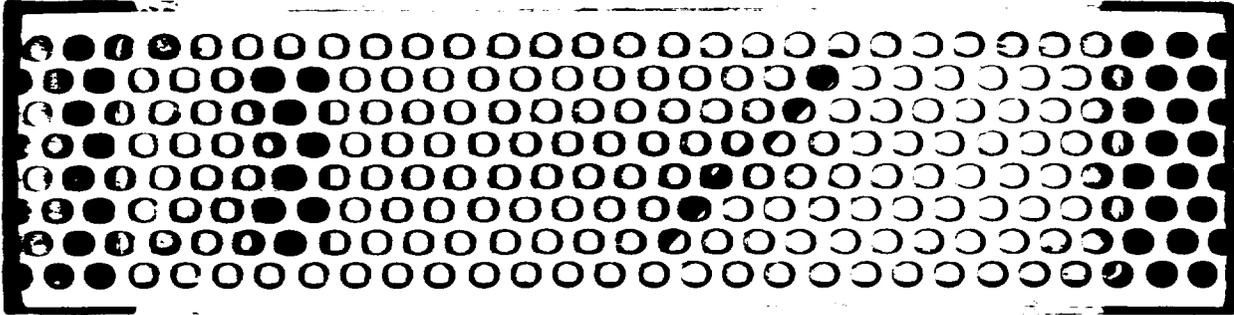


**SCHEMATIC DIAGRAM  
OF  
NEW BEDFORD  
OUTER HARBOR  
SEDIMENT AND  
DISCHARGE POLLUTANTS**

GIDLAB. DWG. NP-3  
6-15-77

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