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Permit Application Data Bases for the Regulatory Functions Program

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Permit Application Data Bases
for the Regulatory Functions Program

by

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INTRODUCTION

This working paper reports research in progress at IWR on the topic of data requirements for the Regulatory Functions Program. The report describes the development of a database of permit applications made to the Baltimore District for the years 1973-1977 and identifies how information in the data base can be used to address Regulatory Program issues.

BACKGROUND

As part of its planning methodologies research program, IWR has had a cumulative impact assessment work unit since 1980. Several topics have been under research, among them the development of cumulative impact assessment techniques appropriate to the needs of Corps of Engineers Regulatory Functions Program. As a part of this sub-work unit, research into the information needs of the Regulatory Functions Program has been performed. An initial research effort was undertaken in the Baltimore District in 1980. This effort included the development of a database to address Regulatory Program information needs. This prototype database consists of all available applications made to the Baltimore District for commercial uses of Chesapeake Bay and its tributaries for years 1973-1977. The structure of the database is presented in Appendix 1.¹

PRESENTATION OF RESEARCH TO DATE

The conclusions presented in this paper are based on research conducted in the Baltimore District's Regulatory functions Branch in 1980. This work consisted of a two-week period spent observing the regulatory process and talking with regulatory personnel. At this time 515 permit applications consisting of all available applications involving the proposed commercial use of Chesapeake Bay or its tributaries for the years 1973-1977 were examined. In addition, during 1980 individuals at other Federal, State and local agencies who are involved in the regulatory program have been interviewed. Based on this effort, it appears that databases such as the one developed have several payoffs for Districts and OCE in terms of providing information which can benefit the administration and performance of the Regulatory Functions Program. These payoffs include:

1. A performance monitoring system
2. A potential forecasting capability to identify future "hot spots" of permit activity
3. A District permit management and monitoring system

These products are discussed more fully below using, where appropriate, outputs from the Baltimore District data base for illustration.

PERFORMANCE MONITORING SYSTEM

The administration of the permit program is geared to the collection of statistics. The statistics collected measure the system's performance by showing how many permits are processed with as little delay as possible. These statistics imply and mirror a "serve the client" philosophy. However, the major reason that the program came into being was to help manage and protect wetlands, water quality and navigability of waterways under Section 10 and Section 404 authorities.

Districts now have few ways to measure in an administrative sense how well or how poorly they are doing the job of managing the resources coming under Section 10 and Section 404 authorities. Districts depend on the professionalism of their staffs and the power of the public interest review process to insure that a "wise management" focus is imparted to permit review. However, when a system's performance is measured by statistical indicators, the statistics that are kept can come to define what is important in that system. In the situation where the permit system's performance is monitored using only statistics which measure gross productivity, management emphasis on a "protect/manage the resource base" permitting approach may be slighted. To the extent that management rewards processing permits quickly so that statistics measuring output are optimized, there may be less of an incentive among professional staff to maintain the quality of the resource base.

A data base of past permit actions can allow indicators which measure the permit program's attainment of a broad range resource management objectives to be developed. Two such indicators are presented below. To provide a context for this discussion Table 1 presents a description of major types of alterations requested in permit applications. As the table shows the most commonly requested alterations were dredging and piers.

1. Overall Modification Rate

The permit program functions admirably as a vehicle for reaching accommodation between private demands on natural resources and the continued management and protection of the resource. One way it does this is through the modification of permits. In this process, environmentally objectional or harmful parts of applications may be deleted or modified to reduce adverse affects. Alternative ways of obtaining a desired result which are less environmentally harmful are suggested. Often as a result both private and public objectives are satisfied. In addition, in some cases modifications are recommended which lower the cost and enhance the effectiveness of proposed alterations to the applicant. For example, during the review of the application it may be pointed out to the applicant that by substituting rip rap for bulkheading the same amount of shoreline protection can be achieved, but at a lower cost. In other cases specific construction techniques may be recommended as more appropriate given local conditions and availability of suitable materials. This modification/technical assistance facet of the permit program needs to be given more recognition; it is something that the Corps can be proud of.

A simple statistic that captures part of this process is to identify those permits which are modified as a percentage of the total permits processed. The Baltimore District data show that almost one in three permits processed was modified in some way (Table 2).

Table 1 Major Requested Alterations to Chesapeake Bay, 1973-1977

<u>Alteration</u>	<u>Number of Applications</u>	<u>(%)¹</u>	<u>Average Amount Requested</u>
Dredging	165	(32)	9289 (cu yards)
Fill	83	(16)	2798 (cu yards)
Bulkheading	95	(18)	6541 (sq. feet)
Piers	136	(26)	301 (feet)
Mooring Buoys	33	(6)	26
Rip Rap	35	(7)	81.4 (feet)
Jetties/Groins	20	(4)	514 (feet)

¹ Computed with base = 515

Table 2 Modification of Permits 1973-1977

	<u>N</u>	<u>%</u>
Permits Modified	141	27.4
Permits Not Modified	359	67.8
Other Dispositions (withdrawn/denied)	<u>25</u>	<u>4.0</u>
Total	515	100.0

2. Extent of Modification

By comparing what was originally requested in an application with what was actually approved, it is possible to develop measures that provide an indication of the effect of the permit process on the management of the resource. For example, Table 3 compares total requested amounts, versus total approved amounts, for filling, dredging, bulkheading, and rip rap.

Table 3 Baltimore Permit Data 1973-1977. Commercial Actions

	<u>REQUESTED</u>	<u>APPROVED</u>	<u>ELIMINATED</u>	<u>% OF TOTAL ELIMINATED</u>
Fill (Cubic yds)	232,000	123,000	109,000	46.9
Dredging (cu. yds)	1,530,000	1,320,000	210,000	13.7
Bulkheading (lineal feet)	31,977	24,886	7,091	22.2
Bulkheading (square feet)	621,000	218,000	403,000	64.9
Rip Rap (lineal feet)	28,485	26,230	2,255	7.9

The table shows that substantial numbers of potentially environmentally harmful actions were eliminated during the review process: Almost one cubic yard in two of fill was eliminated; one cubic yard of dredging in 10 was eliminated because of the permit process. More than one mile of bulkheaded shoreline was eliminated. This constitutes 22 percent of total requested bulkheads. A more useful statistic than simple lineal feet of bulkheading, however, is the square feet of bulkheaded area. This statistic measures the encroachment of structures into the environmentally sensitive estuarine fringe areas. As can be seen, the permit process is much more likely to reduce the total area bulkheaded (i.e., reduce the channelward encroachment of bulkheads) than to reduce the lineal feet of bulkheads (64.9 percent eliminated, versus 22.2 percent). This difference and the small change in rip rap illustrates a review process which is sensitive to the need for shoreline protection, but which is also watchful of those requests which go beyond simple protection and move toward the creation of additional fastland at the expense of wetland areas.

The above statistics demonstrate in a quantitative fashion that the Corps permit program has been effective in reducing potentially adverse environmental impacts. Using these indicators, more refined questions such as "how effective and in what circumstances or what areas?" can be posed and answered. As additional data are collected, a broader view of the permit process' resource management performance will emerge and Corps management can

probably establish benchmarks concerning this aspect of the program, much like those which have been established for the administrative processing parts of the program.

Figures 1 through 7 provide a time series view of the conditioning of permits that the public interest review process encourages. While these figures graphically show the effect of the public interest review process in reducing the amounts of activities permitted, they also show a marked decline in the level of demand for dredging, filling, bulkheading, piers and jetties from 1973 through 1977. A number of explanations are possible to account for this decline. First, it may be that the years 1974 through 1977 were a period of slow regional economic growth which translated into a reduced demand for permits. Another possible explanation which is somewhat more intriguing is that the decline in demand represents a change in the level of expectation among businessmen of what scale of operations are possible, given the Regulatory Program's increasing environmental focus after 1973. Under this hypothesis, the lowered demand for the environmentally sensitive practices such as dredging, filling, etc., may represent a recognition of the increased costs levied by the Regulatory Program in the form of delays and modifications accorded such projects. Such costs may reduce advantages of locating some activities in shore zone areas. Currently, the explanation for the decline in demand has not been resolved. However, both hypotheses are being explored.

FORECASTING CAPABILITY

One permitted action may have little environmental or socioeconomic effect in a local area. However, 50 or 100 such permits in a small area may have major effects. Concerns have been expressed at both the local and federal level about possible cumulative effects of many small permitted activities. While current Corps regulations mandate that a concern for cumulative impacts be evident in the evaluation process, there is little specific guidance on development of this focus.

A basic requirement involved in incorporating a concern for accumulating changes associated with permitted activities is developing a capacity to identify in advance areas where development is proceeding at such a pace and in such a manner that potential problems may emerge. A forecasting capability of this sort needs a data base of past permit activity to generate development trends. In addition, since it is likely that general societal trends stimulate a demand for permitted activities, it may be possible to develop sets of "leading indicators" which enable the Corps to identify potential "hot-spots" of permit activity in advance.

By identifying areas where accumulations of permitted activities are occurring, or are likely to occur, more detailed analysis of the nature of impacts can be carried out. By bringing such areas to the attention of State and local government agencies it may be possible to develop master plans to guide development patterns.

PERMIT MANAGEMENT AND MONITORING SYSTEM

Many aspects of program management can be facilitated with a data base system. Questions about length of processing time, changes in demand for permits over time or by season can be monitored, and used as one factor in planning schedules and budgets. A particularly troublesome aspect in permit management concerns anticipating "controversial" permit applications and budgeting for such applications. Such applications are expensive and time consuming.

While data bases will not make controversial applications go away, they may provide information which allows more understanding of controversial actions in terms of where they are most likely to occur and the characteristics of applications which are most likely to become controversial. Such information can lead to better budgeting of staff and money.

To illustrate these points several tables of "controversial applications" have been generated from Baltimore District data. For purposes of this paper an application was defined as controversial if: (1) processing took 365 or more days, and (2) either a Federal environmental review agency (Fish and Wildlife Service, Environmental Protection Agency, or National Marine Fisheries Service) opposed issuance or requested modifications, or the application received one or more letters of opposition from citizens or private groups during the public interest review phase. Other definitions of controversial applications are, of course, possible and capable of being generated using the data base.

Table 4 below shows that overall, almost 14 percent of all applications were controversial. The proportion of controversial applications ranged from a low of 8 percent in 1976 to a high of 26 percent in 1973. Since 1973, however, it appears that it would be reasonable to expect about 10 to 15 percent of all commercial cases to require the additional effort associated with controversy.

Table 4 Controversial Cases

<u>YEAR</u>	<u>CONTROVERSIAL CASES</u>		<u>TOTAL CASES</u>
	<u>N</u>	<u>(%)</u>	
1973	30	(26)	115
1974	6	(9)	69
1975	15	(13)	121
1976	10	(8)	124
1977	9	(11)	86
	<u>70</u>	<u>(14)</u>	<u>515</u>

Table 5 provides a breakdown of the types of activities that are associated with controversial applications. Dredging or the placement of dredged material were involved in 49 percent of the controversial cases; however, there were relatively more applications which involved dredging. When controlling for differences in numbers of applications it could not be concluded that applications entailing dredging are more likely to become controversial than applications involving other actions (column 3, Table 5).

Table 5 Controversial Applications and Types of Action

<u>Action</u>	<u>% of Controversial Cases Involving Action</u>	<u>% of Applications which were controversial</u>
Dredging	49	21
Filling	29	24
Bulkheading	30	22
Piers	27	14
Mooring Buoys	10	21

From the data in Table 5, it appears that the "major actions" shown in the table are all equally likely to become controversial. Other factors, such as the location of the activity or the size of the particular activity, may be more important in determining whether an application will become controversial. Such analyses are not presented in this report, but could be generated with the data in the current database.

During the public interest review process applications can receive comments from the general public. Addressing issues raised by the public may entail added time, and require the participation of supervisory personnel. While experienced regulatory personnel are likely to be able to identify some applications in advance which will receive public comment, a data base offers an additional means to systematically identify recurrent or frequently raised issues.

Table 6 presents breakdown of issues raised by private individuals and groups in the public interest review. These issues were obtained by categorizing the contents of private letters and petitions commenting on permit applications. This procedure, called content analysis, can easily be performed by clerical personnel after a short training period.

The two most frequently mentioned issues in Table 6 are related to development pressure - in one instance manifested in a concern for a reduction in the quality of recreational boating experience; in the other manifested in the concern for the effect of the activity on personal property. Those applications which may be associated with such effects are likely candidates

to receive public comment. Such applications may need more processing expertise and could be assigned to more experienced personnel.

Table 6 Issues Raised by Non-Governmental Groups in Public Interest Review Process

	<u>No. of Cases in which Issue is Mentioned</u>	<u>Percent of Cases in which Issue is Raised (N=90)</u>
<u>Crowding</u> : Proposed activity increases boats which produce crowding on waterway.	44	49
<u>Infringement</u> : Proposed activity infringes on adjacent property owner's water access or right to his own property.	27	30
<u>Pollution</u> : Activity increases water pollution.	27	23
<u>Navigation Hazard</u>	16	18
<u>Aesthetics - View</u> : Activity reduces Aesthetic beauty of area.	14	16
<u>Land Use Change</u> : Activity amounts to "spot zoning" or will lead to new uses for adjacent land.	14	14
<u>Priority of Development Over Environmental Preservation</u>	10	9
<u>Cumulative Effects of Activity</u> : Concern for sum total of effects of activity on local; or incremental nature of development in local area.	7	8
<u>Other Issues</u> :	<u>39</u>	
Total Issues	192	
Total cases in which issues were raised	90	
Total cases in Sample	515	

FUTURE PLANNED RESEARCH

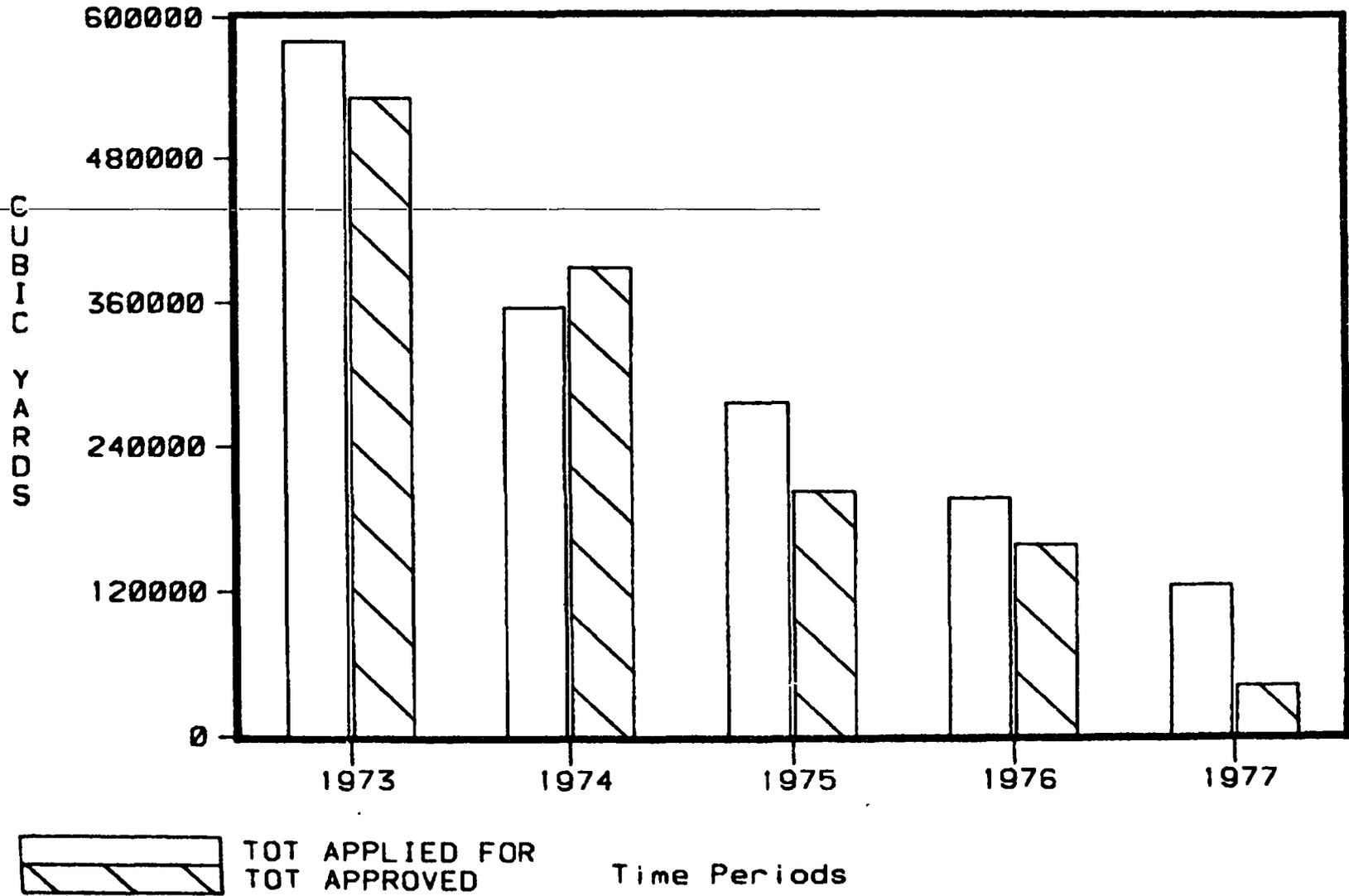
A major factor in influencing future research is the recognition of the diversity among Corps Districts. Each Corps District has different sets of regional needs and problems to contend with; consequently the administration of Corps programs and policies displays great variation. It is quite likely, therefore, that information needs for the administration of the Regulatory Functions Programs may vary substantially across Districts. For example, several districts have indicated that more detailed information on fill would be useful and have suggested variables describing the habitat to be filled and the square feet of filled area be included in the data base. Another district indicated that a variable category describing the existing shoreline would be helpful. It is likely that no single data base system could respond to the diversity of information needs of all districts and still remain easy to use. Such comprehensive systems have been tried and have failed. The approach being followed in the present research, therefore, will be to work with additional Corps Districts to broaden the understanding of the diversity of information needs of the Regulatory Functions program. Currently work is underway to develop and test permit data bases in the Norfolk and San Francisco Districts. The aim here will be to extend and refine the conceptual categories of information to address the needs of the regulatory programs described in this report. Instead of working toward a fixed data base strategy, however, research will focus on developing a database framework from which districts can develop their own "custom tailored" permit databases. It should also be noted that considerable interest in permit databases has developed in other Federal agencies with a role in the regulatory program.² This interest may offer the basis for cooperative efforts aimed at developing data bases which serve the needs of several actors in the permit process.

Footnotes

1. The general structure of the data base described in this working paper is similar to a data base of approved permits developed by the Johns Hopkins Applied Physics Lab. This data base called RAMS for Research and Management Shoreline Data Base is described in R.C. Eberhart, et. al. "Research and Management Shoreline (RAMS) Data Bank," Publication No. 25, Chesapeake Research Consortium, Annapolis, Maryland, April, 1974. The permit application data base differs from RAMS in that information on withdrawals and denials is provided; in addition comparative information on applied for versus approved permit features can be extracted.
2. The Fish and Wildlife Service is currently developing a data base called the Habitat Preservation Logging System to monitor permit activities. The Environmental Protection Agency is funding a redesign of the RAMS data base for permits processed by the Baltimore, Norfolk and Philadelphia Districts.

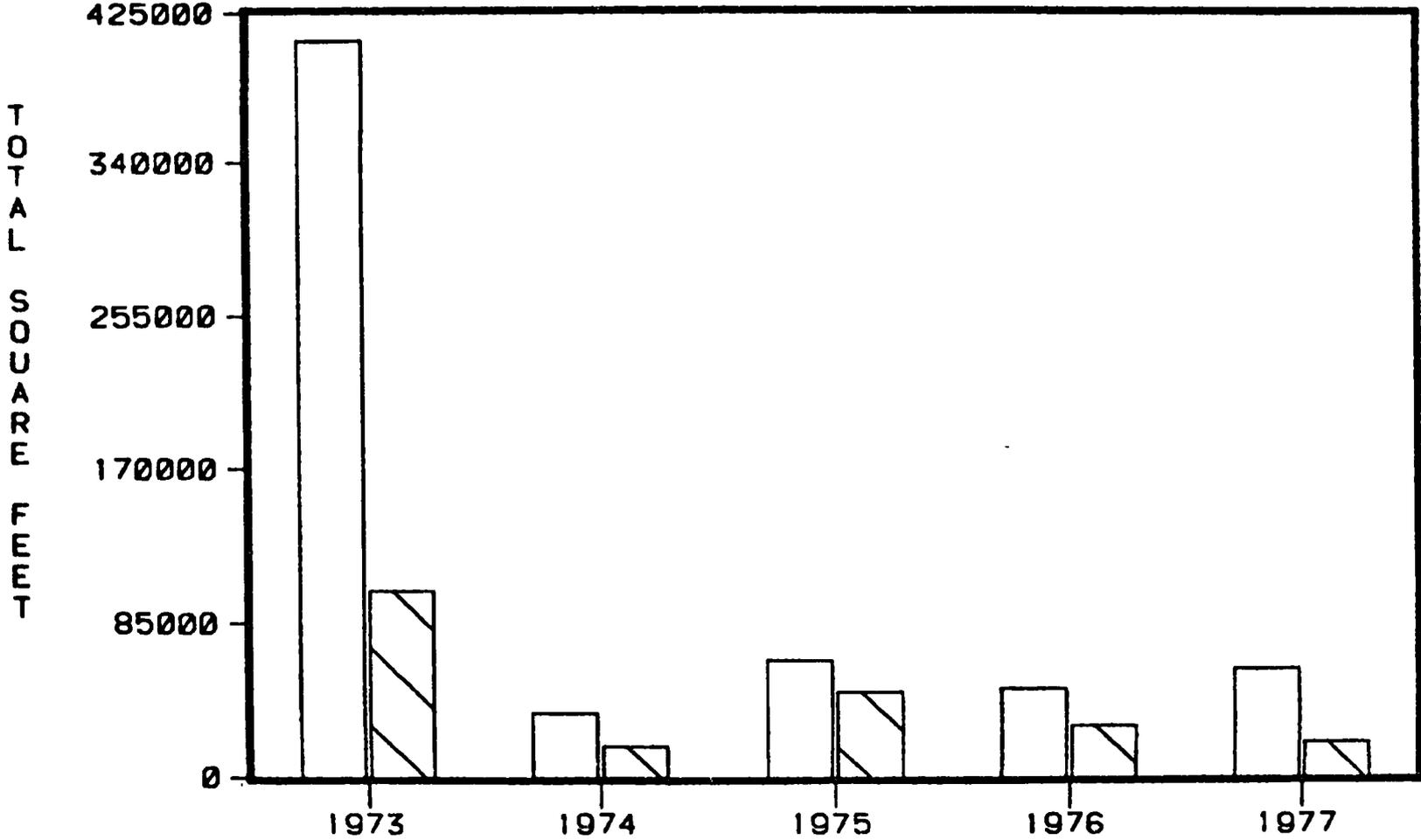
DREDGING (CUBIC YARDS)

1973 - 1977



BULKHEADING (SQ. FEET)

1973 - 1977

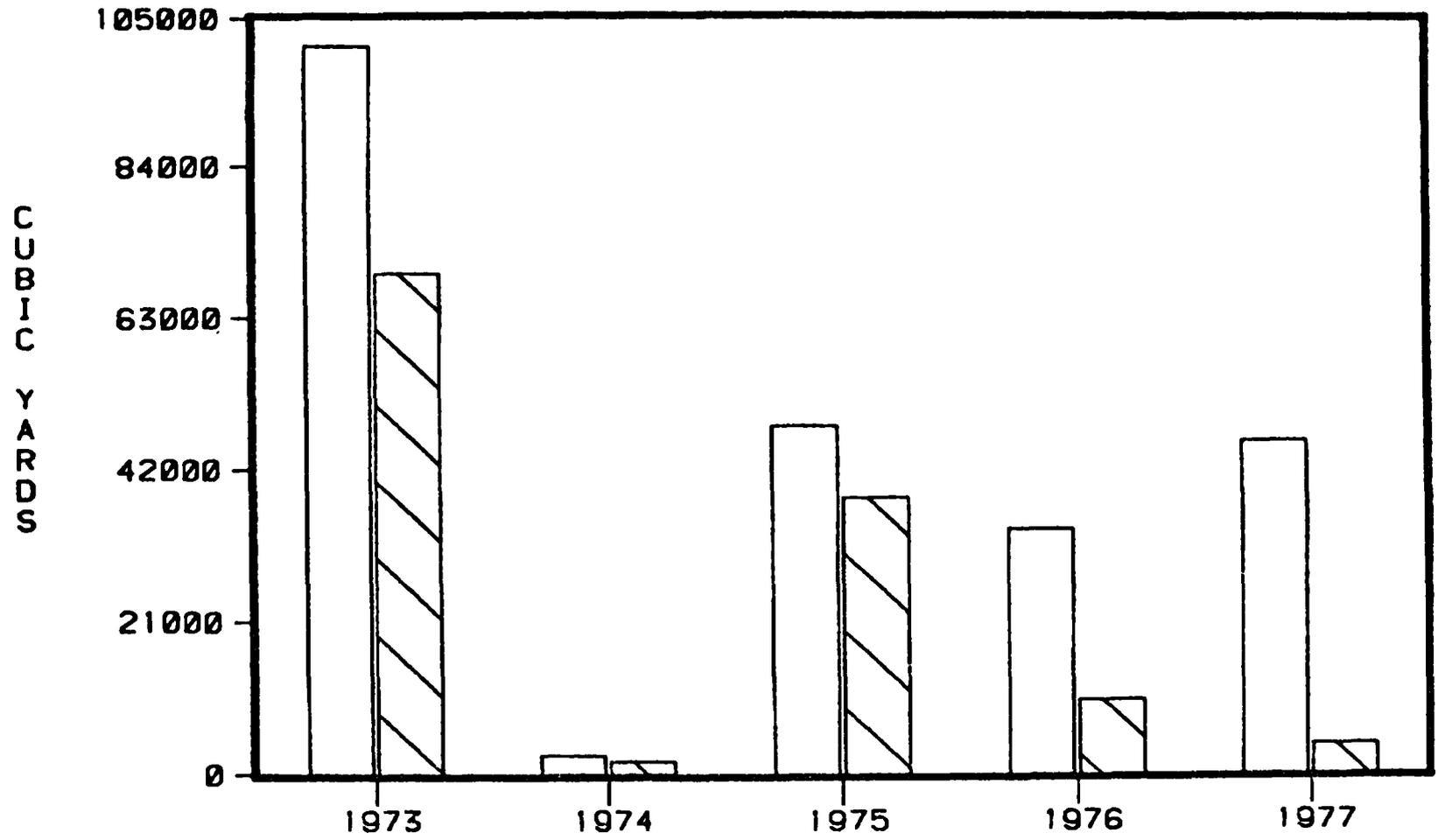


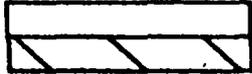
TOT APPLIED FOR
TOT APPROVED

Time Periods

FILL (CUBIC YARDS)

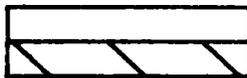
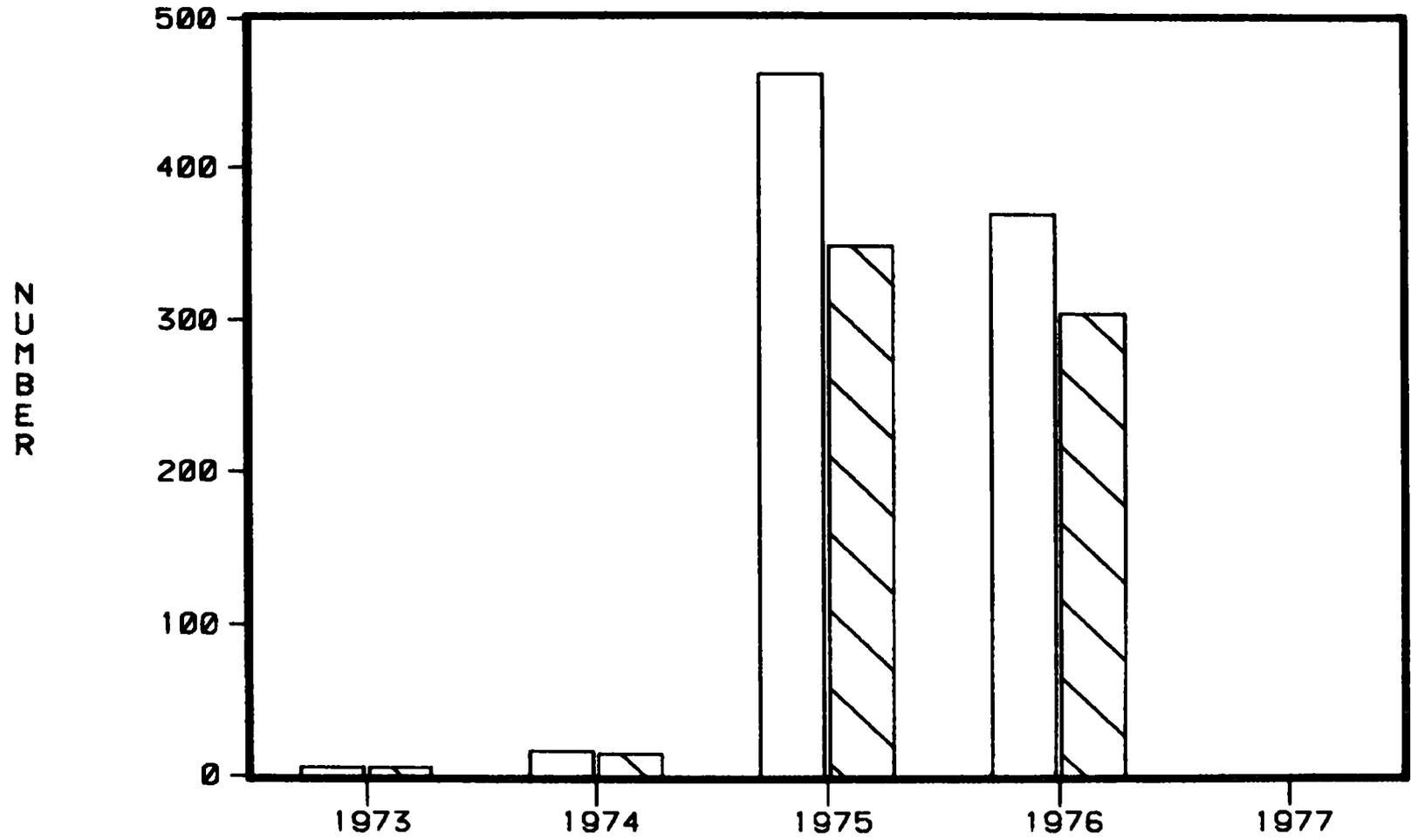
1973 - 1977



 TOT APPLIED FOR
TOT APPROVED

Time Periods

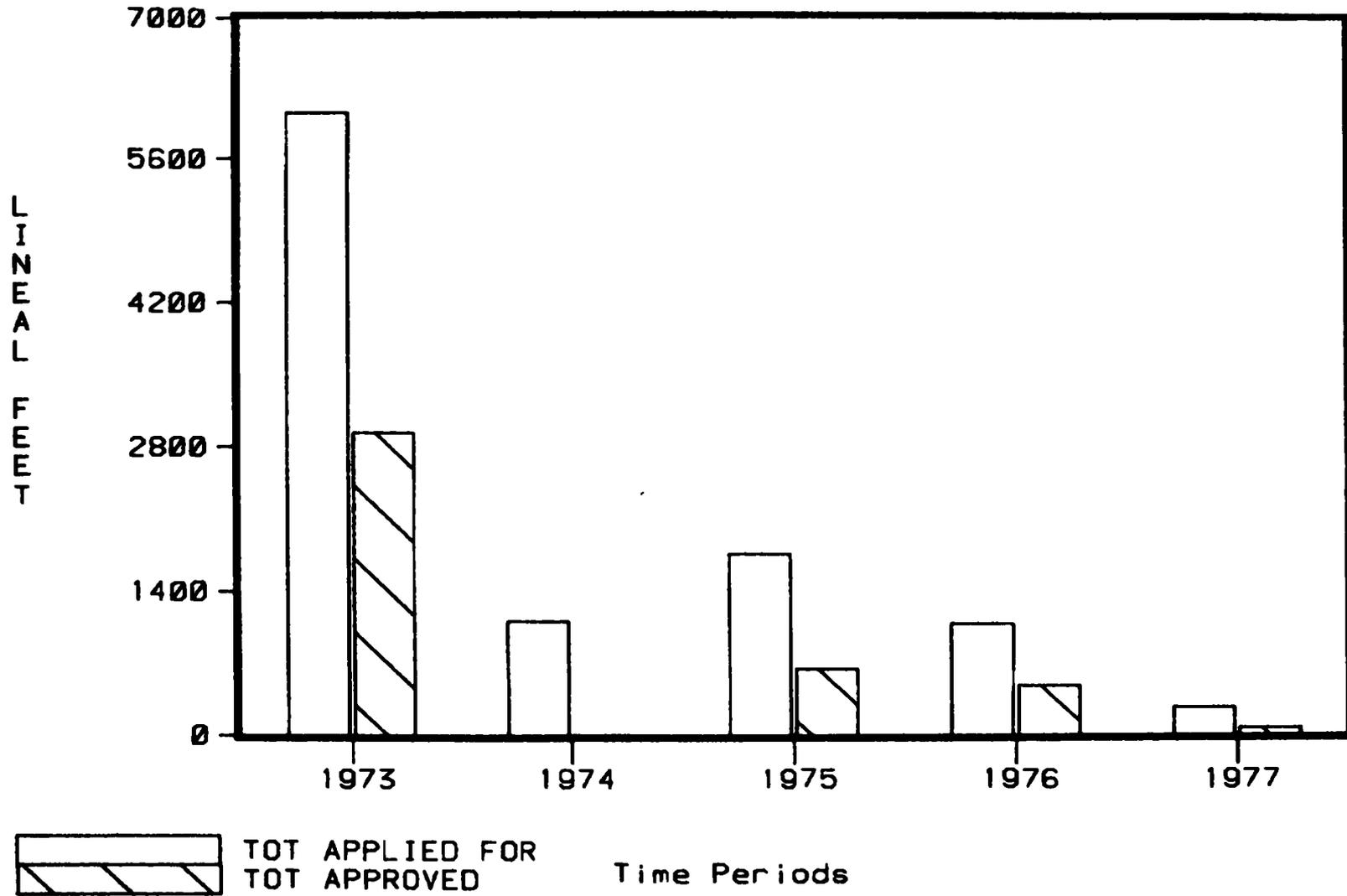
MOORING BUOYS
1973 - 1977



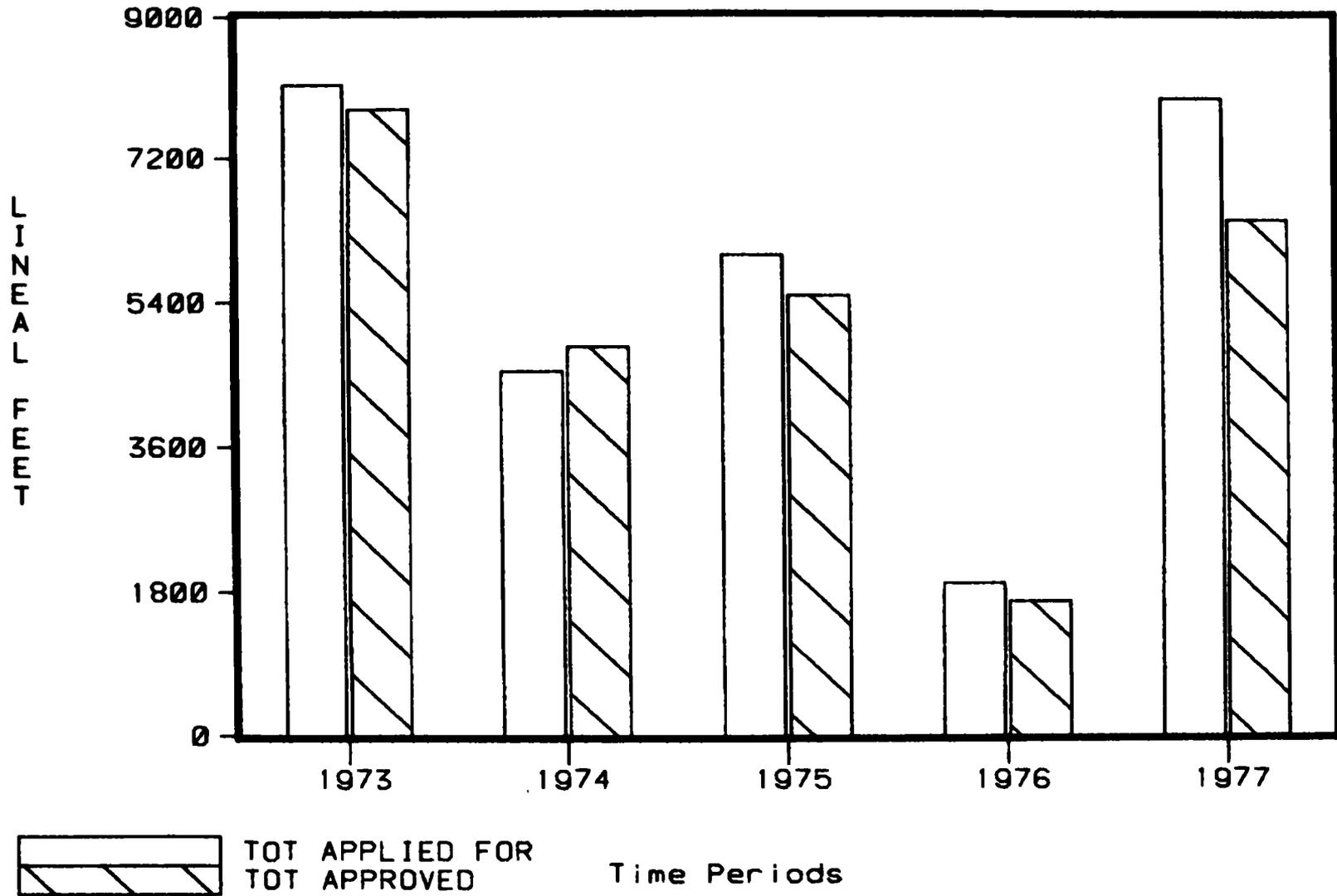
TOT APPLIED FOR
TOT APPROVED

Time Periods

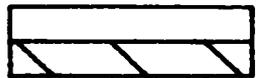
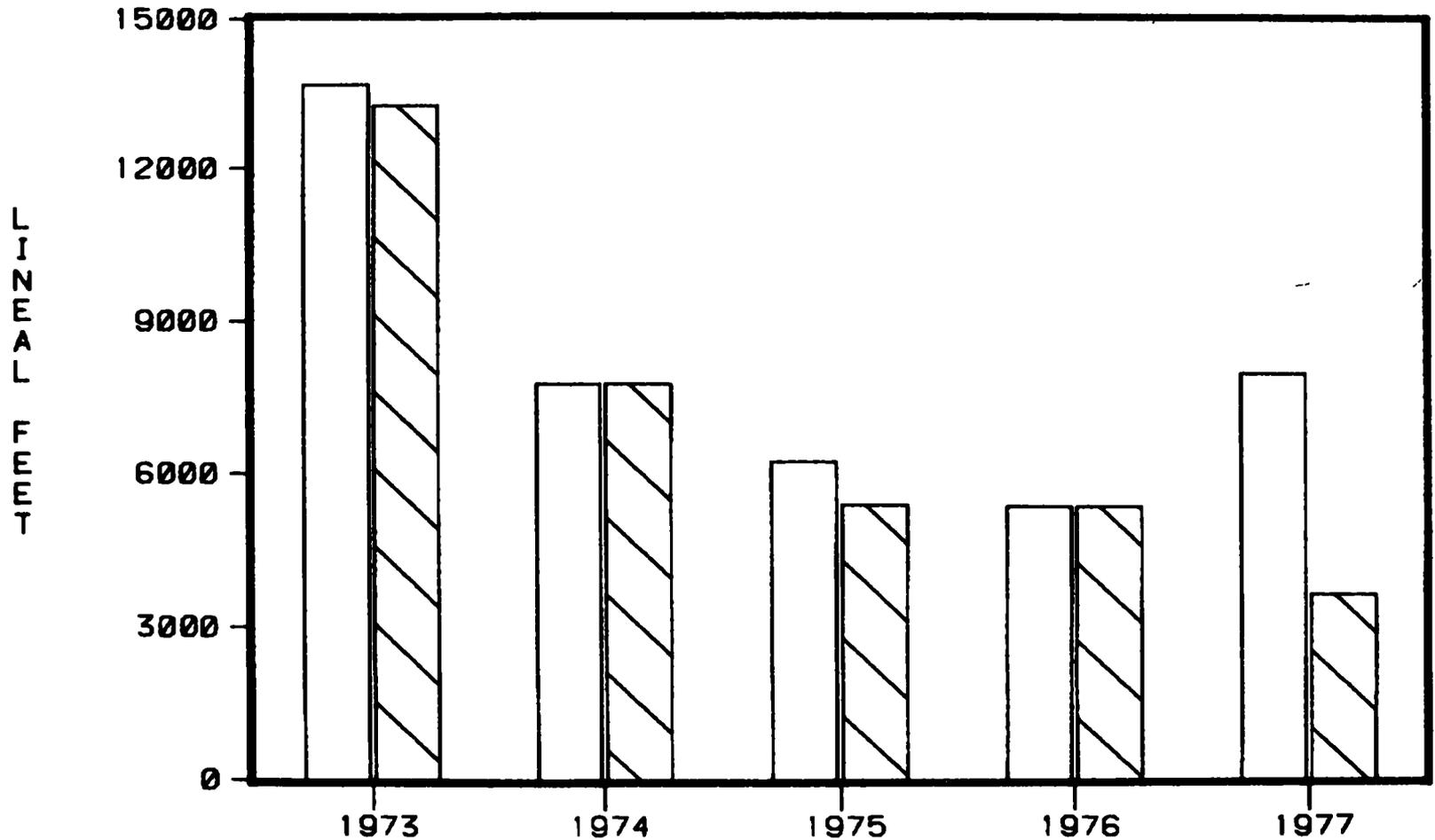
JETTIES
1973 - 1977



RIP RAP
1973 - 1977



PIERS
1973 - 1977



TOT APPLIED FOR
TOT APPROVED

Time Periods

APPENDIX 1: DATA BASE CONFIGURATION

The database developed for Baltimore District permit applications is described below. It should be emphasized that the development of databases is dynamic and that alterations and changes in the configuration of databases can be expected as user needs become better defined.

Data were encoded in a fixed field format. Each permit application uses four (4) 80 column cards.

Record 1

<u>Column Number</u>	<u>Variable Name</u>	<u>Remarks</u>
1-6	APPL	Each application is assigned a unique 6 digit identification number.
7-8	OWN	Ownership category of applicant.
9-10	TYPE	Type of industry of applicant.
11	STATE	State in which application occurs.
12-13	COUNT	County of application.
14-17	WATW	Waterway identification number.
18	YRA	Year of application.
19-20	MÓA	Month of application.
21-22	DOA	Day of application.
23	YRD	Year of disposition.
24-25	MOD	Month of disposition.
26-27	DOD	Day of disposition.
28	DISP	Disposition (Approved, Denied, Withdrawn, After-the-Fact Approval).

APPENDIX 1 (cont.)

29	MODF	Modification to permit (Yes, No).
<u>Record 2</u>		
1-6	APPL2	Application identification Number.
7	CDNE	Record 2 identifier.
8-11	BULKA	Approved Bulkhead Length (feet).
12-13	BCHWA	Approved channelward extent of bulkhead (feet).
14-19	DRED	Cubic yards dredging approved.
20-24	FILL	Approved cubic yards of fill.
25-28	PIER	Total feet of piers, docks, or walkways approved.
29-31	MP	Number of mooring piles approved.
32-34	MB	Number of mooring buoys/dolphins approved.
35-38	RR	Feet of rip rap/ breakwater approved.
39-42	JETT	Feet of jetties/groins approved.
43-44	FPA	Number of finger piers/catwalks approved.
45-46	APP1	Other approved feature (e.g. storm drain outfalls, launch ramps, etc. Each feature designated by unique number).
47-48	APP2	Other approved feature.

APPENDIX 1 (cont.)

49-50	MOD1	Modifications to Application which could not be expressed in quantitative fashion (e.g. requirement for diked disposal area, restoration of outfall structure, etc. Each modification identified by a number).
51-52	MOD2	Modifications to applications which could not be expressed in quantitative fashion.
<u>Record 3</u>		
1-6	APPL3	Identification Number.
7	CDN3	Record 3 Identifier.
8-11	BULK0	Length of bulkhead applied for.
12-13	BCHWO	Channelward extent of bulkhead applied for.
14-19	DREDO	Cubic yards of dredging applied for.
20-24	FILLO	Cubic yards of fill applied for.
25-28	PIERO	Total feet of piers, docks or walkways applied for.
29-31	MPO	Number of mooring piles applied for.
32-34	MBO	Number of mooring buoys/dolphins applied for.
35-38	RRO	Feet of rip rap/ breakwater applied for.
39-42	JETTO	Feet of jetties/groins applied for.

APPENDIX 1 (cont.)

43-44	FPO	Number of finger piers/ catwalks applied for.
<u>Record 4</u>		
1-6	APPL4	Application identification.
7	CDN4	Record 4 identifier.
8	EA	Environmental checklist prepared. (Yes, No).
9-10	NENV	Number of environmental impact categories checked.
11	CON	Number of congressional inquiries.
12-13	LTRO	Number of letters of opposition revised from private individuals or groups.
14-33	I1 - I2	Issues mentioned in letters. Each issue revises a separate "I" variable (e.g. siltation = I1; crowding of waterway = I2).
34	PH	Number of requests for public hearing.
35	EPA	Comment on application from EPA. (No objection, recommend modifications, recommend denial, other)
36	FWS	Fish and Wildlife Service comments. (No objection, recommend modifications, recommned denial, other)
37	NMFS	National Marine Fisheries service comments. (No objection, recommend modifications, recommend denial, other)

APPENDIX 1 (cont.)

38	MD	State of Maryland comments. (No objection, recommend modifications, recommend denial, other)
39	VA	State of Virginia comments.
40	OS	Other state comments.
41	LGVT1	Local government comments.
42	LGVT2	Local government comments.