

# WARREN HARBOR MANAGEMENT PLAN

Warren Harbor, Massachusetts

## *Prepared for:*

Warren Harbor Marine Resources Commission

Frank A. Thompson, Jr.

## *Chairman*

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Provincetown, Rhode Island

April 19, 1976



# WAREHAM HARBOR MANAGEMENT PLAN

## Wareham, Massachusetts

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Providence, Rhode Island

April 19, 1996





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## I. INTRODUCTION

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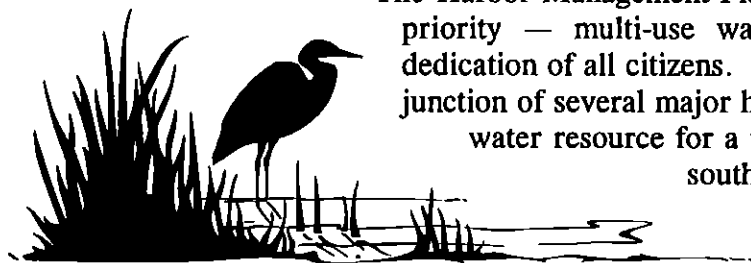
## I. Introduction

### A. A Vision of Sustainable Harbor Management in Wareham/Onset Bay

**T**his declaration of character and purpose for Wareham's Harbor Management Plan and the future of its waterways is the paramount principle protecting and promoting the exercise of the Harbor Management Plan's six priority goals.

*The primary "vision" of the Harbor Management Plan is the recognition that the long-term environmental health of Wareham must take precedence over all other considerations of harbor management.*

The keystone of the economic vitality of Wareham/Onset is the quality of the Town's water recreational resources and the natural beauty of its harbors. It is essential that the remaining open space provided by its water bodies continue to offer resident and visitor alike the attraction of visual beauty, while allowing multiple, productive and safe use of its waters.



The Harbor Management Plan recognizes that maintaining its lead priority — multi-use waters — will require the continuing dedication of all citizens. The Town of Wareham, located at the junction of several major highways, provides the most accessible water resource for a number of burgeoning communities in southeastern Massachusetts and already supplies more public access to its waters than any other town on the western shore of Buzzards Bay.

Local areas experiencing already concentrated human activities, such as Onset Bay, could conceivably lose the benefits of multi-use if its shores are impacted by extensive additional development and if particular water-related activities gain unchecked precedence over others.

The Town of Wareham must value and preserve its recreational assets and natural beauty while promoting the six goals which are presented in priority order in this Harbor Management Plan.

### B. Purpose of the Plan

The primary goal of the Harbor Management Plan is to develop effective policies and to implement strategies that will satisfy the diverse water-dependent interests and needs of the Town of Wareham. The plan will enable the town to encourage future water-dependent uses of the waterfront and harbor while simultaneously protecting natural and recreational resources and resolving user conflicts. The Wareham Marine Resources Commission and Massachusetts Coastal Zone Management have administered this program to provide a comprehensive plan which has the support of the community.

Section II, Inventory of Baseline Conditions, is intended as a foundation upon which the remainder of the plan can be built. The Inventory is designed as a working paper from which meaningful conclusions about the issues facing Wareham Harbor may be drawn.

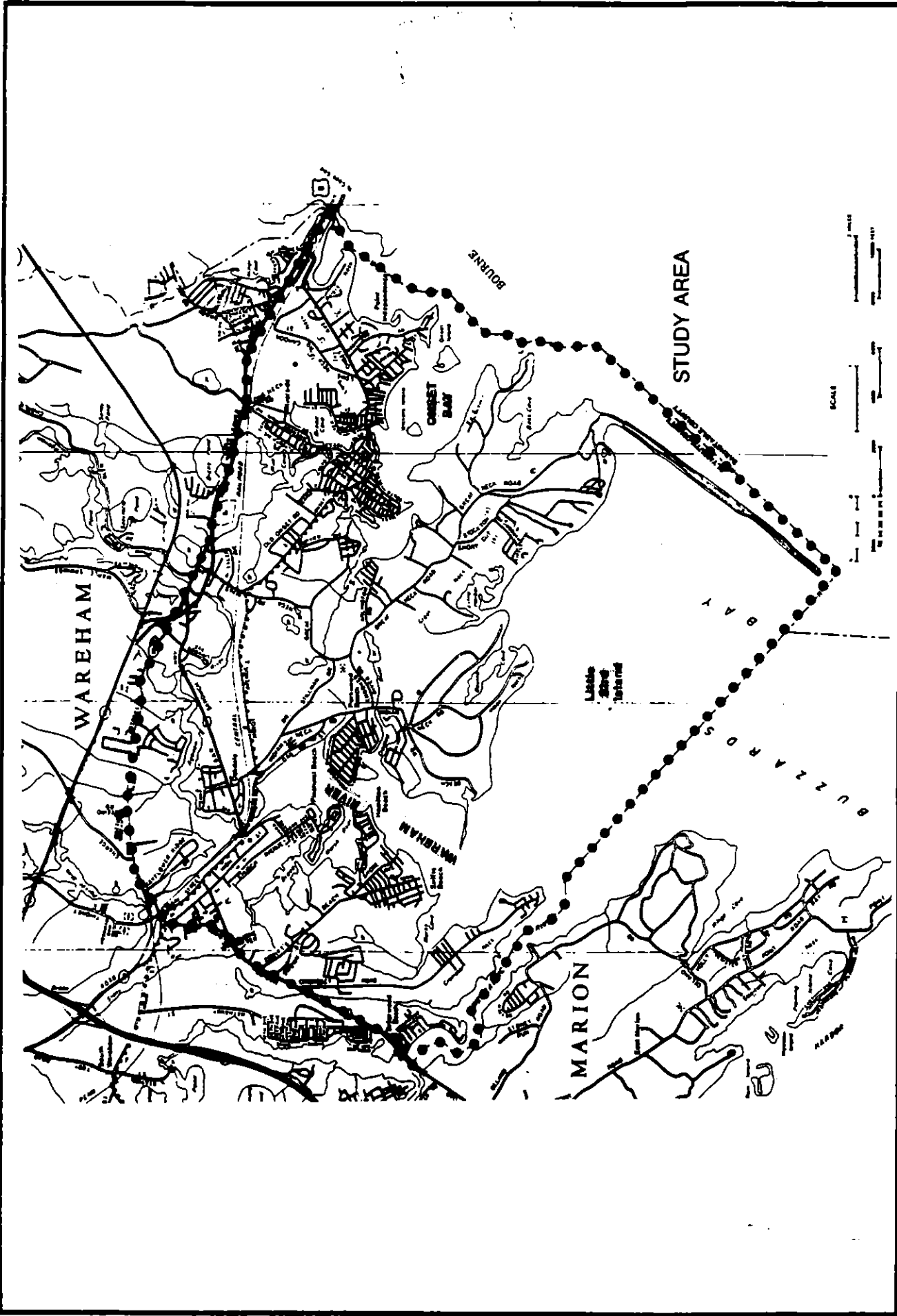
Section III presents a summary of harbor management issues as they evolved during the public participation program. The public participation program included two public workshops, mail-in comment sheets which were distributed at the second public workshop and made available at local marinas and the conservation commission, and a toll-free 800 number for local citizens to phone Louis Berger & Associates, Inc.

Through the public participation program a range of community goals was developed. These goals include issues relating to safety, water quality, preservation of natural resources and community values, multiple uses of Onset Bay and Wareham River, shellfishing, and dredging. One goal which received the most vocal support was the desire of the community to see Wareham waters and especially Onset Bay be allowed to develop for multiple use and not just boating (Section IV). Actions relating to these goals are presented in Section V. In this latter section, guidance is also provided on strategies that may be implemented to make the plan a workable tool for the Town of Wareham.

## **C. Study Area Description**

Located in Plymouth County on the southeastern coast of Massachusetts at the mouth of the Cape Cod Canal, the Town of Wareham shares coastline on Buzzards Bay. Situated within the network of Routes 6 and 28 and I-195 and I-495/25, Wareham receives heavy volumes of traffic en route to and from Cape Cod. The Wareham Harbor study area (Figure 1) is composed of Wareham River and Onset Bay in addition to smaller coves, inlets, and bays. It is around these two major inlets which the villages of Wareham and Onset have grown. The Weweantic, Agawam and Wankinco (extended from the Wareham River) rivers flow into Wareham Harbor and Buzzards Bay.

Wareham has 54 miles of waterfront (Wareham Town Report) including 37.16 miles of coastal frontage (DEM, 1990) which is used for a multitude of commercial and recreational pursuits. Buzzards Bay has historically been rich in shellfish beds and shellfishing continues to be a livelihood in the Town of Wareham. Recreational pursuits focus around an active boating and sailing community which uses the private marinas, numerous private piers, and the town pier and launches. The Wareham Harbormaster has issued 1,200 Harbor Services Permits in 1992 (down from approximately 1,400 before Hurricane Bob and the current drop in the economy), an indication of the number of boats moored or launched in town. Much of the coastline is beach which is accessed for public and private use. According to the Massachusetts Coastal Land Inventory, publicly owned coastal frontage totals 8.82 miles or 23.7% of Wareham's coastal frontage. Wareham has 17.5% of the Buzzards Bay Coastal Region's coastal frontage (Westport to Wareham) and 26.9% of the region's publicly owned frontage (DEM, 1990).



**HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM**

**Figure 1  
STUDY AREA**

Source: MDPW, General  
Highway Map, Regional  
Series



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## **II. INVENTORY OF BASELINE CONDITIONS**

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## II. Inventory of Baseline Conditions

Baseline conditions in the project area have been inventoried to form a basis for informed decision making. Information on water resources, manmade resources, and natural resources has been compiled using secondary data from the Town of Wareham, state agencies, and personal interviews with town staff, the Wareham Marine Resources Commission, and representatives from private marina facilities.

### A. Water Resources

#### 1. Water Quality

Water quality data were obtained from the U.S. Geological Survey, U.S. Army Corps of Engineers, Massachusetts Department of Environmental Protection, Massachusetts Coastal Zone Management, Massachusetts Division of Marine Fisheries, Massachusetts Division of Water Pollution Control, Wareham Shellfish Commission; the Buzzards Bay Project, Wareham Board of Health, and Wareham Marine Resources Commission.

Information on drainage and discharge points and facilities was acquired through interviews with municipal officials and marina proprietors. The inventory of storm drains was compiled from the data presented in the *Onset Harbor Study* (Soderstrom, 1988) and the *Wareham Harbor Study* (Clayton, 1988). The Massachusetts Division of Marine Fisheries (DMF) Sanitary Survey Reports (1989) for Onset Harbor and Wareham Harbor provided additional storm drain information. Mapping was developed from these DMF reports.

The available quantitative and qualitative information was analyzed to evaluate the water quality in the study area.

#### a. Waterbodies

The surface waterbodies in the study area comprise four major systems: Wareham River, Onset Bay, Weweantic River, and a small area of Buzzards Bay. In addition, there are smaller embayments, including Bourne Cove, Little Harbor, Widows Cove, and Butler Cove.

The Wareham River system consists of Agawam River, Wankinco River, Wareham River, Broad Marsh River, Crooked River, and Marks Cove. Both the Agawam and Wankinco rivers originate in the Myles Standish State Forest and flow south through ponds, swamps, and cranberry bogs. The drainage area for these systems is approximately 39 square miles (Clayton, 1988).

The Onset Bay system includes Gibbs Brook, Muddy Cove, Broad Cove, East River, Shell Point Bay, Onset Bay, and Pleasant Harbor. The freshwater input into the Onset Bay system is minor compared to the other systems in the study area. Waterbodies that drain into Onset Bay consist of Dicks Pond, Beaver Dam Pond, Union Pond, Cedar Pond, Sandy Pond, and the pond at the end of Cutler Drive (Soderstrom, 1988).

The Weweantic River system consists of the Weweantic River with Horseshoe Pond and the smaller Sippican River. The river system drains an area of approximately 60 square miles. There are numerous cranberry bogs in the drainage area (Clayton, 1988).

**b. Bathymetry**

The Wareham River bed has a central channel that extends from its confluence with the Agawam River to Buzzards Bay. The maximum water depth in the 100-foot-wide channel is 16 feet (NOAA, 1990; U.S. ACOE, 1986).

Onset Bay consists of a deeper central basin which is separated from the Hog Island Channel and Buzzards Bay by a shoal area in the vicinity of Onset Island. Maximum water depth of the deeper turning basin at Onset Pier is 16 feet; water depth of the shoal is 10 feet (NOAA, 1990; U.S. ACOE, 1990). Two 8-foot-deep anchorages are located near Wickets Island. Onset Bay has been dredged to 15 feet in the shallower areas to connect the village of Onset with Buzzards Bay.

The Weweantic River has a channel depth of up to 10 feet. In the vicinity of Briarwood Beach, the water depth reaches a maximum of 19 feet. The water depth of Buzzards Bay west of Stony Point Dike is less than 15 feet.

**c. Natural and Manmade Impediments and Flushing of the Harbor**

Flushing rates of the Wareham River, Weweantic River, and Onset Bay were recently determined by the Buzzards Bay Project (Table 1). The residence times of pollutants in these waterbodies ranged from 2.3 to 5.9 days. The longest residence times were calculated for the upper Wareham River and the Weweantic River. Residence times for smaller embayments close to Buzzards Bay, such as Little Harbor, Bourne Cove, Widows Cove, and Butler Cove, are estimated as less than 2 days.

There are a number of natural impediments to flushing. At the entrance to Onset Bay from Buzzards Bay in the vicinity of Onset Island is a shoal. In addition, several smaller waterbodies including Broad Cove, Shell Point Bay, Little Harbor, Bourne Cove, and Broad Marsh River are constricted by a narrow entrance and sand bars.

Along the shore there are small manmade structures such as jetties, ripraps, and groins to stabilize the shoreline. These structures, as well as marinas, possibly reduce the flushing rate to some extent. The effect of these structures, however, is included in the flushing rates in Table 1.

**Table 1  
Flushing Rates**

Location	Residence Time
Upper third of Onset Bay	2.8 - 4.3 days
Upper Wareham River	5.75 days
Lower Wareham River	3.6 days
Broad Marsh River	3.3 days
Upper Weweantic River	2.3 - 5.9 days

Source: Buzzards Bay Project, 1991



**d. Sediment Types, Transport, and Distribution Patterns Throughout the Harbor**

Quantitative sediment data, collected by the Massachusetts Division of Water Pollution Control (Gil and Beaudoin, 1987), were available from three stations in the study area. These stations were located in Wareham River (Station 24), Onset Bay (Station 11), and in Buzzards Bay (Station 42). Sampling stations are identified in Figure 2. Coarsest sediments were collected in Buzzards Bay with mostly sand (Table 2). The sediment at the Wareham River station consisted of 50% sand and 50% silt and clay. The sediment of the Onset Bay station consisted of mostly silt and clay. The finer grain size in Onset Bay is possibly caused by low flow velocities.

Quantitative information on the sediment transport and distribution in the waterbodies in the study area was not available. Pinehurst Beach and Swifts Beach have been losing sand due to erosion, although some of the loss at Swifts Beach may be related to mechanical raking and cleaning (town maintenance). Swifts Beach and Swifts Neck were the areas of Wareham which were the hardest hit during Hurricane Bob in August 1991.

**e. Sediment Chemistry**

Pollutants in coastal sediments typically include metals, pesticides, herbicides, fungicides, PCBs, and polycyclic aromatic hydrocarbons (PAHs), among others. Potential sources of these pollutants include urban runoff, sewerage discharges, fertilizers and herbicides, anti-fouling paints from boats, oil spills, and industrial discharges.

In the study area, chemical analyses were carried out at three stations for selected chemical compounds by the Massachusetts Division of Water Pollution Control (Gil and Beaudoin, 1987). These compounds consisted of heavy metals, PCBs, and PAHs. Metal concentrations were lowest at the Buzzards Bay site probably due to the coarser grain size which reduces absorption (Table 2). PCBs and PAHs were not detected, with the exception of a low concentration of PCBs in the Onset Bay sample. These concentrations, obtained in the scientific study, cannot be directly compared to regulatory standards which require different analytical procedures.

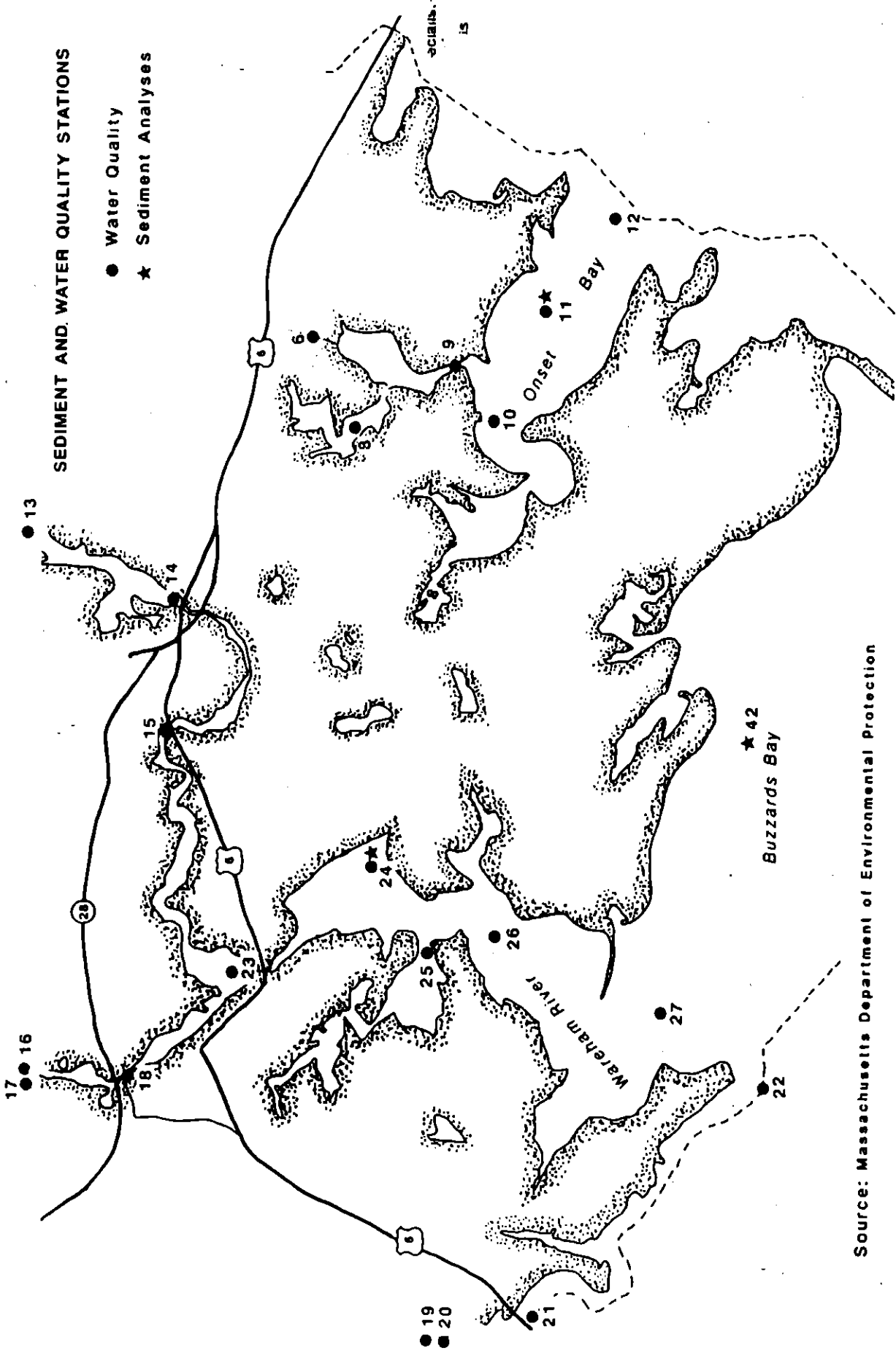
**f. Dredging**

The federal regulatory agency for dredging issues is the U.S. Army Corps of Engineers (U.S. ACOE). Onset Bay is connected to Buzzards Bay by a dredged channel measuring 15 feet deep by 150 feet wide which was last dredged over 35 years ago. The channel usually requires maintenance every 5-10 years. According to the *Onset Harbor Study*, the Commonwealth of Massachusetts and the Town of Wareham dredged the basin and channel 10 feet deep in 1914. In 1935 the basin was enlarged and the channel basin was deepened to 15 feet. In 1945 the turning basin was enlarged and a 16-acre anchorage basin was dredged to 8 feet. Improvement dredging took place in 1957.

A 1991 U.S. ACOE proposal to dredge the East River channel from Onset Bay to Broad Cove has been dropped from further consideration at this time due to economic considerations derived through a cost benefit analysis. As the East River is used primarily for recreational boating, an activity with minimal economic benefit, the cost could not be justified. U.S. ACOE participation is typically directed toward dredging projects which benefit commercial vessels.

**SEDIMENT AND WATER QUALITY STATIONS**

- Water Quality
- ★ Sediment Analyses



Source: Massachusetts Department of Environmental Protection

**HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM**

**Figure 2  
SEDIMENT AND WATER QUALITY  
STATIONS**

Source: Onset Harbor Study,  
1988



**Table 2**  
**Grain Size Distribution and Sediment Chemistry**

	Station #24* Wareham River	Station #11* Onset Bay	Station #42* Buzzards Bay
<b>Grain size <sup>(1)</sup></b>			
Sand	50	25	81
Silt	37	57	19
Clay	13	18	0
<b>Chemistry (Total Concentration in mg/kg dry weight) <sup>(1)</sup></b>			
Cadmium			<1
Chromium	13	23	9
Copper	19	24	5
Lead	32	36	8
Mercury	0.59	0.17	0.05
Nickel	4	11	5
PCB/Aroclor			
1016/1242	ND	ND	ND
1248	ND	ND	ND
1254	ND	0.89 <sup>(2)</sup>	ND
1260	ND	ND	ND
PAHs	ND	ND	ND
ND = Not detected			
* See Figure 2 for station locations.			
Notes: <sup>(1)</sup> The concentration listed for stations #24 and #11 represent the mean of two replicate samples.			
<sup>(2)</sup> The concentration of one of the two samples was ND; the concentration of the replicate sample was very low at 0.89 mg/kg, just barely above the detection limit.			
Source: Massachusetts Department of Environmental Protection, Division of Water Pollution Control (Gil and Beaudoin, 1987).			

The Massachusetts Department of Environmental Management, Division of Waterways has proposed a maintenance dredge project which extends from the federal channel in Onset Bay to the second bridge over the East River. This channel has previously been dredged but has not been maintained in many years. This project is similar to one proposed by the U.S. ACOE for the East River, Broad Cove area which was dropped from further consideration because of a lack of economic justification (this area is used for recreational and not commercial use).

As proposed in 1993 the East River dredge project consists of three phases:

Phase I: maintenance dredging of a 100-foot-wide channel to a depth of 6 feet from the existing 8-foot-deep anchorage in Onset Bay to the stone bridge on Onset Avenue. Dredged material would be used for beach nourishment.

Phase II: new dredging of an 80-foot-wide channel to a depth of 6 feet at mean low water in the East River, extending only 400 L.F. into Broad Cove from the stone bridge to the Main Avenue bridge at Muddy Cove, including widening and deepening the channel to the 12th Street boat ramp. Dredged material would be considered for beach nourishment.

According to the Wareham Harbormaster, East River Phase I and II dredging could begin in late 1995 or early 1996, after a Full Environmental Impact Report is prepared on the effect of dredging and beach nourishment to the eelgrass beds and other natural resources. Phase III construction would begin following resolution of environmental issues. Both the Wareham Conservation Commission and the Marine Resources Commission have voted in favor of this project. Construction funding will be 75% state and 25% local. Local contribution will be through the town's Waterways Improvement Fund. Permitting for the East River dredge project will involve the Massachusetts Environmental Policy Act (MEPA), the Wareham Conservation Commission (Massachusetts Wetlands Act), Chapter 91, Water Quality Certification and Coastal Zone Management consistency.

*In early 1995, the Massachusetts Department of Environmental Management let a contract for the East River dredging projects.*

The history of dredging in Wareham River is summarized in the *Wareham Harbor Study* (1988). Wareham River has been dredged twice in the past 100 years. In 1896 the U.S. ACOE dredged the channel from Buzzards Bay to Wareham 9 feet deep, over  $\frac{3}{4}$  of the width in the upper harbor and  $\frac{1}{2}$  of the width in the lower portion of the river. In 1917 the Commonwealth of Massachusetts dredged a 12-foot-deep channel 90 feet wide. The Harbormaster noted that Wareham River is in need of dredging and is likely to be dredged in the future. Neither Buzzards Bay between Stony Point Dike and Cromeset Neck nor the Weweantic River has ever been dredged, and there are currently no plans for dredging.

In the event of dredging, a study of the rocks, bottom sediment, debris, refuse, and plant or animal matter of the proposed area would be conducted to determine physical and chemical constituents. U.S. ACOE and Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways (310 CMR 9.00) standards for dredging and dredged material disposal would be followed.

#### **g. Water Quality Classification**

The Massachusetts Department of Environmental Protection (DEP) regulates the water resources within the state under the federal Water Pollution Control Act (Clean Water Act). As required by the act, DEP Division of Water Pollution Control (DWPC) developed the Massachusetts Water Quality Standards "which designate the uses for which the various waters of the commonwealth shall be enhanced, maintained and protected; which prescribe the water quality criteria required

to sustain the designated uses; and which contain regulations necessary to achieve the designated uses and maintain existing water quality including, where appropriate, the prohibition of discharges." These regulations are promulgated in 314 CMR 4.00 Surface Water Quality Standards, 1990.

The classes adopted for inland waters and coastal and marine waters establish the target water quality criteria and the associated uses of the waterbodies. Surface waters are classified according to the most sensitive beneficial uses of this resource and by minimum criteria for water quality. Classified waterbodies have to meet the water quality standards specified by the regulations (314 CMR 4.00). The classes are as follows:

#### Classes for Inland Waters

- Class A: Designation for use as a source of public water supply.
- Class B: Designation for the uses of protection and propagation of fish, other aquatic life and wildlife; and for primary and secondary contact recreation.
- Class C: Designation for the uses of protection and propagation of fish, other aquatic life and wildlife; and for secondary contact recreation.

#### Classes for Coastal and Marine Waters

- Class SA: Designation for the uses of protection and propagation of fish, other aquatic life and wildlife; for primary and secondary contact recreation; and for shellfish harvesting without depuration in approved areas.
- Class SB: Designation for the uses of protection and propagation of fish, other aquatic life and wildlife; for primary and secondary contact recreation; and for shellfish harvesting with depuration (Restricted Shellfish Areas).
- Class SC: Designation for the uses of protection and propagation of fish, other aquatic life and wildlife; and for secondary contact recreation.

Water quality classifications for the surface waterbodies in the Wareham study area are listed in Table 3 and on the Water Quality Classification Map, Figure 3.

Potential pollution sources of the water quality in the study area consist of urban runoff, leachate from septic systems, boat discharges, waterfowl, and pollution sources transported by rivers (e.g., agricultural fertilizers, leachate from landfills, industrial discharges, and sewerage treatment plant effluent). The pollutants either enter the waterbodies as point sources or as nonpoint sources, such as leaking septic tanks and storm drains.

The coliform concentrations in the coastal and estuarine waters in the study area are monitored regularly by the Wareham Board of Health and the Massachusetts Division of Marine Fisheries (e.g., Sawyer, 1989a; 1989b). Fecal coliform concentrations are determined as an indicator of the amount of the bacterial species *Escherichia coli* (*E. coli*) in fecal material. *E. coli* is normally

**Table 3**  
**Surface Water Quality Classification**

Location	Destination
Weweantic River - Source to Outlet at Horseshoe Pond	B
Weweantic River - Outlet of Horseshoe Pond to mouth	SA
Agawam River - Source to Wareham Sewerage Treatment Plan	B
Agawam River - Wareham Sewerage Treatment Plant to confluence with Wareham River	SB
Wareham River	SA
Onset Bay	SA
Source: Massachusetts Department of Water Pollution Control (314 CMR 4.06), 1990	

found in warm-blooded animals' intestines and wastes and is not harmful to humans by itself. Certain other coliform bacteria which are harmful (pathogens) exist in the natural environment and frequently live in similar conditions as *E. coli*. Fecal coliform is therefore used as an indicator of such pathogens.

Water quality data were also collected by the DEP, Division of Water Pollution Control and by other scientific organizations in connection with the Buzzards Bay Project (e.g., Battelle Ocean Sciences, 1988; DEP-DWPC, 1989), as discussed in detail below.

A detailed analysis of the water quality of Onset Bay and Wareham Harbor is presented in *Onset Harbor Study* (1988) and *Wareham Harbor Study* (1988).

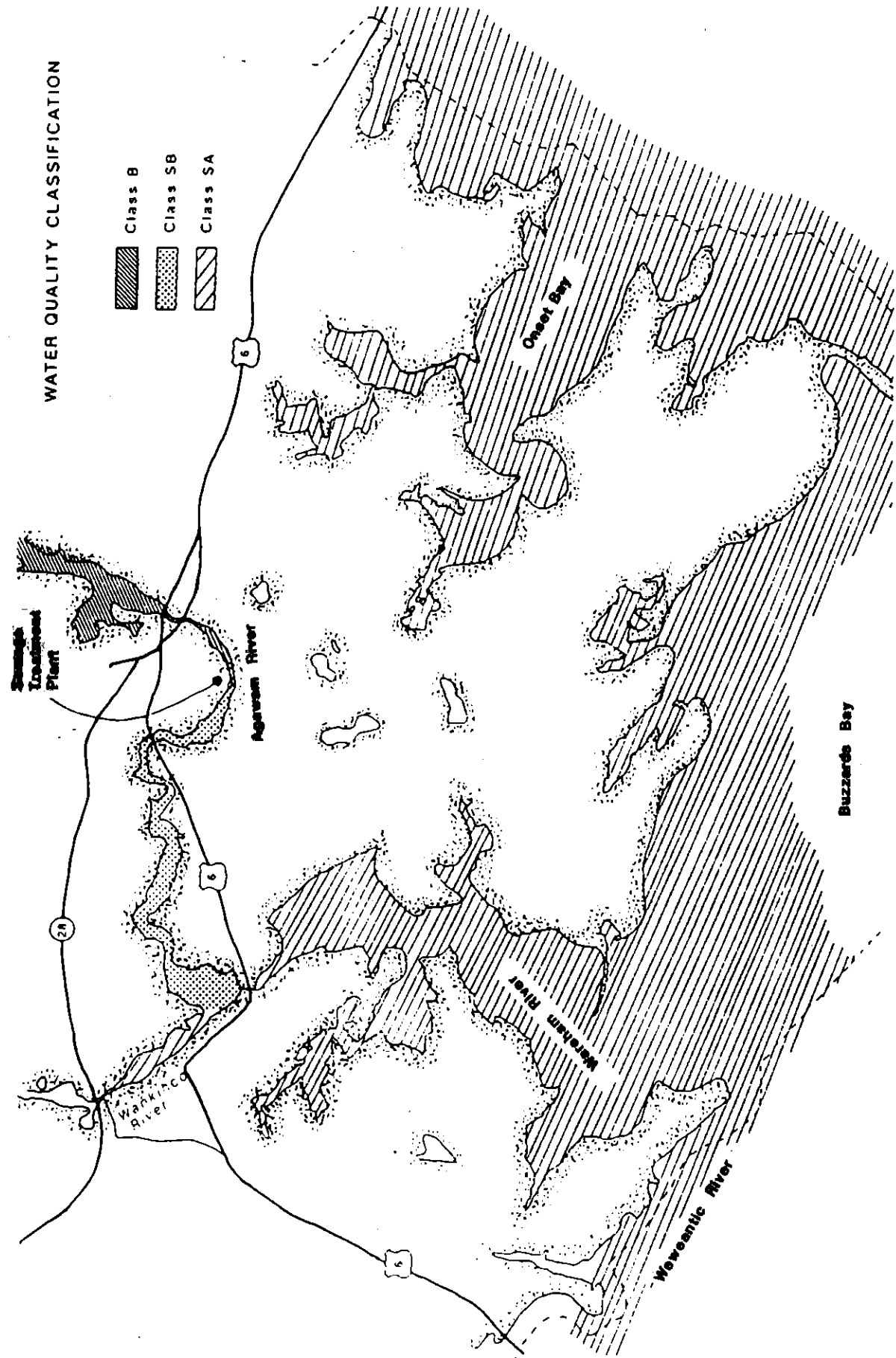
### Fecal Coliform

Fecal coliform data from the Wareham Board of Health is not necessarily compatible with the data from the DMF since different analytical techniques were used. The method used to determine the coliform concentration by the Board of Health may have underrepresented the actual amount of bacteria present. This issue is discussed in more detail in the *Wareham Harbor Study* (1988).

The **Wareham Board of Health** analyzes fecal coliform concentrations at the town beaches on an average of twice per month during the swimming season (see Table 4). Fecal coliform concentrations are typically below the Board of Health beach closure limit of 200 *E. coli*/100ml; yet, occasionally, a concentration exceeds the median concentration. The only time the beach was closed was during the aftermath of Hurricane Bob. The sporadic nature of unusually high concentrations suggests a nearby source of fecal coliform, which irregularly creates "patches" of elevated concentrations in the water. A Buzzards Bay Project study indicates boat discharges could be the source of such patches (DEP-DWPC, 1989; Beskenis, 1990). Other sources such as septic systems or storm drains probably do not cause these patches since these sources typically

WATER QUALITY CLASSIFICATION

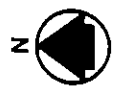
- Class B
- Class SB
- Class SA



HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

Figure 3  
WATER QUALITY CLASSIFICATION

Source: Onset Harbor Study,  
1988



release coliform into the water gradually, which results in a gradual increase in the coliform concentration in the water column and a more uniform regional distribution.

The **Massachusetts Division of Marine Fisheries (DMF)** collects water samples and analyzes them for fecal coliform to determine water quality in shellfishing areas. Prior to January 1988, this responsibility was performed by the DEP. There are over 100 DMF monitoring stations in the study area. Typically, areas with open shellfish beds are tested five times per year. The following coastal regions are tested: Weweantic River, Wareham River, Agawam River, Little Harbor/Bourne Cove, Widows Cove, Onset Bay, Shell Point Bay, Broad/Muddy Coves, and Butler Cove. Fecal coliform data for the years 1985 through 1991 are presented in Appendix 1. These data provide the baseline for the closure of shellfishing beds. The lower detection limit applied by the DMF is 1.7 *E. coli*/100ml; the upper detection limit is 64 *E. coli*/100ml. Closure occurs when the levels exceed 14 *E. coli*/100ml. No inferences can be made from these data on the swimability of the coastal waters near the sampling locations since the beach closure limit is 200 *E. coli*/100ml.

Between 1985 and 1991, fecal coliform levels exceeded the closure limit in all coastal regions in most years. Consistently high fecal coliform concentrations were observed in the Weweantic River, Wareham River, Broad/Muddy Coves, and Shell Point Bay. Fecal coliform concentrations were particularly high in the Agawam River. The fecal coliform concentrations in Butler Cove and Onset Bay are cyclical; shellfish closure limits are generally exceeded only in the summer and early fall. Widows Cove and the Little Harbor/Bourne Cove region had the lowest fecal coliform concentrations. However, the trend of the fecal coliform concentration in the Little Harbor/Bourne Cove region as well as for the Wareham River showed an increase. The trend in the other coastal regions remained steady over the seven years of monitoring.

The main sources of the fecal coliform are possibly urban runoff and septic systems. Clayton (1988) stated that rainfall levels (and thus urban runoff) seem to be strongly correlated with fecal coliform levels. Summer activities near the waterbodies (summer residences, boating, etc.) may also affect the fecal coliform concentrations, as indicated in the seasonal increase in Butler Cove and Onset Bay during the drier summer and fall months. Boat discharges contribute in the summer (Beskenis, 1990), although the quantitative contribution to the coliform levels is not known (Sawyer, 1989a, 1989b).

A variety of water quality parameters were investigated by the **Massachusetts Division of Water Pollution Control** in 1985 at 21 stations in the study area (Gil, 1987). Fecal coliform levels exceeding the shellfish bed closure limit were observed in Gibbs River, Weweantic River, Agawam River, and Wankinco River in the vicinity and downstream of the tri-town Landfill in Carver (Table 5). The data suggests that the upper estuaries and rivers provide a considerable source of coliform to Wareham River and Onset Bay.

### Nutrients

Nutrients are supplied by point and nonpoint sources that include failing septic systems, lawn and agricultural fertilizers, stormwater drainage pipes, waterfowl, marsh vegetation, and boat discharges. High nutrient levels could lead to eutrophication and ultimately to anoxic conditions at the bottom of the water column in areas of limited flushing. Such anoxic conditions in turn



**Table 4**  
**Fecal Coliform Concentrations on Wareham Public Beaches**

Sampling Date	Fecal Coliform Concentration (mg/l)		Number of Beaches Sampled	Comments
	Range	Median		
June 26, 1989	< 10 - 90	< 10	11	
July 13, 1989	< 10 - 10	< 10	11	
July 27, 1989	< 10 - 20	< 10	11	
August 9, 1989	< 10 - 100	< 10	11	
August 23, 1989	< 10 - 550	30	11	(1)
August 31, 1989	< 10 - < 10	< 10	2	(2)
June 18, 1990	< 10 - 30	< 10	11	
July 10, 1990	< 10 - 10	< 10	11	
July 31, 1990	< 10 - 40	< 10	11	
August 22, 1990	< 10 - 20	< 10	11	
May 14, 1991	< 10 - 200	< 10	11	(3)
June 24, 1991	< 10 - 20	20	11	
July 18, 1991	< 10 - 30	< 10	11	
July 29, 1991	< 10 - 40	< 10	11	
August 13, 1991	< 10 - 260	90	11	(4)
August 22, 1991	< 10 - 60	< 10	6	
August 26, 1991	< 10 - 230	10	11	(5)

Beaches sampling locations: Weweantic; Swifts Beach, Swifts Neck; Pinehurst; Minot Forest; Little Harbor; Onset Beach; Point Independence; Riverside; Shangrila; Sunset Boulevard

Comments:

- (1) Counts exceeded the beach closure limit at Shangrila (550 *E.coli*/100 ml) and Sunset Boulevard (370 *E.coli*/100ml).
- (2) Shangrila and Sunset Boulevard only were resampled.
- (3) Counts exceeded the beach closure limit at Swifts Beach.
- (4) Counts exceeded the beach closure limit at Little Harbor Beach.
- (5) Counts exceeded the beach closure limit at Onset Beach.

Source: Board of Health, Town of Wareham 1989-1991

deplete the bottom-dwelling organisms such as shellfish. Furthermore, high nutrient levels lead to increased algal growth which in turn leads to increases in turbidity as these organisms decompose. This turbidity in turn reduces the decomposition rates of fecal coliform. Higher turbidity and thus lower water transparency can also have large-scale effects on eelgrass distribution (Costa, 1988).

Nitrogen loading has been identified by the Buzzards Bay Comprehensive Conservation and Management Plan (CCMP) as an issue which is critical to the future health of our coastal waters.

Excessive nitrogen inputs from septic systems and lawn and agricultural runoff can cause algae blooms in coastal areas thereby depleting the water of oxygen and sunlight, hurting living resources, and causing an overall decline in water quality. The CCMP shows the Wareham and Weweantic river estuaries to be particularly susceptible to nitrogen loading. Onset Bay is also listed as an area requiring growth management to avert the damaging effects of eutrophication.

A large part of the nutrients most likely enters the waterbodies during stormwater runoff, as was observed by Heufelder (1987) in Buttermilk Bay, outside of the study area.<sup>1</sup> Nutrient data from the waterbodies in the study area is limited. Nutrients levels are elevated in most waterbodies (Table 5), but particularly in the Agawam River as also indicated by the presence of algal mats (L. Gil, personal communication). No data was found for nonpoint sources for nutrient input into the waterbodies in the study area, such as septic systems, fertilizers, and waterfowl. Further discussion of the importance of these sources is found in Soderstrom (1988) and Clayton (1988).

### Other Pollutants

Other pollutants such as trace metals, organics, polycyclic aromatic hydrocarbons (PAHs), may be introduced into the waterbodies by landfills, effluent from sewage treatment plants, marinas, and urban runoff. The landfill closest to the project area is the tri-town landfill in the Wankinco River watershed. The only sewerage treatment plant in the project area is the Wareham Sewage Treatment Plant adjacent to the Agawam River.

The availability of water quality data of other pollutants is limited. During the DWPC water quality study in 1985 (Gil, 1987), mean metal concentrations were found at or below the detection limit (Table 5). Dissolved oxygen concentrations in all samples were above 6.5 mg/l with the exception of the Gibbs River and Weweantic River samples near Route 25. The absence of PCBs, trace metals, and PAHs in the sediment column (Table 2) may indicate that the presence of these pollutants in the water column is small.

### Marinas

Marinas may be one of the land uses that contribute to the decrease in water quality exhibited during summer months. Pollutants contributed from marinas to the overall water quality include most notably fecal coliform from illegal discharge of marine sanitation devices, and fuel and oil from the operation and refueling of motor boats (for more details see Soderstrom, 1988). The

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<sup>1</sup> The towns of Bourne, Plymouth and Wareham have established the nation's first intermunicipal overlay district by adopting zoning changes which protect Buttermilk Bay from the effects of nitrogen pollution.

**Table 5**  
**Water Quality - Mean Concentrations**

Location	Sample No.	Temp.	Dissolved Oxygen	pH	Alkalinity	Chloride	Salinity	Spe. Conduct.	Nitrate-N	Total P	Fecal Coliforms	Fecal Coliforms
		-C	mg/l		mg/l	mg/l	psu	µmhos/cm	mg/l	mg/l	col./100ml	col./100ml
Gibbs Brook	6GB040	23.2	5.2	6.1	8.0	18		145		0.11	1166	89
Muddy Cove	8MC020	23.8	7.5	8.0		16125	26.2	34800	0.55	0.17	30	12.1
East River	9ER030	23.2	7.4	8.0		18563	27.8	27250		0.14	52	7
Onset Bay	100B0300	23.9	6.5	7.6		16500	28.5	37000			20	<5
Onset Bay	110B0200	22.8	6.9	7.7		18000	28.5	38000			20	<5
Onset Bay	120B0400	22.8	7.4	7.8		15800	28.5	38000			80	<5
Agawam River	13AR070	25.3	8.0	6.3	6.5	4.5		95	0.10	0.14	824	36
Agawam River	14AR080	24.4	8.0	6.2	4.5	8.0		57	0.30	0.14	1675	72
Agawam River	15AR090	24.9	7.9	7.0		1313	3	3060		0.16	221	93
Wankinco River	16WR0060	20.4	9.5	6.4	20.0	9.0		255	0.35	0.12	2763	224
Wankinco River	17WR0070	18.5	7.7		16.5	11		303	0.05	0.10	969	152
Wankinco River	18WR0100	23.9	7.7	6.7		491		1262	0.40	0.08	305	106
Weweantic River	19WE0110	23.1	3.9	5.5	6.0	10.0		87	0.20	0.16	1182	92
Weweantic River	20WE0120	23.2	6.9	5.9	5.0	13.0		76	0.30	0.17	1711	92
Weweantic River	21WE130	24.5	6.6	7.5		9163	16.8	21200		0.26	195	56
Buzzards Bay	22WE0140	24.4	6.6			12000	26.5	35000		0.11		
Agawam River	23WA0170	25.2	7.5	7.8		11338	20.0	27400		0.19	232	25
Wareham River	24WA0180	25.6	6.8	7.6		12000	24.0	30500			20	10
Wareham River	25WA0190	25.6	6.9	7.6		13000	25.0	29500			28	<5
Wareham River	26WA0200	24.4	6.7	7.6		14500	27.0	31500			10	<5
Buzzards Bay	27WA0210	24.4	7.8	7.8		15000	27.5	35000			20	<5

\* Geometric Mean

**Table 5 (Continued)**  
**Water Quality - Mean Concentrations**

Location	Sample No.	Total Solids mg/l	Dissolved Solids mg/l	Susp. Solids mg/l	Turbidity mg/l	Calcium mg/l	Chloride mg/l	Copper mg/l	Lead mg/l	Mercury mg/l	Nitrate mg/l
Gibbs Brook	6GB040	51	46	4.3	2.5	<0.02	<0.02	<0.02	0.06	<0.0002	<0.03
Muddy Cove	8MC020	29992	29982	6.0		<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
East River	9ER030	21040	31028	8.8		<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Onset Bay	100B0300	32230		4.5	3.5	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Onset Bay	110B0200	33510		4.5	2.1	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Onset Bay	120B0400	33020		6.5	1.7	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Agawam River	13AR070	16	11	0.5	1.0						
Agawam River	14AR080	23	22	1.8	0.9	<0.02	<0.02	<0.02	0.35	<0.0002	<0.03
Agawam River	15AR090	2452	2443	6.9	0.7	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Wankinco River	16WR0060	172	305	2.8	1.4	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Wankinco River	17WR0070	204	350	3.8	2.7	<0.02	<0.02	<0.02	0.06	<0.0002	<0.03
Wankinco River	18WR0100	1002	998	2.3	0.8	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Weweantic River	19WE0110	76	68	4.8	2.3						
Weweantic River	20WE0120	71	66	3.8	3.1	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Weweantic River	21WE0130	17179	17905	9.0	1.3	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Buzzards Bay	22WE0140				2.9	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Agawam River	23WA0170	23550	21723	7.6	0.5	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Wareham River	24WA0180	26840		7.8	1.4	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Wareham River	25WA0190	28310		7.8	1.6	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Wareham River	26WA0200	29840		7.0	1.1	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03
Buzzards Bay	27WA0210	30188		5.0	2.2	<0.02	<0.02	<0.02	<0.06	<0.0002	<0.03

Sampling days: 5/22/85, 8/13/85 (am & pm), 8/14/85 (am & pm)

effect of marinas on the water quality depends on the number of boats, the frequency of boat usage, the policy for pump-out collection, and the placement of refueling stations. Studies indicate that the density and the number of boats strongly correspond to the poor water quality in areas of active boating and in the vicinity of marinas (e.g., Beskenis, 1990; Sawyer and Golding, 1990; Eldredge, 1989; Milliken and Lee, 1990; Gaines and Solow, 1990). Frequently, fecal coliform pollution corresponds with policies of waste collection. Evidence of a boat user discharging human waste into the water while in the marina slips is presented for example in Beskenis (1990).

Other pollutants related to marinas are solvents and painting agents used for boat maintenance which are toxic to aquatic life. This includes copper and tributyltin (TBT) bottom paints used to prevent fouling. No data was available to determine the contribution of such pollutants from boats to the waterbodies adjacent to the marinas in the Wareham study area. Due to strict regulatory requirements, no TBT is currently used by any of the Wareham marinas, according to the Wareham Harbormaster, Mr. W. Ellis, III.

## **2. Drainage and Discharge**

### **a. Drainage into the Harbor**

In August 1989, the DMF, with assistance from Wareham Board of Health, issued sanitary survey reports for Wareham River and Onset Bay. As part of the survey, all known storm drains and discharge points were identified and mapped. It was confirmed by the Municipal Maintenance Department that no new storm drains have been constructed since the time of the DMF survey. The DMF inventory is included in Appendix 2.

### **b. Marine Pump-Out Facilities**

In February 1992, the Town of Wareham was designated a "No Discharge Area" by the U.S. Environmental Protection Agency (U.S. EPA). Boaters are required to use one of the seven pump-outs in town or face fines. Furthermore, no discharges are allowed from vessels even if they have Type I or Type II Marine Sanitary Devices (MSDs). The designated area encompasses Onset Bay and Wareham River to the Weweantic River along the border with Marion. Education is a major component of the designation, according to Jean Spaulding, Wareham Health Inspector.

The Wareham Board of Health prohibits all vessels from discharging any sewage, whether treated or untreated, into the coastal waters of Wareham as determined by U.S. EPA. As indicated in the town's No Discharge Area Regulation:

"The Wareham Board of Health prohibits the discharge from all vessels of any sewage, whether treated or untreated into the coastal waters of Wareham as determined by the state of Massachusetts and designated by the United States Environmental Protection Agency."

"Boat sewage shall be disposed of through available boat sewage pump-out facilities within the Town of Wareham, or through other approved means outside of the Town of Wareham boundaries."

“All vessels registering for mooring (harbor permits) within the Town of Wareham shall be inspected by the Harbormaster, or his designee, for compliance with the Marine Sanitation Device Coast Guard Regulation.”

“Any violation of the NO DISCHARGE AREA regulation shall be punishable by a fine of \$50.00 and a warning for the first offense, a fine of \$200.00 for the second offense, and a fine of \$500.00 and a loss of mooring rights for one year upon conviction of a third offense.”

“This Board of Health regulation may be enforced by the Wareham Board of Health, the Shellfish/Harbormaster’s Department, and any applicable state and federal enforcement agencies.”

Marine pump-out facilities for moored and transient vessels in Wareham are equipped to receive discharge from Type III Marine Sanitation Devices (MSDs). If there is a head on board, one of three discharge systems are mandated by the U.S. Coast Guard for installation:

#### Marine Sanitation Devices

- Type I - Chops up and disinfects waste with chemicals to reduce fecal coliform level to 1000 per 100 ml of water with no floating solids.
- Type II - Reduces fecal coliform level to 200 per 100 ml of water with suspended solids no greater than 150 mg/l.
- Type III - Boat is equipped with holding tank and piping to discharge into pump-out facility. May be discharged beyond territorial sea of U.S. (3 miles).

Boats longer than 65 feet must use Type II or III, while boats less than 65 feet can use Type I, II or III if there is an installed head.

In many towns, boaters release their wastes directly into the water due to lack of on-shore pump-out facilities or improper toilets installed. As of summer 1991, towns on Buzzards Bay had a total of 15 pump-out stations; Wareham has 7 of these facilities at the following locations: Warr’s Marine, Onset Bay Marina, Point Independence Yacht Club, Stonebridge Marina, Continental (formerly Bevan’s) Marina, Onset Town Pier, and Wareham Boat Yard. Table 6 summarizes Wareham’s pump-out services. Warr’s Marine, Onset Town Pier, Onset Bay Marina, Point Independence Yacht Club, and Stonebridge Marina are tied into the municipal sewer system. Although sewer lines exist at Continental Marina, it is not scheduled to tie into the municipal system until 1992. According to the Water Pollution Control Department, sewer tie-ins will be made once modifications in sludge-handling expansion to the Wareham Water Pollution Control Facility are completed. Continental Marina currently has a holding tank and an on-site septic system. Wareham Boat Yard has an on-site septic system which services primarily smaller vessels without MSDs. Facilities are most active in the fall when boats are hauled from the water for winter storage.

Although there is no estimate of total number of discharges made per year or the frequency of use of each station, the Harbormaster reports a general underutilization of the pump-out facilities. This was confirmed by the town’s request to the U.S. EPA for the designation of a “No Discharge Area.”

**Table 6**  
**Summary of Wareham Marine Pump-Out Facilities Services**

Name	Public/Private	Fee*	Hours	Sewerage
Warr's Marina	Private	\$10	Mon-Sat, 8AM-4PM Sunday, variable	Municipal Sewer
Stonebridge Marina	Private	Free (members only)	9AM-7PM	Municipal Sewer
Onset Bay Marina	Private	\$5 - members \$5 - non-members	Sun-Fri, 7:30AM-6PM Sat, 7:30AM-7PM	Municipal Sewer
Point Independence Yacht Club	Private	Free (members only)	Weekdays, 8AM-4PM Weekends, 8AM-8PM	Municipal Sewer
Continental Marina	Private	\$15	Daily, 8AM-5PM	Holding Tank & On-Site Septic (to be connected to municipal sewer in 1992)
Onset Town Pier	Public	\$5, Free with town services permit	Weekdays, 8AM-4PM Weekends, 8AM-6PM+	Municipal Sewer
Wareham Boat Yard	Private	—	Daily, 9AM-4PM	On-Site Septic System

\* All Wareham pump-out facilities are free of charge in 1992, the first year of federal designation as a "No Discharge Area."

SOURCE: Coalition for Buzzards Bay, Handbook for Mariners of Buzzards Bay, 1991; Marina Representatives.

In the federal application for the "No Discharge Area" it was estimated that annual vessel usage of Wareham coastal waters consists of approximately 1,300 vessels, including 15 commercial and 200 transient recreational vessels (Federal Register, Nov. 14, 1991). The Harbormaster observed that most transient vessels stay in Onset Bay because of its proximity and convenience to the Cape Cod Canal, and its protected waters.

**c. Fuel Handling Facilities**

The possibility of spills or leaks from underground storage tanks poses a threat to water quality. Most of the private marinas have fuel service, although there are two public access points for refueling trucks to service commercial vessels and other large vessels. Both Besse Park and Onset Town Pier allow diesel fuel truck service. No recreational boats are serviced at these fuel handling facilities. Each year the fuel companies must obtain a permit from the fire marshall to sell fuel and must provide a recent inspection of the service vehicles. The Harbormaster is in charge of refueling operations and state law requires that a town official authorize each refueling. Because of the location of bathing beaches on either side of Onset Town Pier, supervision at this site is critical. Similarly, Besse Park has a public park and offers public access; therefore, the refueling operations pose a threat to users of the park. The private marinas and boat yards which have fuel service all have underground storage tanks. Aboveground tanks are prohibited by the fire marshall.

Warr's Marine has one diesel fuel and two gas dispensers on the fuel pier at the bulkhead. Gas and diesel underground storage tanks were installed during summer 1991. They include one

10,000-gallon double-wall fiberglass gas tank and one 6,000-gallon double-wall fiberglass diesel tank. These tanks are 180 feet from the bulkhead (seawall). Both tanks are equipped with remote monitoring systems.

The one fuel pump at Stonebridge Marina is supplied from one 3,000-gallon gas underground storage tank. This tank was installed in the 1970s, according to the Onset Fire Department.

Fuel service at Onset Bay Marina is provided and there are three underground storage tanks. Two of these tanks are 6,000-gallon gas tanks and one is a 6,000-gallon diesel tank. These are all new double-wall tanks which have been installed within the last five years. Monitoring systems will be retrofitted into these tanks.

Wareham Boat Yard has one fuel pump that is supplied from an underground storage tank which is at least 15 years of age. This tank is tested annually and received a new annual permit in summer 1991.

#### **d. Wastewater**

Portions of the Town of Wareham are connected to municipal sewer service which is treated at the Wareham Water Pollution Control Facility (WPCF) located off Sandwich Road. A map depicting the on-line sewers and new sewer projects (Figure 4) was provided by the Water Pollution Control Department. Areas currently serviced by municipal sewer are the western shore of the Wareham River between Swifts Beach and Route 6 and in Onset Bay between Sunset Cove and Pleasant Harbor. New sewer lines are planned north of Route 6 on Buttermilk Bay. New construction has been completed in West Wareham between Cromeset Road and Swifts Beach Road. Residents must hook up to the municipal system within one year. The portions of Wareham not served by the WPCF have individual septic disposal systems.

The Wareham WPCF was constructed in 1971 and put on line in 1972. It has not experienced any operational problems. Discharge from the facility via four pipes is released into the Agawam River between the outlet of Mill Pond and the bridge at Route 6. Treatment design capacity is 1.8 million gallons per day. Average daily demand is approximately 650,000 gallons per day and peak daily demand is approximately 4 million gallons per day. Currently the facility is undergoing an upgrade in its sludge-handling expansion. The WPCF treats septic sludge from the towns of Wareham, Carver, and Rochester. In the summer an average of 14,000 gallons per day of sludge is brought in by truck and in the winter, the volume decreases to an average of 8,000 gallons per day.

The Wareham Water Pollution Control Facility was reauthorized to discharge into the Agawam River under the National Pollution Discharge Elimination System (NPDES), September 20, 1991.

## **B. Manmade Resources**

### **1. Land Use**

Land uses were determined through Wareham Board of Assessors maps and records. The majority of the land along the Wareham waterfront is used for residential purposes as indicated in Figure 5. Residential activity is clustered around Onset and Wareham Village centers. The majority of



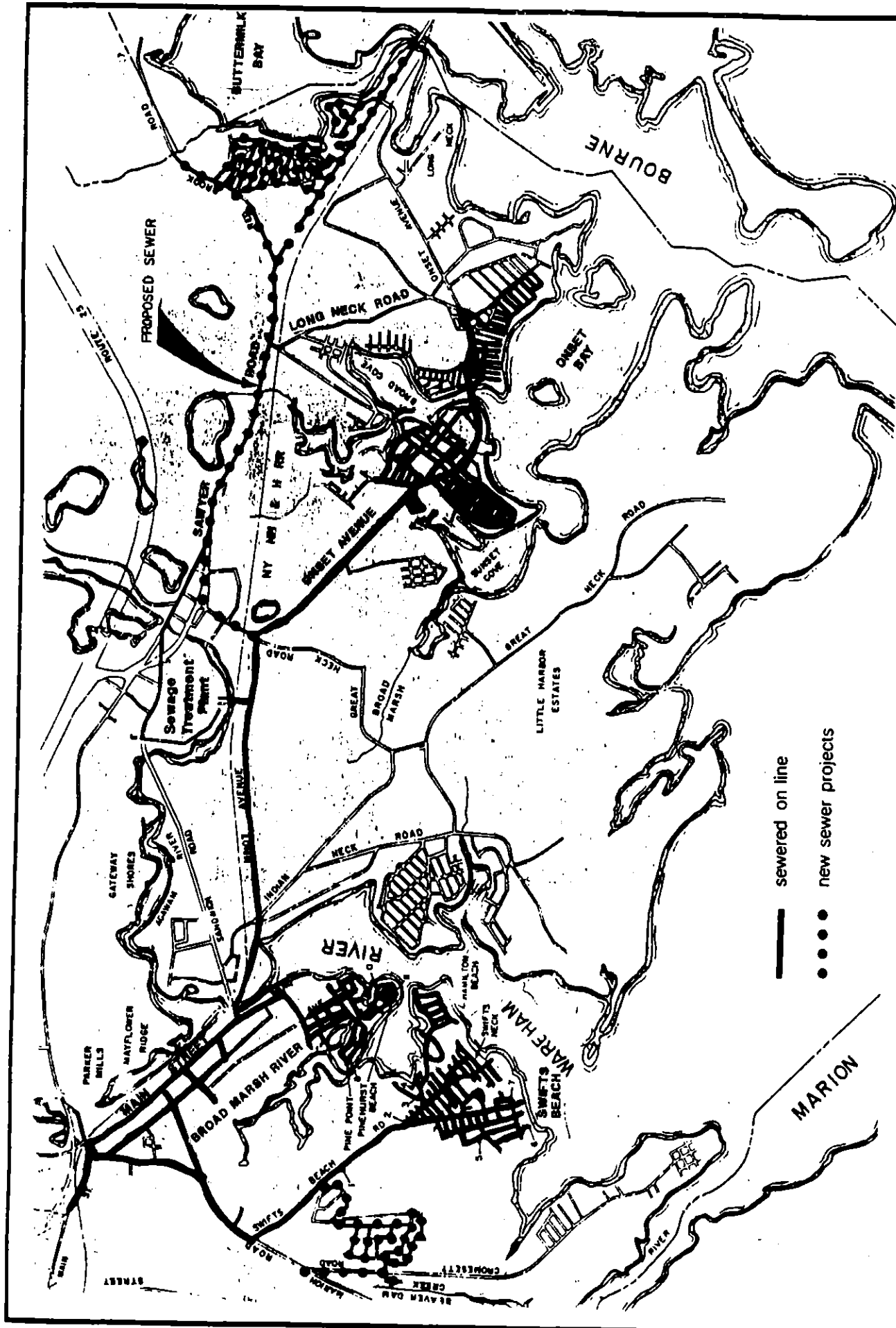


Figure 4  
SEWER SERVICE

HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

Source: Wareham Water Pollution Control Facility, 1991



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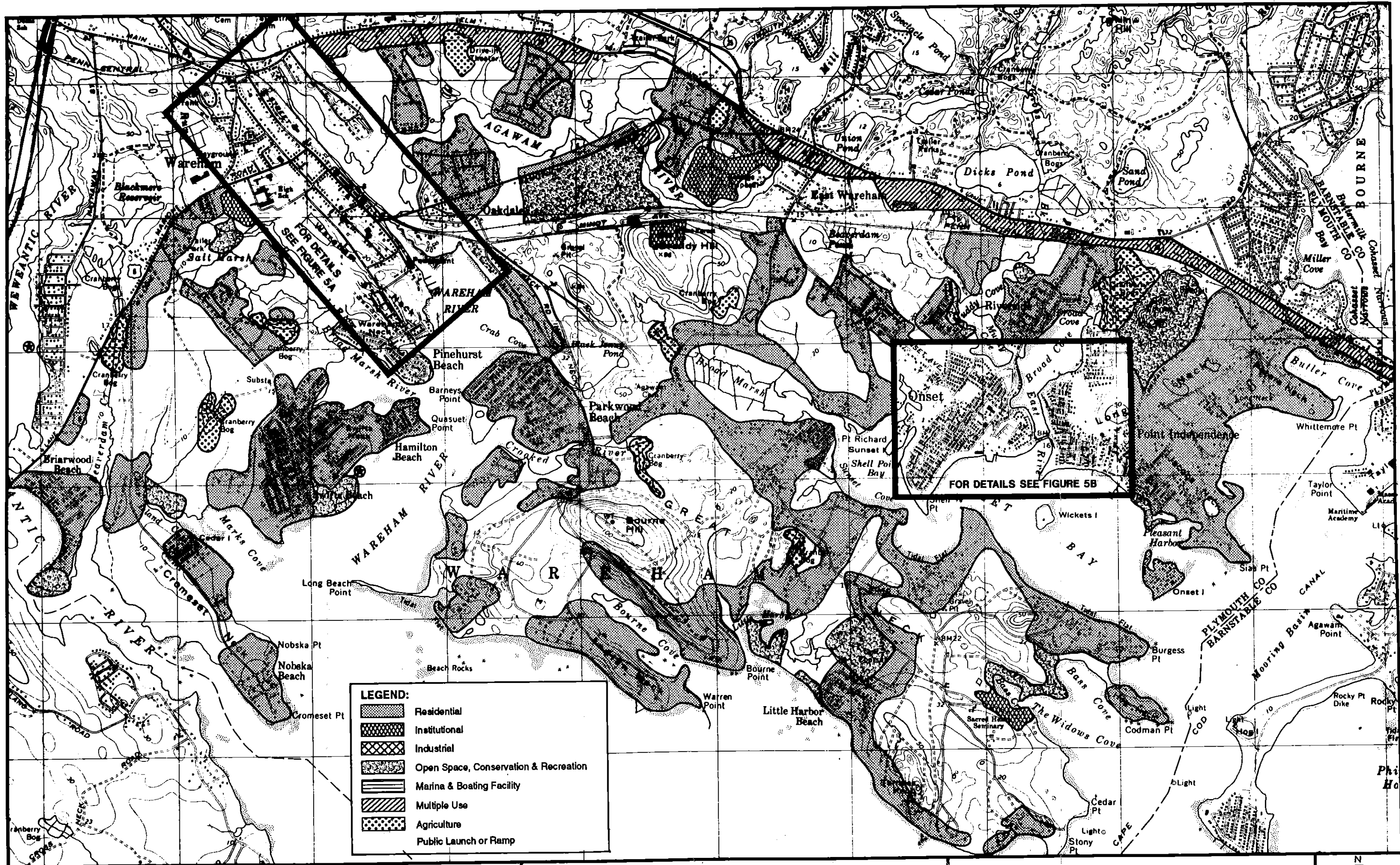
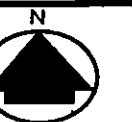


Figure 5  
LAND USE



HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

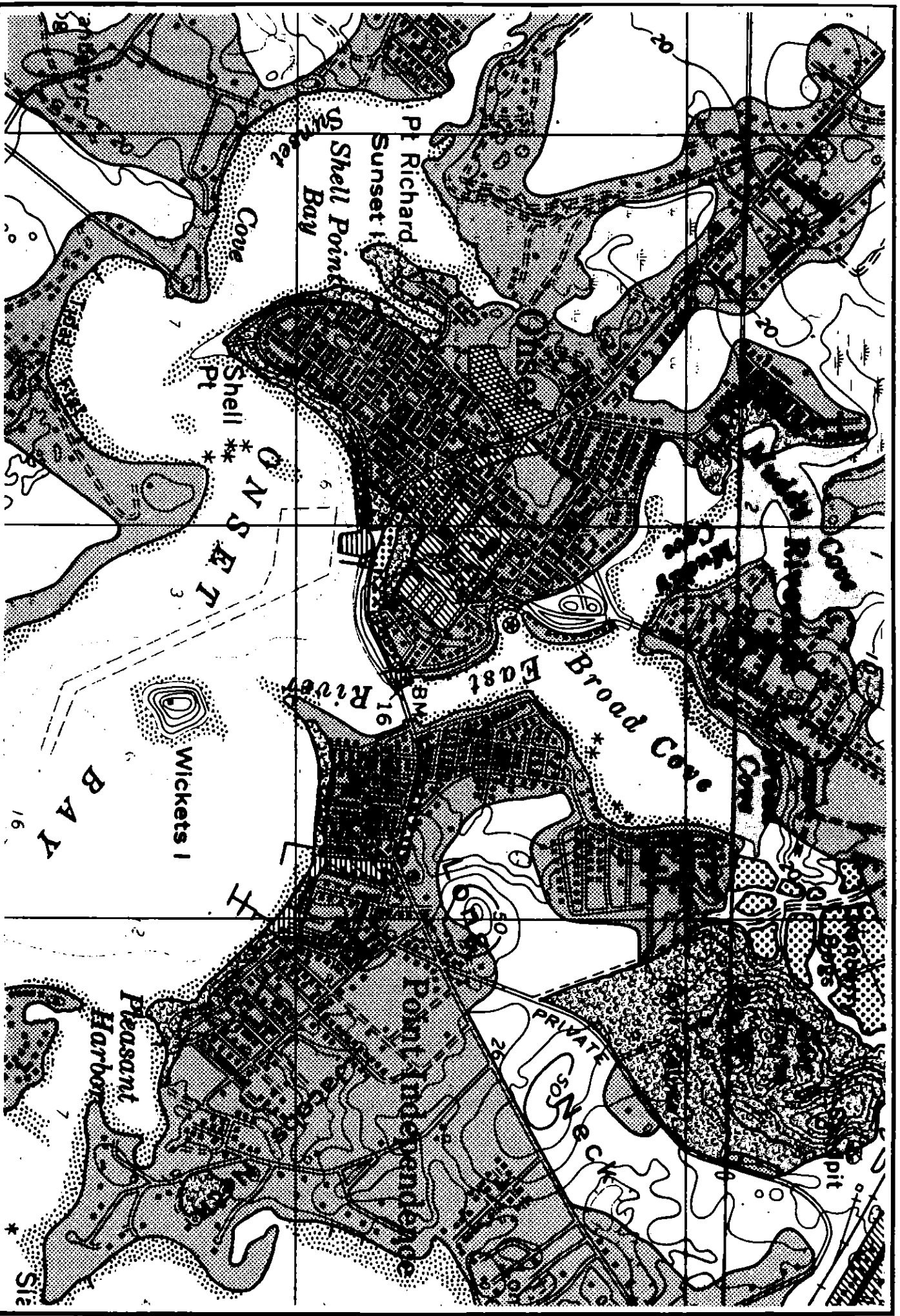
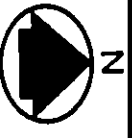


Figure 5B

LAND USE

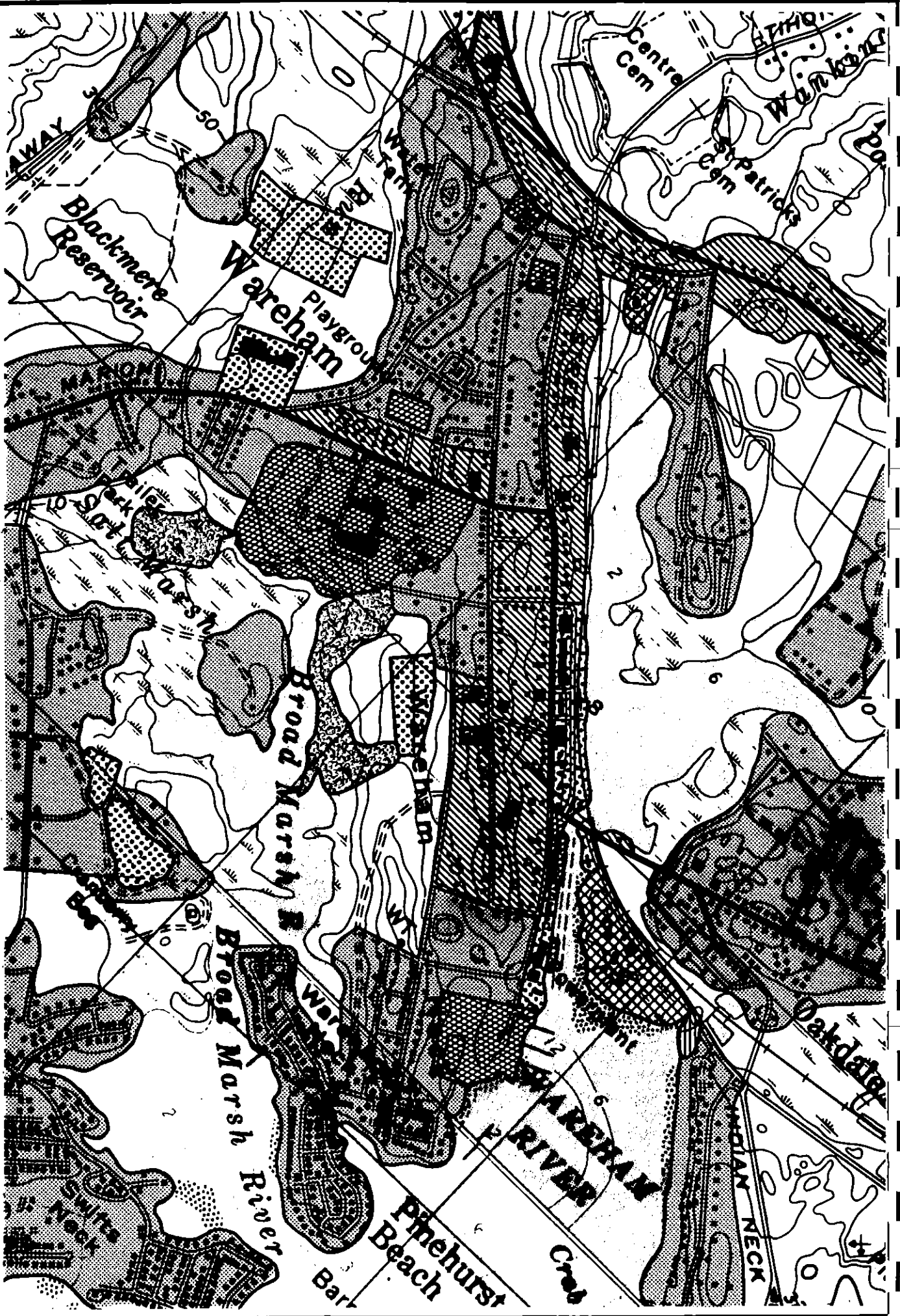


Note: See Figure 5 for Legend



HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

Figure 5A  
LAND USE



Note: See Figure 5 for Legend.





commercial activity is located along Routes 6 and 28. The town owns coastal land which provides public access to the shore on beaches, public ways, launches, piers, and parks. Other waterfront vacant land, primarily marsh, is owned largely by the Massachusetts Audubon Society, for preservation and conservation purposes.

In 1916, the Massachusetts Supreme Judicial Court decreed that the "shore fronts and beaches lying between the water and North Boulevard, East Boulevard, South Boulevard and West Boulevard," as described in the "Plan of 1878," were "dedicated to and accepted by the public for public parks and squares, and that the enjoyment of the same for all purposes and uses of or appropriate to parks, squares, groves and shore fronts and beaches devoted to public use and enjoyment belong to the public...." It has been in the interest of many Wareham organizations, including the Committee to Save Onset's Beaches and the Onset Protective League, as well as local Onset residents, to maintain public access to beaches which have developed along the shoreline of Broad Cove and Shell Point in particular.

The 1916 Supreme Court decree has been cited to contest construction of a parking lot in a picnic grove at Shell Point and construction/repair of the 12th Street boat ramp on the East River/Broad Cove.

## **2. Zoning**

The majority of waterfront zoning is residential, both single- and multiple-family as indicated on Figure 6. A small area on the Weweantic River along Route 6 is zoned for Strip Commercial activity. Other Strip Commercial zoning is found along Route 28. Marinas and boating facilities are the only areas zoned for marine use in the coastal area. In the eastern part of Wareham near Broad Cove, between Onset Avenue and the railroad, is an area zoned for Conference Recreation. The object of this area is to facilitate business enterprises and to promote economic development in the town as well as to provide for a year-round recreation and fitness facility, such as a golf course.

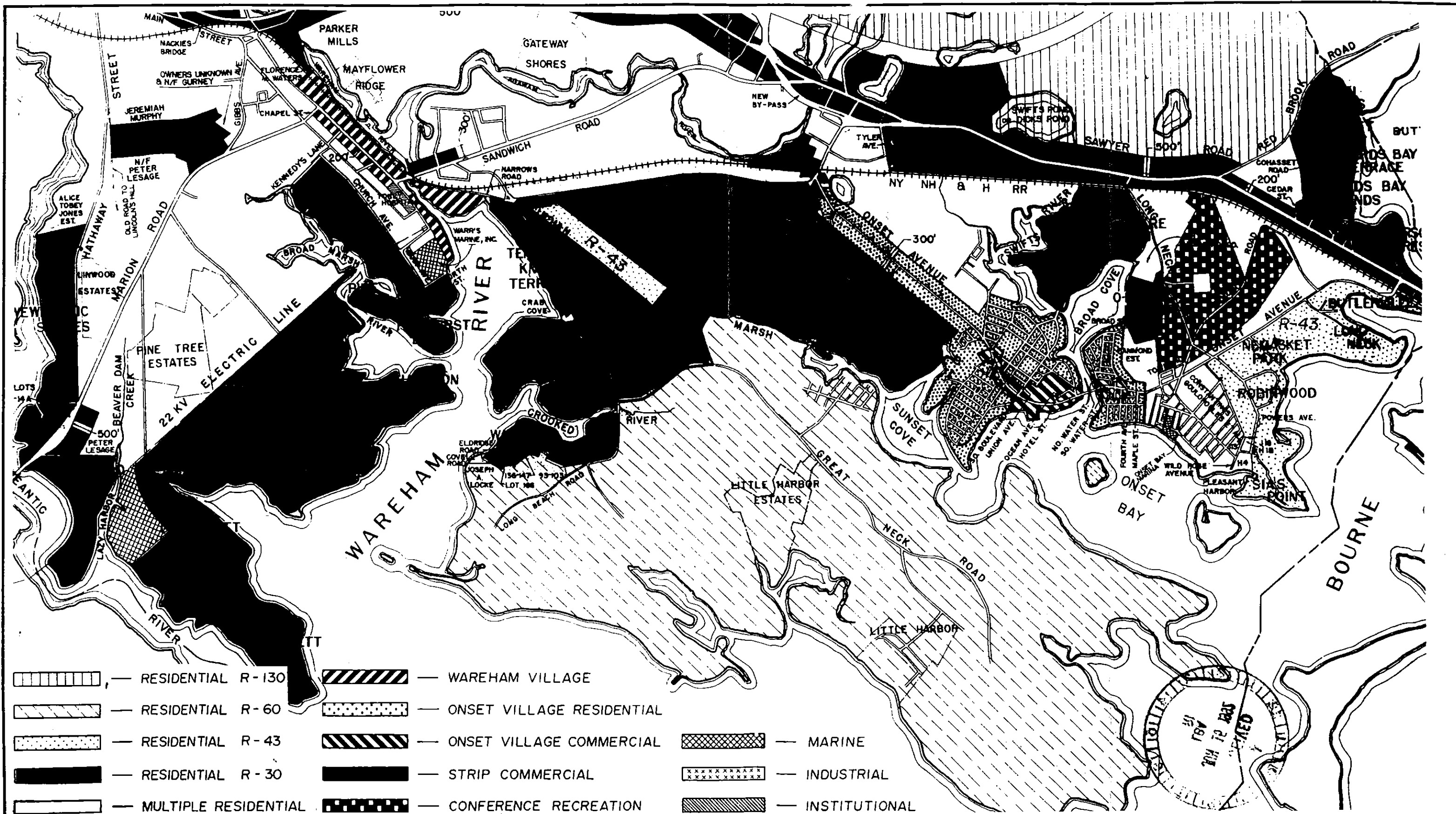
Onset Village is zoned as Onset Village Residential and Onset Village Center is zoned specifically as Onset Village Commercial to maintain a compact, pedestrian-scaled area, to encourage business and the distinctiveness of the area, and to promote a visual connection to the waterfront.

Similarly, Wareham Village zoning is designed to protect the historic buildings in the area and promote a visual connection to the waterfront, residential development, and a solid economic base.

## **3. Demographics and Build-Out Analysis**

The 1990 U.S. Census lists the total year-round population of the Town of Wareham as 19,232 persons. This represents a 4.2 percent increase in population over the 1980 U.S. Census figure of 18,457 persons, and corresponds to a population density of 518 persons per square mile. The population density for Plymouth County is slightly higher at 633 persons per square mile (1990 U.S. Census of Population). According to U.S. Census statistics, Wareham's population increased by 61 percent from 1970 to 1980, representing an increase of 6,965 persons. Between 1960 and 1990 Wareham grew 103.3 percent from a 1960 population of 9,461 (SRPEDD). Much of this growth may be attributed to conversion of summer cottages to year-round residences.

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HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

Figure: 6

Zoning

Source: Town of Wareham Massachusetts Zoning Map, revised May 10, 1990



The Southeast Regional Planning and Economic Development (SRPEDD) office has prepared revised demographic projections for the area in late 1994/early 1995. These are: year 2000 - 23,027; year 2010 - 24,099; and year 2020 - 25,222. These are based upon land availability and 1992 projections (made by a state agency) which did not take local situations into account.

Carver, which is also located in the Wareham drainage area, is the fastest growing Buzzards Bay community with a 52 percent increase in population from 1980 to 1990 (1990 population - 10,590). Regional growth rates and population are presented in Table 7.

**Table 7  
Population of Buzzards Bay Communities**

Municipality	1980	1990	% Change	People sq. mi.
Carver	6,988	10,590	51.5%	276
Plymouth	35,913	45,608	27.0%	467
Freetown	7,058	8,522	20.7%	247
Falmouth	23,640	27,960	18.3%	628
Bourne	13,874	16,064	15.8%	392
Marion	3,932	4,496	14.3%	315
Dartmouth	23,966	27,244	13.7%	447
Acushnet	8,704	9,554	9.8%	531
Middleborough	16,404	17,867	8.9%	255
Mattapoisett	5,597	5,850	4.5%	335
Wareham	18,457	19,232	4.2%	524
Rochester	3,205	3,291	2.7%	97
Fairhaven	15,759	16,132	2.4%	1,328
New Bedford	98,478	99,922	1.5%	5,262
Westport	13,763	13,852	0.6%	261
Gosnold	63	98		

The purpose of conducting a build-out analysis is to estimate the total of all development in a community, assuming that the community were to be entirely developed under the provisions of existing zoning. It helps describe the end result of existing regulations and policies towards land use. There are two primary reasons for conducting such an exercise. The first is to gain basic knowledge regarding the ability of the land to accommodate additional development under present zoning. Second, the result of this analysis can help identify critical issues, such as the existence of land shortages or surpluses, which leads to the formulation of policies and implementation strategies designed to address them. It must be noted here that the build-out analysis presented herein does not recommend or endorse development of certain areas of the town which are relatively free of development constraints.

The build-out analysis was based on an inventory of waterfront parcels in the study area. The inventory was compiled using information from the Wareham Board of Assessors (Appendix 3). From this data the acreage of all vacant parcels which were determined to be developable based on the land use codes in the data was compiled and summed based upon the zoning of the parcels.

Table 8 shows a summary of the vacant, developable acreage by zoning district. (NOTE: Only zoning was used as a constraint once the parcels were extracted from the Assessor's data. Any water and sewer service limitations and environmental constraints such as poorly drained soils were not factored into the equation due to the limited scope of this analysis.) The total acreage per zoning district was then divided by the minimum square-footage necessary to construct a single-family home in each of the respective districts, based upon the current Wareham Zoning Ordinance. This yielded a total of 334 new potential dwelling units which may be built before all of the vacant, developable land is used up.

**Table 8  
Potential New Dwelling Units\***

Zoning	Vacant Developable Acres	Minimum Lot Size Zoning Required ** (Acres)	Potential New Dwelling Units
Col. 1	Col. 2	Col. 3	Col. 2 ÷ Col. 3
MR30	94.78	0.69	137
R30	49.32	0.69	71
R43	0.00	----	----
R60	170.17	1.38	123
R130	5.54	2.98	2
<b>TOTALS</b>	<b>319.81</b>		<b>334</b>

\* Based upon vacant, developable land in Wareham Waterfront Parcel Inventory, (See Appendix 3).

\*\* Based upon minimum lot size required in the Wareham Zoning Ordinance for a single-family residence.

Source: Louis Berger & Associates, Inc.

The key question in the build-out analysis is when will the vacant, developable land be used up? The answer to this question is what will enable the Town of Wareham to plan for future development and to monitor and guide how fast it occurs in certain critical areas.

To calculate the year of build-out, the following formula is used (Collier, 1982):

$$\frac{I_n \left( \frac{\text{Future Year}}{\text{Baseline Year}} \right)}{I_n (1 + \text{Growth Rate})} = n$$

$n$  = number of years to build-out.  
 $n + \text{Baseline Year} = \text{year of build-out.}$

Where:

$l_n$  = natural logarithm.

Future Year = baseline year data (e.g. number of existing dwelling units) plus additional number of dwelling units that could be built given existing zoning.

Baseline Year = existing number, variable or measure at a given point in time.

Growth Rate = average annual rate of change in a number or variable over time.

The equation variables used in this analysis are as follows:

Baseline Year (1990, based on U.S. Census) = 11,383 total dwelling units

Future Year = 11,717 total dwelling units (11,383 + 334 from Table 7)

Growth Rate = 0.42% per year from 1980 to 1990, based on both dwelling units and total population (4.2% for the decade 1980-1990)

**Solving for  $n$  (number of years) = 7 (rounded). Therefore the projected year of residential build-out in the study area is 1997 (1990 + 7).** Based on the potential increase in the number of households (334), and an average household size of 2.57 persons (1990 U.S. Census), it is possible that an additional 858 persons could live on waterfront parcels by the year 1997.

It is very important to keep in mind that this is a theoretical analysis and that several assumptions have been made as follows:

- The existing zoning map remains unchanged between 1990 and 1998.
- Maximum permitted development is assumed for all buildable land.
- Past trends in growth rates (population and dwelling units) remain constant and dictate future trends.
- The reuse, rehabilitation or enlargement of existing developed sites is not considered.
- Substandard lots have been included in this analysis.

As indicated in Table 8, 334 new dwelling units could be constructed on waterfront parcels. This estimate, however, does not address environmental constraints on these lots including steep slopes, wetlands, substandard lot size or frontage requirements. It also does not address situations such as one in Onset where a paper street (undeveloped) fronts the shoreline. This "street" is on the beach and could never be developed as waterfront homes although five lots, totalling a third of an acre, are listed by the assessor.

Ownership of many of Wareham's shorefront parcels predates town zoning bylaws and is therefore "grandfathered." As "grandfathered lots" the only control on development is based

upon Title 5 of the State Environmental Code for Subsurface Disposal of Sanitary Waste (310 CMR 15.00) which establishes distances from waterways for septic systems. If the lot is not sewerred there must be 100 feet from the leach system to the waterway. Parcels without sufficient distance would not be buildable. If municipal sewers are available in the street, however, the property would be developable regardless of current zoning restrictions. Development pressures, therefore, increase when sewers are extended along shorefront property. According to Henry night, Wareham building inspector, the number of "grandfathered" lots would be in the thousands in town. An accurate determination of the exact number is beyond the scope of this project (requiring several person-months of investigation).

According to 1995 discussions with the planner in the Wareham Community Development Office, only limited shorefront development is anticipated in the future. The Onset area is fully developed in his estimation, although it may be possible to see limited reconstruction (demolition with reconstruction according to current standards) which would not be reflected in an increase in population. The planner indicated that there is more potential for shorefront development in the Cromeset Neck area on the west. Although a few lots may be potentially available in the Swifts Neck area, due to the flood hazard these are not very attractive. The Marks Cove area (north of Cromeset) may have slow growth as well. One major area, the Indian Neck area (between Little Harbor and the Wareham River), is largely held in estates, is all privately held, and is unlikely to be parceled out within the near future. There is no public water in this area. Wickets Island has the potential for developing four house lots under current zoning. Development pressures on parcels with frontage on salt marshes may continue as construction opportunities on open waterfront parcels decrease.

### Implications of the Build-Out Analysis

It should be recognized that this build-out analysis is a model for approximating the development potential of waterfront parcels. The analysis is a tax map-based approach and does not take into consideration the "buildability" of the parcels, in terms of environmental or engineering constraints.

The potential for another 334 developable parcels on the waterfront of Wareham and Onset Bay has implications in many ways for the Town of Wareham. These include, but are not limited to, the following:

- new demands for expanded infrastructure (water, sewers, electricity)
- additional potential impacts on water quality from septic systems
- new demands on town services (schools, emergency services)
- increased municipal tax revenue generated from development of shorefront property
- increased runoff of fertilizers and other lawn-care and home/car care chemicals
- loss of access to the waterfront/shoreline
- loss of views of the water due to a more heavily developed shoreline
- potential loss of opportunities to build parking areas, boat ramps, and other public ingress
- general loss of open space and natural areas
- possible increased demand for moorings, docks and other encumbrances on the waters
- increased motor-based uses of the water and potential increase in fuel/oil spill events

- increased non-motorized uses of the waters for recreation with potential conflicts with motor-based uses
- continuous conflict between boating and shellfishing

#### **4. Marine Facilities and Uses**

According to the Wareham Harbormaster, over 2,000 harbor services permits were issued for boats in excess of 10 feet in length operated on the fresh and salt waters of Wareham. This includes over 700 boats moored in Wareham River and over 600 moored in Onset Bay. Other boats would presumably be moored on freshwater ponds or trailered to Wareham waters. The number of harbor services permits issued has declined in recent years due to the economy and the effects of Hurricane Bob in 1991. There is no moratorium or waiting list for moorings at the current time (1993). If a mooring is unpaid at the end of the season it is typically removed or reassigned.

#### **Harbormaster**

According to February 6, 1989 correspondence from Kopelman and Paige, P.C., Wareham's town counsel, to the Board of Selectmen, the Harbormaster is empowered to enforce laws and regulations in accordance with the following General Laws of the Commonwealth of Massachusetts:

General Laws, Chapter 102, sections 17 through 28, provide the Harbormaster with certain powers related to controlling vessels in the harbor. Pursuant to these sections of Chapter 102, the Harbormaster may direct vessels in the harbor and promulgate harbor regulations, §21; remove vessels lying in the harbor, §24; remove vessels occupying a public wharf; regulate and stations vessels in the streams and channels of the harbor, §26; and impose a fine of not more than \$50.00 for violations of his order, §28.

General Laws, Chapter 91, Section 10A, provide that the Harbormaster may issue temporary mooring permits "upon such terms, conditions and restrictions as he shall deem necessary." This section also empowers the Harbormaster to remove, after written notice to the owner, floats or rafts held by anchors or bottom mooring installed without his permission, G.L. c. 91, §10A.

The Harbormaster currently (9/93) has an available staff of four, two patrol boats, and 56 miles of freshwater and marine coastline to patrol. According to the Harbormaster, limited assistance is available from the U.S. Coast Guard and the Massachusetts Department of Law Enforcement since staffing of these agencies is also limited. The Harbormaster has indicated that it is his policy to issue verbal warnings prior to issuing citations.

#### **Marine Resources Commission**

The Wareham Marine Resources Commission was created by annual town meeting. As indicated in the town meeting article:

“The purpose of the Marine Resources Commission is to advise the Board of Selectmen on all matters relating to inland and marine waters environment.... The Commission, at the direction of the Board of Selectmen, shall study and recommend programs and uses for coastal area areas of Wareham in order that maximum coordinated benefits may be obtained from the Marine Resources of the town.”

The Marine Resources Commission serves under the jurisdiction of the Board of Selectmen and is composed of seven members appointed by the Board of Selectmen as follows:

1. One member from the Board of Selectmen.
2. Six members including but not limited to representation of the following areas of interest: recreational boating, conservation, economic development, real estate, shellfishing and commercial fishing.

The Shellfish Officer/Harbormaster/Harbor Patrol Officer also serves as an associate non-voting member of the commission.

**a. Private Recreational Marinas**

The Town of Wareham has several private boating and marina facilities, the majority of which are located on Onset Bay. The accessibility of the Onset area from the Cape Cod Canal contributes to the activity in Onset. During July, which is the busiest month for transient boat traffic, Onset Bay receives more boats than Wareham River, according to the Wareham Harbormaster. Descriptions of the private recreational marinas are divided into two geographical areas: Wareham River and Onset Bay. Information on marinas was obtained from marina operators in 1991 and updated in 1993. Table 9 summarizes private and public slips and mooring spaces for recreational and commercial marina resources, as reported by the Wareham Harbormaster for 1992. Information on services available at Wareham marinas, yacht clubs, boat yards, and boat ramps is presented in Appendix 4.

**b. Public Piers and Boating Areas**

In addition to four public boat ramps, the Town of Wareham operates a town pier in Onset Bay and has a pier in Wareham.

**c. Commercial Boatyards**

Two boatyards in Wareham are in the business of servicing vessels. Cape Cod Shipbuilding also builds boats at its facility.

**d. Public Ramps**

There are four public boat ramps in Wareham. Parking is limited and often restricted to sticker parking.

**Table 9**  
**Private and Public Recreational and Commercial Marina Resources**

Name	Total Slips	Total Moorings	Transient Slips	Valet Service	Transient Moorings	# Commercial Boats	# Recreational Boats	Pump-out
Bevans Marina	42	0	(1)	64	0	0	54	Y
Onset Bay Marina	155	34	(1)	45 <sup>(9)</sup>	8	0	189	Y
Wareham Boat Yard	30	15	0	0	0	--	--	Y
Cape Cod Shipbuilding	0	2	(3)	0	0	--	--	N
Onset Town Pier	0	0	7	0	3	4 <sup>(4)</sup>	--	Y
Point Independence Yacht Club	57	30 <sup>(5)</sup>	(6)	0	(6)	0	93	Y
Stonebridge Marina	69 <sup>(7)</sup>	0	0	0	0	0	73	Y
Maxi Marine	20	0	0	0	0	0	20	N
Warr's Marine	120	65	(1)	0	(2)	5	180	Y
British Landing	41	0	0	0	0	0	41	N
Besse Park	0	0	(8)	0	0	--	--	N

-- not applicable

- (1) If boats with slips are out of harbor for a length of time, transient slips may be available for lease.
- (2) If boats with moorings are out of harbor for a length of time, transient moorings may be available for lease.
- (3) Docking facilities available for repair.
- (4) Head boats, 3 lease dockage from the Town and 1 is moored.
- (5) Point Independence Yacht Club has a permit for 57 moorings.
- (6) As a yacht club, reciprocal slip/mooring privileges are offered to boats from other yacht clubs.
- (7) Does not include 4 slips which were converted to storage for up to 10 skiffs.
- (8) Besse Park has bulkhead/pier space for 3 or 4 boats in the 25 to 30 foot range of temporary use only.
- (9) 95 valet units advertised.

Source: William P. Ellis III, Wareham Harbormaster, Nov. 1992; marina operators, July 1993.

- In addition to a cement ramp at Oak Street/Tempest Knob Beach, there is a small dock connected to a pier. This facility is scheduled for rehabilitation in fall 1992. Although a town sticker is now required, following rehabilitation access may be unlimited.
- The state ramp at the Weweantic River at I-195 has little water at low tide and at high tide there is no room to pass under the bridge, thus limiting the size of boats allowed. The

parking here, which accommodates 50 cars and trailers, is the most provided at any of the public launches in Wareham.

- The 12th Street boat ramp on the East River in Onset was recently repaired but there is no legal parking.
- Swifts Beach ramp is located at the end of Shore Avenue. Use is limited to small boats due to the low water depth. Sticker parking is available at Swifts Neck.

#### e. Mooring Build-Out

The following is from the mooring grid plan completed by Aneptek Corporation. This plan has been accepted by the Wareham Marine Resources Commission as a template for moorings.

Aneptek Corporation was commissioned by the Town of Wareham to produce a mooring grid plan for the Wareham River and Onset Harbor areas. The grid plan can be used as a template to establish the capacity of each area, the density of moorings within each area, and the clustering of boats by size and type. In essence, it will allocate space more efficiently, provide more open space for conservation and recreation purposes, and improve the navigability of the waterways.

Generally, a mooring plan is developed as a segment of an overall harbor management plan. In this case, the mooring plan was completed before the entire management plan. Because of this, extensive use was made of interim reports prepared in 1988, for the Wareham River and Onset Harbor areas. It also required involvement by major recreational and commercial user groups, local neighborhood and municipal officials, as well as thoughtful consideration to the preservation of the historic character of the harbor. Other considerations included water depth, conservation of environmentally sensitive areas (wetlands, marshes, etc.), public accessibility, location of shellfishing beds, public beaches, and the rights of property owners to have access to their boats within a reasonable distance from their property (i.e., riparian rights).

The first step in developing the mooring plan was to compile an inventory of the boats that were currently anchored in each harbor. Extensive research was conducted to determine the number of boats and the specific location of each mooring (i.e., Onset Pier, Parkwood Beach, Tempest Knob, etc.) for all the boats that were registered with the Harbormaster's office. With few exceptions, these are the only boats that moorings were provided for. Appendix I (*of the Aneptek Plan*) contains a breakdown, by location, of the number of moorings allotted in the grid plan. Once the total number of moorings for each area was determined, boats were subdivided according to their characteristics (i.e., type, length, draft) and the minimum safe mooring spacing was calculated. Each area was then gridded, keeping in mind the minimum mooring spacing and the other factors mentioned above.



Additional moorings to be placed within the grid system will be considered once the Harbor Management Plan is in effect. By limiting the number of moorings within the harbors, the quality of the water should be maintained. Many areas in New England, and throughout the country, have experienced damage to the shellfish population due to degradation of water quality caused by unchecked discharges from developed shorelines and development within shellfish habitat areas. Increasing the number of moorings in the harbor may further degrade water quality and cause further damage to shellfish areas which could hinder the replenishment of various species of shellfish in areas throughout Wareham.

This report is available for review at the Wareham Harbormaster's office and from the Conservation Officer.

#### **f. Other Recreational Uses**

One of the town's most important assets is its beaches which are a source of many water recreational activities. Windsurfers frequent the waters off Little Harbor Beach. The primary town beaches have toilets and bathhouses for use by summer beachgoers. Other water sports actively pursued include waterskiing, fishing, and shellfishing.

Much of the coastline is used for swimming, and residents in some areas have deeded rights to the beaches. The Wareham Recreation Commission has four life-guarded beaches under its jurisdiction: Onset, Little Harbor, Pinehurst, and Swifts Beach/Swifts Neck. Onset, Little Harbor, and Swifts Beach are owned by the Town of Wareham; Pinehurst is privately owned.

##### **■ Onset Beach**

Onset is the largest public beach and is patrolled by town lifeguards. The one building at the beach houses a concession stand operated by the Recreation Commission. This building also formerly served as a bathhouse which has since closed. Restrooms, which are maintained by Municipal Maintenance, are available across the street from the beach at Onset Pier.

Approximately 40-50 parking spaces are available at Onset Pier. Pay parking at a daily rate is available.

##### **■ Little Harbor Beach**

Little Harbor Beach has a very shallow beach, especially at low tide, which makes it a good beach for children. Windsurfers also frequent this beach. There are 217 parking spaces for which a resident sticker is required. Town lifeguards patrol Little Harbor Beach. A bathhouse with toilets is hooked to a septic tank.

##### **■ Swifts Beach and Swifts Neck**

Swifts Beach and Swifts Neck are separated by a private stretch of beach. A recently renovated public playground is located at this beach and town lifeguards are staffed here. There is a public boat ramp at the end of Shore Avenue directly on Swifts Beach. The Town of Wareham provides

- **Wareham River:** an area north of Long Beach Point between Long Beach Point and the Wareham River federal channel can "19" excluding the areas within 500 feet of the following beaches and shores:
  - Swifts Beach
  - Hamilton Beach
  - Swifts Neck
- **Briarwood Beach:** Weweantic River outside the Briarwood Beach mooring area as designated by the Harbormaster.
- **Weweantic River:** an area bounded by imaginary lines from federal channel buoys, can "11," off Cromeset Point to federal channel buoy, can "5," east of Great Hill to the southeast corner of Indian Neck and returning to aforesaid federal channel buoy, can "11." The waters known as Marks Cove shall not be used as a waterskiing area.

**Bathing Beaches:** No boats shall land on town bathing beaches on fresh or salt waters except in extreme emergencies, and shall exercise extreme caution in doing so.

**Pollution:** The discharge or disposal of oil, dead fish, garbage, waste, rubbish or debris on the fresh or salt waters, shores or marshes is prohibited.

**Penalties:** Any person violating the provisions of this bylaw shall be punished by a fine not to exceed two hundred dollars (\$200.00) for each offense.

## **C. Natural Resources**

### **1. Coastal and Inland Resource Features**

Coastal and inland wetland resources have been identified based on aerial photographs of Wareham; reports prepared for the town; and federal and state wetland mapping and inventories. Coastal and inland features are illustrated on the natural resources map located in the sleeve to the rear of the text. For mapping purposes and for the summary of approximate acreage presented in Table 10, shallow fresh marsh, shrub swamp, and wooded swamp inland wetland features have been combined in the wetland category. Deep marsh and pond categories have also been combined. A full inventory of coastal and inland wetland resources is presented in Appendix 5.

The inventory has been completed by drainage areas. Due to tidal fluctuation, beaches have been measured in linear feet of coastal frontage and not by acreage. Tidal flats have typically been estimated at a 100-foot width except where significant variation is indicated in the data. Sea cliffs are listed in linear feet. All approximations of acreage are based upon mapping at a scale of 1" = 400' and therefore will not correlate with property ownership data.

As a coastal community, Wareham exhibits characteristics of three habitats: saltwater, freshwater, and a dynamic interface between the two due to tidal influences, where the aquatic ecosystem is dependent upon brackish conditions.

**Table 10**  
**Coastal and Inland Wetland Resources Summary**  
 Approximate acreage or linear feet

	Weweantic River		Wareham River*				Buzzards Bay	Onset Bay
	1	2	3	4				
<b>Coastal Resources</b>								
Dunes	--	1A	--	--	1A	84A	16A	
Salt Marsh	83A	13A	16A	82A	25A	107A	175A	
Salt Ponds	--	--	1A	3A	1A	--	--	
Sea Cliffs	--	--	--	--	300'	2500'	2650'	
Tidal Flats	10A	10A	15A	--	18A	122A	122A	
Beach	6600'	3300'	1500'	600'	5700'	20900'	22300'	
Barrier Beaches	4	2	1	--	4	6	15	
Island	1A	--	--	--	--	--	2	
<b>Inland Resources</b>								
Deep Marsh/Pond	31A	--	4A	16A	15A	--	42A	
Wetland	34A	--	--	48A	53A	3A	26A	
Bog	--	--	--	1A	1A	--	--	
Cranberry Bog	24A	--	5A	4A	10A	5A	86A	
<p>A = acre          ' = linear feet</p> <p>* 1 - Swifts Beach          2 - Broad Marsh River          3 - Agawam River          4 - Wareham Route 6 to Long Beach Point</p> <p>Source: Louis Berger &amp; Associates, Inc. 1991 based on CZM Coastal Barriers Resources System, 1982; DEM Wetland Restriction Program Plan for Wetlands, prepared 1978; NOAA Cape Cod Canal and Approaches map, 1990; U.S. Fish and Wildlife Service, National Wetlands Inventory; U.S. Department of the Interior Coastal Barrier Resources System, 1983.</p>								

For the natural resources inventory, the study area has been analyzed from west to east by the following watershed areas which are described in detail below:

- Weweantic River to Marks Cove
- Wareham River
  1. Swifts Beach to Hamilton Beach
  2. Broad Marsh River to Route 6 Bridge

3. Wankinco and Agawam Rivers
4. Wareham River (Route 6 to Long Beach Point)
  - Buzzards Bay - Long Beach Point to Cedar Island Point
  - Onset Bay

The **Weweantic River** is fairly protected from the currents and wave action of Buzzards Bay. Nobska Beach, located at the end of Cromeset Neck, is more exposed to the influences of Buzzards Bay. Barrier beaches are found on both the east and west shores of Cromeset Neck and at Marks Cove including one north of Nobska Point which is protected by the U.S. Department of the Interior. Marks Cove, with depths typically 2 to 5 feet at mean lower low water (the average height of the lower low water over a 19-year period, as presented in the Cape Cod Canal and Approaches NOAA map), is bounded by salt marsh and tidal flats. Two small islands are situated in Marks Cove. A cranberry bog and associated freshwater wetlands are located in the upland area to the north.

Wareham River between **Swifts Beach and Hamilton Beach**, is characterized by barrier beaches, tidal flats, and a small pocket of salt marsh at Swifts Neck.

**Broad Marsh River** is very shallow at mean lower low water with depths averaging less than one foot. Extensive salt marshes are found in the upper reaches. Tidal flats front the Pinehurst Beach neighborhood on the Wareham River. A barrier beach has developed on the north shore of the Hamilton Beach neighborhood at the Broad Marsh River.

North of the Route 6 bridge over the Wareham River, tidal waters mix with freshwater. This ecosystem is controlled by a fluctuating salinity level which is dependent on the height of the tides and on the freshwater inflow from rainfall in the **Agawam and Wankinco** drainage basin. Upland areas immediately south of Route 28 (Elm Street) and along both sides of Route 6 (Sandwich Road) are marked by shrub swamps, wooded swamps and wet meadows. A bog located north of the railroad tracks east of Oakdale further adds to the diversity of ecosystems in the area. Salt marshes and a salt pond are found in lowland areas adjacent to the Agawam River where tidal influences are greater. Freshwater influences, such as bog, shallow fresh marsh, and wet meadow, are more apparent on the upper reaches of the Agawam River between the water pollution control facility and the Route 6 bridge.

The Agawam River from Plymouth to Wareham (9.1 miles) has been classified as a scenic cultural river by the Massachusetts Scenic Rivers Program which has proposed the river for designation on the National Rivers Inventory and for eventual potential inclusion into the National Wild and Scenic Rivers System.

The **Wareham River between Route 6 and Long Point Beach** includes both coastal and inland wetland resources. Beaches and tidal flats front much of the shoreline with smaller pockets of salt marsh along the Crooked River. Upland resources on the Crooked River, the major freshwater inflow in this section, include shallow fresh marshes, shrub swamp, a cranberry bog and deep marsh. Barrier beaches, salt marsh, and tidal flat areas are located at the mouth of the Crooked River and along the Wareham River shore to Long Beach Point.

Coastal resources on **Buzzards Bay** are subject to the influences of open water, wave action, winds from the south, and tidal action. Beaches are located at Long Beach Point, Warren Point, Bourne Point, Little Harbor Beach, Tempest Knob and Stony Point Dike. Barrier beaches have been identified at Bourne Cove, near Stony Point Dike, and south of Long Point Beach. A large barrier beach at Little Harbor is protected by both the Massachusetts Coastal Zone Management (CZM) and the U.S. Department of the Interior. Salt marshes are found in areas such as Bourne Cove and Little Harbor where there is a shallow gradient. Great Neck, the upland area, has one of the highest elevations in Wareham; Bourne Hill, which is fairly steep, has an elevation of 118 feet. Sea cliffs as inventoried by the Massachusetts Department of Environmental Management in 1978 are found on Indian Neck, at Little Harbor Beach, and at Tempest Knob.

Hurricane Bob in August 1991 caused erosion on Indian Neck and Tempest Knob. Loose rock covering laid in the 1930s to 1950s was undercut during the storm. At Indian Neck the erosion extended 10 feet inland along several hundred linear feet.

The **Onset Bay** watershed area has several coastal and inland wetland resources. This area is generally more protected from wave action than the Buzzards Bay resource area due to its location on the approach to Cape Cod Canal. Despite the presence of extensive barrier beaches, tidal flats, and shallow areas east of Onset Island, most of Onset Bay has depths ranging from 5 to 15 feet at mean lower low water with a navigable channel and mooring. Islands in Onset Bay include Onset Island, which is surrounded by a barrier beach, and Wickets Island. Additional barrier beaches are found at the mouth of the East River and at Pleasant Harbor.

Sunset Cove at Shell Point Bay, Broad Marsh, Broad Cove, and Muddy Cove in Onset Bay, and Cedar Point on the Hog Island Channel (Cape Cod Canal approach) are all more shallow than Onset Bay. These areas are typified by freshwater tidal marshes similar to those on the Agawam River which exhibit fluctuations in salinity due to the mixture of freshwater and tidal water. Freshwater wetlands located upgradient of these salt marshes include shrub swamps, shallow fresh marshes, cranberry bogs, deep marshes and Beaverdam Pond. The majority of cranberry bogs in the project area are found in the Onset Bay watershed. A coastal plain pond is found on Long Neck. This resource, also called a kettle hole, is known in the Cape Cod region, but is uncommon in the world. According to the Massachusetts Division of Fisheries and Wildlife, the integrity of these coastal plain ponds is constantly being threatened by development.

### Floodplains

Flood Insurance Rate Maps (FIRM), prepared for the National Flood Insurance Program by the Federal Emergency Management Agency, were used to locate land subject to flooding and wave action. Figure 7 identifies the following special flood hazard areas inundated by 100-year flood:

- Zone AE - base flood elevation, typically ranging between 15 and 16 feet
- Zone VE - coastal flood with velocity hazard (wave action); base flood elevations typically ranging up to 21 feet

Seawalls have been constructed in several shoreline areas. These walls/bulkheads are identified on both the USGS base map and on Figure 7.

## 2. Natural Communities

The Massachusetts Division of Fisheries and Wildlife (DFW), through its Natural Heritage and Endangered Species Program (NHESP), has identified important natural communities and rare and endangered plant and animal species, of which several are found along the coast of Wareham. Estimated habitat areas of state-listed rare wetlands wildlife have been identified in the Natural Resources Map. The NHESP list of endangered, threatened, special concern, watch list, historical and delisted species observed in Wareham is presented in Appendix 6.

### Rare and Endangered Species

As defined in 321 CMR 8.00, Endangered Species are any reproductively viable native species which have been documented by biological research and inventory to be in danger of extirpation from the commonwealth. Threatened Species are those species which have been inventoried to be rare or declining within the state and which are likely to become endangered in the future. Species of Special Concern are suffering decline and could be threatened if this condition is left unchecked or these species occur in such small numbers, restricted distribution, or special habitat requirements that they could become threatened.

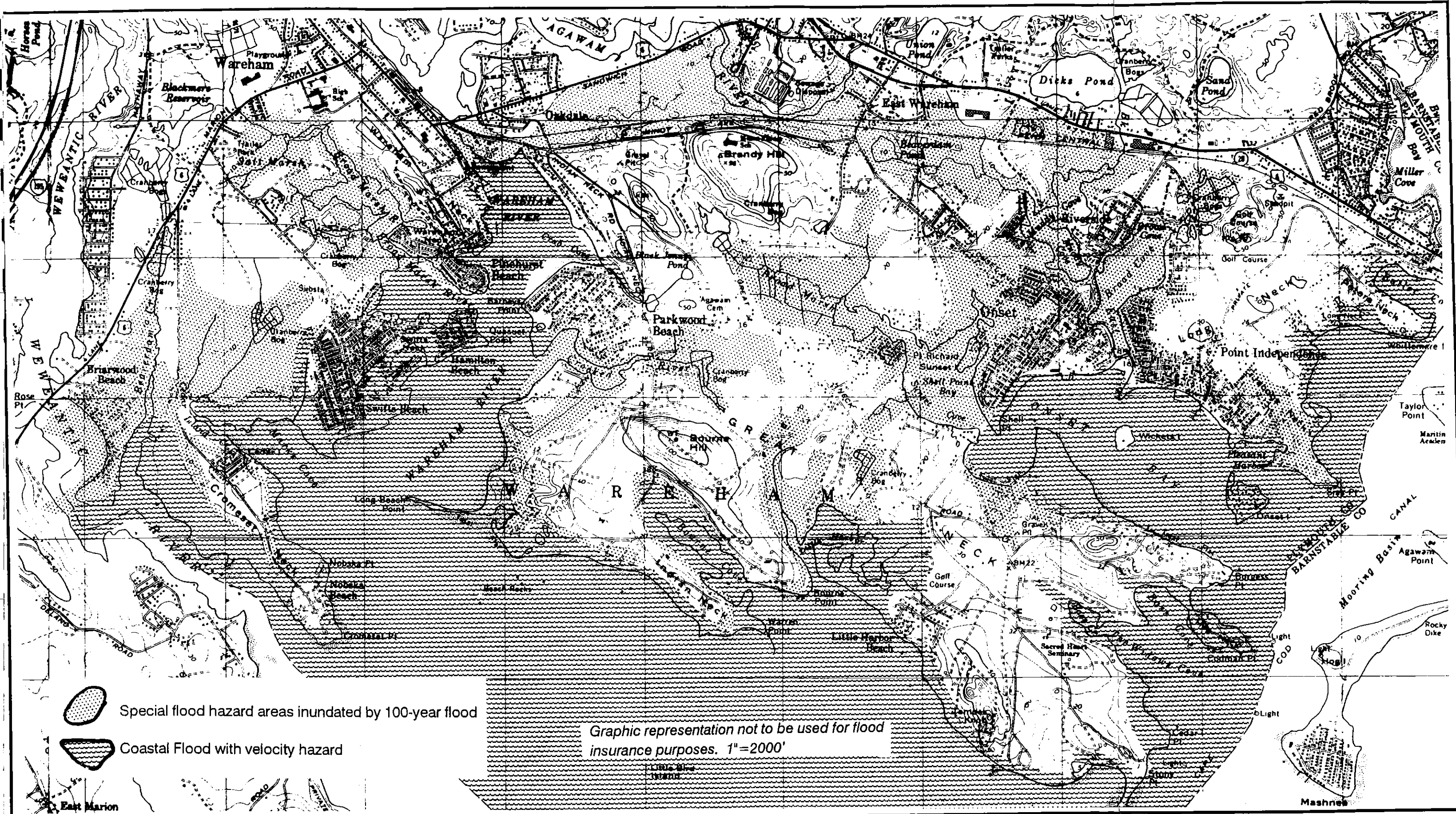
The following rare species listed by NHESP have been observed in the project area as indicated on Figure 8.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Last Observed</u>	<u>MDFW Rank</u>
<i>Charadrius melodus</i>	piping plover	1990	T
<i>Cicindela patruela</i>	tiger beetle	1921	SC
<i>Clemmys guttata</i>	spotted turtle	1988	SC
<i>Crassula aquatica</i>	pygmyweed	1990	T
<i>Eriocaulon parkeri</i>	estuary pipewort	1990	E
<i>Sabatia kennedyana</i>	Plymouth gentian	1989	SC
<i>Sagittaria subulata var subulata</i>	river arrowhead	1990	E
<i>Setaria geniculata</i>	bristly foxtail	1989	SC
<i>Spartina cynosuroides</i>	salt reedgrass	1989	SC
<i>Terrapene carolina</i>	eastern box turtle	1988	SC

E = endangered, T = threatened, SC = special concern

### Freshwater Tidal Marshes

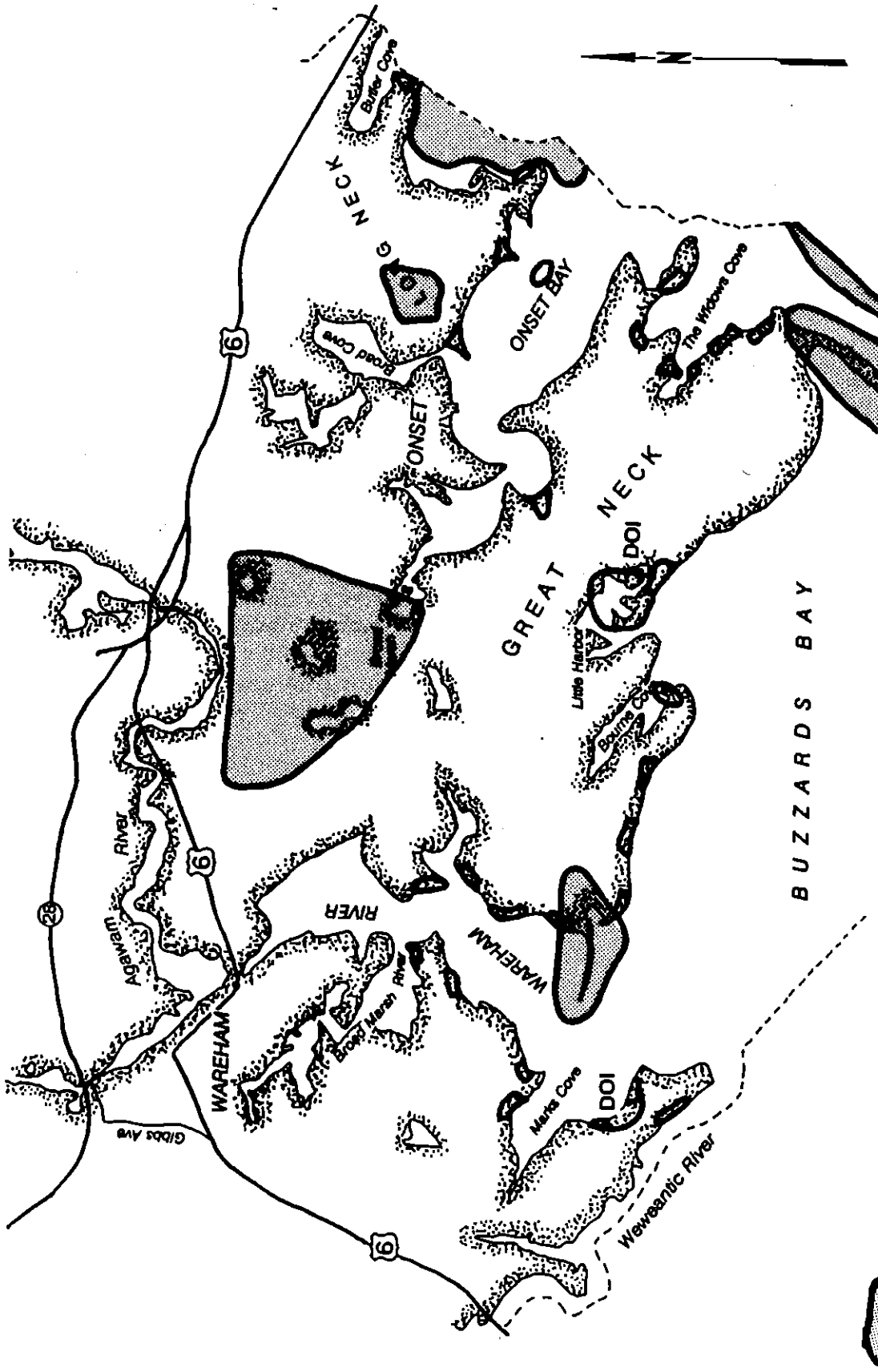
Freshwater tidal marshes are found along the Agawam River and in Onset Bay where the water level rises and falls with the tides and the water ranges from fresh to slightly brackish. These areas have diverse flora with a pronounced seasonal diversity of plants. As low tide draws water across the freshwater tidal marshes, the runoff carries rich nutrients and minerals from upland areas and deposits them in the muck and peat in the tidal marshes, creating an extremely productive environment for wildlife. Stream beds which cut through the marshes typically have mud and sand bottoms providing still further diversity in habitat. Tidal marsh substrate is a slightly acidic muck and peat. Conditions in these marshes also vary with weather conditions; drought raises the salinity and high rainfall reduces the salinity. Vegetation in this area, therefore, is uniquely adapted to this function.






**HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM**

Figure: 7  
100-Year Flood Zone

Source: Flood Insurance Rate Map, Town of Wareham, MA. Federal Emergency Management Agency  
August 4, 1987



-  Estimated habitat of state-listed rare wetlands wildlife
-  Massachusetts Coastal Zone Management barrier beach
-  US Department of Interior barrier beach

not to scale

**HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM**

Figure: 8

Rare Wetlands Habitat and Coastal Barrier Beaches

Source:

Massachusetts Dept. of Environmental Management and Onset Bay Study, 1988



Freshwater tidal marsh communities include many state-listed rare plant species such as Parkers Pipewort, Long's Bitter-Cress, River Arrowhead, and Pygmyweed, all of which have been observed in Wareham since 1990. There is abundant bird life due to the diversity in vegetation. Ducks and geese, freshwater snakes and turtles, and insects are more varied in freshwater tidal marshes than in saltwater tidal marshes although the fish, mollusks and zooplankton fauna is less diverse in freshwater tidal marshes for similar reasons.

According to the NHESP, freshwater tidal marshes are uncommon natural communities in Massachusetts. DFW has identified the Agawam and Weweantic rivers as having good, small areas of this resource type, but there is continual pressure to clear the edges for better access for boats or to put in docks. Some of the freshwater tidal marsh along the Agawam River is owned by the Town of Wareham.

### Estuarine and Coastal Tidal Communities

This habitat, typically found along the coast where rivers and the ocean join, is marked by salt marshes and tidal flats where the water is saline to slightly salty. Variations in temperature, substrate stability and tidal action determine vegetation type and animal life. Vegetation includes eelgrass and marine algae in shallow, protected coves with arrowheads, bulrushes, wild rice, pickerelweed and smartweeds along the stream sides. Saltmarsh cord-grass is found in salt marshes which are daily flooded by the tides. Greater diversity of vegetation is found in areas only flooded by the higher tides. Vegetation at higher elevations here includes salt marsh hay and spike grass with sea lavender and seaside goldenrod. In areas with only occasional salinity, reed grass, cattail, and sedges are found.

### Coastal Plain Pond Communities

Coastal plain ponds or kettle ponds are depressions in glacial outwash plains that are directly linked to the underground aquifer. Due to a direct relationship with the groundwater elevation, water levels in the pond fluctuate with the seasons. Lower water levels during the growing season is one of the single most important factors in providing suitable habitat for the grasses and other herbaceous plants of the pond shore community. The substrate is typically sandy with poor nutrient value. Waters tend to be nutrient-poor and acidic.

### Barrier Beaches

The Town of Wareham has over 30 federal- and state-designated barrier beaches (Figure 8 and Natural Resources Map, in plastic sleeve). The criteria used for identifying and delineating the barrier beaches are based on the definitions contained in the Coastal Regulations of the Wetlands Protection Act [Massachusetts Coastal Zone Management (CZM), 1982] and the Coastal Barrier Resources Act of 1982 (P.L. 97-348). MCZM defines a barrier beach as "a narrow low-lying strip of land that generally consists of coastal beaches and coastal dunes extending parallel to the trend of the coast, separated from the mainland by a narrow body of fresh, brackish, or saline (salt) water or marsh system." These fragile resource areas are important in preventing flood and storm damage and in providing wildlife habitat.

### 3. Shellfish Resources and Closures

Beds of soft-shell clam, quahog, and oyster grow in the Wareham River and Onset Bay (DMF, 1991) as indicated in Figure 9. Many of these resources are unavailable due to shellfish closures; availability is generally limited to areas in which transplanting has occurred. The southern shore of Onset Bay and the water around Onset Island and Pleasant Harbor contain beds of all three shellfish types which are open to harvesting. Large beds of oysters are found in Agawam River, Crooked River, and Wareham River north of Pinehurst Beach; however, these are unavailable because these are prohibited areas year-round. Most of Marks Cove, closed year-round to prohibit harvest of soft-shell clam, quahog and oyster in that area, has recently been reclassified to "Approved" by DMF. Broad Marsh River is closed for the taking of soft-shell clams and quahogs. Approximately 150 acres may reopen on a conditional basis in Broad Marsh River following completion of rainfall work in the area by the town.

Some shellfish areas are privately cultivated under license by the Town of Wareham shellfish grants. Wareham has a long history of grants which were established to encourage propagation of shellfish by privately protecting cultivation and harvest. Sets of spawn from these grants are used to replenish other less productive areas (Soderstrom, 1988). Grants also produce income for the town through the annual fee of \$25/acre. Currently 102.7 acres are designated in shellfish grants. Appendix 7 presents the private shellfish grants held in the Town of Wareham.

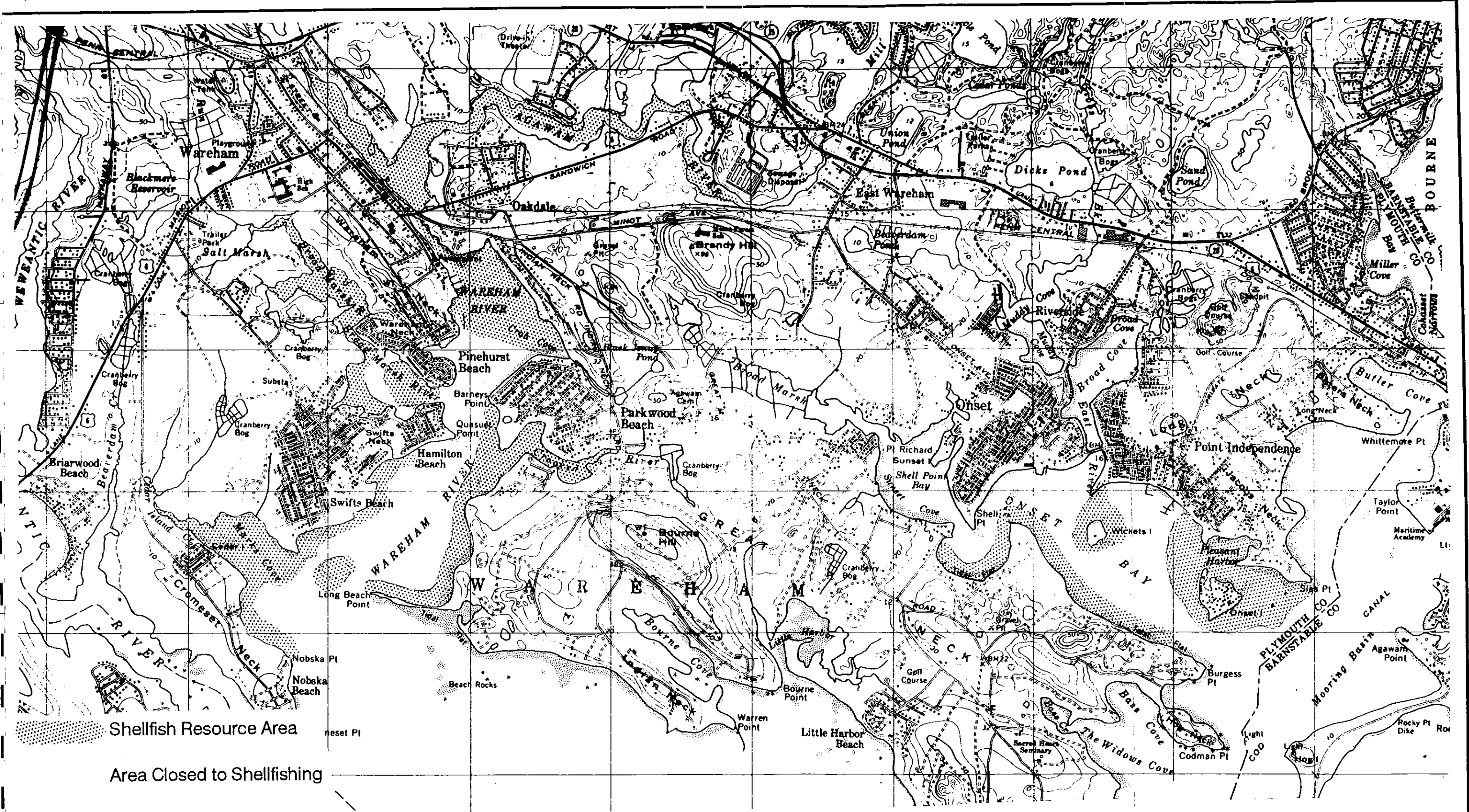
### 4. Eelgrass Beds

A definitive study entitled *Eelgrass in Buzzards Bay: Distribution, Production, and Historical Changes in Abundance* was conducted by Costa (1988). According to this study, eelgrass (*Zostera marina L.*) is a subtidal marine plant which forms extensive meadows and abundant beds in Buzzards Bay and Cape Cod. Eelgrass, unlike other marine plant species, is specifically discussed in the Harbor Management Plan because it is a very ecologically important species and is considered a special aquatic site by federal regulation and, as such, is considered in the U.S. Army Corps of Engineers' permit applications. Eelgrass beds serve as breeding grounds, refuge and feeding areas for fish, waterfowl and invertebrates. Eelgrass growing in shallow locations, such as intertidal flats, provide important forage sources for waterfowl such as Canada geese, while deeper rooted beds provide forage for fish such as striped bass, bluefish, tautog, flounder and cownosed rays (Costa, 1988).

Eelgrass beds and meadows also bind, stabilize and alter the chemistry of marine sediments, and are thus important in helping to prevent coastal erosion (Costa, 1988). The distribution of eelgrass in the coastal area is dependent upon a few key physical parameters. The depth at which eelgrass can grow is limited by the light intensity which can reach its leaves for photosynthesis. The limits on its habitat landward include factors such as wave action, ice scour in the winter months, and desiccation. Eelgrass beds will grow in a variety of substrates, including anoxic mud, sand and gravel (Costa, 1988).

Costa (1988) estimates that within the Town of Wareham there are approximately 564 hectares of eelgrass cover (equivalent to approximately 1,393 acres since one hectare = 2.47 acres). The Costa study contains detailed mapping of these beds which has been reproduced and shown in Appendix 8.

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HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

Figure: 9  
Shellfish Map

Source: Massachusetts Division of Marine Fisheries  
Feb. 1991.

out the necessary light needed to support eelgrass. Additionally, nutrient loading contributes to eelgrass decline or death by increasing the concentration of algae and phytoplankton which absorb light, preventing it from reaching the eelgrass leaves.

According to the Wareham Conservation Officer, a proliferation of private docks and piers in the past several years has helped destroy valuable marine habitat in Wareham, including eelgrass beds. Many of these docks float at high tide but rest on the bottom at low tide, thus scouring the substrate and blocking light even when floating. While the town may take regulatory action in the future to prevent such destruction of habitat, management of water quality within the study area is a much more widespread problem since it deals with the management of several watersheds which all drain into Buzzards Bay.

The destruction of eelgrass is specifically regulated by the Commonwealth of Massachusetts under Section 10.25 of the Wetlands Protection Act (310 CMR 10.00, Part II, 1989). Section 10.25 deals with Land Under the Ocean and in reference to dredging projects subpart (6) attempts to minimize or prevent, through the use of the best available measures, adverse effects on marine fisheries habitat or wildlife habitat caused by:

- a) alterations in water circulation;
- b) destruction of eelgrass (*Zostera marina*) or widgeon grass (*Ruppia maritima*) beds;
- c) alterations in the distribution of sediment grain size;
- d) changes in water quality.

Other sections of the Wetlands Protection Act indirectly protect eelgrass by regulating the same or similar parameters in Land Under Salt Ponds (10.33), and Land Containing Shellfish Beds (10.34).

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### **III. HARBOR MANAGEMENT ISSUES**

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### **III. Harbor Management Issues**

#### **A. Community Participation Process Summary**

This Harbor Management Plan was developed through a public participation process which actively sought to include the concerns of a wide range of users of the waters of Wareham. These included town officials, the Marine Resources Commission (MRC), full-time residents of the community and summer residents.

A draft set of community goals was circulated to all town offices through the MRC. Following a review period the revised set of goals was presented at two public workshops. These workshops were advertised to the community through articles in the *Wareham Courier*.

On July 9, 1992 the Onset Protective League (OPL) invited the MRC and Louis Berger & Associates, Inc. to present the preliminary Harbor Management Plan goals and receive public comment.

A second workshop was held to continue the discussion of the first meeting and to encourage full-time and summer residents from the Wareham River area to attend. On August 12, 1992 the MRC opened its regularly scheduled meeting for additional public comment.

Comment sheets were distributed at the second workshop. Many in attendance took these with them to comment privately or to give to neighbors. Warr's Marine and the MRC also had additional copies available. Written comments received are presented in Appendix 9. Louis Berger & Associates, Inc. announced a toll-free number which people could call to give additional input.

##### **1. Preliminary Goals (as presented at public workshops)**

1. The Town of Wareham recognizes the need to preserve, protect and enhance its natural resources for the current and future use of town residents and visitors. The appeal and attraction of the Town of Wareham as a shoreline community is based upon the preservation of these resources for multiple uses, including scenic vistas.
2. The Town of Wareham recognizes that the water quality of its many coves, bays, rivers and harbors is fundamental to the town's economic vitality, support of natural resources, and water-dependent recreational and commercial uses.
  - Recreational uses (including water-contact recreation, such as swimming, waterskiing, windsurfing, and SCUBA diving, and boating including sailing, canoeing, kayaking, and rowing);
  - Commercial and recreational shellfishing and fishing;
  - Industrial and commercial waterfront facilities (primarily marinas and other water-use related industries); and

- Property values.
3. As a contribution to the degradation of water quality, numerous causes exist in the area. Point and nonpoint sources of nutrient loading occur in many forms and can be from the following sources:
    - Streams entering the coastal waters of Wareham carry substances from a variety of sources including roadway runoff, land fill leachate, wastewater treatment plant effluent, cranberry bog fertilizers and pesticides, and agricultural activities which may degrade water quality.
    - Subsurface septic systems/cesspools are sources of nutrients. Failed systems can contribute bacteria, viruses and nutrients when they leach into the waterways.
    - Stormwater runoff can also add to water quality degradation by contributing nutrients, heavy metals, and polycyclic aromatic hydrocarbons (PAH) compounds to the loading.
    - Potential degradation from boating includes boat sewage, boat engine PHC, anti-fouling paints leachate, and trash disposal, including plastic debris.
    - Beach erosion leads to increased sediment loads in waterways. This erosion is caused by storms, heavy boat wakes, grading of adjacent upland areas, and unfilled shellfish beds. In addition, sediment transport can lead to increased turbidity impacting water quality.
  4. The town recognizes the importance of protecting the integrity of the various coastal and inland wetlands which serve many important ecological and economic functions. Protection efforts should be directed toward estuaries, coastal salt ponds, tidal and freshwater marshes, bogs, wet meadow, aquatic beds, beaches and all other environmental resources in the project area defined by the Massachusetts Wetland Protection Act. The marine ecosystems complement the freshwater and landside environmental interests subject to protection under the act.
  5. Due to the diversified wildlife habitat in this coastal community, the Town of Wareham supports threatened and endangered species (including birds, insects, vegetation, and turtles) and unique habitats such as freshwater tidal systems. The Town of Wareham recognizes the significance of maintaining these habitats and ecosystems for these species. Non-regulated development and incremental cumulative impacts (residential, commercial, industrial, and agricultural) may jeopardize natural habitat and adversely affect water quality due to nonpoint pollution sources such as subsurface disposal system failures, agricultural and domestic fertilizers and pesticides, and runoff.
  6. The Town of Wareham recognizes that waterfront development as simplistic as pier construction may adversely affect water quality and therefore the aquatic ecosystem (including shellfish beds). These adverse effects could be cause for cumulative potential for increased pollutant discharges resulting in a decrease in the water quality and potential

closures of shellfish beds. This may result in continued degradation of water quality and increases in conflicts among recreational users in the harbor.

7. The Town of Wareham recognizes that public access by town residents and others to waters, beaches, boat ramps, coastal resources and other marine facilities is a significant asset to the town and must be maintained. Maintenance of publicly and privately held open space on land and water is important for both current and future generations. It is also important to provide parking, sanitary facilities at beaches, pump-out facilities for boats, adequate life saving and boat patrols, and maintenance of beaches.
8. The Town of Wareham recognizes that adoption of a HMP with a mooring grid plan and dredging of navigational channels are important to harbor safety and navigation and to the orderly development and use of the waterways.
9. The Town of Wareham recognizes that the rights of private shorefront owners must be respected in any HMP.
10. The Town of Wareham recognizes that use of the harbor must be regulated to reduce conflicts between the various users. Mooring areas must be designated and regulated to reduce conflicts with other activities. There must be a balance between alternatives to provide the most while disenfranchising the fewest.
11. The Town of Wareham recognizes that the residential character of Onset Bay and Wareham River communities is a significant asset to the town and that dominant commercial land uses conflict with this character.

## 2. July 9, 1992 Public Workshop

Primary points discussed at the July 9<sup>th</sup> meeting included the following:

1. Summer residents feel disenfranchised since they are not registered voters in the Town of Wareham. They do have input via the hearing and HMP development process. Many expressed concern that the HMP would reflect elected officials' concerns and not necessarily those of the users of Onset Bay.
2. Many stressed the need for open space in Onset Bay. Much of the water surface is now dedicated to moorings in the mooring grid plan (not yet adopted) or is part of the federal navigational channel. Open space is needed for transient anchoring at night and might be used for waterskiing, sailing, fishing, etc. during the day.
3. Onset Bay is a "harbor of refuge" along the Cape Cod Canal. Water in the bay is very protected (especially from Buzzards Bay southwesterlies; according to *Soundings*, May 1992, it is considered the fourth or fifth safest harbor on the East Coast in case of hurricane). Those venturing out to Buzzards Bay must navigate the strong chop and tidal current in the canal (5 to 6 knot currents). Onset Bay therefore serves several functions for mariners:

- Protected harbor area for youngsters and others learning to sail and not yet proficient enough to navigate the Hog Island Channel/Cape Cod Canal.
  - Home port for those boats which are moored in Onset Bay but generally cruise to Buzzards Bay.
  - Refuge for mariners travelling the seacoast and using the Cape Cod Canal.
4. There is a need for stricter enforcement of existing bylaws and federal designations. A primary use conflict appears to be between the yacht clubs/Harbormaster and those who enjoy open waters of the bay for recreation, including waterskiing. Many present felt that a federally designated open water area has been encroached upon by permanent moorings.
  5. There is a conflict between swimmers at beaches and waterskiers who are dropped off on shore. This reflects a lack of enforcement since waterskiing is prohibited within 150 feet of bathers. Until recently a few beaches were posted to give waterskiers the right of way to disembark on shore.
  6. All goals designating areas for separate use should stress the importance of SAFETY.

Other points relating to pollution and water quality were discussed, including the following:

1. The importance of education was a topic stressed by several regarding the cumulative effect of lawn fertilizers and hydrocarbons from street runoff at storm drain outfalls.
2. An Onset Island resident stressed that 10 weeks per year residents have a much smaller impact on the environment through septic tank discharge than full-time residents. Local building codes seem to encourage year-round use when structures are replaced or repaired.
3. When eelgrass is destroyed, slumping seems to occur along the shoreline. There appears to be a dichotomy: properties that are well-maintained may contribute to harbor degradation more than those that are not due to bulkhead construction, grading activities, eelgrass removal, fertilizer applications, etc.
4. According to some, oil is increasing at local beaches. Oil/grease traps may be useful in trapping oily sediments which are being discharged in storm sewers. Detention basins may also be used to trap sediments.
5. According to the Buzzards Bay CCMP, storm drains are a bigger contribution to pollution than septic failures. The speaker emphasized that sewer extensions may not lead to a significant water quality improvement.
6. General comment: goals dropped from consideration should be documented to expedite the town meeting process so that items are not discussed twice.

7. Marinas and the industrial waterfront get a lot of blame for degrading water quality. Michael Besse, Deputy Harbormaster, indicated that many have gas/oil traps on their storm drains.
8. The Deputy Harbormaster indicated that if the HMP identifies areas to be used for separate uses and these recommendations are incorporated into town bylaws, then under present regulation, implementation and enforcement are the Harbormaster's responsibility.
9. There is a perception that people with permanent moorings at the marinas generate more pollution than either transient (temporary anchorage) boaters or those local and/or summer residents who use private moorings. This is based upon the fact that those who live in the community do not have as great a need for pump-out facilities as those who live on their boats at the marinas.
10. As shellfish holes are closed due to pollution, consideration should be given to instituting "relay programs" which would remove shellfish from closed areas to clean water. Permits for this activity have been issued to the Town by DMF previously. Transplanting of eelgrass from closed shellfish beds to improve habitat of non-degraded areas should be discussed with the Department of Environmental Management.

### **3. August 12, 1992 Public Workshop**

Primary points discussed included the following. Comments indicate the range of concerns of those in attendance at the workshop and do not necessarily reflect actual documented situations, accepted marine operations, town bylaws, or recommendations of this HMP. A discussion of comments raised at this workshop is presented in **Section B. Summary of Issues**.

#### **Shellfishing**

1. Shellfishing has historically been an important recreational and commercial undertaking. With the increase in shellfish closure areas, fewer areas are available for shellfishing. Although other sources of pollution are known to degrade harbor waters, increased usage of pump-out facilities on the many recreational boats using the harbor is needed to improve water quality so that shellfish areas are not closed on a seasonal basis.
2. Relaying shellfish from closed shellfish areas to clean areas for natural depuration was discussed. One citizen pointed out that this is a more cost-effective means of shellfish culturing than seeding, which takes four years for harvest. Others in attendance indicated that this is a short-term solution which does not clean up areas already closed.
3. Questions were raised about the procedures to close shellfish beds, including regulations relating to distances from marinas. It was explained that it is based upon water quality sampling (there are over 100 water quality sampling stations in open shellfish beds in Wareham, which are tested 5 times per year by the Division of Marine Fisheries). Many questioned whether water quality is an adequate indicator, since shellfish live in the sediment. It was explained that shellfish are filter feeders and that this is adequate.

4. One resident would like to see information on fecal coliform counts made publicly available (e.g. in the newspaper) so that people can make their own judgements about water quality.

### **Dredging**

1. One resident presented information from a recent newspaper article which indicated that the state is considering a \$450,000 dredging project (\$60,000 for field survey and \$380,000 for dredging) in East River. The town is being asked to participate.
2. Plans to dredge Broad Cove were discussed. One resident indicated he is in favor of dredging this area to improve water quality and flushing but he is afraid that it will open up an already fragile area to more boating and anchorages. The cove is so shallow that eelgrass is cut up by boat motors. He is concerned about the impact on Broad Cove beaches which are protected by a 1916 Supreme Court decree. He is concerned about boats going too fast, too close to shore.

### **Onset Bay**

1. One speaker outlined OPL's efforts over the past 12 years to improve water quality in Onset Harbor, primarily for swimming. He discussed OPL's 1988 efforts through Gerry Studds and the U.S. Coast Guard hydrocarbon expert who indicated that the only way to improve water quality would be to reduce the number of boats in Buzzards Bay harbors. Since that time the number of boats has increased.
2. Onset Harbor used to be beneficial for scallops but now there are too many hydrocarbons for growth. The speaker indicated that, according to the Harbormaster 10 years ago, "scallops come and go," and that this is just an ebb in the cycle. However, that was 10 years ago, and the scallops have not come back.
3. OPL is interested in preserving Onset Bay for boating, bathing, shellfishing and fishing but the town seems to be interested only in boating.
4. Although TBT has been a problem in marine waters, federal actions now prohibit its use. The sale and use of this anti-fouling ingredient have been identified as disrupting the marine ecosystem.
5. OPL is concerned that groves and bluffs along Shell Point Grove which had historically been protected have been taken by Selectmen and paved for a parking lot.
6. Land protected by the Onset Bay Grove Association has been developed as a marina.

### **Wareham River**

1. The Wastewater Treatment Facility (WWTF) on the Wareham River does not provide tertiary treatment to remove nitrogen and other nutrients. This is blamed for increased algae growth in the Wareham River particularly during hot weather.

2. A resident of Parkwood Beach described the changes in water quality at Little Beach at Kingwood Street. This area used to have a nice beach but it now has become nothing but a boat anchorage. The area was once a desirable location for shellfishing. The resident described how conditions have deteriorated since construction of Standish Shores across the river.
3. There have been problems with fisheries enforcement. Residents had to get assistance from Massachusetts Division of Fish & Wildlife to remove an oversized shellfish trap. Regulation of activities relative to fisheries is the regulatory responsibility of the Division of Environmental Law Enforcement within the Department of Fisheries, Wildlife & Environmental Law Enforcement (DFWELE). There appears to be more concern for the safety of wildlife than of swimmers or boaters in the town.
4. The Parkwood Beach area has evolved from an area of summer homes to one of year-round residences.
5. Speakers discussed problems which resulted from dumping a garbage truck full of shellfish with maggots, debris, broken shells, and garbage at the Point, a 12-acre Town Conservation parcel at Briarwood Beach. A front-end loader was used to push oyster shells out over the eelgrass. Local residents complain that the area resembles a town dump and have been frustrated by the lack of response by town officials. One speaker responded that there was a lack of adequate inspection and enforcement by the Shellfish Constable/Harbormaster when this was done. This area has become an informal boat launch. Briarwood Beach Association has constructed a gate to restrict launches between 7 pm and 7 am.
6. People securing prams have caused shoreline damage by driving in stakes and tying up on trees, sometimes in front of private property. Residents suggested that an unused beach area at Minot Beach could have a pipe with clips for the purpose of locking prams onto it. Another option could be a dinghy dock. One speaker suggested that these could be located in areas no longer used for swimming due to the growth of grass along the shore, such as at Tempest Knob.
7. The formation of beach/neighborhood groups was recommended to increase community education, foster neighborhood pride, and create a group with more clout when dealing with local and state officials.

### **Storm Drains**

1. Based on recent findings of the Buzzards Bay Project, storm drains are a major contributor to water pollution. The speaker was concerned with the status of 18 storm drains in the Point Independence area. Questions arose as to the applicability of a project similar to that recently completed in Buttermilk Bay, as well as to the availability of funding for such a project.

2. One speaker reinforced that the town must be committed not only to construction of storm drain alternatives (including leach fields, sedimentation basins, or gas/oil traps), but also to routine maintenance of these facilities.
3. Enforcement of the Clean Water Act is important to improve water quality. Federal grants must be actively pursued.

### **Navigational Safety**

1. According to one speaker, the area around #21 concrete pylon at the entrance to the Onset Channel from the Hog Island Channel is very hazardous. Many boaters cut the corner too close and at too high a speed. Prevailing southwesterlies "whistle down Buzzards Bay after about 1 pm in the afternoon, plowing smack into the strong ebb tide" (Soundings, August 1992). As quoted by Ellis, Harbormaster, "it will pound you to pieces."
2. Wareham River has had a problem with the disappearance of floats marked "NO WAKE." These regulations must be enforced. A 5 mph limit does nothing to reduce wake and may in fact increase it. Wakes cause erosion on the shoreline and cause dangerous situations in boatyards and along shore.
3. The restriction on boating within 150 feet of shore should be enforced to protect swimmers, and to reduce erosion on shore and disturbance to moorings.
4. Channels must be kept clear of moorings and traps.

Informal votes were taken on several issues at the August 12<sup>th</sup> workshop:

- There was a majority vote that an open space area at Onset Bay should be designated and enforced.
- It was almost unanimous that enforcement of existing laws and regulations be carried out by the Harbormaster's office. There was much discussion about the lack of responsiveness and consistent enforcement. There should be more education as to who is responsible for enforcement and what alternatives there are through other state or federal agencies. Strict fines and not just written warnings are needed to make enforcement work. Could signs be posted indicating the fines for speeding?

### **4. Written and Telephone Comments**

Written comments are presented in Appendix 9. The following is a summary of written and telephone comments received by October 13, 1992:

1. Develop good mooring system. Eliminate illegal moorings.
2. Dredge Crooked River (Wareham River). Consider dredging Shell Point for purpose of safe boating, protection against hurricanes, etc.



3. Protect barrier beaches (30+ in Wareham).
4. Do away with poor septic systems on coastline.
5. Goose population needs to be reduced. Post signs: "Do Not Feed the Ducks."
6. Harbormaster needs to be required to attend MRC meetings regularly and to supply information as requested by the MRC.
7. Harbormaster office should be restructured to report to the MRC or some other citizen-appointed town board.
8. Open space must be maintained as designated on existing marine charts prior to recent expansion of some mooring fields into them. In no place is this as important as Onset Bay, where a major shipping channel and strong currents keep many recreational water uses confined to the harbor.
9. Preserve and improve the quality of swimming areas and beaches.
10. Renew the cleanliness of the water in order to reopen shellfishing beds year-round.
11. As important as it is to gain a general consensus to establish a harbor management plan, it is equally as important to select those to positions of power whose philosophy embodies the spirit of the plan, otherwise the impact of this plan will be undermined. Many regulations already on the books have been ignored and therefore rendered ineffective.
12. Enforce the law prohibiting dumping sewage from boats; enforce laws prohibiting the release of petroleum products into the water. Curtail illegal dumping by limiting the number of anchorages.
13. Put fewer restrictions on floating docks and/or piers.
14. New waterway regulations may be needed, as suggested by the Harbormaster. These regulations must be enforced.
15. A harbor line should be drawn to prevent piers from extending further into the bay. Prohibit or at least limit the construction of new public or private docks, piers, etc. and the expansion of marinas.
16. All competing interests, swimming, boating, fishing, recreational shellfishing, commercial shellfishing, sailing, waterskiing, windsurfing, and marinas, must be considered to retain Wareham harbors as multi-purpose harbors.
17. Enforce speed and safety rules including those north of canal and Hog Island Channel.
18. Resolve the matter of storm drains contaminating swimming and clamming areas.

19. Adopt a feasible plan that would permit water scooters and waterskiers to enjoy their activity without interfering with bathers and swimmers.
20. Decide once and for all the matter of whether hydraulic dredging for shellfish is detrimental and, if so, take the necessary steps to prevent same.
21. Limit moorings; restrict future expansion of marina and yacht club.
22. Inspect and enforce regulations at industrial or commercial facilities to prevent sanding, painting, fuel transfer, and parking lot runoff from entering the water.
23. Monitor streams entering coastal water for contaminants.
24. Sewer pump stations should have back up propane generator systems in case of a power failure on South Boulevard, Onset Avenue, and East Boulevard to keep raw sewage out of the bay.
25. Onset Bay may become a parking lot for boats; the bay should be multi-purpose, the way it used to be.
26. Maintain public access along the shores of Broad Cove and other Onset shores in the area identified in the 1916 Supreme Judicial Court decree (Onset Bay Grove Association).
27. Mr. William Ellis, Wareham Harbormaster, presented a draft set of Waterways Rules and Regulations (see Appendix 10).
28. The Board of Selectmen should establish an appointed or elected citizen board to develop marine regulations for multiple use of Wareham waters and to direct activities of the Harbormaster.
29. Comments received from a citizen: Requests maintenance of multi-use harbor (not a boat "parking lot"); recommends approval of boating regulations written by the Harbormaster; identifies disagreement between many citizens and the Harbormaster; recommends formation of a town-appointed or elected board to which the Harbormaster would report; recommends adoption of the mooring grid plan; indicates that other Buzzards Bay towns restrict boat ramp access to town citizens, charge to use ramps, or charge for parking; and indicates that enlargement of the East River boat ramp would unwisely damage the quality of life in this densely residential area.
30. A citizen committee is recommended to oversee Harbormaster and develop regulations which emphasize multi-use of the harbor and deemphasize boating. This would reduce the power of the Harbormaster, who currently has too much power in harbor planning.
31. October 6, 1992 memo from William E. Ellis, III, Harbormaster/Shellfish Constable, Town of Wareham is presented in Appendix 9. Issues raised are summarized as follows:

- *Restructuring of the Harbormaster's Office:* Suggestions that the Harbormaster's office be restructured to report to a citizen's board would result in a political quagmire and constant turmoil. Politics should have no role in this position.
- *Shellfish Area Closure:* Discussion of shellfish area closures including relaying of shellfish from areas closed because of pollution to open waters.
- *Water Quality:* Expansion of municipal sewers cannot be overemphasized for improving water quality (however, this could result in degradation of the estuary on the Wareham River downstream of the WWTF). Mentions possibility of piping WWTF effluent to SEMASS for cooling water.
- *Dredging:* There is a definite need for dredging projects throughout the town for navigation and to improve water quality.
- Failure of the town to recognize demographic trends has resulted in the town diminishing as a haven for tourists.
- *Navigational Safety and Law Enforcement:* The adoption of a comprehensive set of waterway rules and regulations has been thwarted by the MRC.
- *Mooring Fields:* The mooring grid system commissioned by the Town of Wareham was not adequately designed for optimal use of specific areas and is therefore unacceptable to the Harbormaster.
- *Public Access:* Boat ramps with parking are necessary to accommodate those who prefer to trailer their boats. As boating is a major source of recreation, the Harbormaster believes the courts would agree that this facility is an acceptable use of the land as identified in the 1916 decree.

## **B. Summary of Issues**

The following is a compilation of important issues raised through the public participation process. Comments received at the public workshops, on comments sheets, by letter, and by phone have been organized and summarized according to topic to reduce duplication and to present the breadth of community concerns (i.e., some are in favor of dredging to improve water quality but some are against it, since it would increase boating which could jeopardize swimming safety). Issues include enforcement of existing regulations, multiple use of Wareham waters, shellfishing, dredging, water quality, navigational safety, and political realities. As a compendium of issues, no effort has been made to weigh the merit of each issue. See Sections IV and V for a discussion of goals, policies, and actions of the Harbor Management Plan.

### **1. Enforcement of Existing Regulations**

1. Permanent moorings and anchorages must be prohibited from federally designated open waters and navigational channels.

2. A mooring grid plan must be adopted to restrict areas for moorings. This will help keep space open for waterskiing, sailing, and fishing, among others.
3. Federal, state, and town marine regulations and bylaws must be fully and equally enforced.
4. Industrial and commercial facilities must be inspected to prevent sanding, painting, and fuel transfer spills from entering the water through storm drains.

## **2. Multiple Use of Wareham Waters**

1. When the economy is good there is a great demand for permanent moorings. Some residents are concerned that Onset Harbor has become a parking lot for boats.
2. Open space is needed for waterskiing, sailing, jet skiing, and windsurfing. These activities are allowed in the federally designated area in Onset Bay. This area must be kept free of permanent moorings.
3. Windsurfers need a large area and are dependent upon the wind. There is increasing demand for this water-dependent recreation, although only a small percentage of marine users are involved.
4. Public access to the marine waters of Wareham must be assured for all. The Oak Street public boat ramp facility is scheduled for renovation. Access from the existing ramp at Onset is limited by low water at low tide and limited clearance under bridges during high tide.
5. High-quality swimming beaches depend upon good water quality. Beaches must be well-maintained and clean. Waterskiers and boats must not jeopardize the safety of bathers.
6. Piers and floats which extend into the bay limit the area for multiple use.

## **3. Shellfishing**

1. Shellfishing has historically been an important recreational and commercial undertaking. With the increase in shellfish closure areas, fewer areas are available for shellfishing.

Increased usage of pump-out facilities on recreational boats is needed to improve water quality so that shellfish areas are not closed on a seasonal basis.

In addition, since shellfishing area closures are in fact administrative under current requirements, marinas would remain closed during operation (boating season) regardless of pump-outs and no discharge. Improvements to pump-outs would affect the size of closed buffer zones around marinas.

2. Efforts should be made to improve water quality and not to rely upon relaying shellfish from closed shellfish areas to open (clean) areas for natural depuration. This would entail

the hydraulic removal of shellfish along with established eelgrass (as approved by DEM) and relocating to open shellfish areas. Not only would this destroy established eelgrass beds which are important for shellfish habitat and for natural control of sedimentation and water quality purification, but it would require that the bed to which shellfish are relocated be closed to all shellfishing through one spawning season, in accordance with state regulations. The net result would be that fewer shellfish holes would be open and the one from which the shellfish were taken would be degraded environmentally.

3. Residents would like to see seasonally closed shellfish areas remain open. Seasonal closure is a federal regulation which requires that shellfishing areas be closed when the density of boats that could potentially discharge waste into the water exceeds an established point. Closure is from May 1<sup>st</sup> to November 1<sup>st</sup>. Half of Onset Bay is closed based upon the number of boats. A goal of the federal no pump-out area is to improve water quality so that seasonally closed shellfish areas may remain open.
4. Many shorefront areas have been sewered in recent years but adjacent shoreline areas remain closed to shellfishing. Residents would like to see these shellfish areas reopened. Adequate water quality testing is required to determine when and if shellfish areas may be reopened. Testing for water quality must be a continuous process.
5. There have been problems with irregular shellfish enforcement. Residents have to resort to state agencies to get enforcement.

#### **4. Dredging**

1. Some residents favor dredging to improve water quality by improving flushing action. Others are concerned that by making the area more accessible for boats there will be more boat-related degradation of water quality (illegal marine discharge of pump-out facilities and hydrocarbons). Some feel there would be more pressure to extend the mooring field in Broad Cove. As boating increases, eelgrass is destroyed in the shallow waters and the area becomes a poor shellfish habitat. Others feel that the safety of bathers on shore will be jeopardized by speeding boats.
2. In early 1995, the Massachusetts Division of Waterways let a contract for a \$450,000 dredging project in East River. The town is participating in the project. This area was previously dredged. According to the Division of Waterways, this area has great value for recreation. According to the Harbormaster, this river will become impassable for boats in three to five years.
3. Residents recommended dredging the Crooked River (Wareham) and Shell Point Bay (Onset) for boating safety and hurricane protection.

#### **5. Water Quality (Marine Pump-Out Facilities, Sewers and Storm Drains, and Shoreline Erosion)**

1. The "No Discharge Area" established by the U.S. EPA must be enforced. The use of marine pump-out facilities at one of the seven approved facilities in Wareham must be enforced to improve water quality in all waters of Wareham.

2. Canada geese populations have contributed to deteriorated water quality.
3. People perceive that oil is increasing on local beaches, especially Onset Beach.
4. The cumulative effect of lawn fertilizers and illegal disposal of motor oils and antifreeze must be recognized as degrading harbor water quality through storm drain outflows. Based on recent findings of the Buzzards Bay Project, storm drains are a major contributor to water pollution. There are 18 storm drains in the Point Independence area alone.
5. The WWTF on the Wareham River does not remove nitrogen and other nutrients. This has resulted in increased algae growth in the Wareham River especially during hot weather.
6. Residents from both the Onset Harbor area and Wareham River area spoke about how areas which previously had clean beaches and shellfish areas now have become nothing but boat parking lots as water quality has deteriorated.
7. Adequate inspection and response to hazardous conditions by the Shellfish Constable/Harbormaster is needed to prohibit actions such as the recent dumping of shellfish debris at the Point, a 12-acre Town Conservation parcel at Briarwood Beach.
8. Enforcement of the Clean Water Act is important to improve water quality. Federal grants must be actively pursued.
9. Sewer pumping stations in the South Boulevard, Onset Avenue, and East Boulevard areas should have backup generator systems in case of a power failure to prevent discharge of raw sewage into the bay.
10. People securing prams have caused shoreline damage by driving in stakes and tying up on trees, sometimes in front of private property.

## **6. Navigational Safety**

1. The area around #21 concrete pylon at the entrance to the Onset Channel from the Hog Island Channel is very hazardous. Many boaters cut the corner too closely and at an excessive speed.
2. Wareham River has had a problem with the disappearance of floats marked "NO WAKE." These regulations must be enforced. A 5 mph limit does nothing to reduce wake and may in fact increase it. Wakes cause erosion on the shoreline and cause dangerous situations in boatyards and along shore.
3. The restriction on boating within 150 feet of shore should be enforced to protect swimmers, and to reduce erosion on shore and disturbance to moorings.
4. Channels must be kept clear of moorings and traps.

**7. Political Realities**

1. Many of the users of Onset Bay are summer residents. As such they are not registered to vote in Wareham. They feel disenfranchised since the HMP must be adopted by the Board of Selectmen and approved by town meeting, of which they are not a part.
2. As important as it is to gain a general consensus to establish a HMP, it is equally important to select those to positions of power whose philosophy embodies the spirit of the plan, otherwise the impact of this plan will be undermined. Many regulations already on the books have been ignored and therefore rendered ineffective through selective enforcement.
3. Seasonal dwellings will continue to be converted to year-round homes. This will place continued stress on the natural environment.

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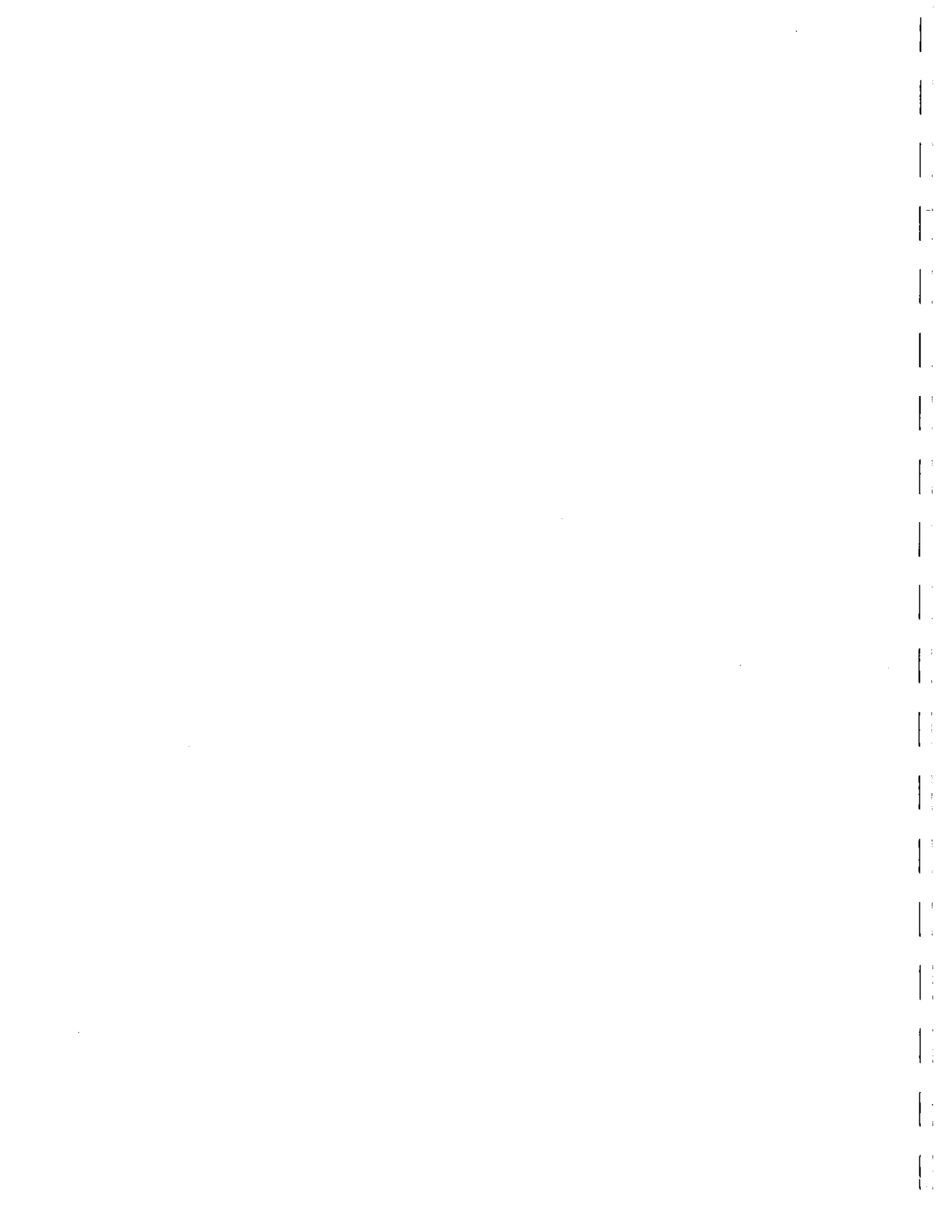
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## **IV. GOALS AND OBJECTIVES**

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## **IV. Goals and Objectives**

Goals reflect Wareham's vision for the harbor area. They are the general statements about what the community would like to achieve in the harbor. The relationship between natural coastal resources, facilities and improvements, and the community's fiscal and management capabilities are all integral in establishing harbor goals.

Objectives are specific, measurable milestones that, as achieved, incrementally approach long-range goals. Specific objectives have been outlined for all of the stated goals. Goals and objectives address the issues previously identified in Section III.

### ***Wareham Now and Then***

Wareham residents have a very personalized sense of ownership of their local harbor, whether it be Marks Cove, Wareham River, Sunset Cove, Broad Cove, Widows Cove, or Onset Bay. This individualization of neighborhoods is enhanced by the geography of Wareham which is driven by the shoreline configuration of the Wareham River and Onset Bay. Some shorefront neighborhoods are separated by over fifty miles of shoreline. Resident identification with either Wareham River or Onset Bay is further defined by membership in local beach associations. These beach associations provide a sense of community, private swimming beaches and perhaps mooring areas and shellfish opportunities.

As a popular summer community, Wareham has attracted generations of vacationers. Ownership of summer cottages may have remained in the family for ten, twenty or more years. Summer residents may therefore have fond memories of special places in Wareham and favorite activities which reinforce their attachment to the community. It is this "collective memory" and the sense of responsibility to preserve the coves, bays and rivers of Wareham for their children's children which has led to the urgency for creation of this harbor plan. Too many residents have seen conditions deteriorate for swimming, shellfishing, waterskiing, and small-boat sailing as the demand for boating increases and water quality declines. Summer residents, however, feel a lack of power to implement change as they are not registered voters in town.

Over the years shorefront access has been available through neighborhood beach associations and a series of public beaches owned and operated by the town. Those summer and full-time residents who are fortunate enough to have access to beaches and moorings do not have to compete with out-of-towners for use of town beaches and boat ramps. As recreational demand increases in southeastern Massachusetts, this places increasing burdens on local residents and town facilities. The current increase in boat ownership as a popular alternative to owning a summer cottage also increases conflicts in the community. This increases the demand for marina and mooring facility expansion in areas of the harbor which historically have been "open space" traditionally used for multiple purposes, and places greater demands on parking.

Many of the issues relating to increased harbor usage are the direct result of population growth in Wareham. As southeastern Massachusetts communities continue to grow, increased demand will be placed on recreational services, including those which are water-related. Some of this growth is attributable to the conversion of property which was previously used in the summer only to year-round use. This population growth places a higher burden on water quality as septic

systems become subject to year-round use, lawns are maintained for a longer season, and additional contaminants are introduced by motor-driven boats, sport vehicles and waste discharges from boats.

### ***Wareham in the Future***

In order to formulate goals and objectives for the Harbor Management Plan, the following types of questions have been addressed:

- What does the community want the harbor area to look like in the future?
- What services and opportunities do we want the waterfront to provide?
- What is the maximum level of use that should be allowed in the harbor waters?
- Whom does the community want to encourage to use harbor waters and waterfront facilities?
- What do people want on their waterfront that they do not now have? What do people want to keep that they do have?

### ***Priorities***

The Harbor Management Plan has identified six goals which have been prioritized below according to the consensus generated through public meetings and conversations with and correspondence from residents and town officials:

- Goal 1 - Multiple-Use Waters
- Goal 2 - Clean Waters
- Goal 3 - Productive Waters
- Goal 4 - Community Values and Natural Resources
- Goal 5 - Safe Waters
- Goal 6 - Dredging

Many of these goals are interrelated. *Dredging*, for example, is integral to several goals, including *Clean Waters*, *Productive Waters*, and *Safe Waters*. *Multiple-Use Waters* is related to *Clean Waters*, *Productive Waters* and, especially, *Safe Waters*. The goal of *Community Values and Natural Resources* is interdependent upon *all* harbor management goals.

It should be noted that the following six prioritized goals of this Harbor Management Plan do not, to the best of the author's knowledge, conflict with existing Town Regulations.

## **A. Goal 1 - Multiple-Use Waters**

Both Onset Bay and Wareham River are used by diverse groups ranging from recreational boaters, swimmers, and waterskiers to those with commercial ventures who depend upon these same waters for shellfishing, fishing boats, sightseeing cruises, and marinas. Maintaining diversity of uses and minimally organized uses in a crowded harbor is the primary goal resulting from user surveys and feedback from the public participation process. Harbor users include permanent year-round residents, summer residents, seasonal marina users including "live-aboards," and transient boaters. In order to maintain a multiple-use harbor, access must be maintained for the general

public to the shoreline and to Wareham waters via boat ramps, anchorages and the town piers. Additionally, mechanisms must be studied and employed to finance operation and maintenance of the harbor facilities upon which the public places great demand. It is recognized, however, that by encouraging multiple use of inner harbors, conflicts between users may arise that will require thoughtful regulations and enforcement to maintain safety (see *Goal 5 - Safe Waters*).

### ***Objectives***

1. Promote the preservation of open space on Wareham waters for public enjoyment now and in the future. Open space within inner harbors protects scenic vistas, which are an important attraction of the town.
2. Recognize the demand for waterskiing, windsurfing, and small sailboating, uses which require open water away from moorings, beaches, and designated channels, with adequate water depth. The need for designated areas must be determined by actual use as well as by demand.
3. Reduce conflicts between moorings and waterskiing inside and outside the designated federal anchorage area.
4. Enhance public beaches; enhance public boat ramps for access by trailered boats. Reduce encroachment by private individuals on public land and rights-of-way. Assure that on-street parking at or near public boat ramps does not block residential driveways.
5. Acknowledge the public demand for pier construction as well as the potential environmental degradation which may result.
6. Recognize the need for great caution by the Town in allowing significant increased development and activities in both waterfront and non-waterfront areas which will impact and stress the multiple use of Wareham waters, as well as have impact on goals 2,3, 4 and 5.

## **B. Goal 2 - Clean Waters**

The goal of protecting and improving the water quality of both freshwater and marine waters including Onset Bay and Wareham River is one of the priority goals of the Wareham Harbor Management Plan. The use, enjoyment, and productivity of these waters are dependent upon the quality of water. Both permanent and seasonal residents are keenly aware of the deterioration of water quality over the past decades and are concerned with how changes in water quality now limit swimming and shellfishing. Education is an important means of informing the public of the implications of their actions on water quality.

### ***Objectives***

1. Promote proper, safe disposal of sewage from boats in Wareham waters.
2. Promote proper disposal of solid waste along shoreline and from boats.

3. Relocate/redistribute Canada goose population which contributes to deteriorated water quality through fecal waste.
4. Institute a program to plan and implement treatment of stormwater discharge prior to point discharge. Promote proper handling and disposal of petroleum products to reduce or eliminate adverse impacts on the environment.
5. Promote extension of the municipal sewer systems in currently developed areas and encourage individual hookups to the existing sewer system.
6. Promote adequate maintenance of individual wastewater systems including septic systems and cesspools.
7. Reduce shoreline erosion resulting from boat wakes.
8. Promote appropriate agricultural practices to minimize nutrient effluent in tributaries to the Wareham River.

### **C. Goal 3 - Productive Waters**

Shellfishing has historically been an important recreational and commercial asset to the Town of Wareham; its continuation is an important community priority. Improved water quality is crucial to reopening areas of town previously closed to shellfishing. There is a need to find a balance for all competing water-dependent uses of the waterways.

#### ***Objectives***

1. Protect habitat from degradation in areas currently open to shellfishing.
2. Encourage actions which lead to water quality and habitat improvement in areas currently closed to shellfishing.

### **D. Goal 4 - Community Values and Natural Resources**

The Town of Wareham recognizes the need to preserve, protect, and enhance its natural resources for the current and future use of town residents and visitors. The appeal and attraction of the Town of Wareham as a shoreline community is based upon the preservation of these resources.

Due to the diversified wildlife habitat in this coastal community, the Town of Wareham supports threatened and endangered species (including birds, insects, vegetation and turtles) and unique habitats such as freshwater tidal systems.

The Town of Wareham recognizes that the residential character of Onset Bay and Wareham River communities is a significant asset to the town and that dominant commercial land uses conflict with this character. It is further recognized that marine commercial uses contribute to the seaside character of the community.

**Objectives**

1. Improve the quality of fresh and tidal water, maintain the integrity of natural coastal features including saltmarshes and barrier beaches, and protect upland areas from uncontrolled development.
2. Reinforce the maritime, residential character of the community through the zoning bylaws.
3. Maintain the habitats and ecosystems of threatened and endangered species.
4. Respect the rights of private shorefront owners.
5. Maintain public shorefront access.

**E. Goal 5 - Safe Waters**

As sheltered inlets along Buzzards Bay, both Onset Bay and Wareham are recognized as harbors of refuge. In order to maintain safe operating conditions for all users of Wareham waters, comprehensive waterways rules and regulations must be enforced, and navigational aides must be clear and well-understood by the marine public. It is also important to minimize conflicts between various users, such as swimmers, divers, waterskiers, and boaters, including, for example, those on sailboats, motorboats, windsurfers, and jet skis.

**Objectives**

1. Provide public participation in the formulation of harbor regulations.
2. Enforce existing regulations and provide harbor services equally, independent of resident status, swimmer or boating user group, or age.
3. Recognize the need for separate use areas to avoid conflicts between users.
4. Recognize the authority and jurisdiction of harbor-related boards and positions, including the Marine Resources Commission and the Harbormaster.

**F. Goal 6 - Dredging**

Dredging is in accordance with *Goal 1 - Multiple-Use Waters*, *Goal 2 - Clean Waters*, and *Goal 5 - Safe Waters*. Secondly it can enhance beaches, improve fisheries, and promote boating. By maintaining adequate depth in channels, navigation is not restricted by shoaling during low water. Dredging projects can help improve water quality by removing sediment which impedes the natural flushing action of tidal flows. Dredging has been used historically in Wareham and will probably be necessary in the future as continued deposition of sediments reduces navigation and leads to deteriorated water quality. It is recognized, however, that dredging results in short-term loss of shellfish habitat through removal of eelgrass, and may stimulate increased boating demand.

***Objectives***

1. Maintain adequate depths in navigational channels to accommodate the needs of the boating public.
2. Improve water quality through dredging which increases water movement.



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## **V. IMPLEMENTATION ACTION PLAN**

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## V. Implementation Action Plan

The intent of this section is to outline a process through which the Town of Wareham may begin to implement the goals and objectives established in the preceding section. It is recognized that this Harbor Management Plan is a community plan, subject to the will of the people. The information presented in this section is consistent with the Massachusetts Coastal Zone Management (MCZM) *Harbor Planning Guidelines* (May 1988), and will set the groundwork for the town to confront current challenges relating to use and development of the harbor, and provide a framework upon which the town can meet future challenges.

The following Implementation Action Plan was derived through an open public participation program, through meetings and conversations with the Wareham Marine Resources Commission, the Wareham Harbormaster, and the Wareham Town Administrator, and through research into other successful harbor management plans in Massachusetts, Rhode Island and Connecticut. Coordination with MCZM has been instrumental in producing the following plan.

This Action Plan also incorporates comments and testimony received at the October 13, 1993 Public Hearing held at the Wareham Town Hall and review by Wareham Marine Resources Commission and MCZM.

As vocalized throughout the public participation process, important community concerns underlie implementation of the Harbor Management Plan:

- Any process/program identified must have a means to empower seasonal residents who are not registered voters at Wareham town meeting.
- Inherent in the development of the Harbor Management Plan is the need to determine and enforce the *accountability* of town staff and board members to harbor users, including the permanent and seasonal residential community.
- It is important to *empower* a primary group of citizens concerned with harbor issues to manage the implementation of the Plan.

As discussed in detail below, the recommended concept for implementation includes the formation of a *harbor authority* empowered as a policy-making board to advocate bylaw changes, coordination with municipal boards on the review of proposed development within a harbor overlay area, education of the public regarding land- and water-based water quality issues, and active pursuit of state and federal funding for harbor-related improvements.

*What is an "authority"?* A harbor authority is a semi-autonomous or independent body with full responsibility for harbor maintenance and infrastructure management. An authority is given the power to hire staff such as an executive director, secretary, planners, harbormaster, harbor patrol or police, or it may borrow necessary staff from existing offices and departments. An authority can issue bonds for the development and maintenance of the harbor and its facilities.

Members of the authority are appointed by the mayor, city council, board of selectmen and/or town meeting, or, if established through a public ballot question, by an annual election.

This Implementation Action Plan specifies the creation of a *harbor authority* to replace the existing Marine Resources Commission. Although an authority would be given the power to hire staff as outlined above, for a recreational harbor with modest commercial usage, staff resources can be allocated from the interested public-at-large as discussed further below. Although MCZM has indicated that the formation of such an authority could be modeled after M.G.L. Chapter 121B (with local bylaw implementation), further investigation by the town is warranted into the issue of the level of effort required to initiate and carry through with this endeavor. Examples of legislation, bylaws, and ordinances used by other regional communities for the creation of such an authority are available for inspection through the office of the Harbor Planning Coordinator at MCZM, Boston (April 1994).

## **A. Action Plan for the Harbor Management Council**

Town bylaw changes are required to enact recommended changes in the management and maintenance of the harbor. Such changes, however, must be formulated by an authority empowered to guide other additional bylaw modifications through the town meeting process. Regulatory changes are needed for management of both water-based and land-based resources, and the implementation of a Harbor Management Council will enable the Town of Wareham to begin the process of making necessary and immediate changes to improve the management of harbor resources and planning for future challenges to the activities in, surrounding, and affecting the harbor. Making consistent the many regulations, policies, and guidelines with the Harbor Management Plan, while assuring a mechanism for community participation, will be one of the Harbor Management Council's first important tasks.

### **1. Harbor Management Council Bylaw**

A Harbor Management Council or similarly named authority must be created, by bylaw, upon the recommendation of the Wareham Board of Selectmen. This Harbor Management Council would be empowered as a policy-making entity, required to hold public hearings before presenting articles for town meeting. The Harbor Management Council would be designated the local "clearinghouse" for issues relating to the waterfront. The Harbor Management Council would have a dual role regarding the office of the harbormaster:

- Harbor Management Council would set policies which the harbormaster must implement and enforce; and
- Harbor Management Council would oversee the activities of the harbormaster in accordance with the town administrator's proposed reorganization plan which combines all law enforcement activities (including the harbormaster, shellfish constable, and animal control officer) under the Wareham Police Department.

As presented at the October 13, 1993 public hearing, composition of the Harbor Management Council should be broad based in its structure, and include nine (9) members comprising both registered voters (permanent residents) and seasonal residents who are willing to make the commitment of time and energy to protect and direct the use of harbor resources. By including members or designated representatives of the Planning Board, Conservation Commission, and Board of Health, coordination of municipal groups on harbor issues will be ensured. Members

would be appointed for staggered terms by the Board of Selectmen from a listing of interested citizens. One representative each (except as noted) from the following groups shall be appointed as voting members of the Harbor Management Council (ex-officio representation would include the harbormaster/harbor agent):

- beach associations (to be appointed on a rotating basis between Wareham River and Onset Harbor associations to represent all such organizations in their respective areas)
- recreational boating community (boats 25 feet or less in length)
- commercial fishing/shellfishing industry
- marine-related industries
- two community members-at-large
- Planning Board
- Conservation Commission
- Board of Health

To enable the Harbor Management Council to get off to a good start and so as not to rely fully on the potential part-time dedication to functions on the Harbor Management Council, it is recommended that a part-time staff position be created to carry on administrative activities of the Harbor Management Council, including the action items identified below. The harbor agent would facilitate the continuous advance of research, investigation, and coordination required to commit fully to implementation of the Harbor Management Plan. The harbor agent would also coordinate the activities of commissioners and provide staff continuity for rotating terms for commissioners.

The harbor agent position could be combined with the harbormaster position in recognition of the harbormaster's knowledge of harbor issues and availability during the non-boating season. Based upon budgetary realities in Wareham at the current time, it could be more realistic to consider combining the harbor agent and harbormaster positions. This recommendation is made based upon the harbormaster's knowledge of Wareham waters, harbor issues, and state and federal regulatory responsibilities and funding opportunities. Although the harbormaster and his staff are very busy during the peak boating season, Memorial Day through Labor Day, he/she would be available to perform harbor agent tasks related to implementation of the Harbor Management Plan during the off-season. It is anticipated that once municipal budgetary constraints are eased in Wareham it would be optimal to hire a part-time harbor agent. Training/education and dedication to harbor issues are paramount in the selection of personnel for this position.

Key to the implementation of the Harbor Management Plan is the proposed departmental reorganization in Wareham. The Wareham Marine Resources Commission recommends that the town charter be amended through town meeting to enable this reorganization to take place. As proposed in October 1993 by the Wareham Town Administrator, the reorganization would involve the elimination of the harbormaster/shellfish constable position as a department head and including it under the auspices of the Wareham Police Department. Law enforcement activities of the harbormaster and the shellfish constable would fall under the police department; shellfish propagation responsibilities of the shellfish constable would then rest with a proposed Shellfish Advisory Group. Although law enforcement activities would be under the direction of the police department, the Harbor Management Council would provide policy direction and guidance to the harbormaster and shellfish constable as they relate to law enforcement and Harbor Management Plan implementation. The proposed Shellfish Advisory Group would operate independently of

the Harbor Management Council and would be responsible for directing all matters relating to shellfish propagation, if empowered by the Board of Selectmen.

Responsibilities and supervision of the shellfish constable must be consistent with Chapter 130, Section 98 of the Massachusetts General Laws, as well as Chapter 130, Section 52, which gives the Board of Selectmen ultimate control over the shellfish constable.

A sample bylaw for creation of a Harbor Management Council is presented in Appendix 11.

## **2. Harbor Management Council Responsibilities**

As recommended in MCZM's *Harbor Planning Guidelines* (May 1988), the following duties and responsibilities should be assigned to the Harbor Management Council through the development of a town bylaw:

- Present appropriate bylaws, ordinances, rules, policies, guidelines and regulations for plan implementation. The body should also monitor compliance with any adopted law that affects any aspect of the plan or harbor.
- Require that any further subplans such as mooring and anchorage plan updates would lead to further management plan implementation.
- Participate in the planning or decision-making activities of all public and private agencies, committees, commissions, boards, etc. and any private entities which have interest or jurisdiction in the harbor planning area.
- Review and make recommendations on proposals reviewed by other municipal authorities for land and water use activities within the harbor planning area. In particular, the Harbor Management Council should review and make recommendations, consistent with the adopted Harbor Management Plan, on any proposal affecting the real property on, in or contiguous to the harbor planning area submitted to any municipal authority with jurisdiction over the harbor planning area.
- Review for consistency with the Harbor Management Plan any public notice of an application for a local, state or federal permit for an activity taking place within the Harbor Management Council's jurisdiction.
- Conduct, or cause to be conducted, studies of the conditions and operations within the harbor planning area. Present proposals for the harbor's efficient operation to the Board of Selectmen.
- In collaboration with the Board of Selectmen, assist in obtaining funding for harbor improvements such as capital projects, property acquisitions, easements, facilities maintenance, or dredging.
- Monitor progress of Harbor Management Plan implementation and maintain a schedule for implementation of goals and objectives as cited in the Harbor Management Plan.

- Serve as liaison between all federal, state, county, regional and municipal entities that share jurisdiction over the harbor planning area following the completion of the Harbor Management Plan, and throughout the entire implementation process. Collaborate with the Board of Selectmen for harbor project approvals.

### **3. Harbor Management Council Action Plan**

As indicated through the public participation process, the multiple use of harbor waters is the highest priority of the Harbor Management Plan. Both seasonal and permanent residents are concerned that Onset Bay in particular is becoming little more than a boat parking lot. This Harbor Management Plan acknowledges that Wareham offers disproportionately greater access to its waters than many other Buzzards Bay communities as a result of its acceptance of federal funds for harbor access improvements. The Harbor Management Plan heralds the community's desire to protect the multiple use of Onset Bay and Wareham River for current and future harbor users from inside and outside of the community. The Harbor Management Plan also recognizes that changes allowed throughout the Town, not only in waterfront areas, impact the multiple use of Wareham's waters, their cleanliness, productiveness, and safety.

In order to implement the Harbor Management Plan, specific Action Items have been identified for implementation by the Harbor Management Council:

**A. Harbor Management Council to ensure safe, multiple use of harbor waters for recreation.** Harbor Management Council is to work with existing community groups including the Onset Protective League, beach associations, and marina-users as well as the community-at-large to document the demand for waterskiing, shellfishing, small boating, scuba diving, etc. Harbor Management Council is to convene separate task forces for each use (or group of similar uses) charged with the documentation of demand, the identification of use areas, the formulation of regulations to ensure safe use, and the enforcement of these regulations. *Community participation is paramount to the success of all Harbor Management Plan Action Items.*

- i. Schedule community meeting. Advertise in local media, post signs at marinas and boatyards. At meeting formulate task forces for separate harbor uses. Task forces to comprise community-at-large and one member of the Harbor Management Council. In order to effect change, task forces may be charged with completing their mission within a 4-month period. Such schedule should result in holding public hearings during the peak harbor use period, June through September.
- ii. Task forces to document demand, identify harbor areas favorable to use, outline safety and use parameters (including such issues as depth of water, water quality, prevailing winds and sea surface conditions, and potential conflicts with boat traffic and other harbor uses), and draft preliminary specifications for regulations.
- iii. Task forces to meet with harbormaster to draft regulations for each use.
- iv. Task forces to develop a water-use activities map which would be based upon the Waterways Rules and Regulations, the mooring grid plan, shellfish resource areas, multi-use areas (exclusive of mooring areas), and designated-use areas for waterskiing,

windsurfing, and swimming beach exclusionary areas (state-regulated). This map would serve as the basis for a harbor uses bylaw.

- v. Harbor Management Council to hold public hearings (during peak harbor use period) on proposed regulations, integrate revisions and initiate Wareham Police Department and Department of Fisheries, Wildlife and Environmental Law Enforcement (DFWELE) review. Issues to be addressed include those concerns raised through the Harbor Management Plan community participation program, specified in Section III.
- vi. Harbor Management Council to submit proposed regulations for town meeting warrant. To expedite the approval process, regulations could be presented separately for mooring or other contended issues. When promulgated, Harbor Management Council to oversee the enforcement of regulations through the harbormaster and police department, and address community concerns regarding maintenance of multiple use of harbor areas.

**B. Harbor Management Council to promote education on harbor issues.** Knowledge is the key to garnering community support for many issues relating to water quality improvements, one of the priority goals for implementation of the Harbor Management Plan. The Harbor Management Council, through coordination with MCZM, the Buzzards Bay Project, Sea Grants, Massachusetts Department of Environmental Protection, the Cape Cod Commission, and state and federal agencies, has the means to disseminate information to the local community. The Harbor Management Plan recommends that Harbor Management Council staff develop a series of brochures/leaflets to be distributed to the community as specified below.

- i. Successful implementation of the No Sanitary Discharge Law is dependent upon knowledge of the law by the boating community as well as enforcement by the harbormaster, police department and Board of Public Health. Education is key to its success. The Harbor Management Council and Board of Health must provide continuous education through the local media. The Harbor Management Council must develop a pamphlet, to be issued with Harbor Services Permits, on the law and on the availability of pump-out facilities in town.
- ii. Harbor Management Council to develop and distribute to applicants for Harbor Services Permits a copy of an educational booklet which discusses the safe handling of fuel, oil, and grease for motor boats, including the implications of pumping contaminated bilge water. Massachusetts Maritime Academy could be consulted regarding development of this brochure.
- iii. Harbor Management Council to develop a pamphlet, to be mailed out with all property tax bills, outlining implications of disposal of toxic materials and nutrients through private septic systems and cesspools, and the town's sewer system and storm drain network. Pamphlet to discuss how the application of fertilizers on residential lawns may contribute to algal blooms in area coves and marshes and urge residents to replace lawn adjacent to the shoreline with native vegetation that requires little or no care. Pamphlet to advocate the use of slow-release nitrogen fertilizers and the avoidance of fertilizing during summer when turfgrass nutrient requirements are low should also be recommended. Wareham High School science classes could be consulted for the development of this brochure.



- iv. Harbor Management Council to develop a pamphlet discussing the pollution impact on the bays and rivers in Wareham resulting from illegal disposal of motor oil, antifreeze, and gasoline in storm drains in residential areas. This brochure to be distributed by service stations in town at annual motor vehicle inspections.
- v. Harbor Management Council to investigate marking storm drains which outfall into harbor waters with a logo, "Don't Pollute." Investigate funding through Massachusetts Bays Program, administered through MCZM and funded by the U.S. Environmental Protection Agency.

**C. Harbor Management Council to ensure multiple use of harbor waters for shellfishing.** Harbor Management Council is to oversee the efforts of the shellfish constable in the formulation and enforcement of regulations and policies for shellfishing in Wareham waters in accordance with *Goal 1 - Multiple-Use Waters, Goal 2 - Clean Waters, and Goal 3 - Productive Waters*. Action Items are directed toward protecting public health, shellfish resources, and opportunities for recreational and commercial shellfishing now and in the future and include the following:

- i. Harbor Management Council to direct the shellfish constable to enforce local, state, and federal standards/policies regarding the harvest of shellfish.
- ii. Harbor Management Council to develop a monitoring plan of water quality parameters to supplement Massachusetts Division of Marine Fisheries (DMF) testing with a goal toward reopening shellfishing areas for commercial and recreational use.
- iii. Harbor Management Council to obtain funding for a rigorous water quality sampling program to be undertaken by the shellfish constable or the Harbor Management Council to supplement DMF sampling. In addition, the Council should coordinate with the Buzzards Bay Program (BBP) to coordinate with its extensive water quality monitoring program. Goals of this program could include the following:
  - Document water quality changes in areas adjacent to recently sewered neighborhoods.
  - Document water quality changes in areas currently seasonally closed in accordance with the Marina Closure.
  - Document water quality changes as usage of sanitary pump-outs improves.
- iv. Harbor Management Council to publicly disclose the sampling program findings through press releases to local papers and posting in the shellfish constable's office and Town Hall to inform the public of water quality changes and trends.
- v. Harbor Management Council to direct the harbormaster to institute a procedure to assure that areas either permanently or seasonally closed to shellfishing are routinely tested to identify any water quality trends.

- vi. To avoid resource depletion, Harbor Management Council and shellfish constable to investigate means to limit shellfishing by instituting limits on catch, reducing shellfish hours, or reducing permit availability to permanent and seasonal residents of Wareham.
- vii. Harbor Management Council to provide representation on the Shellfish Advisory Group (proposed in the Wareham Town Manager's reorganization) to ensure that this group's actions are in accordance with the Harbor Management Plan.
- viii. Harbor Management Council to work with the Soil Conservation Service in assessing the need to conduct a nitrogen loading management plan to control pollution from nonpoint sources such as cranberry bogs. Agricultural land use, including cranberry bogs, is a source of nonpoint pollution as identified by the Buzzards Bay Project. The concern for impacts on the tributaries feeding Onset Bay and the Wareham River resulting from agricultural operations was also expressed during the public involvement process.

If the need for a nutrient management plan is determined, the Harbor Management Council is to work with the Soil Conservation Service, Massachusetts Department of Environmental Protection, as well as the MCZM, to develop and implement such a plan. Through analysis of the contributing pollutant loading from major nonpoint sources, the Harbor Management Council will be better able to assess the potential contribution from each source and determine the effect of existing operations on nitrogen levels in the Wareham River. A management plan can then be created which addresses cost-effective and pragmatic solutions to these water quality issues.

It should be noted that under the Coastal Zone Act Reauthorization Amendment of 1990, states are subject to a number of requirements as they develop coastal nonpoint programs in accordance with the *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce (January 1993). The goal of this management measure is to minimize edge-of-field delivery of nutrients and minimize leaching of nutrients from the root area. Core components of such a management plan are presented in Appendix 12.

**D. Harbor Management Council to coordinate review of proposed development affecting harbor.** The Harbor Management Council is charged with preserving, protecting and enhancing the natural resources of the harbor in accordance with *Goal 4 - Community Values and Natural Resources*. The Harbor Management Council is charged with carrying out several tasks to ensure that future development is in accordance with this goal:

- i. Harbor Management Council to review (with veto power) any project for consistency with this harbor plan, once state-approved (in accordance with 310 CMR 9.34 (2)).
- ii. Harbor Management Council to review all proposed development within the Harbor Overlay Zone (development on any property located within 100 feet of tidal waters), as described under *Wareham Planning Board Action Items*, below, for compliance with this Harbor Management Plan.

**E. Harbor Management Council to coordinate with the Board of Health on documentation of sanitary pump-out usage.** This Action Item is in accordance with *Goal 1 - Multiple-Use Waters*, *Goal 2 - Clean Waters*, and *Goal 3 - Productive Waters*. The Harbor Management Council and the Board of Health are to obtain the following information from the harbormaster:

- i. Harbor Management Council to request that the harbormaster submit information on the number of pump-outs performed on a monthly basis at all seven sanitary pump-outs in Wareham. This information will be submitted to the Harbor Management Council and the Board of Health on a monthly basis.
- ii. Harbor Management Council to request that the harbormaster obtain information on the Harbor Services Permit application on the type of marine sanitation device or holding tank on board each permitted boat. This information would be submitted to the Harbor Management Council and the Board of Health by July 31 for each boating season.

**F. Harbor Management Council to support coastal access.** Wareham continues to offer opportunities to the general public for access to harbor and river waters in accordance with state and federal mandates (Wareham provides more opportunity for free access to beaches, boat ramps, and parking areas than many other Buzzards Bay communities in southeastern Massachusetts). The Harbor Management Council must assess each opportunity for improved access on a case-by-case basis to determine how this would impact the Harbor Management Plan *Goal 1 - Multiple-Use Waters*. Improved access must also be viewed in a regional context to assure that Wareham does not bear a disproportionate share of the burden to provide improved public access to Buzzards Bay.

- i. Harbor Management Council to initiate a paid parking system for all town-owned boat ramps, including the 12th Street boat ramp on Broad Cove and the Oak Street/Tempest Knob boat ramp on the Wareham River. According to the Public Access Board, the state and town have negotiated a Land Use Agreement which allows the Town of Wareham to charge a fee for use at the recently rehabilitated Tempest Knob boat ramp covering the cost of routine maintenance. This fee must not discriminate between residents and non-residents. A special consideration enables the town to allow parking for those residents who have purchased a town beach parking pass. Pay by use is also allowed.
- ii. Harbor Management Council to coordinate with Onset Bay Association as they investigate development of remote parking with shuttle bus connections to the Onset Village business district, the 12th Street boat ramp, and Shell Point Beach.
- iii. Harbor Management Council to investigate funding mechanisms for coastal acquisitions through DEM and the Massachusetts Open Space Bond issue, MCZM through the "Bulger Beach Access Bill," through the Department of Fisheries, Wildlife and Environmental Law Enforcement (DFWELE), and through the Self-Help and Urban Self-Help Programs through the federally funded Land and Water Conservation Fund.
- iv. Harbor Management Council to pursue Public Access Board funding for boat ramp construction and rehabilitation at Swifts Beach.

- v. Harbor Management Council to work with the harbormaster to prepare recommendations for mooring fees comparable with other Buzzards Bay towns for presentation at town meeting.
- vi. Harbor Management Council and harbormaster to develop written policy for the removal of moorings, including possible provisions that the Town take ownership upon removal, afterwards reselling or disposing of the mooring. Policy to address reassignment of moorings based upon size and type of boat and the seeking of funds for the cost of removal from the mooring owner.
- vii. Harbor Management Council to communicate to the Municipal Maintenance Department the need for any changes in any policies regarding beach wrack cleanup and restroom maintenance.

**G. Harbor Management Council to review and amend the Harbor Management Plan every three years in accordance with MCZM Harbor Planning Guidelines.** This will ensure that the document becomes a working tool and continues to meet evolving community and water-user needs. Public participation is key to the ongoing success of Harbor Management Plan implementation; existing neighborhood groups and associations are encouraged to work together on common issues by inviting them to hearings or meetings held to discuss harbor issues. This is especially important for summer residents who are not town voters.

**H. Harbor Management Council to prepare dredging master plan.** The Harbor Management Council, together with the harbormaster, must determine the need for dredging town waterways, based upon past dredging activities, rates of sedimentation, commercial and recreational need, resource areas (including eelgrass habitat and shellfish areas), impact upon multiple use of harbor waters, and availability of funding. The master plan for dredging must give consideration to the need for an environmental impact report for the action(s) and the federal or state agencies' concern for the disposal of dredged material and impact on the ecology or resources areas. Implementation of this Action Item is in accordance with *Goal 6 - Dredging*.

#### **4. Harbormaster Action Plan**

In order to implement Harbor Management Plan, the Harbormaster/shellfish constable will be responsible for the following:

**A. Harbormaster to enforce Waterways Rules and Regulations.** As a law enforcement agency the harbormaster is responsible for enforcing federal, state and local marine and freshwater regulations within his/her area of jurisdiction. As indicated during the public participation process, these regulations must be enforced equitably. This Action Item addresses *Goal 1 - Multiple-Use Waters* and *Goal 5 - Safe Waters* and is a priority objective of the Harbor Management Plan.

- i. Harbormaster to enforce existing Waterways Rules and Regulations equitably.

- ii. Harbormaster to work with the Harbor Management Council and the multi-use task forces in the designation of waterskiing and windsurfing areas and in the revision of Waterways Rules and Regulations.
- iii. Harbormaster to enforce the prohibition of mooring expansion beyond the "special anchorage" area in Onset Bay.
- iv. Harbormaster to enforce prohibition of waterski "drop off" on public beaches.
- v. Harbormaster to enforce "no wake" (6 mph or approximately 5 knots) speed limits in inner harbor areas to reduce shoreline erosion.
- vi. Harbormaster to enforce existing minimum wake restrictions (6 mph or approximately 5 knot speed limit) for motor boats within 150 feet of swimmers, fishermen, skin or scuba divers, floats or small craft.
- vii. Harbormaster to post signs in the water (and visible from boats) near beaches: "CAUTION SWIMMERS." Harbormaster to enforce state regulations prohibiting motor boats within 150 feet of beaches. Where appropriate, harbormaster to work with the Municipal Maintenance Department to demarcate public swimming areas with buoys and floats. Harbormaster to enforce the maintenance of separate areas for swimming, boat ramps, and waterski drop-off areas to avoid conflicts between users.

**B. Harbormaster to upgrade navigational aides and public information.** In order to achieve *Goal 5 - Safe Waters*, the harbormaster must undertake the following:

- i. Harbormaster to mark the designated federal "special anchorage," channel and turning basin (as indicated on the NOAA navigational chart for Cape Cod Canal and Approaches, 13236, June 9, 1990) and the town-designated area for waterskiing on Onset Bay with appropriate buoys and markers to make identification unmistakable in the harbor. (According to Wareham bylaws, this area is south of an imaginary line between Onset Island and Wickets Island, excluding the mooring areas and buoyed channels.)
- ii. The Harbormaster should develop a policy for the removal of hazards such as boats improperly moored in channels and dangerous congestion at entrance to Onset Bay from Cape Cod Canal as evidenced during the community participation program as allowed under the Massachusetts General Law, Chapter 102, Harbormaster legislation. Policy should include time limits for vessels to be in a location prior to removal, a proper notification process and a proposed reimbursement program for all cost expended. If the Harbormaster's efforts fail to resolve a problem, then Harbormaster to request federal and state assistance, if necessary, to eliminate hazards.
- iii. Harbormaster to develop and distribute a brochure with the Harbor Services Permit which provides information on local boating bylaws (Waterways Rules and Regulations) and information from NOAA chart 13236, Cape Cod Canal and Approaches, relevant to Onset Bay and the Wareham River.

**C. Harbormaster to accept and implement an overall mooring control plan.** This Action Item is crucial to *Goal 1 - Multiple-Use Waters* and *Goal 5 - Safe Waters*.

- i. Harbormaster, working in conjunction with the Harbor Management Council, to revise mooring control plan to make it workable. Harbormaster to begin gridding and mooring relocation in accordance with revised plan.
- ii. Harbormaster to work with the Harbor Management Council to prepare recommendations for mooring fees comparable with area Buzzards Bay towns.
- iii. Harbormaster and Harbor Management Council to institute a written policy on Harbor Services Permit procedures. Harbor Management Council recommends that the Harbor Services Permit be computerized to provide information on the following:
  - Specific location of mooring, including information on generalized location in either Onset Bay or Wareham River drainage area.
  - Information on marine sanitation device or holding tank on board.
- iv. Harbormaster and Harbor Management Council to develop written policy on mooring closure including dates at which moorings are either removed or sold/transferred to another. Policy to address reassignment of moorings based upon size and type of boat. Policy also to address waiting list procedures.
- v. Harbormaster to ensure that moorings are never abandoned and sunken in place, as they create obstacles for dredging, other water-based development projects, and navigation. The Harbormaster will identify moorings which have been abandoned and sunken in place in the past on the mooring plan. Reference to this information by proposers of other water-based projects within this area should be encouraged.
- vi. As many of the private docks and piers rest on the ocean floor at mean low tide (which scours the substrate and affects eelgrass habitat/distribution), the Harbormaster (in collaboration with the Harbor Management Council) should develop a registration program for these private structures to assist DEM in determining the number of structures that are in compliance with the Public Waterfront Act (M.G.L. Chapter 91). Any pier or dock needing to be licensed, even under the amnesty program, would be expected to meet minimum performance standards of not resting on the bottom and not preventing lateral public access for fishing and navigation. Since the amnesty program for existing unlicensed structures ends in October 1995, the Waterways Regulation Program will be available to assist in a public outreach effort to bring these structures into compliance with Chapter 91. The Waterways Regulation Program is coordinating (November 1994) with the Harbormaster to schedule a workshop for the Town of Wareham.

**D. Harbormaster to enforce the U.S. EPA "No Discharge Area."** Enforcement of the no-discharge law is directed toward the improvement of *Goal 2 - Clean Waters* in Wareham waters.

- i. Harbormaster to enforce the maximum penalty (\$200 fine) for each pollution violation in accordance with town bylaws. Harbormaster to institute on-board inspections of vessels moored in Wareham, including so-called "live-boards," to determine compliance.
- ii. Harbormaster to inventory the type of marine sanitation device on board through a question on the Harbor Services Permit application (this inventory could be used to help identify the quantity of effluent potentially discharged). Harbormaster to explore possibility of issuing color-coded stickers based upon type of device to aid law enforcement agents in identifying potential violators.
- iii. Harbormaster to provide the Harbor Management Council and the Board of Health with information on the number of citations issued for no-discharge violations on a monthly basis. Harbormaster also to provide general information on the number of verbal warnings issued.
- iv. Harbormaster to pursue available grants through the Clean Vessel Act, and the Department of Fisheries and Wildlife, and Environmental Law Enforcement for upgrade or replacement of outdated or malfunctioning pump-out facilities at Onset Pier and to purchase mobile pump-out or "honeywagon" for use in Onset Bay. The Town has recently received Clean Vessel Act (CVA) monies to upgrade Onset Pier pump-out and purchase a pump-out boat. Additionally, the Town has upgraded several private marina pump-outs with CVA funds.

**E. Harbormaster to work with the Harbor Management Council to develop a dredging master plan.**

- i. Harbormaster to pursue state and federal funding for maintenance dredging projects such as the recent contract let for dredging in the East River and Broad Cove. Project limits would be established through the availability of funding and through the full circuit of environmental review required for any dredging project. Issues to be addressed during dredging studies include what manmade and natural resources will be affected by dredging, whether there is a demand for more moorings which will result in the expansion of mooring fields, need for environmental documentation, and what the financial loss would be to the town if there is a resultant short- or long-term loss of shellfish habitat. Funding by federal and state agencies is contingent upon acceptance of their rules and regulations.
- ii. Harbormaster to work with the Harbor Management Council in development of a sequential dredging master plan. A complete dredging plan for Wareham waterways should include areas needing dredging over the next 50 years. A look at disposal options and development of a dredging fund could also be included.
- iii. Harbormaster to coordinate with several agencies in developing a dredging master plan, including MCZM's Dredging Coordinator, DEM's Waterways, and DEP's Water Pollution Control Division.

- iv. So that all water-based planning projects adequately consider the physical limits of other water development projects, the Harbormaster should reference the U.S. Army Corps of Engineers' Wareham Harbor Federal Navigation Project (see Appendix 13).

## **B. Action Plan for Town Boards, Commissions, Committees, and Agencies**

Designation of the Harbor Management Council as the authority to implement the Harbor Management Plan has certain implications for the various agencies and departments within the Town of Wareham's administration. In order to maintain consistency with the goals and objectives for harbor management, the operations of these offices and the Harbor Management Council must be synchronized. Each must have a clear understanding of its individual responsibilities as well as the collective responsibilities of others in town to bring the Harbor Management Plan to fruition.

### **1. Wareham Board of Selectmen**

The Wareham Board of Selectmen (and the Town Administrator) will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 1 - Multiple-Use Waters, Goal 2 - Clean Waters, Goal 4 - Community Values and Natural Resources, and Goal 5 - Safe Waters* as identified in Section IV.

**A. Town Department Reorganization.** Key to the implementation of the Harbor Management Plan is the departmental reorganization proposed by the Wareham Town Administrator in which law enforcement activities of the harbormaster and the shellfish constable would fall under the police department. Shellfish propagation responsibilities of the shellfish constable would then fall to a proposed Shellfish Advisory Group, if empowered by the Board of Selectmen. Although law enforcement activities would be under the direction of the police department, the proposed Harbor Management Council would provide policy direction and guidance to the harbormaster and shellfish constable. This Action Item would be instrumental in implementing *Goal 5 - Safe Waters* through the improvement of law enforcement services relating to harbor safety.

**B. Harbormaster Responsibilities.** The Board of Selectmen is to clarify the jurisdictional authority and responsibilities of the harbormaster. The harbormaster, and any assistants or deputies, should be empowered to act for the Wareham Police Department in accordance with the Town Administrator's proposed departmental reorganization. Education in the marine field should be established as an employment prerequisite. Specific powers and duties should be clearly stated. The responsibilities of the harbormaster would include those Action Items identified previously in **A.4, Harbormaster Action Plan** and include, at a minimum, the following:

- enforce any local, state or federal boating safety law, regulation or bylaw as applicable;
- act as a non-voting, ex-officio member of the Harbor Management Council;
- implement the Harbor Management Plan;



- administrate designated mooring areas;
- collect Harbor Services Permit fees annually;
- prepare and maintain records of the locations of all moorings, users and vessels within designated harbor areas and other town waters;
- prepare and make available a current waiting list for mooring permits, if the demand is greater than the number of moorings available in any given year;
- collect data on usage of sanitary pump-out usage and provide information to the Harbor Management Council and the Board of Health;
- provide recommendations to the Harbor Management Council on amendments or revisions to water safety regulations; and
- continue harbormaster training and education on marine/recreation issues through seminars and courses, and participate in harbormaster associations to deal with common issues.

**C. Wareham Board of Selectmen Action Items.** The Board of Selectmen has several responsibilities in the implementation of the Harbor Management Plan. The Board's support in adopting the plan and in forwarding policy changes through town meeting approval is crucial to project success. The Board of Selectmen is also important in establishing job descriptions and performance levels for town employees.

- i. Board of Selectmen to coordinate inspections and response to illegal dumping of solid waste, hazardous materials including petroleum products, and human waste through the harbormaster's office, Board of Health, conservation agent, oil spill coordinator, police and fire department, and other town offices, as necessary.
- ii. To facilitate professional job performance, Board of Selectmen to require training of staff (harbormaster/shellfish constable), elected officials (Board of Health) and appointees (Harbor Management Council, Planning Board, Conservation Commission) at seminars and courses sponsored by the Massachusetts Association of Conservation Commissions and other federal/state agencies.
- iii. Board of Selectmen to pursue funding to finance pollution prevention and remediation programs for stormwater control, toxic use reduction, land use regulations, and the establishment of additional boat pump-out programs, in accordance with implementation of the Comprehensive Conservation and Management Plan (CCMP) through federal and state agencies including the Division of Marine Fisheries, Division of Water Pollution Control (Coastal Water Pollution Program), Division of Wetlands and Waterways, Division of Fisheries and Wildlife Environmental Law Enforcement, among others.

## **2. Wareham Planning Board**

The Wareham Planning Board is instrumental in the implementation of *Goal 4 - Community Values and Natural Resources* as identified in Section IV. The Wareham Planning Board is charged with implementation of M.G.L. Chapter 40A, the Zoning Enabling Act. Chapter 40A established standardized procedures for the administration and promulgation of municipal zoning laws including the empowerment by communities to enact their own zoning bylaws in accordance with Home Rule. The purposes and objectives of the 1975 act, commonly referred to as Chapter 808, include the following which are most relevant to the Wareham Harbor Management Plan:

- to conserve the value of land and building, including the conservation of natural resources and the prevention of blight and pollution of the environment;
- to encourage the most appropriate use of land throughout the city or town, including consideration of the recommendations of the master plan, if any, adopted by the planning board and the comprehensive plan, if any, of the regional planning agency; and
- to preserve and increase amenities by the promulgation of regulations to fulfill said objectives.

The Wareham Planning Board will be charged with several Action Items in the implementation of the Harbor Management Plan:

**A. Representation on the Harbor Management Council.** A representative of the Planning Board shall serve as a member of the Harbor Management Council. This representative will improve communication among town boards, serve as a liaison between landside development and harbor management, and, through his/her participation, will increase community awareness of the important relationship between protection of the harbor as a valuable community resource and the current and future attractiveness of the town as a whole.

**B. Planning Board to initiate Zoning Bylaw Amendments.** Amendments to the existing zoning bylaw are needed to assure that future shoreline development is in accordance with the Harbor Management Plan. These recommendations will be presented to the Planning Board by the Harbor Management Council. The Planning Board will then be responsible for presenting articles to the town meeting warrant for zoning bylaw amendments. The Harbor Management Council will provide the planning board support to effectuate zoning amendments.

- i. Create a Harbor Overlay Zone which extends a minimum of 100 feet from mean high water and includes all shorefront lots. This would be similar in concept to the Floodplain Overlay and the Buzzards Bay Overlay District. The Harbor Overlay Zone would be added to SECTION VII. ADMINISTRATION AND EXCEPTIONS of the Wareham Zoning Bylaw (*Wareham 1990*).

- ii. Add the following to SECTION II. ZONING DISTRICTS - USE REGULATIONS of the Wareham Zoning Bylaw as a Design Suggestion under Onset Village Commercial District (page 19) and as a Design Requirement under Wareham Village District (page 23):

*Site plan should reflect the relationship with the harbor, maximizing the relationship with adjacent waterfront/marsh by incorporating pedestrian walkways and seating areas along the rear of the property.*

*Site plan should maintain visual corridors between the adjacent street and the shoreline to reinforce the marine character of the community.*

The Town may want to consider instituting a formal "Section 18" review process within the zoning bylaw. According to M.G.L. Chapter 91, Section 18, the planning board receives each license application and can hold a public hearing and submit a written recommendation to the DEM on whether the proposed project would serve a public purpose and not be detrimental to the public's right in tidelands [ref: M.G.L. Chapter 91, Section 18 and 310 CMR 9.13(5)]. A zoning bylaw could more fully describe what factors the planning board will consider when making this determination.

- iii. Under SECTION IV. DENSITY AND DIMENSIONAL REGULATIONS of the Wareham Zoning Bylaw, amend the allowable building height for Wareham Village to 35 feet. This will maintain a scale consistent with current building heights and maximize the relationship with the adjacent marsh on the Wareham River. (Onset Village height restrictions are currently 35 feet.)

- iv. Under SECTION VIII. SITE PLAN REVIEW of the Wareham Zoning Bylaw, insert the following under A. PURPOSE: *...and that such development be in accordance with the Harbor Management Plan.*

Under B. OBJECTIVES (2) Relationship of Buildings to Environment, add the following: *...and, if located within the Harbor Overlay Zone, ensure that the site plan is compatible with the marine environment, minimizing environmental degradation through: sedimentation and erosion at the shoreline as well as the upland portion of the property resulting from site alterations; leaching of or disposition of lawn and/or agricultural fertilizers, pesticides and other chemicals and organics; other activities, including, but not limited to, use or handling of petrochemicals (fuels, oils, and so forth).*

Insert: (6) Harbor Planning - *Proposed development on parcels within the Harbor Overlay Zone must assure that said development supports the goals of the Harbor Management Plan by protecting and preserving water quality, maintaining shore access, and preserving visual connection between pedestrian paths and the waterfront.*

The Public Waterfront Act (M.G.L. Chapter 91) and associated waterway regulations (310 CMR 9.00) can assist the Town in achieving goals for preserving/enhancing physical and visual access to the waterfront and waters of Wareham.

License application review for placement of structure or fill on riparian lands (310 CMR 9.04 and 9.05) ensures that activities in tidelands maintain and/or enhance public rights to fish, navigate and access such tidelands.

In order to increase communication between municipal boards, under F. **PROCEDURES** indicate that: *The Harbor Management Council shall evaluate all site plans subject to Minor Site Plan Review and Major Site Plan Review - Special Permit located within the Harbor Overlay Zone. Such evaluation (advisory only) shall be forwarded to the Planning Board for consideration.*

- v. Planning Board to investigate measures to control buildability of "grandfathered" shorefront lots in areas to be sewerred.
- vi. Planning Board to adopt subdivision bylaws that require best management practices for stormwater runoff in accordance with the recommendation of the Buzzards Bay CCMP.

### **3. Wareham Board of Health**

The Wareham Board of Health will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 2 - Clean Waters* and *Goal 4 - Community Values and Natural Resources* as identified in Section IV. These tasks relate to Board of Health representation on the proposed Harbor Management Council, enforcement of the U.S. EPA No-Discharge Law, regulation of development in unsewered areas, and planning for sewer extension projects.

**A. Representation on the Harbor Management Council.** A representative of the Board of Health shall serve as a member of the Harbor Management Council. This representative will improve communication among town boards, serve as a liaison between landside development and harbor management, and, through his/her participation, will increase community awareness of the important relationship between protection of the harbor as a valuable community resource and the current and future attractiveness of the town as a whole.

**B. Action Plan - Review of Development.** Nonpoint discharge from septic tanks, the application of lawn fertilizers, and street runoff are major sources of nutrient loading (pollution) as identified by the Buzzards Bay Project CCMP. The following are consistent with CCMP recommendations:

- i. Board of Health to amend the local sanitary code to increase septic system setbacks from resources areas such as shorelines to 150 feet.
- ii. Board of Health to pursue grants to comply with the Clean Water Act, including upgrading the Wareham Wastewater Treatment Facility (WWTF), extending sewer systems to unsewered coastal areas, eliminating existing storm drain outfalls (a major source of pollution), and retrofitting existing pump stations with auxiliary power systems to prevent discharge of raw sewage during power outages.
- iii. Board of Health to investigate use of Wareham WWTF effluent for cooling water at the local waste-to-energy plant.

- iv. Board of Health to work with the Conservation Commission and the Massachusetts Department of Environmental Protection (DEP) in the development of Geographic Information System (GIS) mapping of the most sensitive areas — including the extent of filled tidelands — in Wareham. This will serve as a base for state and local cooperation in enforcing any revisions to DEP's clean water rules (Title 5 of the State Environmental Code) which is aimed at better controlling pollution caused by on-site sewage disposal systems. These activities are directed toward addressing this important nonpoint source pollution problem. GIS mapping should incorporate the resource areas identified on the DEP Division of Wetlands and Waterways Wetlands Conservancy Program orthophoto mapping (scale 1:5,000, 1990 aerial photography). Resource areas include the following: deep marsh; shallow marsh, meadow or fen; shrub swamp; wooded swamp (deciduous, coniferous or mixed); bog; cranberry bog; tidal flat; salt marsh; coastal beach; barrier beach system; coastal dune; rocky intertidal shore; open water; and coastal bank, bluff or sea cliff.
- v. Board of Health to prohibit new individual sewage disposal (septic) systems in coastal velocity areas (as mapped by FEMA), as the potential for water contamination is very great in these areas.

#### **4. Wareham Conservation Commission**

The Wareham Conservation Commission will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 1 - Multiple-Use Waters* and *Goal 4 - Community Values and Natural Resources* as identified in Section IV.

**A. Representation on the Harbor Management Council.** A representative of the Conservation Commission shall serve as a member of the Harbor Management Council. This representative will improve communication among town boards, serve as a liaison between landside development and harbor management, and, through his/her participation, will increase community awareness of the important relationship between protection of the harbor as a valuable community resource and the current and future attractiveness of the town as a whole.

**B. Action Plan - Review of Development.** Through the Wetlands Protection Act and the local wetlands bylaw, the Conservation Commission is empowered to review development.

- i. Conservation Commission natural resources agent to continue investigation into the regulation of coastal engineered structures which may adversely affect water quality, shellfish habitat, and shoreline erosion.
- ii. Conservation Commission to utilize the Barrier Beach Management Guidelines produced by an MCZM Task Force. The task force has drafted a range of possible best management practices that could be employed by a conservation commission or beach manager in order to manage a barrier beach most efficiently.
- iii. Conservation Commission to investigate measures to protect the unique saltwater/freshwater habitat found on the Agawam River. Designation within the

Massachusetts Department of Environmental Management Areas of Critical Environmental Concern (ACEC) could be a consideration.

- iv. Conservation Commission to work with the Board of Health and the Massachusetts Department of Environmental Protection in the development of GIS mapping of the most sensitive areas in Wareham.
- v. Conservation Commission to amend Division VI, Article I - Wetland Protective Bylaw to require that, for new construction, a 30-foot buffer area of native vegetation be maintained along tidal shorelines to reduce the possibility of fertilizer and pesticide use near the water and to intercept nutrients and contaminants before they reach tidal water.
- vi. Conservation Commission to utilize the Nonpoint source "Megamanual" received from the DEP's Office of Watershed Management which helps municipal officials understand, recognize, and manage local nonpoint source pollution that threatens important water resources. This manual may be used as guidance in preparing a nonpoint source management plan and writing bylaws to combat potential nonpoint sources of pollution.

#### **5. Proposed Shellfish Advisory Committee**

As part of the Town Administrator's reorganization of municipal departments, issues relating to shellfish propagation would be separated from the enforcement responsibilities of the shellfish constable and placed — through authorization of the Board of Selectmen via appropriate Massachusetts General Law — under the auspices of a proposed Shellfish Advisory Committee. This action is instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 3 - Productive Waters* as identified in Section IV.

- i. Shellfish Advisory Committee to establish regulations for shellfish relaying and institute a pilot program to assess the potential for improving shellfish development and harvests in clean water. In accordance with the recommendations of the shellfish constable's office, relaying should be undertaken in the month of May with the shellfish being transplanted to areas which are closed seasonally. As indicated by enthusiasm for this methodology expressed at the public workshops, members of the community should be encouraged to undertake such a voluntary program under the direction of the Division of Marine Fisheries.

#### **6. Municipal Maintenance Department**

The Wareham Municipal Maintenance Department will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 1 - Multiple-Use Waters* and *Goal 2 - Clean Waters* as identified in Section IV.

- i. Municipal Maintenance Department to work with the Harbor Management Council and the harbormaster to demarcate public swimming areas with buoys and floats.

- ii. Municipal Maintenance Department to work with the Harbor Management Council and the harbormaster to construct pram-racks or pipes to which prams could be secured to reduce shoreline erosion at Tempest Knob Beach and Minot Beach.
- iii. Municipal Maintenance Department to post "Do Not Feed the Geese and Ducks" signs on beaches where their presence has been a problem. Police department to enforce the existing bylaws regarding same.
- iv. The Department should use the "Megamanual" which includes Best Management Practices (BMPs) for stormwater control.

## **7. Town Accountant**

The Wareham Town Accountant will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 2 - Clean Waters* and *Goal 5 - Safe Waters* as identified in Section IV.

- a. Town Accountant to mail a pamphlet, developed by the Harbor Management Council, with all property tax bills outlining implications of disposal of toxic materials and nutrients through private septic systems and cesspools, and the town's sewer system and storm drain network with a discussion of how the application of fertilizers on residential lawns may contribute to algal blooms in area coves and marshes.
- b. Town Accountant to mail a pamphlet, developed by the Harbor Management Council, with boat excise tax bills outlining information on channels, turning basins, swimming areas, and waterskiing areas in Onset Bay and Wareham River. Pamphlet to summarize water safety rules and regulations and to explain harbor buoys and markers.

## **C. Action Plan for Private Groups and Others**

Numerous organizations in Wareham are concerned with the use and development of harbor resources in town. While some groups' sole focus is harbor use, this may be only one of many issues for other organizations. The grassroots support of these groups will be instrumental in Harbor Management Plan implementation. These organizations include the Onset Protective League, the Onset Bay Association, the Shell Point Association, the Nanumet Heights Beach Association, and other neighborhood and beach associations. As indicated in previous discussion, members of beach associations are to be appointed to the Harbor Management Council on a rotating basis between Wareham River and Onset Harbor associations. This is a way to empower these members on harbor issues. Service stations have also been identified as instrumental in Harbor Management Plan implementation.

### **1. Traffic and Parking Action Planning**

The Onset Bay Association will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 1 - Multiple-Use Waters* as identified in Section IV.

Onset Bay Association to investigate availability of convenient off-street parking for Onset Village businesses, and for Shell Point Beach and the 12th Street boat ramp, to improve safety on narrow village streets and minimize conflicts with local residents whose driveways are frequently blocked by on-street parking. Potential funding sources include Executive Office of Transportation and Construction (Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991) and Executive Office of Communities and Development for community-based economic development assistance to help retain, grow and attract business.

## **2. State Inspection Stations**

State inspection stations will be instrumental in the implementation of Harbor Management Plan tasks fulfilling *Goal 2 - Clean Waters* as identified in Section IV.

State inspection stations to distribute pamphlet, developed by the Harbor Management Council, discussing safe use and disposal of motor oil, antifreeze, and gasoline and the potential pollution impact on the bays and rivers in Wareham which could result from illegal disposal of these products in storm drains.

## **D. Conclusion**

The key objective in Harbor Management Planning at Wareham is the accurate and concise identification of existing problems and probable future conflicts pertaining to the administration and management of municipal waters. Furthermore, this key objective includes the determination of specific actions to reduce those conflicts. To reach this objective, a Harbor Management Plan requires special attention to engineering, land use management, water resource management, and regulatory control.

Control and regulation within municipal waters are typically shared between federal, state and local governments, making it necessary for Wareham to have a clear statement of its goals and objectives, as well as an understanding of how these agencies interact in terms of harbor management. Each level of government has its own goals and objectives, and because the agencies are dissimilar, so are their objectives. This in turn creates uncertainty regarding authority and responsibility over the management of municipal navigable waters. In addition, federal, state and local governments routinely find themselves facing complex decisions with limited information to assist them in making site-specific decisions.

Traditional comprehensive land use planning fails to consider adequately the administrative changes required for implementation of land use plans beyond the shoreline. Land use controls may allow or disallow waterfront activities to continue with little regard for their impact on water surface availability, water quality, local maritime activities, or the carrying capacity of local, natural shoreline habitats.

It is the objective of this implementation component of the Wareham Harbor Management Plan to address the necessity of dealing promptly with the often uncoordinated regulatory programs at each level of government and create, through bylaw amendment, an integrated management framework designed to accomplish the stated goals and objectives for harbor management that have been developed through this public participatory planning process.



Implementation of the Harbor Management Plan requires the resolve and commitment of the entire Town of Wareham, from the citizen-based membership of the proposed Harbor Management Council to the town administrators who will be responsible for the modification of bylaws and the creation of the council. It requires continuous momentum of the council, whose membership is driven by the full-time activities of a qualified and resolute harbor agent who has a clearly defined mission. It requires a high level of coordination not only with state and federal agencies, but perhaps more importantly, with other departments and offices within the town organization to bring to fruition the objectives of sensible and sustainable management of land and shoreline resources. This coordination is particularly important for the new council in terms of building upon the broad base of knowledge possessed by the harbormaster (and, if his/her function is not expanded to serve also as the proposed harbor agent, include him/her in a mentorship function to the harbor agent) so that the Harbor Management Plan can be enriched by the experience he/she has gained from monitoring activities along 56 miles of shoreline.

This Harbor Management Plan is to work in conjunction with the municipal master plan, not to impose new restrictions on land and shoreline development in Wareham. This plan is intended to offer the necessary guidance for inclusion of the management of multiple activities upon the navigable waterways and along the shoreline within the existing land use/resource management, zoning and development, and law enforcement programs of the town.

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**LIST OF CONTACTS** (exclusive of public contacts indicated in Section III and Appendix 9)

- Angus, Nancy, Maxi Marine (Upper Cape Realty)
- Bevans, Bob, Bevans Marina
- Cavanaugh, Gene, Massachusetts Department of Waterways
- Cody, William, Stonebridge Marina
- Lt. Crocker, Onset Fire Department
- Davis, Anna, Wareham Water Pollution Control Department
- Deneau, Point Independence Yacht Club
- Donahue, John, Chairman of the Wareham Board of Assessors
- Ellis, William E., III, Town of Wareham Harbormaster
- Gifford, Mark, Wareham Municipal Maintenance Department
- Gil, Lawrence, Department of Environmental Protection, Division of Water Pollution Control
- Glavin, Gregory T., Onset Bay Marina
- Goodwin, Gordon, Cape Cod Shipbuilding
- Hall, Brad, Dockmaster, Onset Bay Marina
- Kapp, Kristie, Massachusetts Coastal Zone Management
- Knight, Henry, Wareham Building Inspector
- Lynch, Carolyn, Director of Recreation, Wareham Recreation Commission
- MacDuffy, Wareham Fire Department
- Murphy, Joseph, Wareham Town Administrator
- Sawyer, Greg, Massachusetts Department of Marine Fisheries
- Shaw, Jim, Chief Operator, Wareham Water Pollution Control Facility
- Southeast Regional Planning and Economic Development Department, Taunton, Massachusetts
- Spaulding, Jeanne, Wareham Health Inspector
- Van Hine, Lydia, Wareham Conservation Officer/Town Planner
- Wareham Marine Resources Commission
- Warr, Skip, Warr's Marine



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**APPENDICES**

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**APPENDIX 1 - FECAL COLIFORM DATA**

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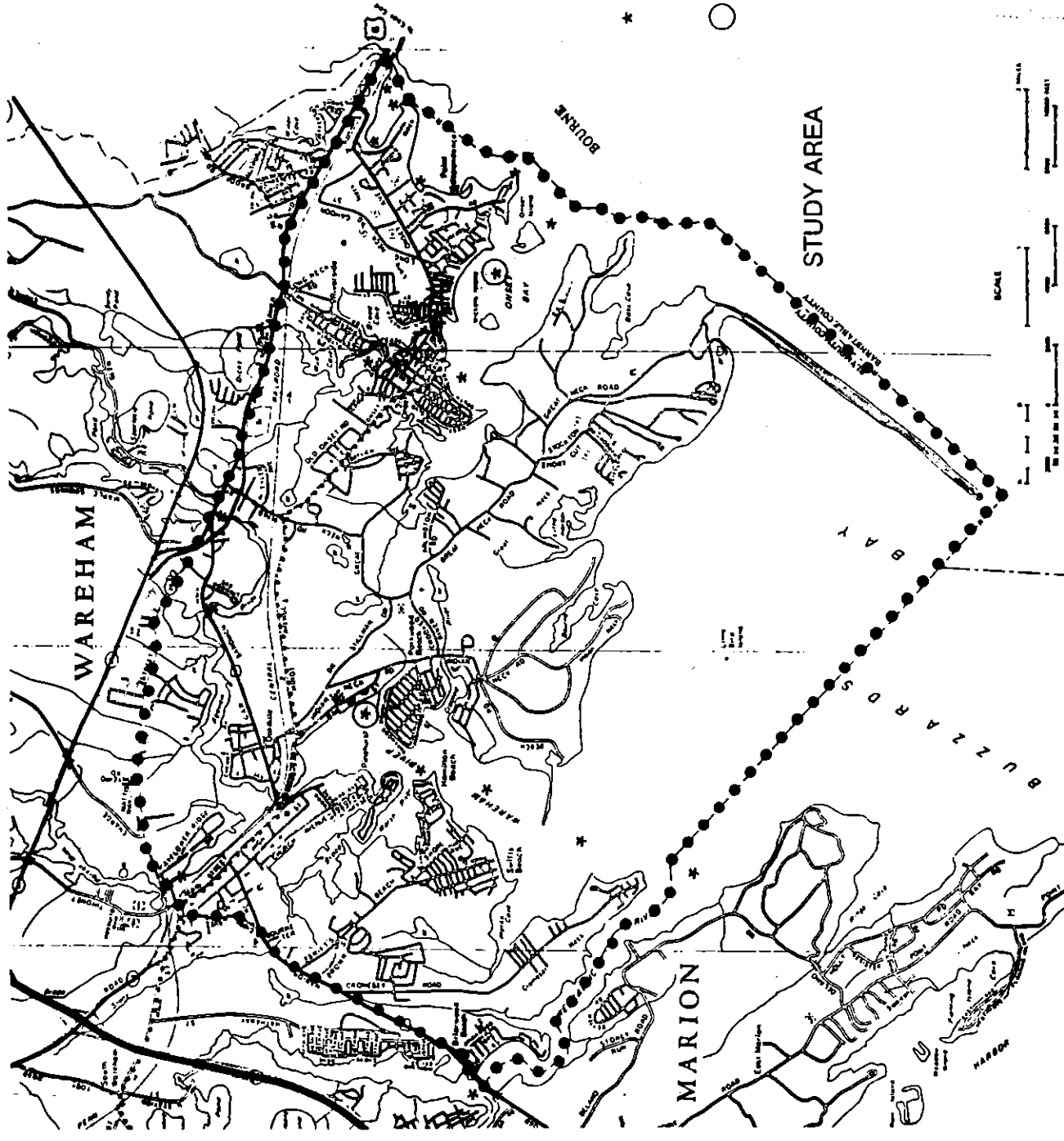
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**APPENDIX 1      Fecal Coliform Data, 1985 - 1991**

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- Overview Map
- Wareham River Sample Stations Map
- Wareham River Sampling Graph
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- Weweantic River Sampling Graph
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- Bourne Cove/Little Harbor Sampling Graph
- Widows Cove Sample Stations Map
- Widows Cove Sampling Graph
- Butler Cove Sample Stations Map
- Butler Cove Sampling Graph
- Onset Bay Sample Stations Map
- Onset Bay Sampling Graph
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- Shell Point Bay Sampling Graph
- Broad/Muddy Coves Sample Stations Map
- Broad/Muddy Coves Sampling Graph



Water Quality Study locations, 1985  
DEP, Division of Water Pollution Control

Sediment Study locations, 1985-1986  
DEP, Division of Water Pollution Control



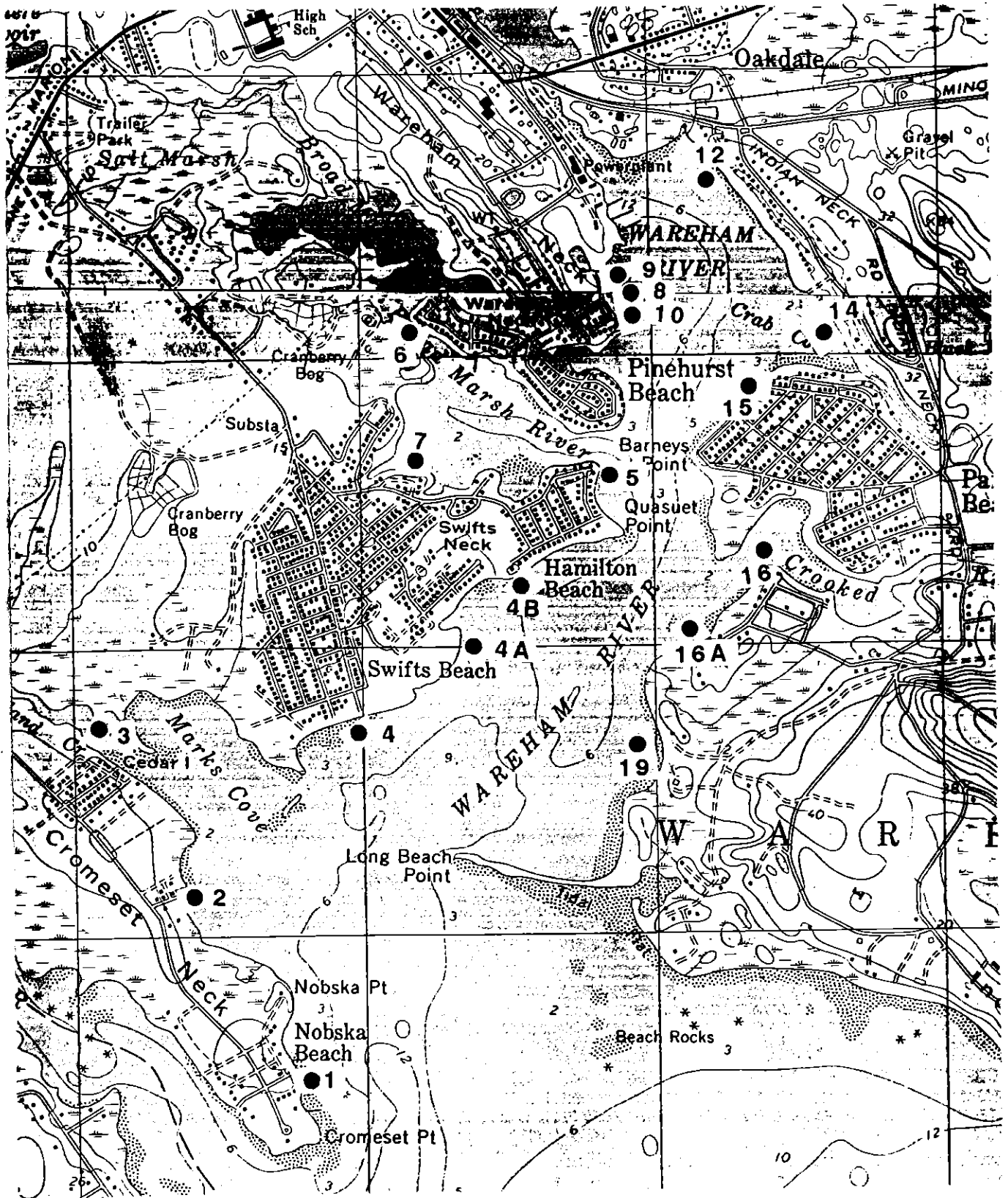
Source: MDPW, General Highway Map, Regional Series

Appendix 1  
WATER QUALITY AND  
SEDIMENT STUDIES MAP

HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

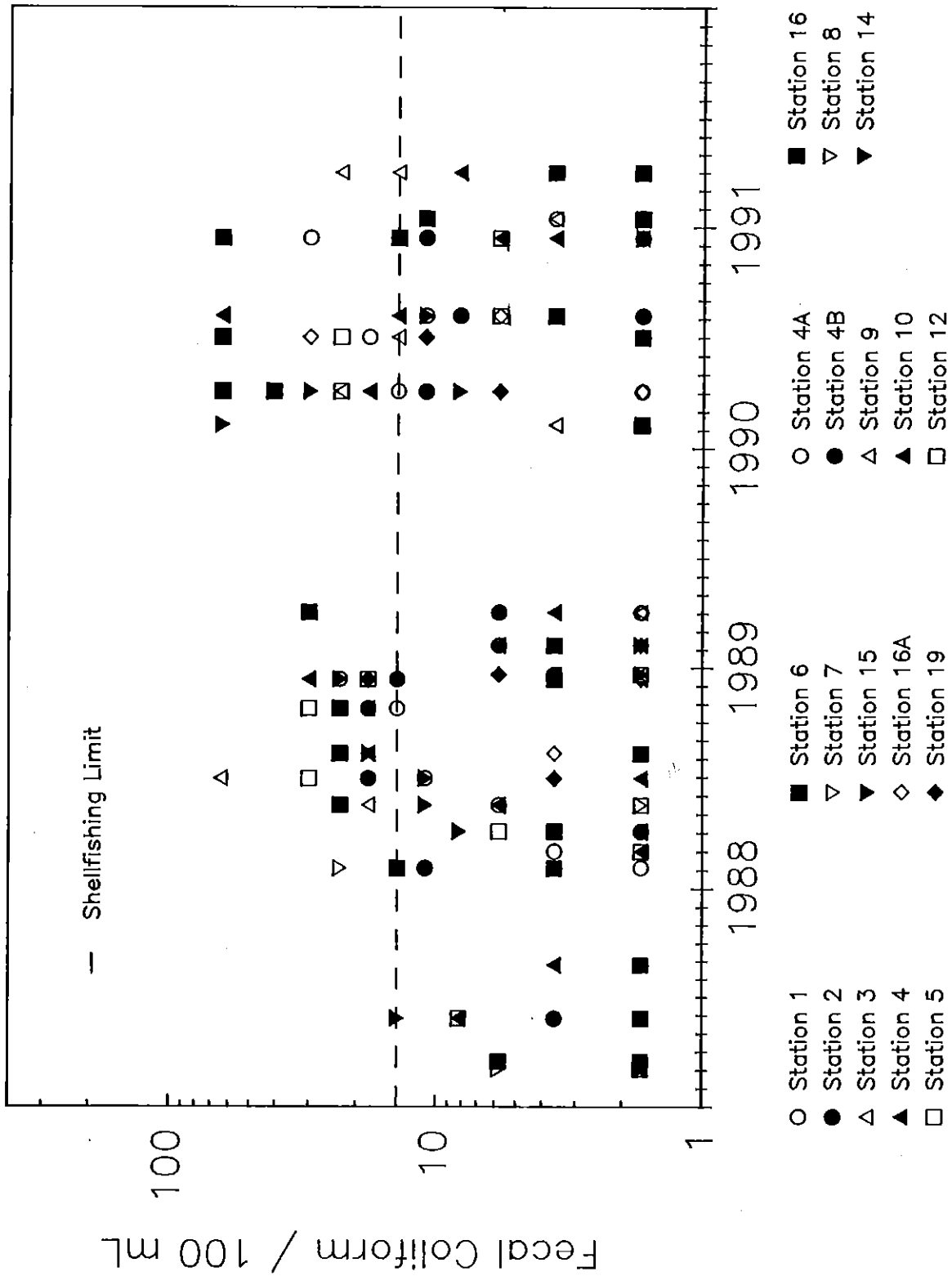
# WAREHAM RIVER

## Water Quality Monitoring Stations



Source: Massachusetts Division of Marine Fisheries

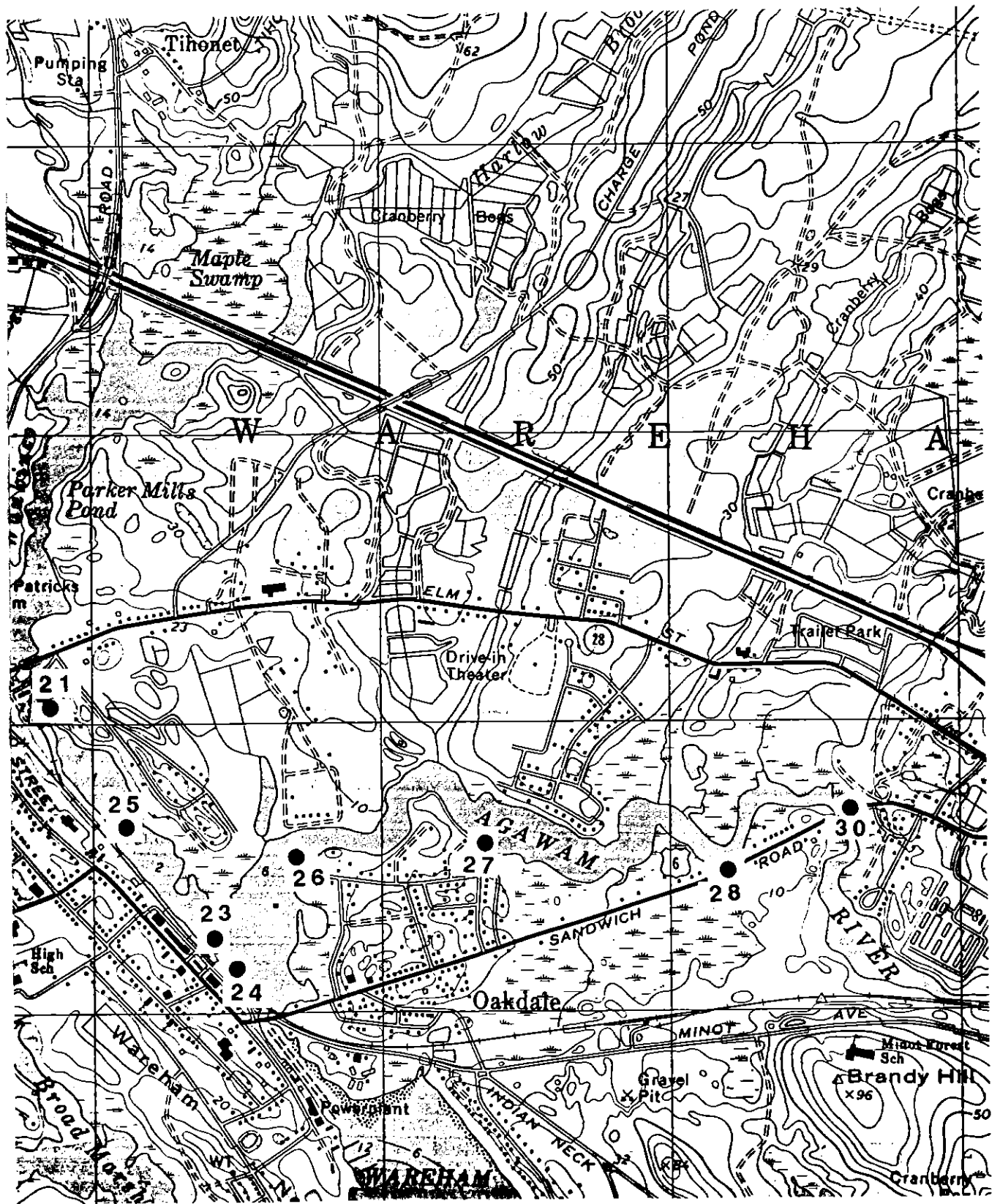
# WAREHAM RIVER – Water Quality Monitoring





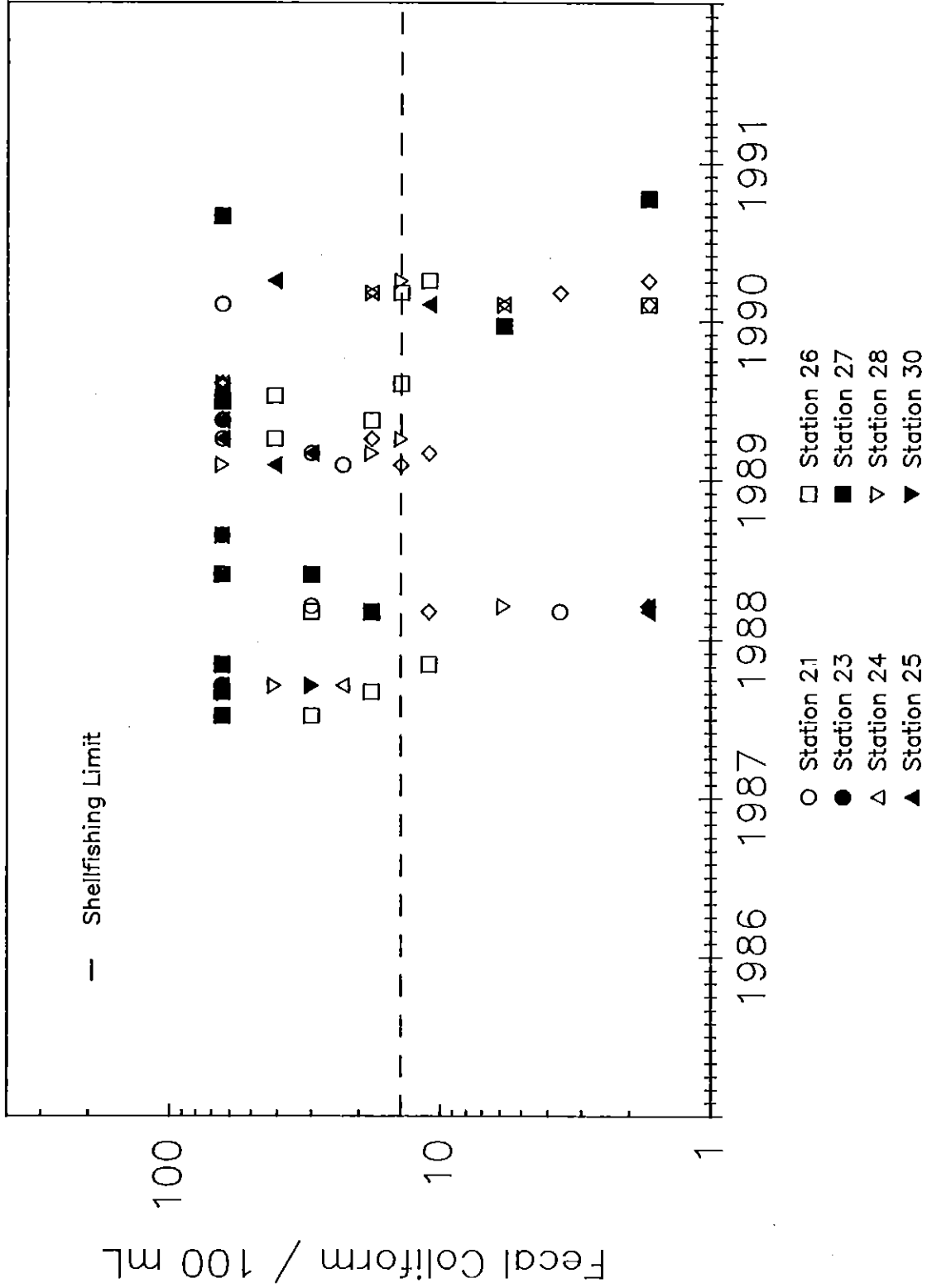
# AGAWAM RIVER

## Water Quality Monitoring Stations



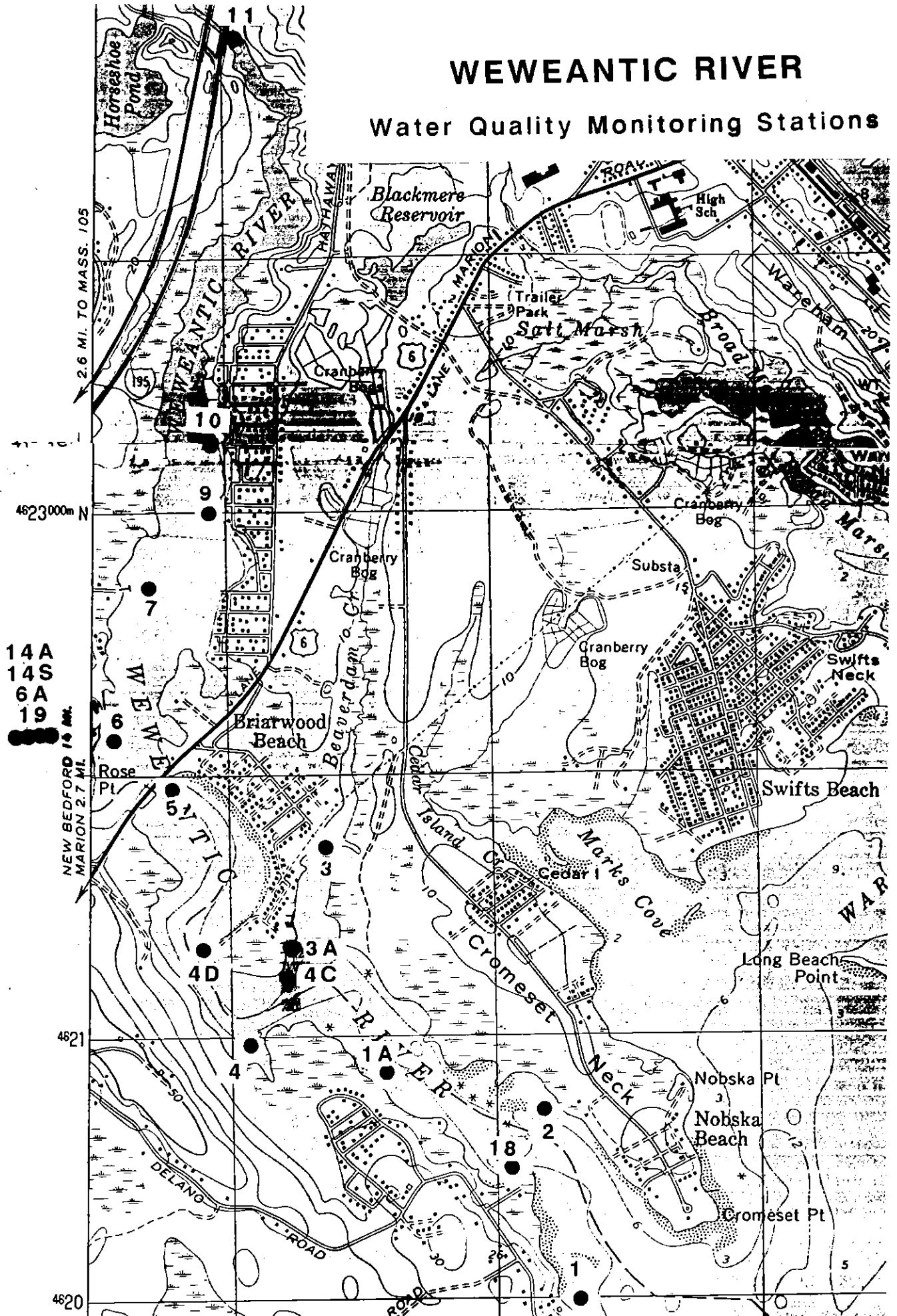
Source: Massachusetts Division of Marine Fisheries

# AGAWAM RIVER – Water Quality Monitoring



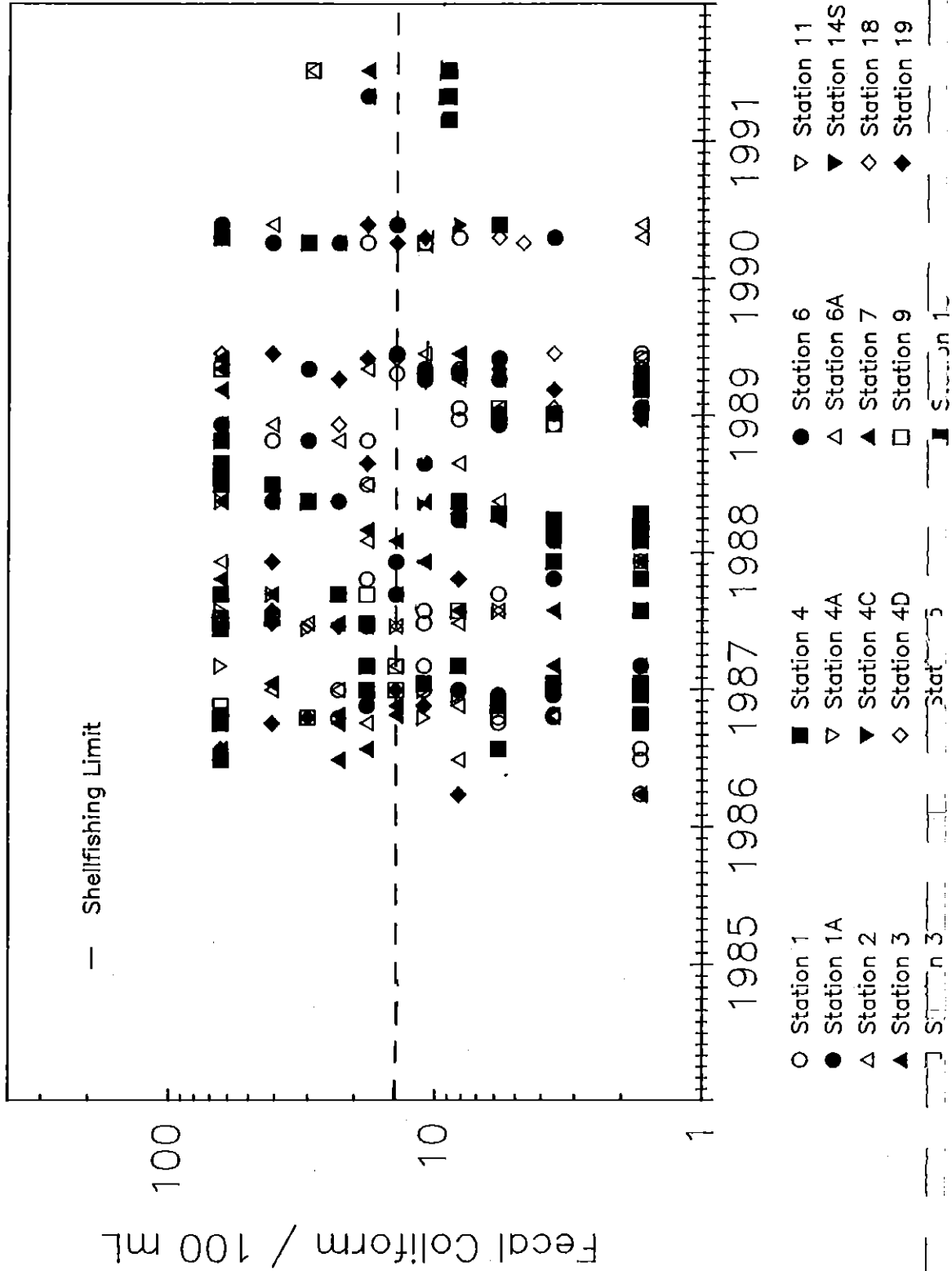
# WEWEANTIC RIVER

## Water Quality Monitoring Stations



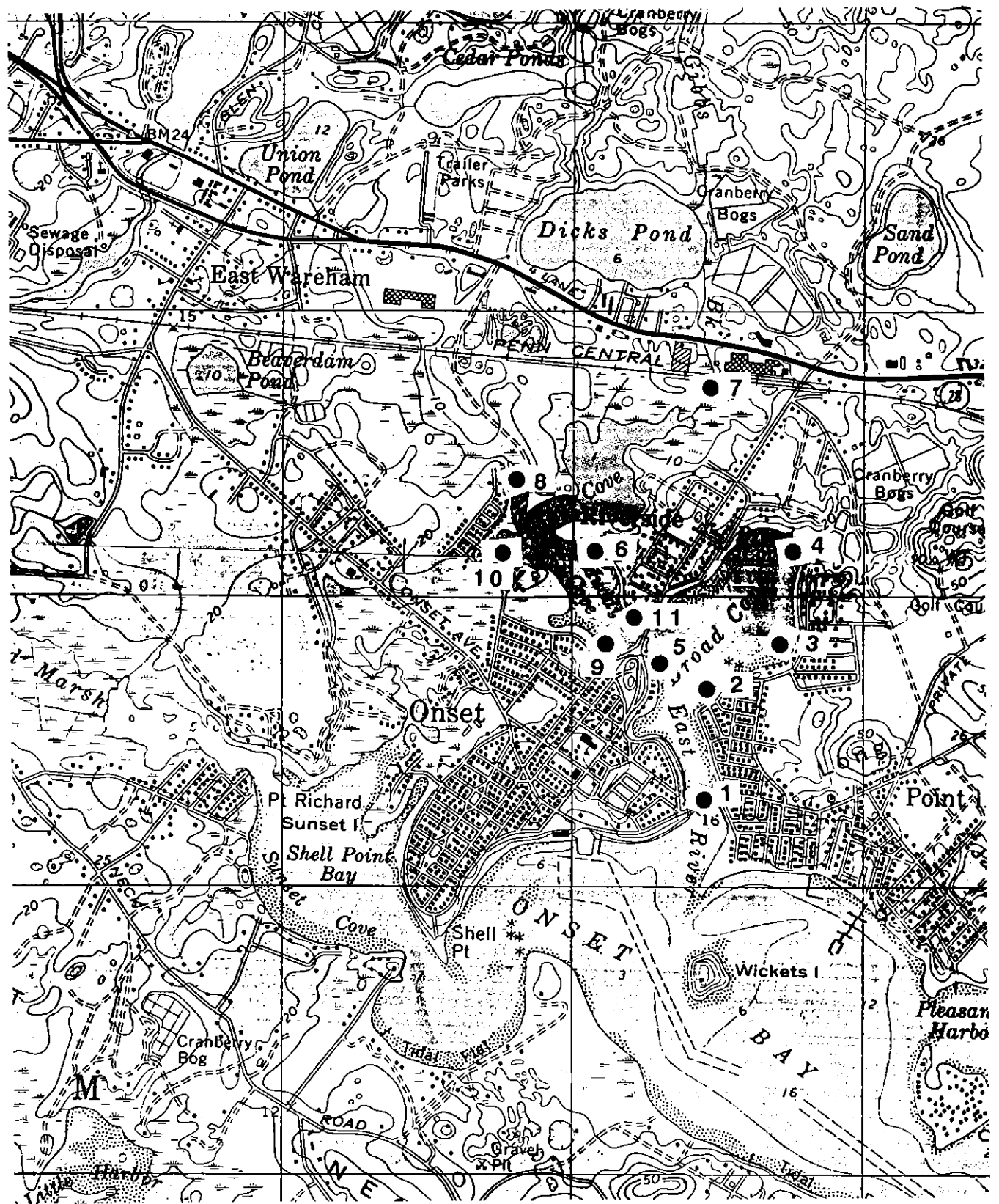
Source: Massachusetts Division of Marine Fisheries

# Wewantic River – Water Quality Monitoring



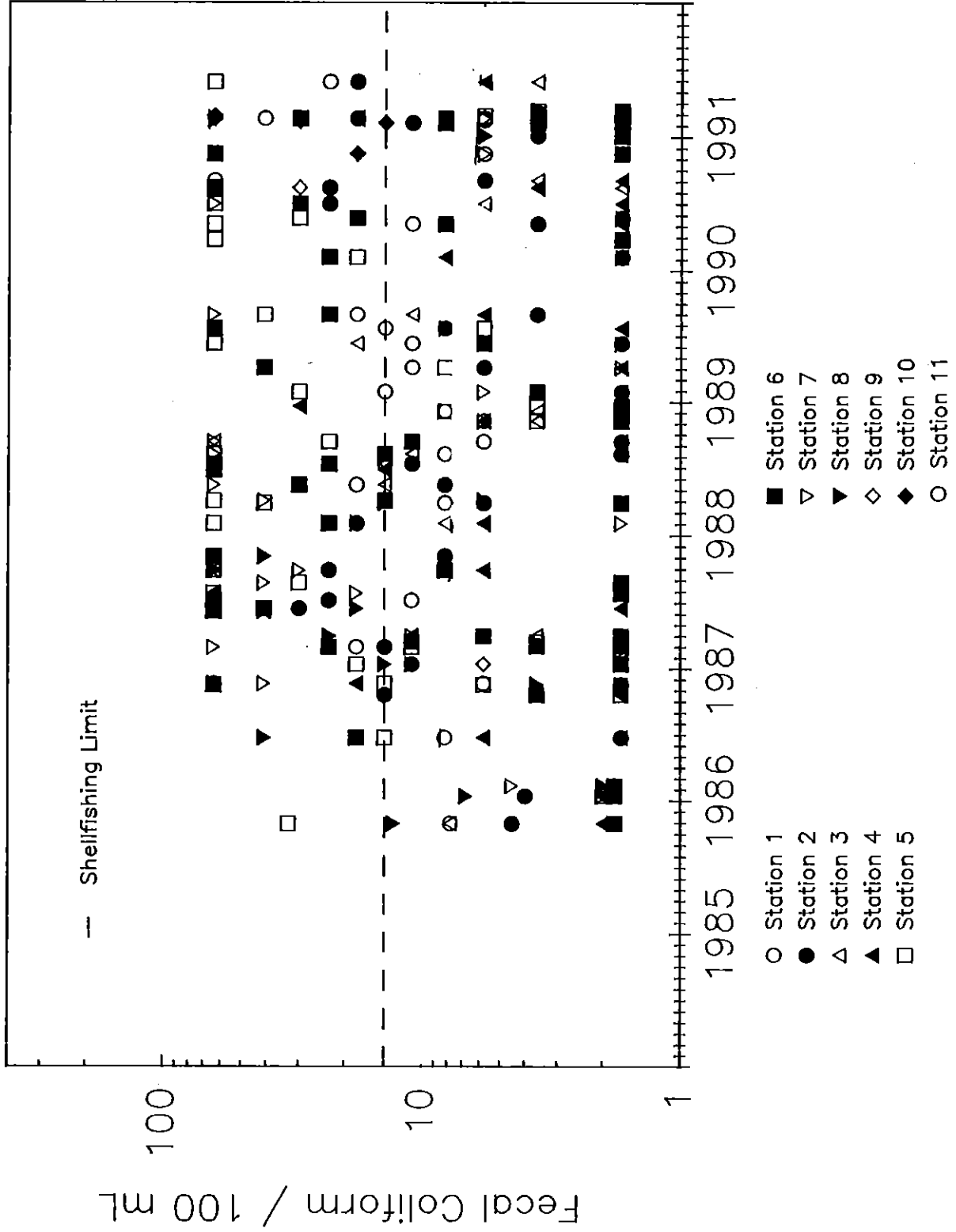
# BROAD/MUDDY COVES

## Water Quality Monitoring Stations



Source: Massachusetts Division of Marine Fisheries

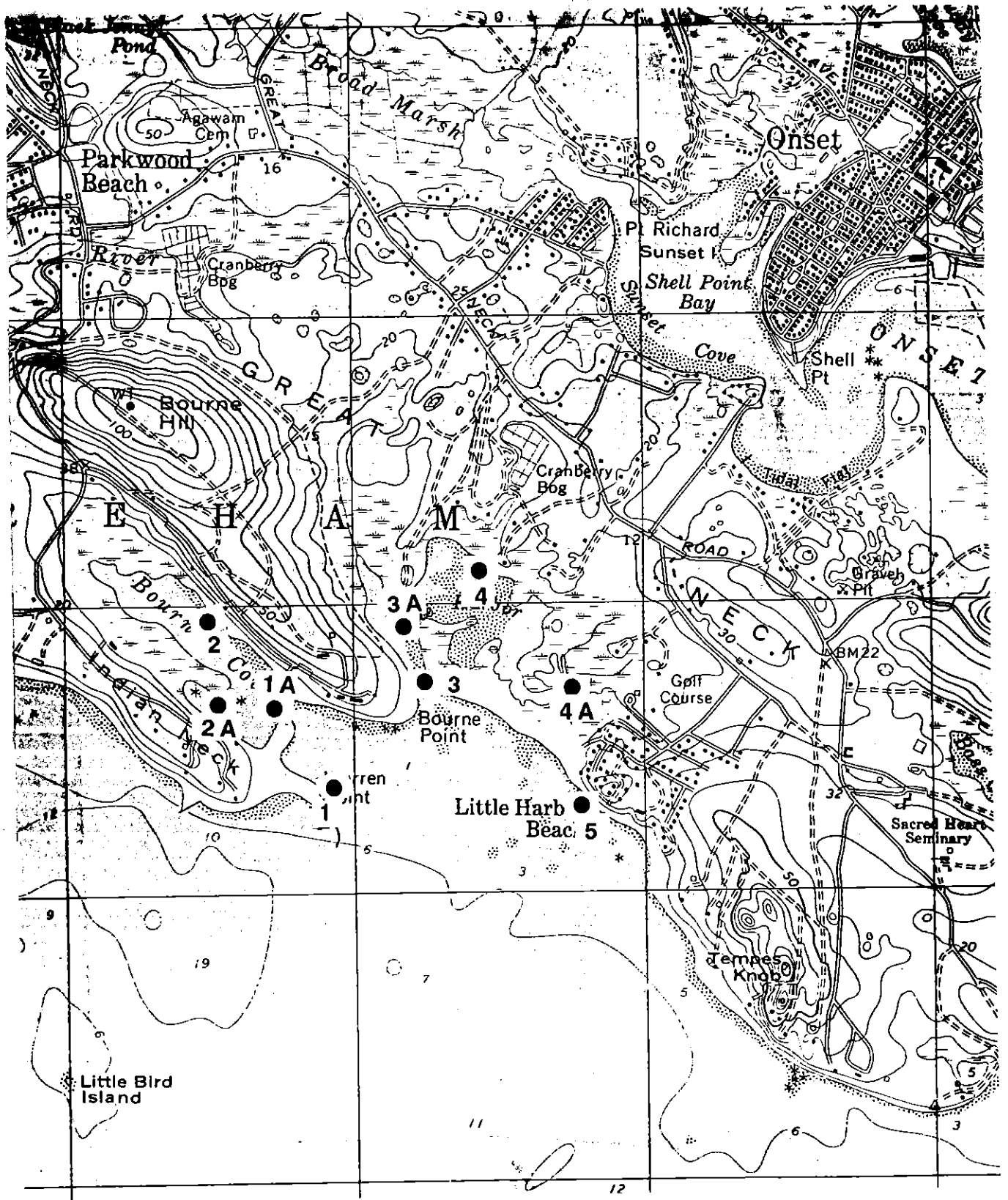
# Broad/Muddy Coves – Water Quality Monitoring



Source: Massachusetts Division of Marine Fisheries (Sawyer 1989)

# BOURNE COVE/LITTLE HARBOR

## Water Quality Monitoring Stations



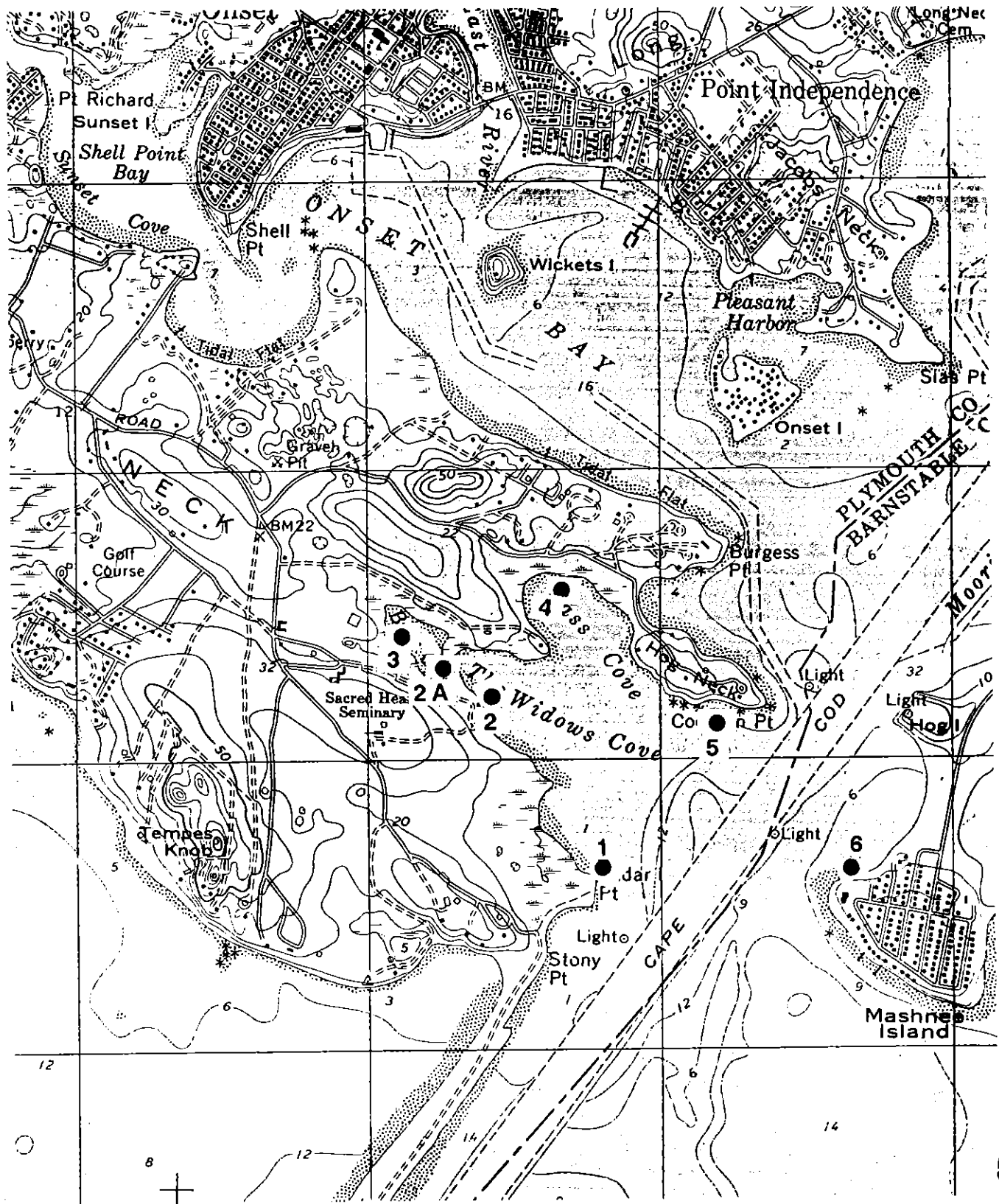
Source: Massachusetts Division of Marine Fisheries





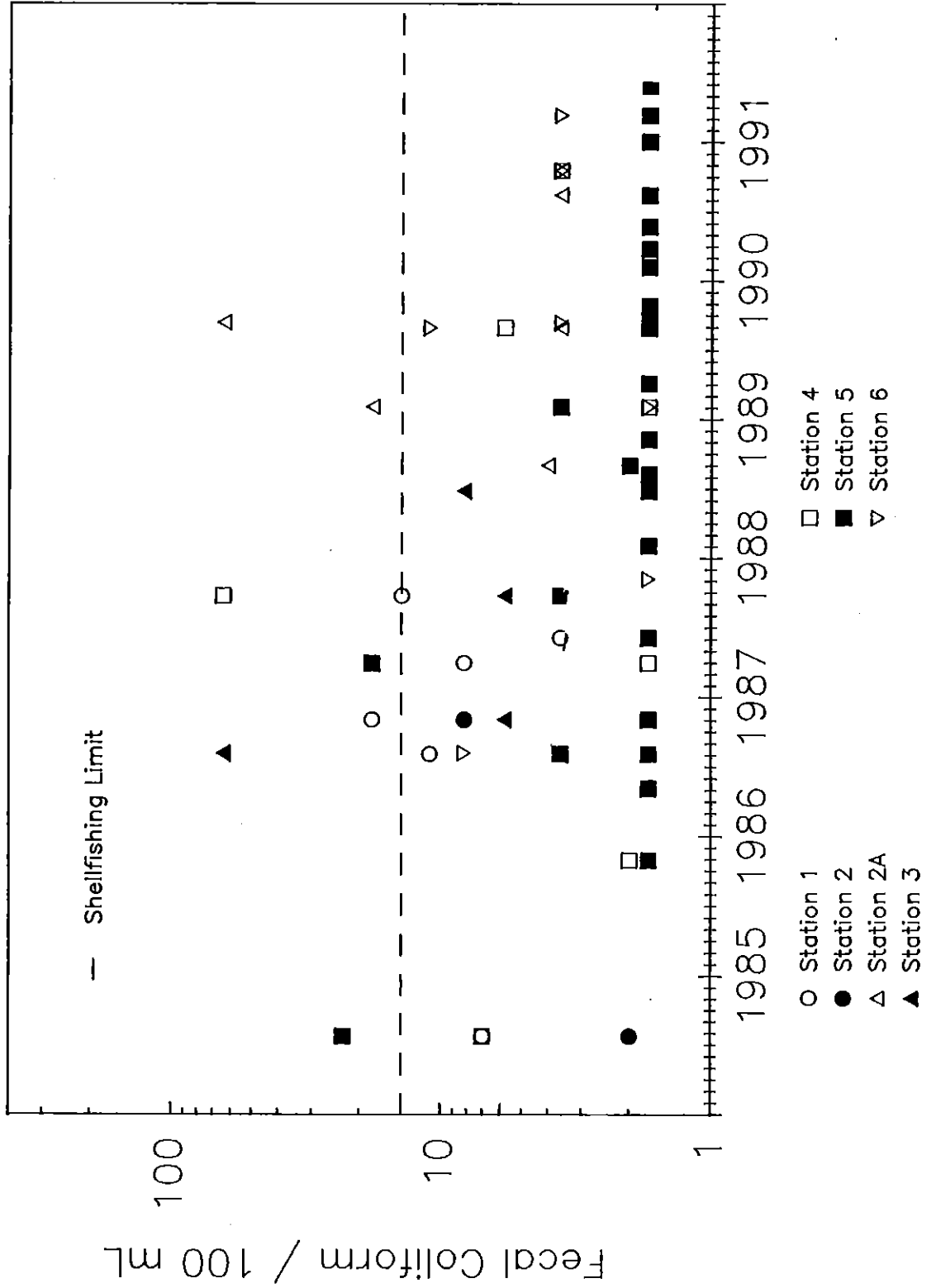
# THE WIDOWS COVE

## Water Quality Monitoring Stations



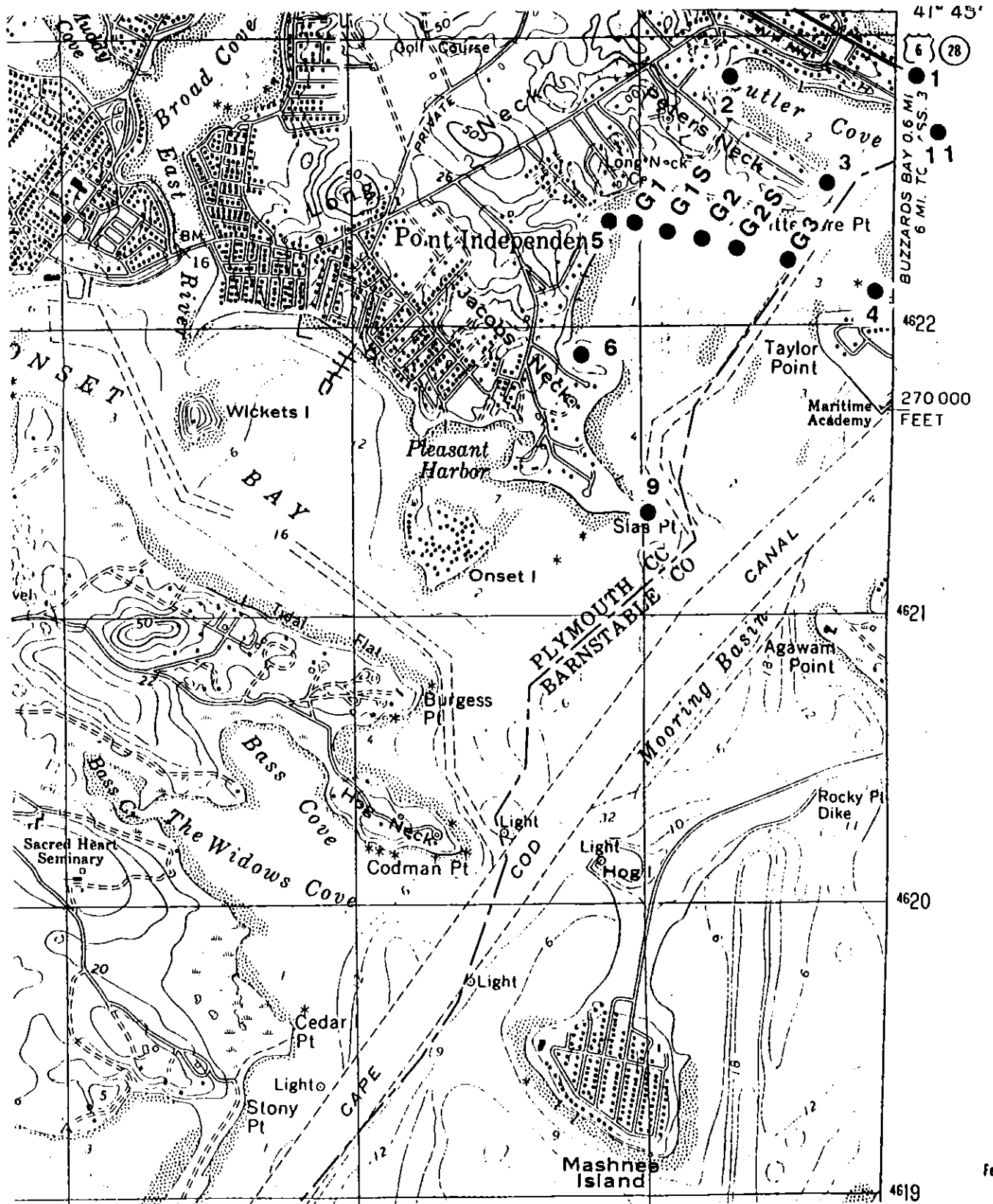
Source: Massachusetts Division of Marine Fisheries

# The Widows Cove – Water Quality Monitoring



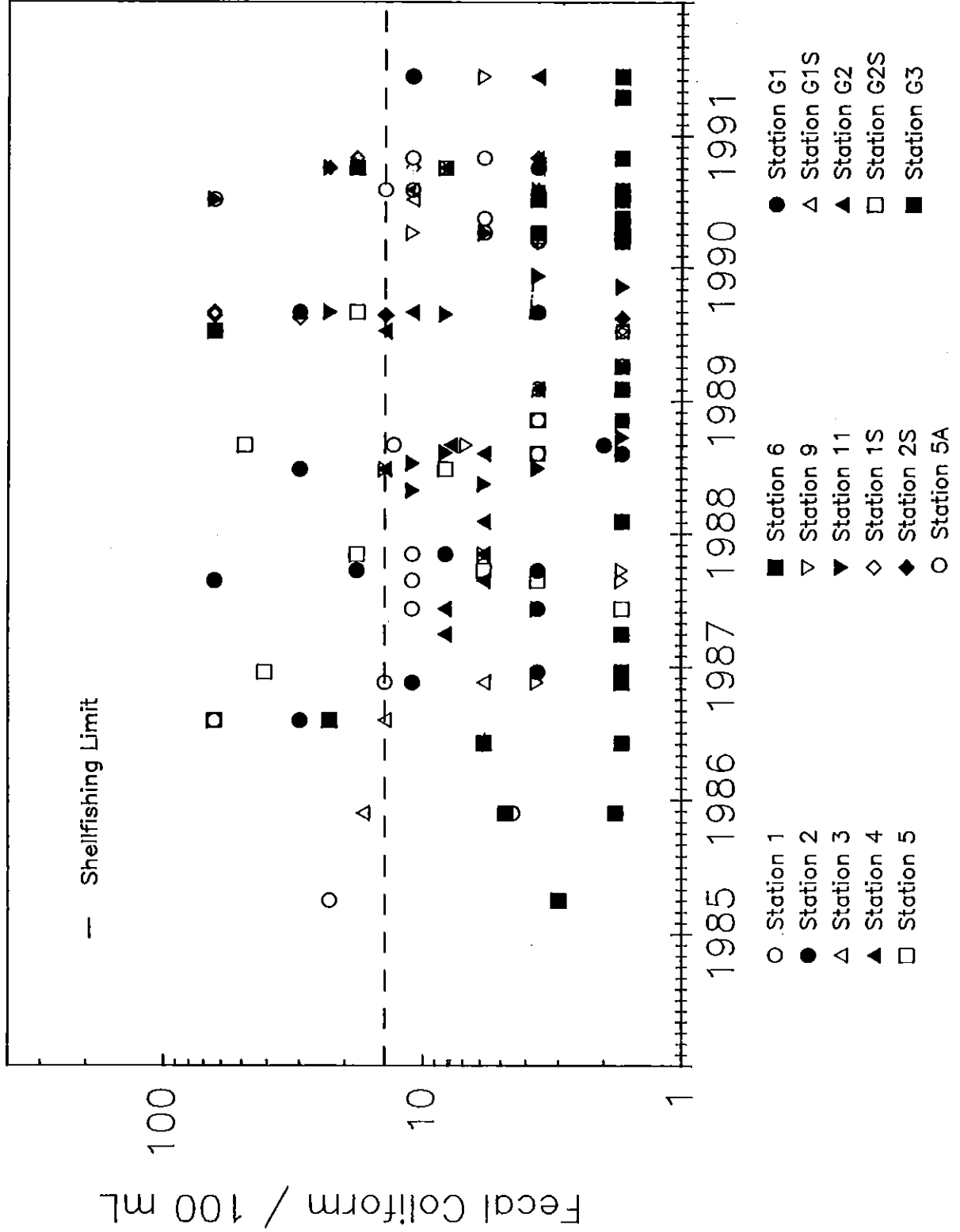
# BUTLER COVE

## Water Quality Monitoring Stations



Source: Massachusetts Division of Marine Fisheries

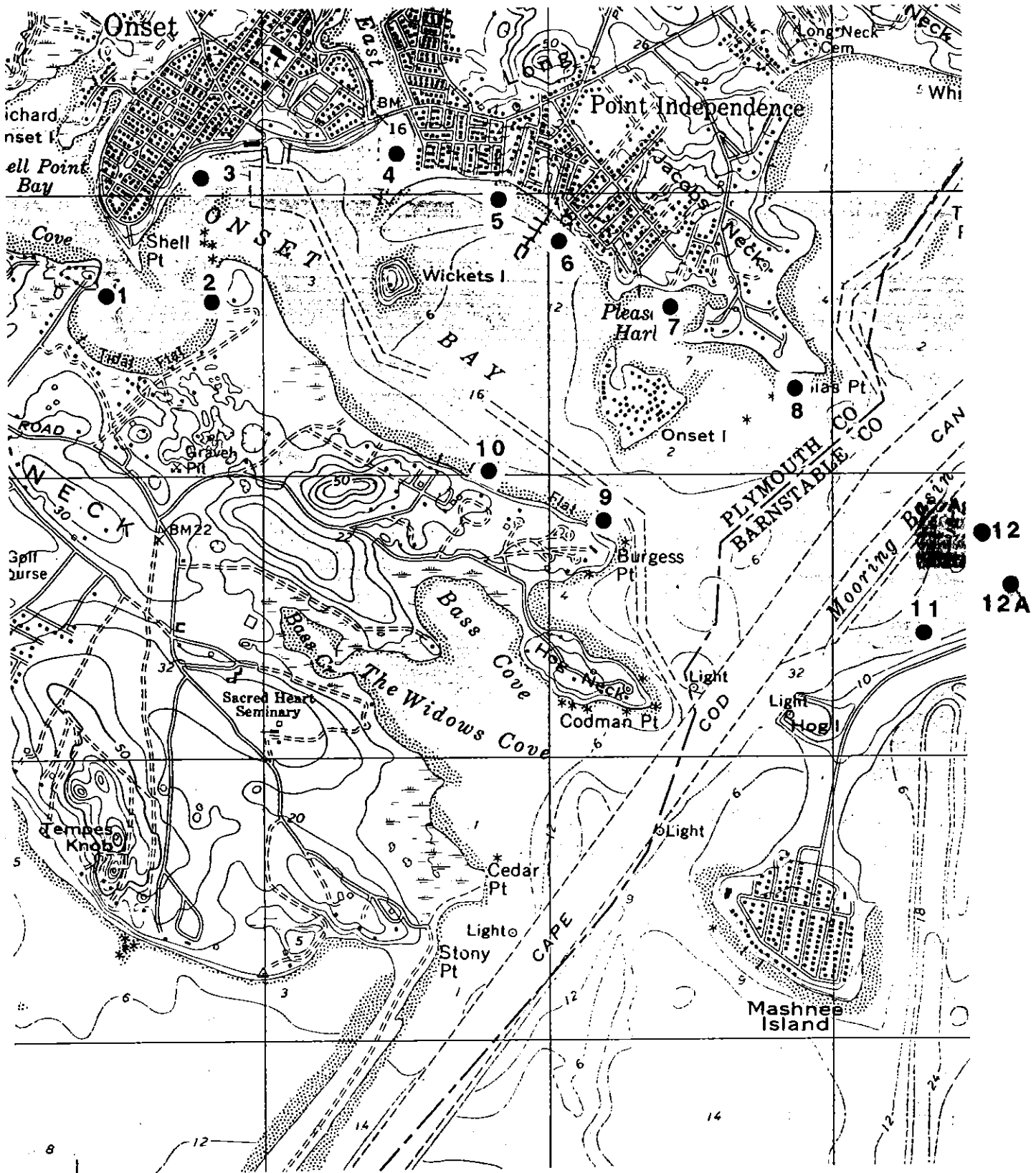
# Butler Cove – Water Quality Monitoring



Source: Massachusetts Division of Marine Fisheries (Sawyer 1989)

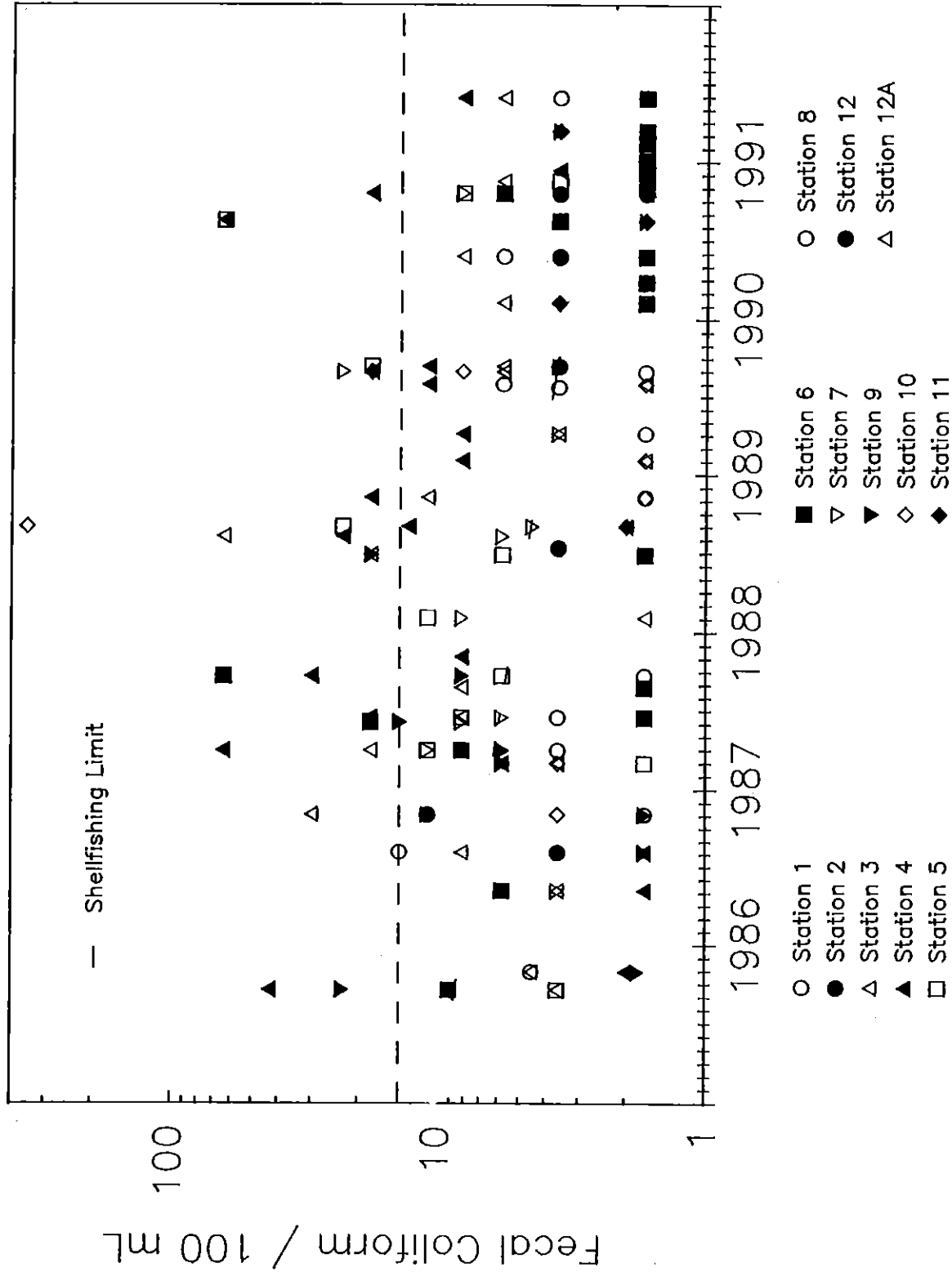
# ONSET BAY

## Water Quality Monitoring Stations



Source: Massachusetts Division of Marine Fisheries

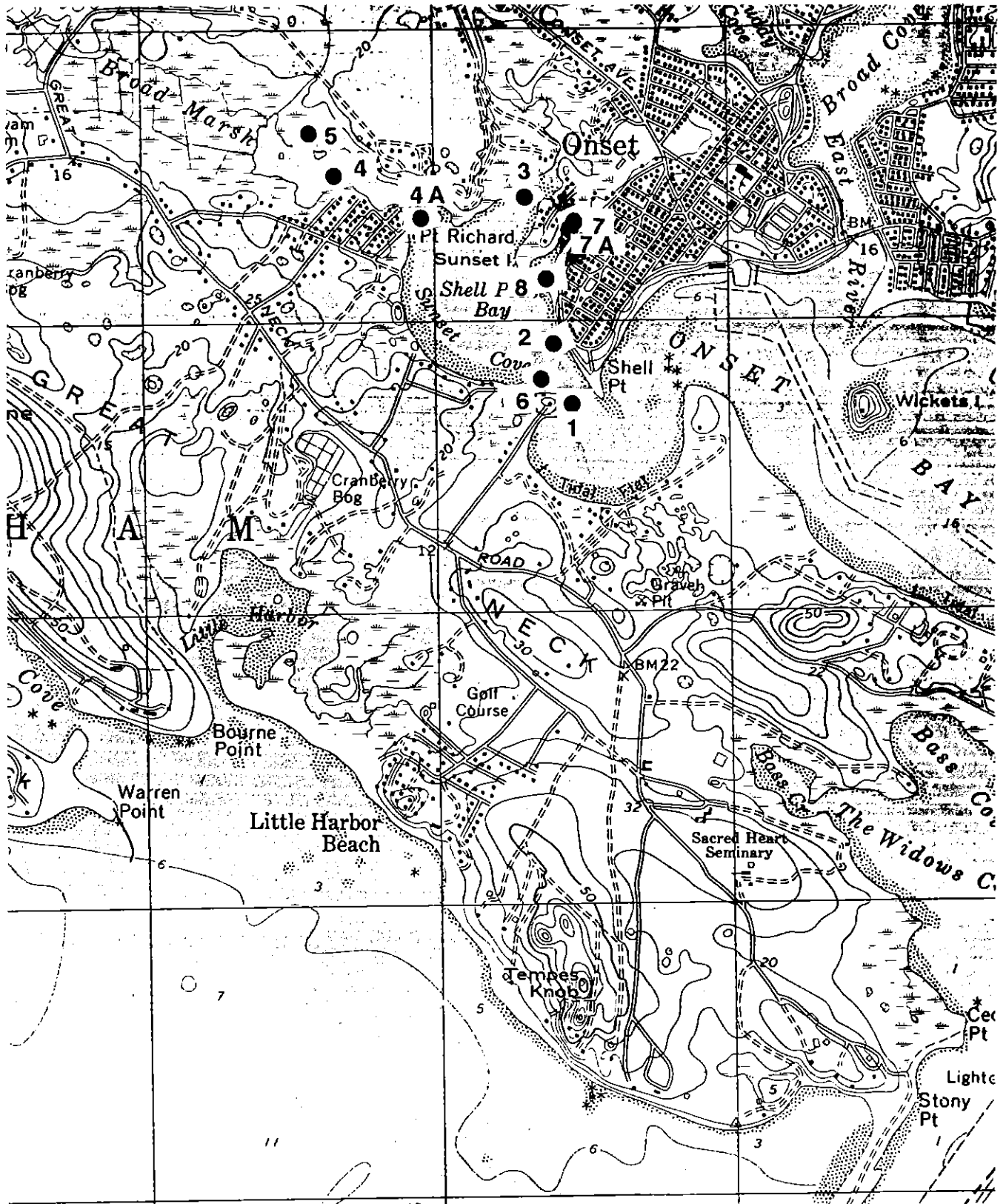
# ONSET BAY -- Water Quality Monitoring



Source: Massachusetts Division of Marine Fisheries (Sawyer 1989)

# SHELL POINT BAY

## Water Quality Monitoring Stations



Source: Massachusetts Division of Marine Fisheries





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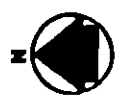
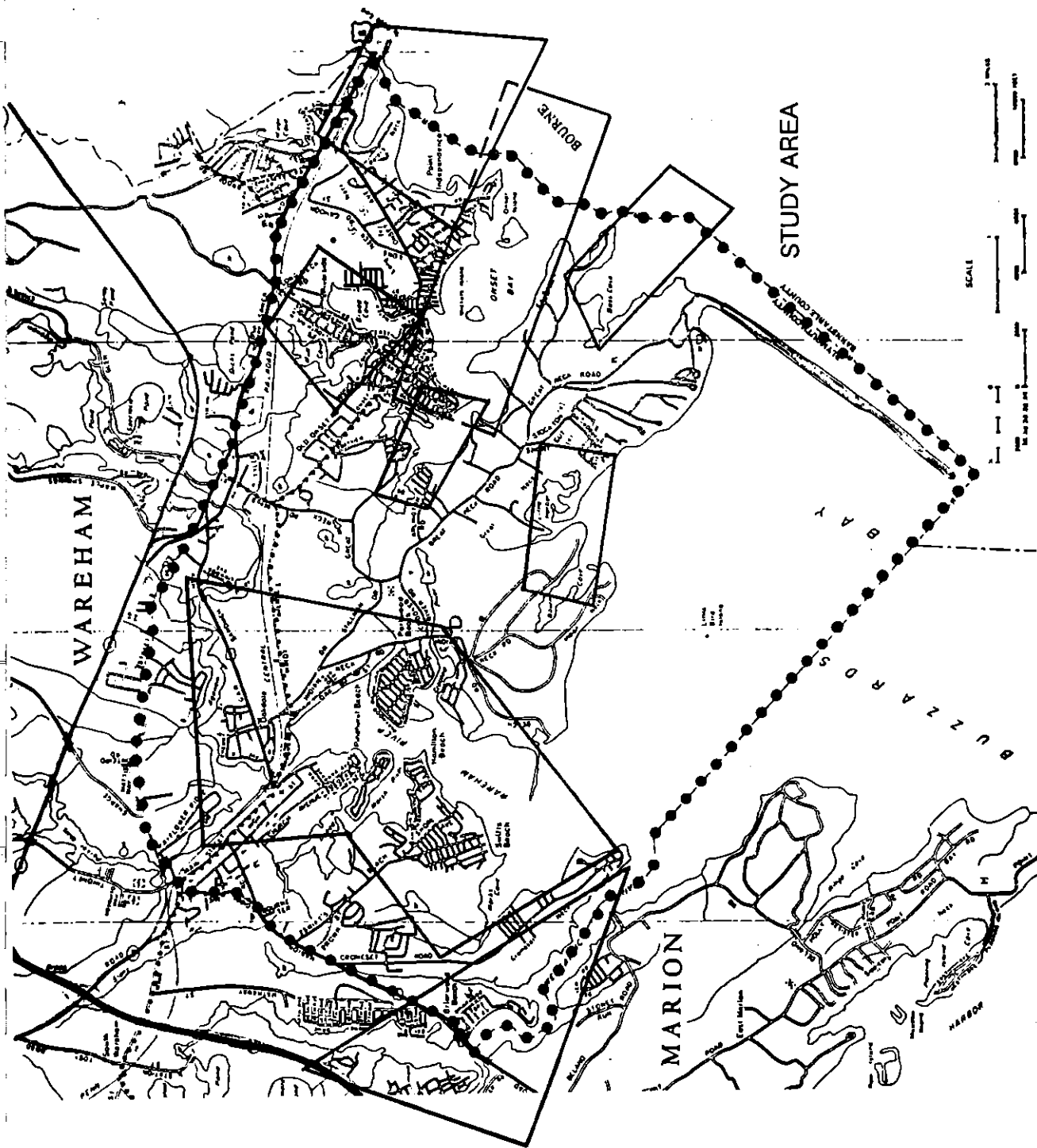
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**APPENDIX 2 - DMF INVENTORY OF STORM DRAINS AND  
POTENTIAL POLLUTION POINTS, INCLUDING 1992  
RE-EVALUATIONS OF WAREHAM RIVER AND ONSET BAY**

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Source: MDPW, General Highway Map, Regional Series

Appendix 2  
DMF FECAL COLIFORM  
SAMPLING AREAS

HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Reviewed By:

Town/City Wareham

Area: BB 36

Date of Survey: August 1989

Crew I Spalding

Polluted Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS	Amount
								Case Rainfall
1	#276 Cromesett Rd.	3 S/N 2"/19	3 D. (I)	N/A	2	No	19 Weepholes in the seawall.	
2	North of #276 Cromesett Rd.	I 10 S/N	3 D. (I)	1 varies	2	No	Runoff situation.	
3	Nobska Rd.	I 10 S/N	3 D. (I)	1 varies	2	No	Runoff situation	
4	Nobska Rd.	F 10 S/N 2'	3 D. (I)	1 varies	2	Yes	A cut in the bank due to runoff, next to Montgomery Res.	
5	North of Nobska Pt.	I 10 S/N	1 D. (I)	Tidal	2	Yes	A tidal creek north of Gleason Res.	
6	Marks Cove Rd.	I 1 S/N 18'	2 D. (I)	1 varies	2	Yes	A storm drain.	
7	North of Marks Cove Rd.	I 3 S/N 4"	1 D. (I)	2 5gpm	2	Yes	A black 4" PVC pipe that is under the rocks at first house north of Marks Cove Rd.	
8	North of Marks Cove Rd.	I 3 S/N 3"/2	3 D. (I)	N/A	2	No	2 Inactive weepholes in the seawall.	
9	Same area	I 3 S/N 6"/1	3 D. (I)	N/A	2	No	A 6" possible weephole in the seawall.	
10	End of Mattapoisett Rd	I 1 S/N 19"/1	2 D. (I)	1	2	Yes	A storm drain at the end of the road. Also runoff from the road.	

Source = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boats, 10, Other, S/N = Size of source and or number.

Source I.D. = Type 1 Storm Drain, 2 Pipe, 3 Farm, 4 Industry, 5 Septic system, 6 Roof Drain, 7 Animals, 8 Boats, 9, Other, S/N = Size of source and or number.

Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boats, 10, Other, S/N = Size of source and or number.

Flow = 1 other body water flow estimate, 2 Inflow, 3 Potential problem, 4 Possible problem, 5 Other than my source.

Potential = Potential to pollute, 1 In actual problem, 2 Possible problem, 3 Other than my source.

Source: Sawyer, Greg, Massachusetts Division of Marine Fisheries, Sanitary Survey Report of the Wareham River in the Town of Wareham B.36

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Area: BB-36

Date of Survey: AUGUST 189 Last Rainfall Amount

Town/City: Wareham

Reviewed By: \_\_\_\_\_

Crew: J. Spalding

Polluted Source	Location	Source I.D.	Source Status	Flow	Potential	Follow up	REMARKS
11	North of Matt. Rd.	I 3 S/P 5"/4	3 D. (I)	N/A	1	No	Possible weepholes that appear inactive.
12	End of Conahassett Rd.	I S/P	3 D. (I)	1	2	Yes	A storm drain which appears to be sanded in. The catch basin overflows down the road and into the woods.
13	Pine Tree Est. Creek	I S/P 10	1 D. (I)	2	3	Yes	A creek which drains the cranberry bog and Pine Tree Estates.
14	Eastern shore of Marks Cove.	I S/P 10	1 D. (I)	2 tidal	2	Yes	A tidal creek bordering Swifts Beach.
15	End of Barnes St.	I S/P 18"/1	2 D. (I)	1 Varies	2	Yes	A storm drain extending out into the water.
16	End of Pleasant St.	I S/P 4"/2	2 D. (I)	1 Varies	2	Yes	2 PVC pipes at the yellow house on Pleasant St. One of the pipes extends out onto the beach.
17	Corner of Bayview St and Wankinco St.	I S/P 10'	2 D. (I)	1 Varies	2	No	Road runoff.
18	West of Swifts Beach Rd.	I S/P 2"/2	3 D. (I)	1?	2	Yes	Weepholes which appear to be inactive.
19	Swifts Beach	I S/P 8	1 D. (I)	N/A		Yes	Large dog(s) whose owner regularly walks them on the beach.
20	Almeida Rd.	I S/P 10 20'	2 D. (I)	1 Varies	2	No	Road runoff.

Source = Number in survey:

Source I.D. = Type 1. Storm Drain, 2. STP, 3. Pipes, 4. Farm, 5. Industry, 6. Septic system, 7. Roof Drain, 8. Animals, 9. Boats, 10. Other, S/P = Size of source and or number.

Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.

Flow = 1 Wet weather, 2 Dry weather, flow rate ft. 3/min.

Potential = Potential to pollute = 1 In actual problem, 2 Possible problem, 3 Contributing source.

Source: Sawyer, Greg, Massachusetts Division of Marine Fisheries, Sanitary Survey Report of the Wareham River in the Town of Wareham (BB:36), August, 1989.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Area: BB 36  
Date of Survey: August 189

Town/City Wareham  
Crew J. Spalding

Class/Status: App./PIO.  
Amount

Pollut Source	Location	Source I.D.	Source Status	Flow	Potential	Follow up	REMARKS
21	East end of Swifts Beach	Type 10 5'	1 D. I.	2 tidal	2	Yes	A tidal creek-composite drainage.
22	End of Shore Rd	T 10 S/W 20'	2 D. I.	1 Varies		Yes	Runoff.
23	Swifts Neck	T 10 S/W 40'	1 D. I.	2 tidal		Yes	A tidal creek.
24	End of Worral and Reynolds.	T 10 S/W 12"	2 D. I.	1 Varies		Yes	A storm drain.
25	#36 Worral Ave.	T 3 S/W 3"	2 D. I.	1 Varies		Yes	The white house- yard and gutter runoff thru the weephole during a rainfall.
26	Angelo/Pilgrim Ave.	T 1 S/W 18"/1	2 D. I.	1 Varies		Yes	A storm drain which feeds the tidal creek and also 2 cuts in the bank due to runoff.
27	Guosett Hts.	T 10 S/W	1 D. I.	2 tidal		Yes	A tidal creek which is fed from the marsh extending into Swifts Beach.
28	East side of Point Rd.	T 3 S/W 4"/24	3/2 D. I.	1 Minimal		Yes	The first house on the right has app. 24 weepholes in the seawall. The 16th appears to be active.
29	West side of Point Rd.	T 3 S/W 4"/12	3 D. I.	N/A		Yes	12 Weepholes in the seawall, some are on the bank.
30	Pilgrim Ave. Ext.	T 10 S/W 2'/4	2 D. I.	1 Varies		Yes	4 Cuts in the banking. Road runoff.

Source = Number in survey;  
Source I.D. = Type 1 Storm Drain, 2 STP, 3 Pipes; 4 Fans, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boats, 10 Other, S/W = Size of source and or number.  
Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, 4 Direct flow, 5 Indirect flow.  
Flow = 1 Wet weather, 2 Dry weather, flow rate ft. 3/min.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

FOI

Town/City: Wareham  
Crew: J. Spalding

Area: 'BB 36  
Date of Survey: August '89

Class/status: App./Pro.  
Amount: Last Rainfall

Polluted Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
31	Broadmarsh Ave.	I S/V 12"	2 D. I.	1 Varies		Yes	A storm drain.
32	Broadmarsh Ave.	I S/V 12"	2 D. I.	1 Varies		Yes	A storm drain.
33	#21 Broadmarsh Ave.	I S/V 3	3 D. I.	N/A		Yes	2 PVC drainage pipes in the seawall for the yard 6 additional weepholes.
34	Broadmarsh River	I S/V 10	1 D. I.	2 tidal		Yes	Large shallow tidal area subject to decreased wa culation and waterfowl, some runoff, minor hou
35	#92 Circuit Ave.	I S/V 18"/1	2 D. I.	1 Varies		Yes	A storm drain
36	#32 Circuit Ave.	I S/V 18"/1	2 D. I.	1 Varies		Yes	A storm drain.
37	#8 Circuit Ave.	I S/V 18"/1	2 D. I.	1 Varies		Yes	A storm drain.
38	#146 Pinehurst	I S/V 10"/1	2 D. I.	1 Varies		Yes	A storm drain.
39	#132 Pinehurst	I S/V 16"/1	2 D. I.	1 Varies		Yes	A storm drain, also weepholes in the seawall.
40	#96 Pinehurst	I S/V 16"/1	2 D. I.	1 Varies		Yes	A storm drain.

Source = Number in survey;  
Source I.D. = Type I. Storm Drain, 2 S/P, 3 Pipes, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boat, 10. Detet, S/# = Size of source and or number.

Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.

Flow = 1 Wet weather, 2 Dry weather, flow rate (c. 1/min.

Potential = Potential to pollute = 1 No actual problem, 2 Possible problem, 3 Contributing source.

Source: Sawyer, Greg, Massachusetts Division of Marine Fisheries,  
Sanitary Survey Report of the Wareham River in the  
Town of Wareham (BB.36), August, 1989.

FORM 1  
MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Area: BB 36  
Date of Survey: August '89  
Class/Status: APP./PRN  
Amount

Polluted Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
41	#82 Pinehurst	S/S 5"/4	2	1?		Yes	Pipes in the seawall.
42	#80-#82 Pinehurst	I 1 S/S 18"/1	2 D. I.	1 varies		Yes	A storm drain.
43	#76 Pinehurst	I 1 S/S 10"/1	2 D. I.	1 varies		Yes	A possible storm drain.
44	Cottage St.	I 1 S/S 18"/1	2 D. I.	1 varies		Yes	A white PVC, possible storm drain.
45	Driftwood & Barnacle	I 1 S/S 18"/1	2 D. I.	1 varies		Yes	A storm drain.
46	Wareham River	I 10 S/S	1 D. I.	2 alot		Yes	The prohibited area of Wareham River flows into the Approved portion of BB36.
47	End of Parkwood Drive	I 1 S/S 16"/1	2 D. I.	1 varies		Yes	A storm drain.
48	Crooked River	I 10 S/S	1 D. I.	2 alot		Yes	The Crooked River (prohibited) Flows into Ware River.
49	#93 Edgewater	I 3 S/S 4"/1	2 D. I.	1 varies		Yes	A possible roof and patio drain. The runoff from the pipe does not appear to reach the water.

Source = 1. Number in survey; 2. Evidence of Discharge; 3. No evidence of Discharge; 4. Direct flow; 5. Indirect flow.  
 Source I.D. = Type 1. Storm Drain, 2. STP, 3. Pipes, 4. Farm, 5. Industry, 6. Septic system, 7. Roof Drain, 8. Animals, 9. Boats, 10. Other, S/N = Size of source and/or number.  
 Class = 1. No weather, 2. Dry weather, flow rate ft. 3/min.  
 Potential = Potential for pollution, 1. No actual problem, 2. Possible problem, 3. Actual problem.



MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Reviewed By: \_\_\_\_\_  
Town/City: Wareham/Pourine

Area: BB 40 Date of Survey: AUGUST 1989 Last Rainfall: \_\_\_\_\_  
 Class/Status: Approved/Prohibited Crew: J. Spalding

Location	Source L.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
2nd Avenue & South Blvd	S// 18"	2 (D) I.	1 varies	3	Yes	A storm drain which flows into Onset Bay.
4th Avenue & South Blvd.	S// 18"	2 (D) I.	1 varies	3	Yes	A storm drain which flows into Onset Bay.
Town Pier	S// 18"	2 (D) I.	1 varies	3	Yes	A storm drain east of the town pier.
Pt. Independence Bridge	S// 10 3'	2 (D) I.	1 varies	1	No	A cut in the bank to the west of the bridge which flows onto the beach but not into the bay.
Pt. Independence Bridge	S// 12"	3 (D) I.	1? varies	2	Yes	A possible storm drain which was not flowing when supplemental sampling occurred.
Northern end of the bay	S// 10	1 (D) I.	2 a lot	2	No	East River flows into the study area.
Pt. Independence Bridge	S// 3 3/4"/8	3 (D) I.	? 1	1	No	8 PVC pipes protruding thru the bridge support.
Pt. Independence Bridge	S// 1	3 (D) I.	? 2	2	Yes	A possible storm drain at the eastern end of the bridge.
Onset Ave. & Eagle Rock	S// 5"/1	3 (D) I.	? 1	1	Yes	A 5" pipe that enters the water from the building on the corner.
Corner of Rock St. & Eagle Way	S// 1 18"/1	2 (D) I.	1 varies	3	Yes	A storm drain which flows into the study area.

Number in Survey: \_\_\_\_\_  
 D. = Type 1 Storm Drain, 2 S//, 2 Pipes, 4 Farm, 2 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Ponds, 10 Other, S// = Size of source and or number.  
 Status: 1 - Large, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 Source: Sawyer, Greg, Massachusetts Division of Marine Fisheries, Sanitary Survey Report of Onset Bay in the Towns of Bourne and Wareham (BB-40), August, 1988a.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Reviewed by:

Town/City: Wareham/Bourne

Area: BB 40

Crew: J. Spalding

Class/Status: Approved/ Prohibited

Amount

August 1989

Date of Survey:

Source I.D. Type	Source I.D. Size	Source Status	Flow	Potential	Follow up	REMARKS
P.I.Y.C.	10 size 79	N/A	tidal	2	NO	Extensive wrack buildup at the yacht club.
P.I.Y.C.	1 3/4 18"/1	(D) I.	varies	3	Yes	A storm drain entering thru the bulkhead.
P.I.Y.C.	1 3/4 12"/1	(D) I.	varies	3	Yes	A storm drain south of the boat ramp.
Onset Bay Marina	10 5/8	(D) I.	varies	3	Yes	A swampy area which may be fed by a storm drain.
Onset Bay Marina	3 5/8 4"/1	(D) I.	1 varies	3	Yes	A 4" white pipe at the end of the boat ramp.
Onset Bay Marina	3 5/8	(D) I.	?	1	Yes	A pipe at the end of the blue building protruding thru the wall at Onset Bay Marina.
Prospect and Bay Ave.	3 5/8 2"/1	(D) I.	1 varies	1	Yes	A storm drain.
Woodbury Condo	1 5/8 18"/1	(D) I.	1 varies	3	Yes	A storm drain.
Butlers Cove	10 5/8	(D) I.	2 a lot	2	No	Butlers Cove (BR43) flows into the study area.
Agawam Point	6 5/8	(D) I.	N/A	2	Yes	The septic system is within 40' of the high tide line.

Source - Under in survey.  
 Source I.D. - Type 1. Storm Drain, 2. S.P., 3. Pipes, 4. Farm, 5. Industry, 6. Septic system, 7. Roof Drain, 8. Animals, 9. Darts, 10. Other, S/H = Size of source and or outlet.  
 Source status - 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 Source: Sawyer, Greg, Massachusetts Division of Marine Fisheries, Sanitary Survey Report of Onset Bay in the Town of Bourne and Wareham (BB-40), August, 1989a.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Area: BB 40

Date of Survey: August 1989 Last Rainfall: Class/status: ~~Approved~~/Prohibited

Town/City: Wareham/Bourne Crew: J. Spalding

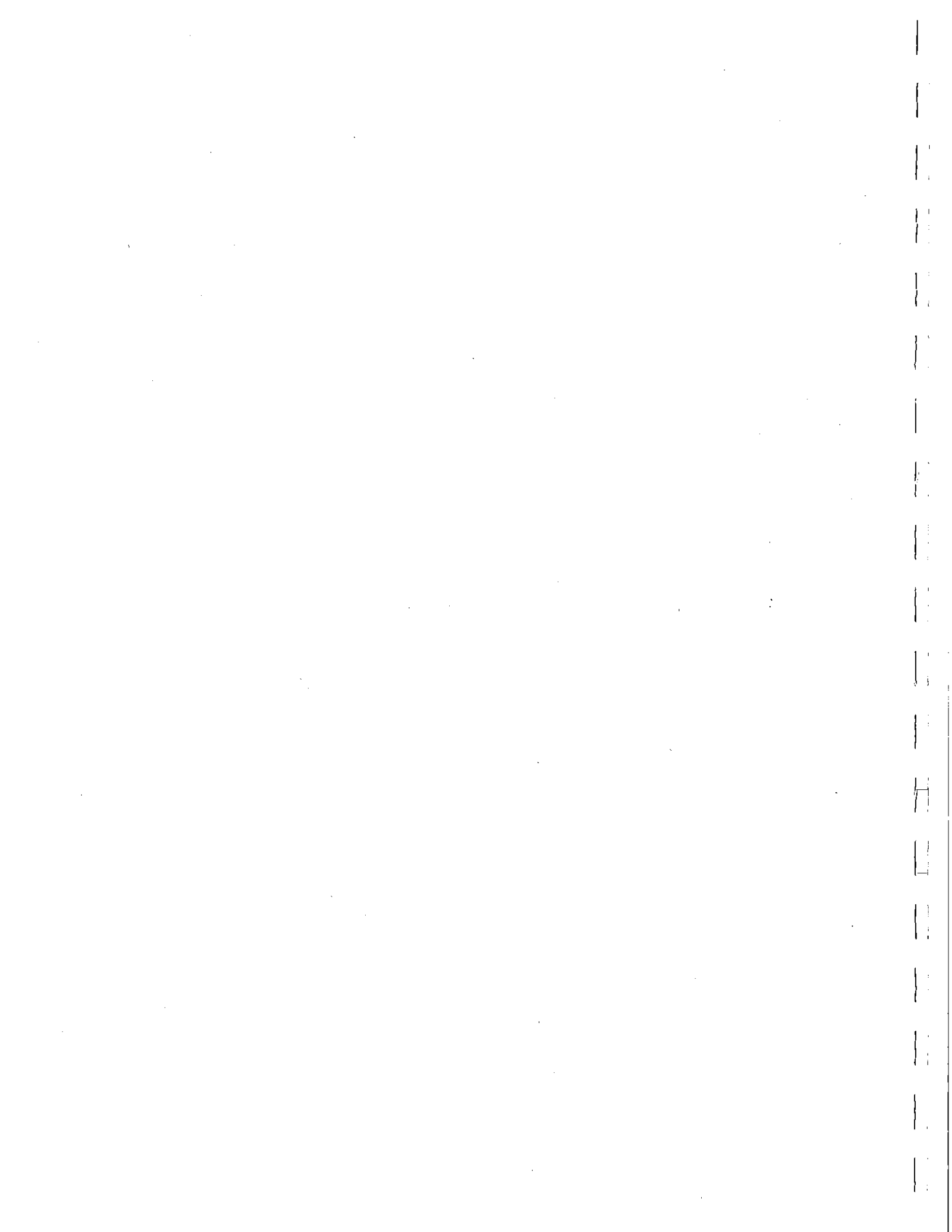
Amount

Location	Source I.D.	Source Status	Flow	Potential	Follow up	REMARKS
1 Agawam Point	Type 3 5/12/7 4"/2	1 D. (I.)	2 pp 40 GPM	1	NO	2 PVC pipes that circulate water to the salt water tanks in the building.
2 2nd house south of Agawam Point	I 3 S/1 5"/1	3 D. (I.)	N/A	1	Yes	A 5" pipe on the beach in front of the white house with a red roof.
3 End of Spindrift Lane	I 1 S/1	3 D. (I.)	N/A	1	NO	A possible storm drain which appears to be sanded in.
4 Mashnee Rd.	I 3 S/1 24"/1	1 D. (I.)	2 tidal?	3	Yes	A culvert which exchanges tidals waters and may be spring fed.
5 Widows Cove	I 10 S/1	1 D. (I.)	2 alot	1	NO	Widows Cove flows into the study area.
6 Sunset Cove	I 10 S/1	1 D. (I.)	2 alot	2	NO	Sunset Cove flows into the study area.

Source = Harbor in survey; 1 = Type 1 Storm Drain, 2 S/D, 3 Pipes, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Docks, 10 Other, S/H = Size of source and or number.  
 Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 Source: Sawyer, Greg, Massachusetts Division of Marine Fisheries, Sanitary Survey Report of Onset Bay in the Towns of Bourne and Wareham (BB-40), August, 1989a.

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**1992 REEVALUATIONS  
OF WAREHAM RIVER (BB:36)  
AND ONSET BAY (BB:40)**



RE-EVALUATION OF  
ONSET BAY IN THE TOWNS OF  
WAREHAM AND BOURNE, BB:40

DATE: August 5, 1992

By: Greg Sawyer

Date of Last Sanitary Survey: August 1989

Recommendation of last Sanitary Survey: Portions of Onset Bay should be classified as "SEASONALLY APPROVED" and "RESTRICTED".

Date of last Reappraisal: None

Current Status of Area: "APPROVED", "SEASONALLY APPROVED" and "RESTRICTED" (Figure 1).

Predominant Land Use: The predominant land use was residential with the exception of the town piers which provided docking space for commercial boats, Point Independence Yacht Club and Onset Bay Marina (Figure 2). Point Independence Yacht Club and Onset Bay Marina were located along the eastern shoreline and consisted of a total of nearly 200 boats (slips and moorings). Two large beaches were located along the northern shoreline on either sides of the town pier. Additional beach areas were located along the eastern shoreline, north of the Point Independence Yacht Club, and along Mashnee Island Road. Wicketts Island was situated at the northern end of Onset Bay while Onset Island was located southwest of Pleasant Harbor. Wicketts Island has been uninhabited since a fire in the early 1980's destroyed the only house. Several houses on Onset Island had to be rebuilt after being destroyed by Hurricane "BOB" in August 1991.

Most of the Wareham shoreline was moderately or densely populated while the Bourne shoreline was sparsely populated or undeveloped. The densest concentration of houses occurred along Wareham's northern and eastern shorelines from Shell Point to Pleasant Harbor (Figure 1). That particular area was also connected to the Wareham Wastewater Treatment Facility (Figure 3). Approximately 25% of the houses along the shoreline were seasonally occupied.

Shellfish Resources: The area is commercially and recreationally fished for soft shell clams (Mya arenaria), quahogs (Mercenaria mercenaria) and american oysters (Crassostrea virginica).

Summary of sampling results:

Seasonal Data  
(November 1 - April 30)

STATION #	LOCATION	GEOMETRIC		
		MEANS	10%>43	#SAMPLES
3	South St. & 4th Blvd.	1.6	0.0	15
4	Onset Avenue Bridge	1.7	0.0	15
5	Pt. Independence Y.C.	1.0	0.0	15
6	Bay Street	1.0	0.0	11
14	N. Side of Wicketts Island	3.6	0.0	1

(Overall Data)

STATION #	LOCATION	GEOMETRIC		
		MEANS	10%>43	#SAMPLES
1	Over Jordan Road	1.7	0.0	15
2	Lydia Island Road	2.3	0.0	12
3	South St. & 4th Blvd.	2.0	0.0	20
4	Onset Avenue Bridge	3.1	5.0	20
5	Pt. Independence Y.C.	1.9	10.0	20
6	Bay Street	2.0	6.6	17
7	Tinkers Lane	2.2	0.0	15
10	Boat House Drive	2.0	0.0	15
11	Mashnee Road	1.3	0.0	15
12	Closure Line @ Mashnee	1.7	0.0	9
12A	Culvert @ Mashnee Road	2.0	0.0	7
13	S. Side of Onset Island	1.0	0.0	3
14	N. Side of Wicketts Is.	5.6	0.0	4

Stations #12, 12A, 13 and 14 were recently added to properly assess the overall water quality of Onset Bay. Stations #3, 4, 5, 6 and 14 were located within the "SEASONALLY APPROVED" portion of Onset Bay while station #12A was located within the "RESTRICTED" area along the Bourne shoreline. (refer to Figure 4 for the location of the water quality sampling stations).

Summary of Shoreline Survey:

The actual/potential pollution sources of Onset Bay included nine storm drains (p.s.'s #1-3, 5, 8, 10 and 12-14) (Figure 5, Form 1) which were located within the seasonal portion of Onset Bay. A marsh drainage (p.s. #24), which discharges thru a 24" culvert (Figure 5), was located within the restricted portion of Onset Bay along the Bourne shoreline. According to 1991 data, Point Independence Yacht Club and Onset Bay Marina (Figure 1, Forms 2 and 3) consisted of 196 boats (slips and moorings). Four additional mooring fields provided mooring capacity for another 152 boats (Figure 6, Forms 4-7). According to the Wareham Harbormaster, the marinas, yacht clubs and mooring areas had approximately 30% - 40%

*Incorrect*  
 OBM 34 Moorings, 155 slips, 90 valet slips  
 PIYC 57 Moorings, 57 slips  
 = 393



less boats in 1992 than in 1991. This may be due to present economic conditions and Hurricane "BOB" which devastated the northeast coastline in August 1991.

Comments:

The densest populated area along the Wareham shoreline was connected to town's Wastewater Treatment Facility. It would appear that stormwater runoff was the major transport of fecal coliform bacteria entering the seasonal area of Onset Bay based on:

- a) the location of the houses and their septic systems throughout the remaining portion of shoreline to the high tide line;
- b) the number of pumpout facilities (4) available to the boaters;
- c) the formation of a federal no discharge zone throughout Wareham waters;
- d) the number of storm drains within the seasonally approved area;
- e) the excellent water quality throughout the approved portion of Onset Bay.

Conclusion:

None of the thirteen water quality stations exceeded the 10% over 43 fc/100 ml nor the geometric means criteria. Stations #12, 12A, 13, and 14 were recently added to the Divisions routine monitoring of Onset Bay and had not been sampled fifteen times. With the exception of the stormdrains located along the shoreline from Shell Point to Pleasant Harbor (Figure 5, Form 1) the overlying water quality meets "APPROVED" criteria. It is recommended that the Town of Wareham collect water samples, from the stormdrains from May 1 - October 31, to evaluate the water quality for possible upgrading of classification. Until that time and subsequent verification by the Division of Marine Fisheries, the seasonal closure should remain.

The culvert on Mashnee Island, currently within the restricted area, should continue to be sampled during adverse conditions in order to potentially re-classify that area to "APPROVED".





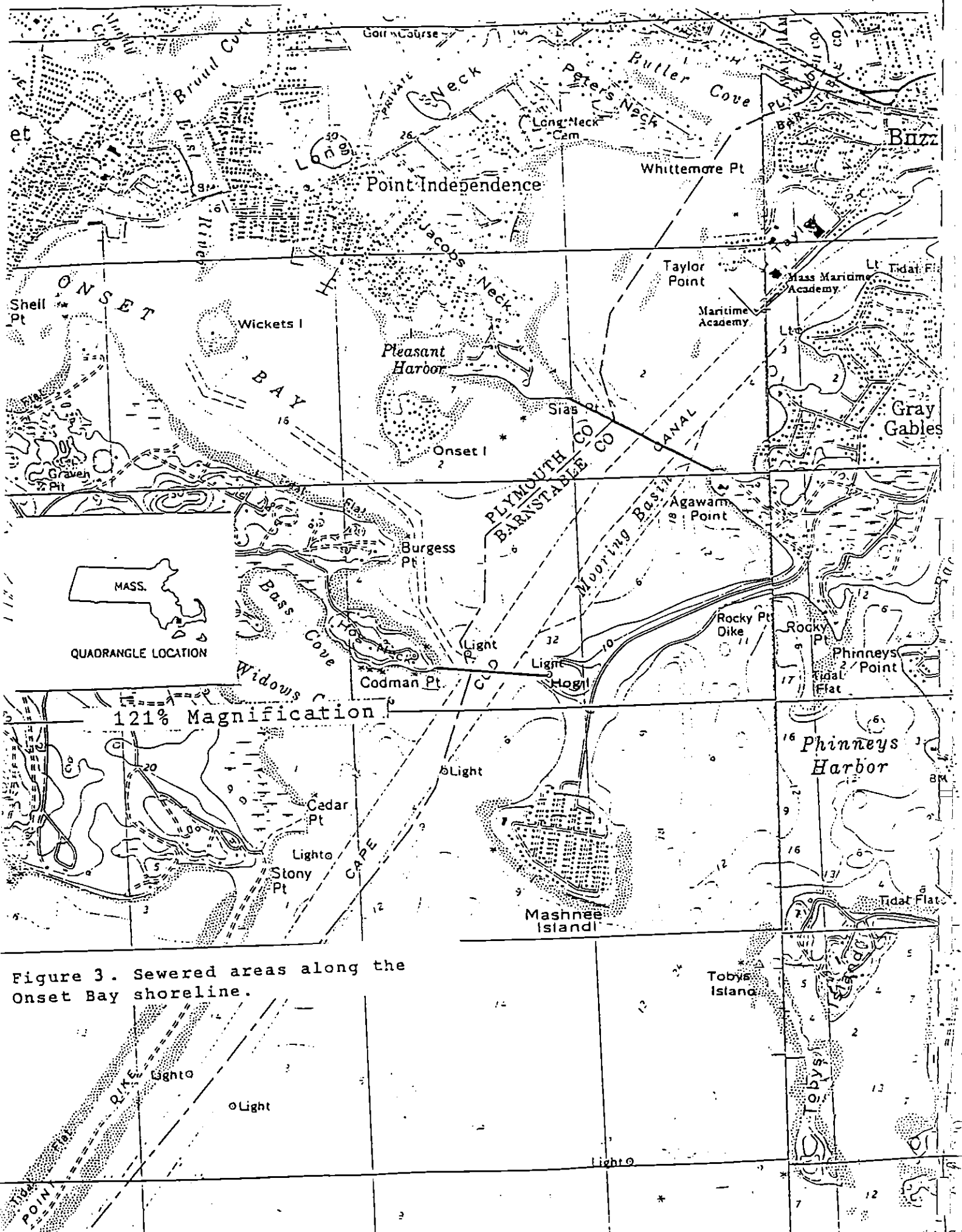


Figure 3. Sewered areas along the Onset Bay shoreline.

**WATER QUALITY MONITORING STATIONS**

1. Over Jordan Road
2. Lydia Island Road
3. South St. & 4th Blvd.
4. Onset Avenue Bridge
5. P.I.Y.C.
6. Bay Street
7. Tinkers Lane
10. Boat House Drive
11. Mashnee Road
12. Closure @ Mashnee Road
- 12A. Culvert @ Mashnee Road
13. South Side of Onset Island
14. North Side of Wicketts Island

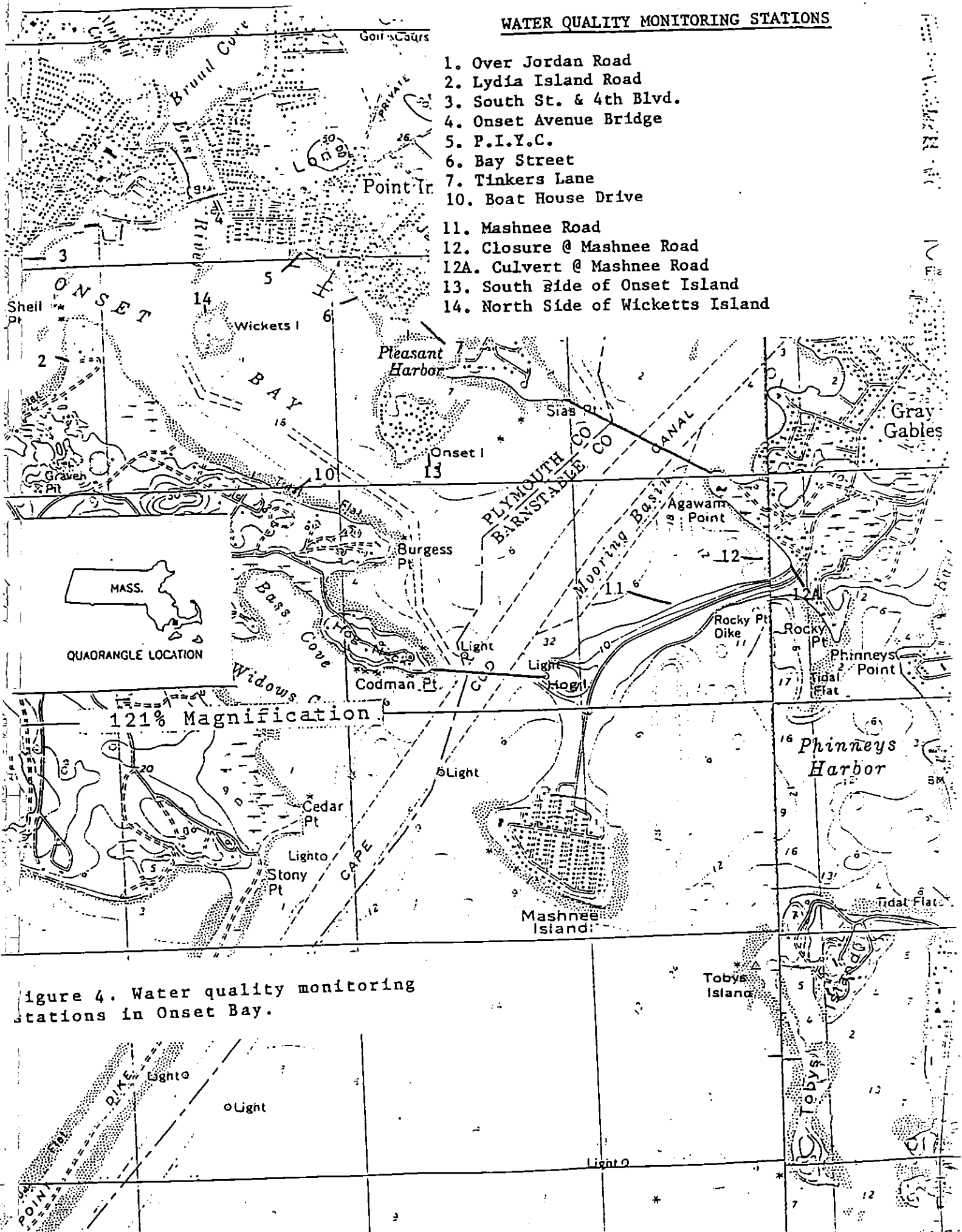


Figure 4. Water quality monitoring stations in Onset Bay.

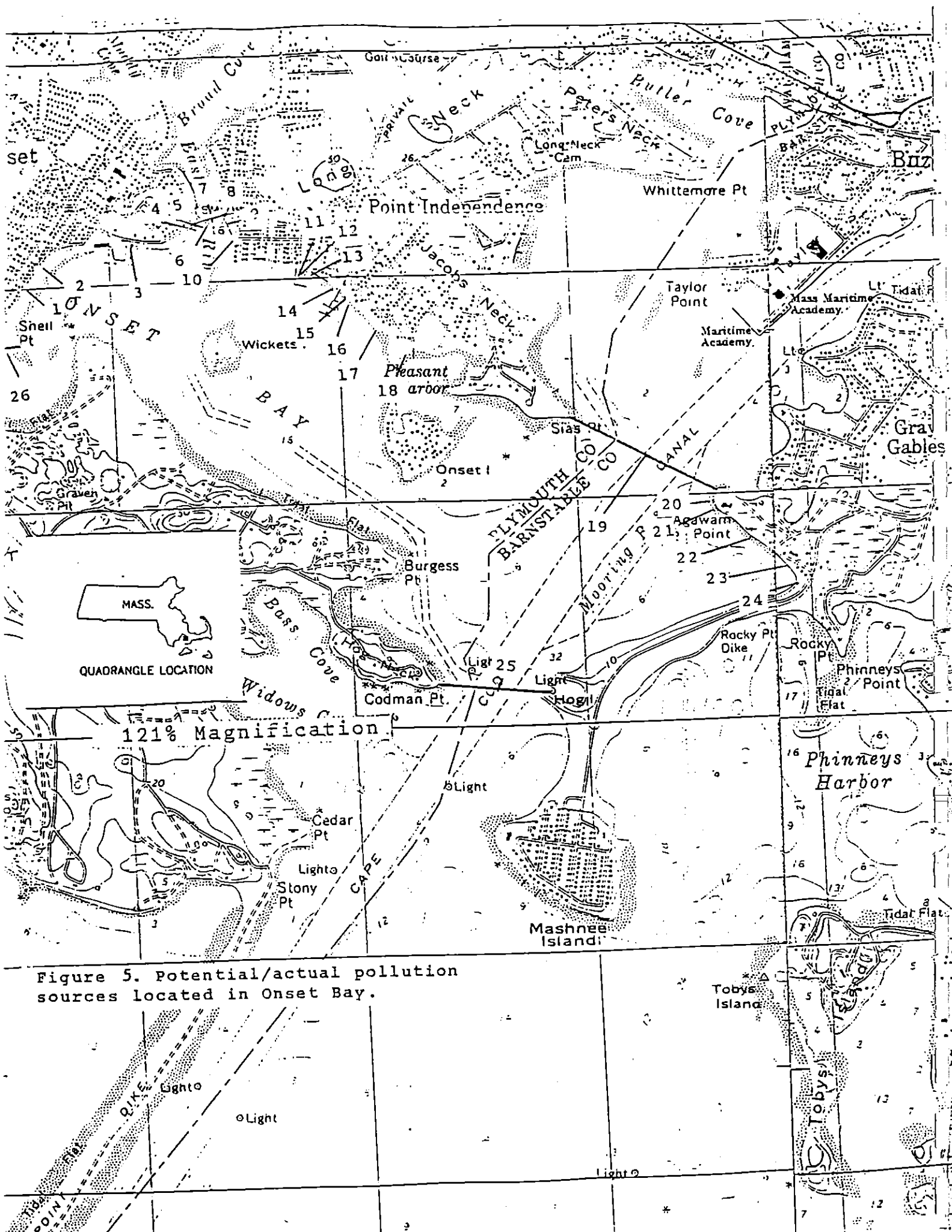


Figure 5. Potential/actual pollution sources located in Onset Bay.

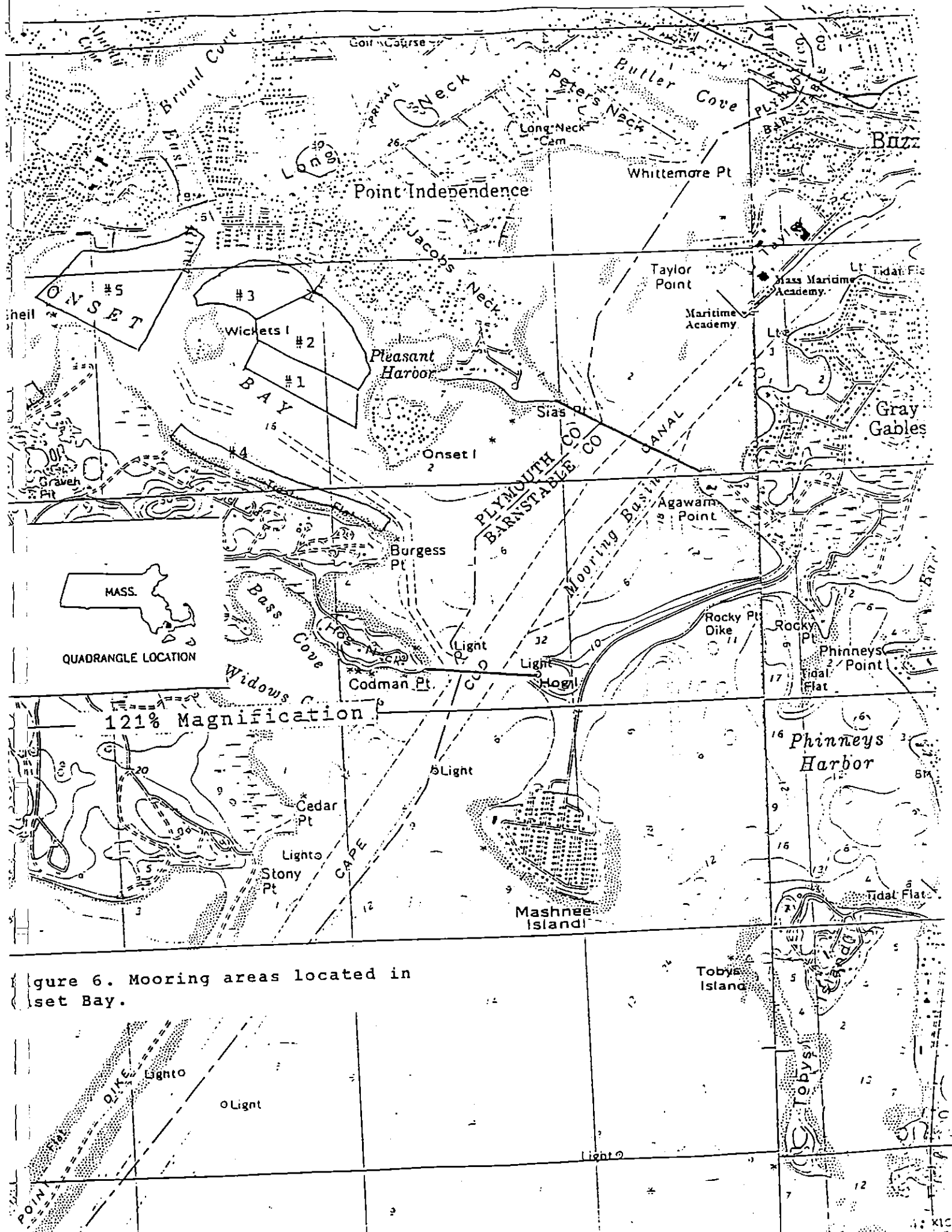


Figure 6. Mooring areas located in Onset Bay.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Town/City Wareham/Houma  
Reviewed by: J. Spalding

Area: BB-40 Class/status: Approved/Prohibited  
Amount

Pollution source	Location	Source I.D.		Source Status	Flow	Potential	Follow up	REMARKS
		Type	Size/W					
1	2nd Avenue & South Blvd	S/W	18"	2 (D) I.	1 varies	3	Yes	A storm drain which flows into Onset Bay.
2	4th Avenue & South Blvd.	S/W	18"	2 (D) I.	1 varies	3	Yes	A storm drain which flows into Onset Bay.
3	Town Pier	S/W	18"	2 (D) I.	1 varies	3	Yes	A storm drain east of the town pier.
4	Pt. Independence Bridge	S/W	10"	2 (D) I.	1 varies	1	No	A cut in the bank to the west of the bridge which flows onto the beach but not into the bay.
5	Pt. Independence Bridge	S/W	12"	3 (D) I.	1? varies	2	Yes	A possible storm drain which was not flowing when supplemental sampling occurred.
6	Northern end of the bay	S/W	10"	1 (D) I.	2 a lot	2	No	East River flows into the study area.
7	Pt. Independence Bridge	S/W	3" 4"/8"	3 (D) I.	?	1	No	8 PVC pipes protruding thru the bridge support.
8	Pt. Independence Bridge	S/W	1"	3 (D) I.	?	2	Yes	A possible storm drain at the eastern end of the bridge.
9	Onset Ave. & Eagle Rock	S/W	5"/1"	3 (D) I.	?	1	Yes	A 5" pipe that enters the water from the building on the corner.
10	Corner of Rock St. & Eagle Way	S/W	18"/1"	2 (D) I.	1 varies	3	Yes	A storm drain which flows into the study area.

Source = Number in survey  
 Source I.D. = Type 1, Sidra Drain, 2 STP, 2 Pipes, 4 Farm, 2 Industry, 6 Septic system, 2 Roof Drain, 8 Animals, 9 Boats, 10, Other, S/W = Size of source and/or inlet.  
 Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 Flow = 1 wet, 2 dry, 3 flow, 4 flow, 5 flow, 6 flow, 7 flow, 8 flow, 9 flow, 10 flow



Grew J. Spalding

Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
1	P. I. Y. C.	I 10 S/N	N/A	tidal	2	No	Extensive wrack buildup at the yacht club.
2	P. I. Y. C.	I 1 S/N 18"/1	(D) I.	varies	3	Yes	A storm drain entering thru the bulkhead.
3	P. I. Y. C.	I 1 S/N 12"/1	(D) I.	varies	3	Yes	A storm drain south of the boat ramp.
4	Onset Bay Marina	I 10 S/N	(D) I.	varies	3	Yes	A swampy area which may be fed by a storm drain.
5	Onset Bay Marina	I 3 S/N 4"/1	(D) I.	1 varies	3	Yes	A 4" white pipe at the end of the boat ramp.
15	Onset Bay Marina	I 3 S/N	(D) I.	?	1	Yes	A pipe at the end of the blue building protruding thru the wall at Onset Bay Marina.
16	Prospect and Bay Ave.	I 3 S/N 2"/1	(D) I.	1 varies	1	Yes	A storm drain.
17	Woodbury Condo's	I 1 S/N 18"/1	(D) I.	1 varies	3	Yes	A storm drain.
18	Butlers Cove	I 10 S/N	(D) I.	2 a lot	2	No	Butlers Cove (BR43) flows into the study area.
20	Agawam Point	I 6 S/N	(D) I.	N/A	2	Yes	The septic system is within 40' of the high tide line.

Class/Status: Approved/ Prohibited Amount

August 1989

Source = Number in survey; Source I.D. = Type; 1 - Storm Drain, 2 - Septic system, 3 - Industry, 4 - Farm, 5 - Pipes, 6 - Septic system, 7 - Roof Drain, 8 - Animals, 9 - Boats, 10 - Other, S/N = Size of source and/or number.

Source status = 1 - Discharge, 2 - Evidence of Discharge, 3 - No Evidence of Discharge, D - Direct flow, I - Indirect flow.

Flow = 1 - Wet weather, 2 - Dry weather, flow rate (ft. 3/min).

Follow up = 1 - No action to be taken, 2 - In action problem, 3 - Possible problem, 4 - Clean that top source.

Area: BB 40 Date of Survey: August 1989 Last Rainfall: Class/status: Approved/Prohibited Amount: Amount Crew: J. Spalding

Plot Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
21	Agawam Point	S/S 3 4"/2	1 D. (I)	2 APP 40 GPM	1	No	2 PVC pipes that circulate water to the salt water tanks in the building.
22	2nd house south of Agawam Point	I 3 S/I 5"/1	3 D. (I)	N/A	1	Yes	A 5" pipe on the beach in front of the white house with a red roof.
23	End of Spindrift Lane	I 1 S/I	3 D. (I)	N/A	1	No	A possible storm drain which appears to be sanded in.
24	Mashnee Rd.	I 3 S/I 24"/1	1 D. (I)	2 tidal?	3	Yes	A culvert which exchanges tidals waters and may be spring fed.
25	Widows Cove	I 10 S/I	1 D. (I)	2 alot	1	No	Widows Cove flows into the study area.
26	Sunset Cove	I 10 S/I	1 D. (I)	2 alot	2	No	Sunset Cove flows into the study area.

Source = number in survey  
 Source I.D. = Type 1. Sediment Drain, 2 STP, 3 Pipes, 4 farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boats, 10, Other, S/I = Size of source and or number.  
 Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 Flow = 1 Wet weather, 2 Dry weather, flow rate ft. 3/min.  
 Potential = 1 Possible problem, 2 Confirmed problem, 3 Confirmed Inf. source.

MASSACHUSETTS DIVISION OF MARINE FISHERIES

MARINA APPRAISAL FORM 2

NAME OF MARINA Onset Bay Marina (#2) ADDRESS RFD #3 Buzzards Bay

OWNERS NAME Onset Bay Corporation INSPECTED BY W. Ellis DATE August '89

IS MARINA LOCATED IN SHELLFISH HARVESTING AREA? Yes

WHAT TYPE OF SHELLFISH? QUAHOGS X SOFT SHELL CLAMS OYSTERS OTHER

OPERATING DATES: FROM May TO Oct NO. OF BOATS OBSERVED 100 NO. BOATS W/TOILETS 100

CAPACITY OF MARINA App. 110

DO PEOPLE LIVE ON BOATS OVERNIGHT IN MARINA AREA? Weekends

ARE ONSHORE TOILET FACILITIES PROVIDED? 24 HRS. NO. OF TOILETS: MEN 3 WOMEN 3  
COMBINED 6

ARE ONSHORE SHOWER FACILITIES PROVIDED? Yes

WASTE DISPOSAL: MUNICIPAL X SEPTIC TANK & LEACHING SYSTEM CESSPOOL

CESSPOOL OR SEPTIC TANK: CAPACITY 2000 (GAL./DAY) DISTANCE FROM WATER FT.  
OF LEACHING WORKS

RESTAURANT OR SNACK BAR? No (NOTES UNDER REMARKS)

FUEL DISPOSAL: NO. OF BARRELS Dumpsters (2) DISTANCE FROM BOATS 75' from the dock

WATER SUPPLY: PUBLIC X PRIVATE WELLS

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd, Wareham, Ma TELEPHONE NO. 291-3186

ARE THERE MARINA REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Gas dock

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Town Hall Harbormaster office

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Dockmaster, Harbormaster

DOES MARINE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MARINA AREA (VISUAL OBSERVATION) Murky TIDE Flood

STATUS OF PIPE DISCHARGES: Under study

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0% DEC. 0%

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Are boat owners are furnished a copy of regulations when they sign a contract.

Are winter wet storage available (Boats are completely winterized)

MASSACHUSETTS DIVISION OF MARINE FISHERIES

MARINA APPRAISAL FORM 3

NAME OF MARINA Point Independence Yacht Club (#3) ADDRESS Independence Lane, Onse

OWNERS NAME yacht club INSPECTED BY W. Ellis DATE August '8

IS MARINA LOCATED IN SHELLFISH HARVESTING AREA? No

WHAT TYPE OF SHELLFISH? QUAHOGS      SOFT SHELL CLAMS      OYSTERS      OTHER     

OPERATING DATES: FROM Apr TO Oct NO. OF BOATS OBSERVED 96 NO. BOATS W/TOILETS 80

CAPACITY OF MARINA 96

DO PEOPLE LIVE ON BOATS OVERNIGHT IN MARINA AREA? Weekends App 75

ARE ONSHORE TOILET FACILITIES PROVIDED? 24 HRS.      NO. OF TOILETS: MEN 5 WOMEN 3

COMBINED     

ARE ONSHORE SHOWER FACILITIES PROVIDED? Yes

SEWAGE DISPOSAL: MUNICIPAL x SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

IF CESSPOOL OR SEPTIC TANK: CAPACITY      (GAL./DAY) DISTANCE FROM WATER      FT.

Kitchen used Friday Night OF LEACHING WORKS  
RESTAURANT OR SNACK BAR? and occasionally weekends (NOTES UNDER REMARKS)

REFUSE DISPOSAL: NO. OF BARRELS 1 Dumpster DISTANCE FROM BOATS 200'

WATER SUPPLY: PUBLIC yes PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE  ) William Ellis

ADDRESS C/O Town Hall, #54 Marion rd, Wareham, Ma. TELEPHONE NO. 291-3186

ARE THERE MARINA REGULATIONS? yes ARE THEY CONSPICUOUSLY POSTED? yes WHERE? Docks, Bldgs.

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Gas Dock

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Club steward, Harbormaster

MARINE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MARINA AREA (VISUAL OBSERVATION) Murky TIDE Flood

STATUS OF PIPE DISCHARGES: Under study

PERCENTAGE OF TOTAL BOATS IN: OCT. 10% NOV. 2% DEC. 0%

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Pump out facility available

MASSACHUSETTS DIVISION OF MARINE FISHERIES

Mooring APPRAISAL FORM 4

MARINA Off Onset Pier (#5) ADDRESS Town Pier

NAME N/A INSPECTED BY W. Ellis DATE August 1990

BOATS LOCATED IN SHELLFISH HARVESTING AREA? No

TYPE OF SHELLFISH? QUAHOGS      SOFT SHELL CLAMS      OYSTERS      OTHER     

MOORING DATES: FROM May TO Oct NO. OF BOATS OBSERVED 68 NO. BOATS W/TOILETS 44

CAPACITY OF Area 68

DO BOATS LIVE ON BOATS OVERNIGHT IN MOORING AREA? 5-10 on weekends

SHORE TOILET FACILITIES PROVIDED? Yes HRS. 10 NO. OF TOILETS: MEN 3 WOMEN 3  
COMBINED     

SHORE SHOWER FACILITIES PROVIDED? Yes

WASTE DISPOSAL: MUNICIPAL X SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

SEPTIC TANK OR SEPTIC TANK: CAPACITY      (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS  
RESTAURANT OR SNACK BAR? Yes (NOTES UNDER REMARKS)

WASTE DISPOSAL: NO. OF BARRELS 2 Dumosters DISTANCE FROM BOATS on dock

WATER SUPPLY: PUBLIC X PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd., Wareham, Ma TELEPHONE NO. 291-3186

ARE THERE MOORING REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Town Hall  
HARBORMASTER OFFICE

ARE THERE TOWN REGULATIONS? Yes POSTED? Yes WHERE? same as above

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

DOES ANYONE DO RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Cloudy TIDE Ebb

STATUS OF PIPE DISCHARGES: Under study

PERCENTAGE OF TOTAL BOATS IN: OCT. 10% NOV. 5% DEC. 1%

DID YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

BOAT SIZES range in size from 14'-55'

Mooring APPRAISAL FORM 5

MARINA Between Wickets & Onset Islands (#1) ADDRESS N/A

NAME N/A INSPECTED BY W. Ellis DATE August '89

Boats LOCATED IN SHELLFISH HARVESTING AREA? No

TYPE OF SHELLFISH? QUAHOGS      SOFT SHELL CLAMS      OYSTERS      OTHER     

MOORING DATES: FROM May TO Oct NO. OF BOATS OBSERVED 55 NO. BOATS W/TOILETS 39

CAPACITY OF Area 75

PEOPLE LIVE ON BOATS OVERNIGHT IN MOORING AREA? 5-6, summertime

ONSHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN       
COMBINED     

ONSHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS       
(NOTES UNDER REMARKS)

RESTAURANT OR SNACK BAR? N/A

WASTE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall #54 Marion Rd. Wareham, Ma TELEPHONE NO. 291-3186

ARE THERE MOORING REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Town Hall Hbrmasters of

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

DRY DOCK RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Clear TIDE Flood

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 50 NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boat sizes range from 14'-40'.

Mooring APPRAISAL FORM 6

MARINA Opposite Shell Pt. (#6) ADDRESS N/A

NAME N/A INSPECTED BY W. Ellis DATE August '89

BOATS LOCATED IN SHELLFISH HARVESTING AREA? Yes

TYPE OF SHELLFISH? QUAHOGS      SOFT SHELL CLAMS X OYSTERS      OTHER     

MOORING DATES: FROM May TO Nov NO. OF BOATS OBSERVED 15 NO. BOATS W/TOILETS 5

CAPACITY OF Area 15

DO PEOPLE LIVE ON BOATS OVERNIGHT IN MOORING AREA? No

ONSHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN       
COMBINED     

ONSHORE SHOWER FACILITIES PROVIDED? N/A

DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM CESSPOOL

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS  
(NOTES UNDER REMARKS)

RESTAURANT OR SNACK BAR? N/A

WASTE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd., Wareham, Ma. TELEPHONE NO. 291-3186

ARE THERE MOORING REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Harbormaster office

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same as above

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

ARE THERE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Clear TIDE Ebb

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 10% NOV. 10% DEC. 0%

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

BOAT SIZES range in size from 14'-30'





Mooring APPRAISAL FORM 7

MARINA Burgess Pt. Area (#4) ADDRESS N/A

NAME N/A INSPECTED BY W. Ellis DATE August '89

LOCATED IN SHELLFISH HARVESTING AREA? Yes

TYPE OF SHELLFISH? QUAHOGS ✓ SOFT SHELL CLAMS ✓ OYSTERS X OTHER \_\_\_\_\_

MOORING DATES: FROM May TO Oct NO. OF BOATS OBSERVED 14 NO. BOATS W/TOILETS 11

CAPACITY OF Area 14

DO PEOPLE LIVE ON BOATS OVERNIGHT IN MOORING AREA? No

ON-SHORE TOILET FACILITIES PROVIDED? N/A HRS. \_\_\_\_\_ NO. OF TOILETS: MEN \_\_\_\_\_ WOMEN \_\_\_\_\_

COMBINED \_\_\_\_\_

ON-SHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM CESSPOOL

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER \_\_\_\_\_ FT. OF LEACHING WORKS \_\_\_\_\_

RESTAURANT OR SNACK BAR? N/A (NOTES UNDER REMARKS)

WASTE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS \_\_\_\_\_

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS \_\_\_\_\_

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd., Wareham, Ma. TELEPHONE NO. 291-3186

WHERE MOORING REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Town Hall Harbormaster office

WHERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same as above

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

DOES ANYONE DO RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Clear TIDE Ebb

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 5% NOV. 0% DEC. 0%

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boats range in size from 16'-39'

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RE-EVALUATION OF  
WAREHAM RIVER, BB:36  
IN THE TOWN OF WAREHAM

DATE: November 3, 1992  
By: Greg Sawyer

Date of Last Sanitary Survey: August 1989

Recommendation of Last Sanitary Survey: The following areas remained or were reclassified as "RESTRICTED";

- a) a portion of Marks Cove
- b) a portion of Swifts Beach
- c) a portion of Swifts Neck
- d) Crooked River
- e) north of Hamilton Beach, including Broad Marsh and Agawam Rivers

The remaining waters of the Wareham River were classified as "APPROVED" (Figure 1).

Date of last Reappraisal: N/A

Current Status of Area: The classification of the Wareham River has remained unchanged since the 1989 sanitary survey (Figure 1).

Area Description: Wareham River is defined by DMF as:

BB:36 "The waters, flats and all tributaries of the Wareham River, including the Agawam River, Wankinco River, Crooked River, Broad Marsh River, Johnson Creek and Cedar Island Creek, north of a line drawn northeast from Cromeset Point at the south tip of Cromeset Neck to Long Beach Point at the western tip of Long Beach." (Figure 1)

Predominant Land Use: The re-evaluation included the area south of Wareham Neck and Crab Cove and west of Crooked River. The predominant land use was residential within the area which was surveyed on October 14th and 19th, 1992. The area consisted of a sand and/or gravel shoreline with the following exceptions. Two large marsh areas were located at the northern end of Marks Cove and the northwestern end of Broad Marsh River. Smaller marshes were situated north of Nobska Point (on Cromeset Neck) and along the eastern shoreline north and south of Crooked River. Town swimming areas were located along Swifts Beach, Pinehurst Beach, Hamilton Beach and Parkwood Beach (Figure 1).

The shoreline was densely populated along the western shoreline of Marks Cove, Swifts Neck (from Swifts Beach into Broad Marsh River), Wareham Neck and Parkwood (south of Crab Cove). Approximately 30% to 40% of the residents living along the shoreline were seasonal. The three largest creeks discharge into

the portion of the Wareham River which was re-evaluated. Cedar Island Creek flows into Marks Cove, Stony Run and Johnson Creek flow into the Broad Marsh River and the Crooked River were within "RESTRICTED" portions of the Wareham River (Figure 1).

Six mooring areas, of more than ten boats, consisting of approximately two hundred and fifty boats were identified (Figure 2, Forms 1-6). The mooring areas were located off Nobska Point, Marks Cove, Swifts Neck, Hamilton Beach Broad Marsh River and off Pinehurst Beach. The boats were considered potential pollution sources and were located near water quality monitoring stations.

The Town of Wareham operates and maintains a Wastewater Treatment Facility near the headwaters of the Agawam River. The area east of Marks Cove and south of Route 6 are currently connected to town sewage (Figure 3). The design flow of the plant is 1.8 MGD while the average daily flow rate is .850 MGD. Groundwater infiltration was estimated between 170,000 to 210,000 gallons per day. The plant is equipped with automatic standby power from a diesel generator. The sewer system does not have any overflow points.

Shellfish Resources: The area was recreationally and commercially fished for soft shell clams (Mya arenaria), quahogs (Mercenaria mercenaria) and american oysters (Crassostrea virginica). Four aquaculture grants, containing american oysters and/or quahogs, were located from the mouth of Crooked River to the eastern end of Long Beach.

Summary of DMF Monitoring Station results:

(Overall Data)

<u>STATION #</u>	<u>LOCATION</u>	<u>GEOMETRIC MEANS</u>	<u>%&gt;43</u>	<u>#SAMPLES</u>
1	End of Town Way	2.2	0.0	17
2	End of Seahorse Lane	2.0	0.0	17
3	Conahasset Street	4.1	0.0	17
4	Swifts Beach	3.4	0.0	17
4A	Shore Drive Boat Ramp	5.7	0.0	16
4B	#5 Worrall Avenue	5.6	6.6	15
5	End of Algelo Avenue	5.1	5.9	17
6	Pigs Point & Seabreeze	4.9	6.3	16
9	British Landing	20.7	40.0	15
10	S. Pier @ Warrs Marina	20.0	40.0	15
12	Culvert on Narrows Road	21.2	60.0	15
13	Oak Street Ramp	9.8	20.0	15
14	#27 Crab Cove Terrace	14.8	11.1	9
15	John J. Cronin Beach	7.9	20.0	15
16A	#97 Edgewater Drive	4.9	0.0	16
19	Dewitt's Residence	3.1	0.0	15

Station #14 had not been sampled fifteen times over the previous three years due to continual icing problems in Crab Cove and the lack of water to sample by boat (shoreline sampling is hazardous due to the muddy cove and shoreline). Stations #3, 5, 6, 9, 10 and 12-15 were located within the "RESTRICTED" portion of Wareham River. (refer to Figure 4 for the location of the water quality sampling stations).

#### Summary of Shoreline Survey:

The Wareham River shoreline was surveyed by personnel from the Division of Marine Fisheries on October 14th and 19th. The actual pollution sources included nineteen storm drains throughout the Broad Marsh River, Pinehurst Beach and Parkwood areas (Figure 5, Form 7). The Wareham Wastewater Treatment Facility discharges into the Agawam River approximately one and a half miles north of the nearest approved portion of the Wareham River.

Nineteen additional potential pollution sources were noted during the triennial re-evaluation (refer to Figure 6, Form 8). Pollution sources #1A - 3A, 6A, 9A and 12A were weep holes for the seawalls. Two pipes (p.s.'s #10A and #11A) appeared to function as patio/roof drains while pollution sources #14A and #15A may have been roof drains. A 4" iron pipe (p.s. #7A) and an 8" clay pipe (p.s. #8A) had no evidence of a discharge. Pollution sources #4, 5, 12, 13, 16, 18 and 19 were also noted during the re-evaluation (Figure 6, Form 8). All of the additional potential pollution sources, with the exception of the weepholes at #1A, were located in the "RESTRICTED" portion of the Wareham River (predominantly in Broad Marsh River).

During Hurricane "BOB", a undetermined number of houses along Swifts Beach were destroyed or dislodged from their foundations. The majority of the destroyed houses have been rebuilt as of October 14th, 1992. A number of seawalls throughout the northern end of the Wareham River appeared to have been reconstructed and thus weepholes and/or pipes which existed during the 1989 sanitary survey may have been destroyed or removed. The following updated condition of several potential/actual pollution sources noted in the 1989 sanitary survey are as follows:

#### Pollution Source #

#### Updated Condition

#7	The pipe did not have a discharge
#9	The pipe is no longer in the wall
#16	Only 1 PVC pipe remains, it is cemented shut
#18	The weepholes are no longer in the wall
#24	The storm drain is partially sanded in and the end of the storm drain is situated in a depression which is bermed towards the water. The distance to the water is approximately 75' - 100'. The discharge does not appear to adversely effect the river.

- #25           The roof drain was inadvertently placed in the wrong area on the pollution source map in the 1989 sanitary survey (refer to Figure 6, #5A)
- #27           The tidal marsh is not connected to Swifts Beach
- #28           There was no evidence of a discharge from the weepholes
- #33           The drainage pipes and weepholes were no longer in the wall
- #40           No evidence of a discharge

Conclusion:

The seven classification stations located in the "APPROVED" portion of the Wareham River (#1, 2, 4, 4A, 4B, 16A and 19) met the NSSP criteria for an approved classification. Stations #3, 9, 10 and 12-15 were located in the "RESTRICTED" portion of the River. The classification station at the end of Algelo Avenue (#5) and Pigs Point & Seabreeze (#6) meet approved criteria but remained classified "RESTRICTED" due to the storm drains along the Broad Marsh River shoreline.

Recommendation:

1. The Division will periodically monitor the pollution sources to determine if portions of the Wareham River could be reclassified as conditionally approved.
2. Wareham River should continue to be sampled during adverse pollution conditions and receive a three year re-evaluation in 1995.
3. Broad Marsh River should remain classified as "RESTRICTED" until such time as the storm drains do not adversely effect the water quality as determined by DMF sampling.

References: The 1989 sanitary survey conducted by the Division of Marine Fisheries.

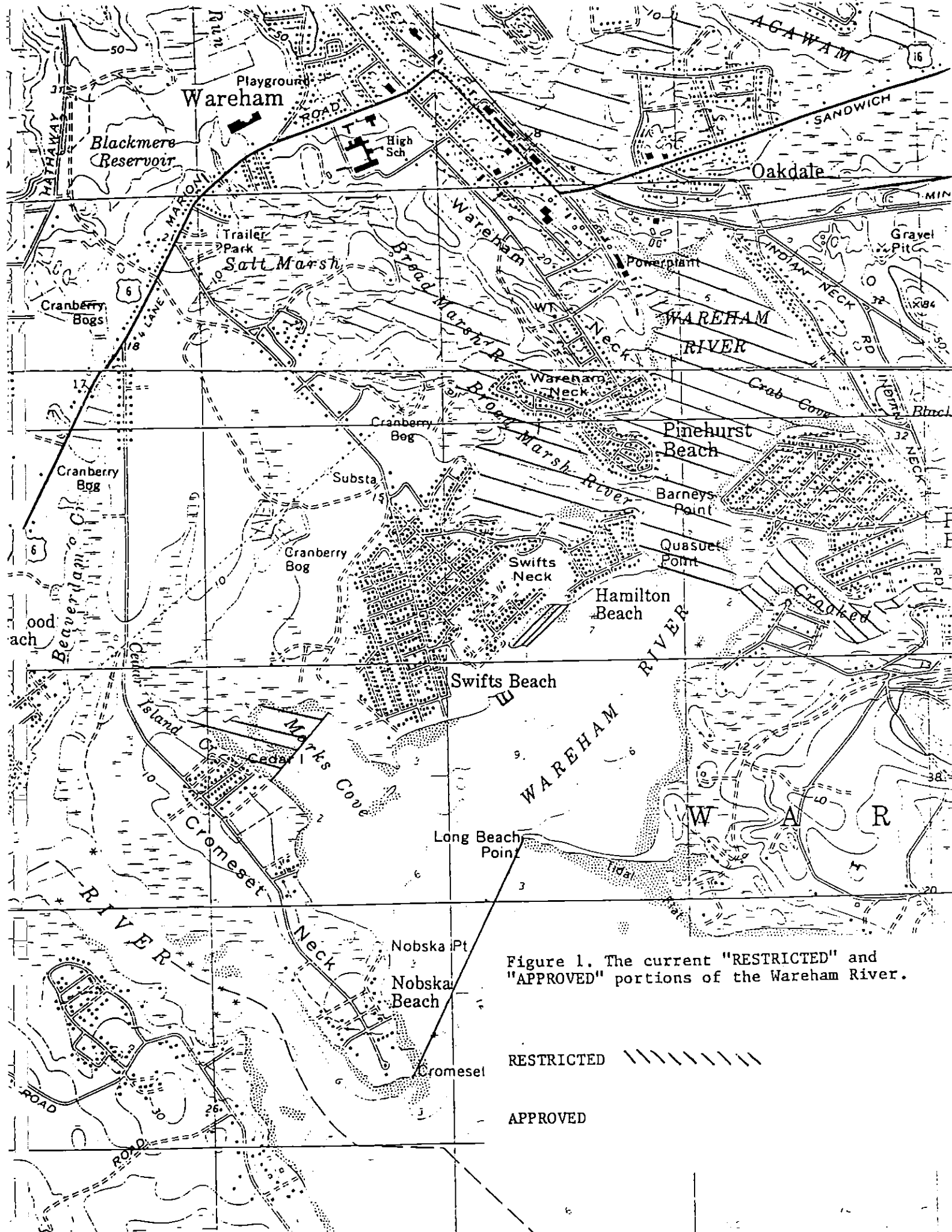

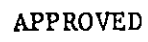


Figure 1. The current "RESTRICTED" and "APPROVED" portions of the Wareham River.

RESTRICTED   
 APPROVED 

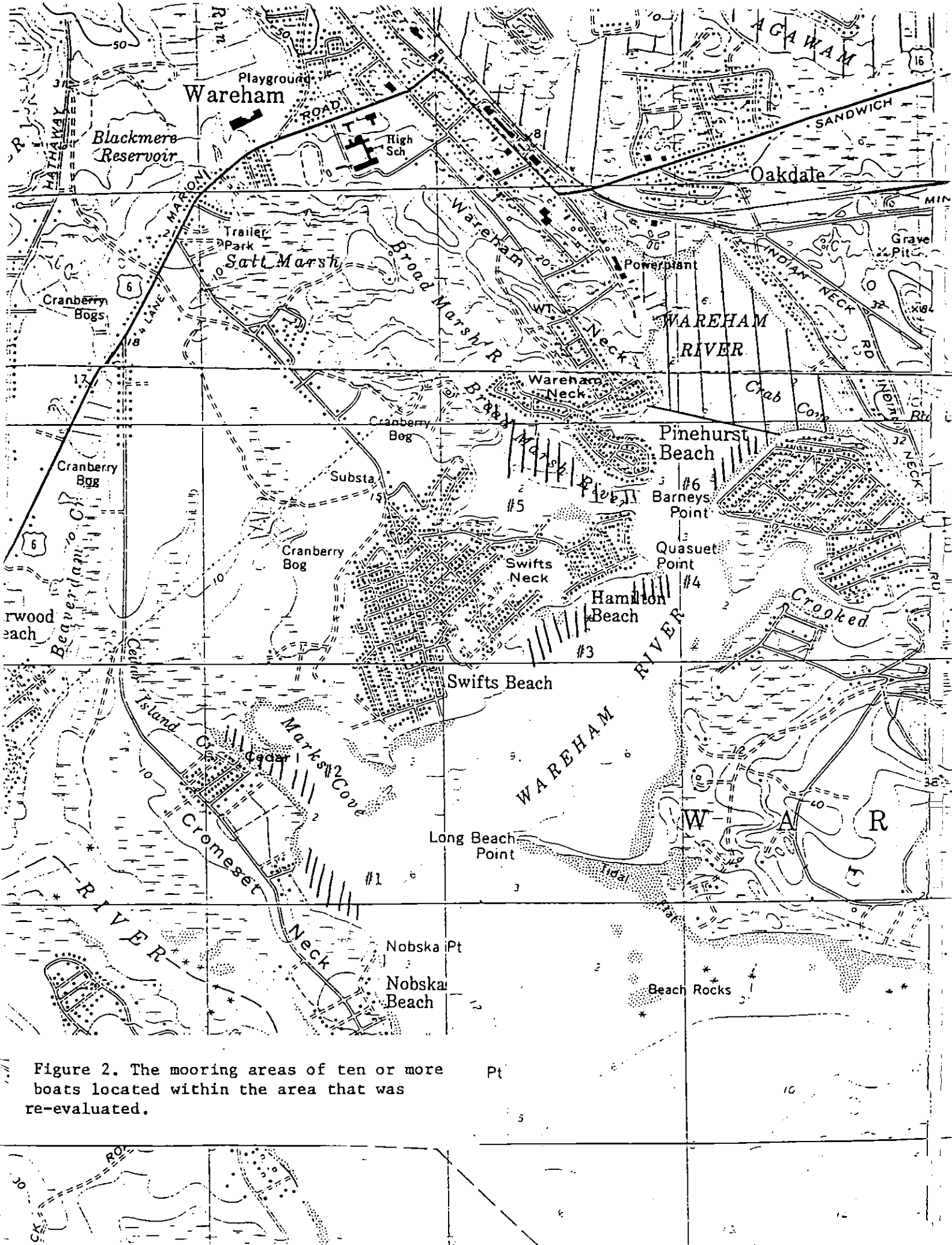


Figure 2. The mooring areas of ten or more boats located within the area that was re-evaluated.



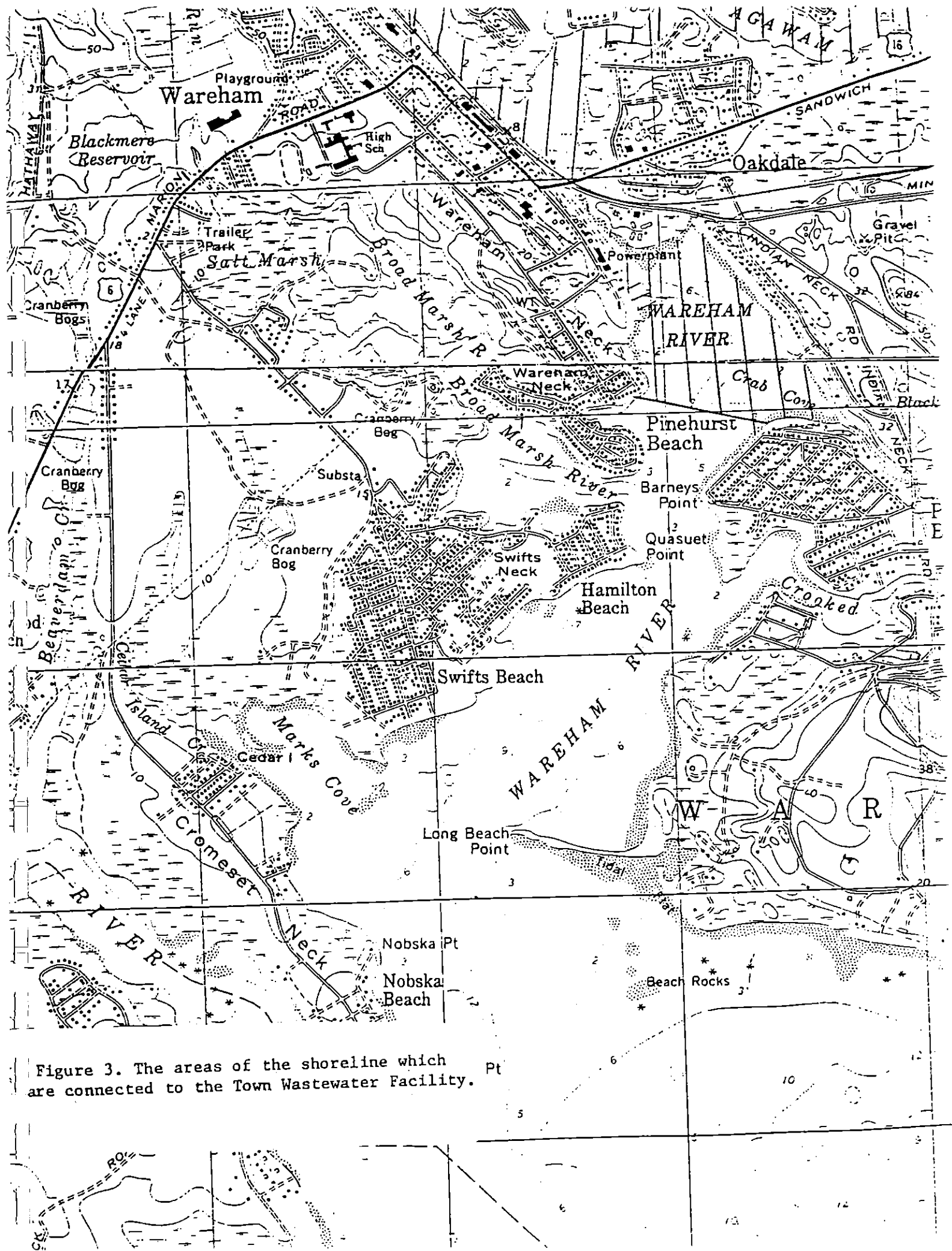
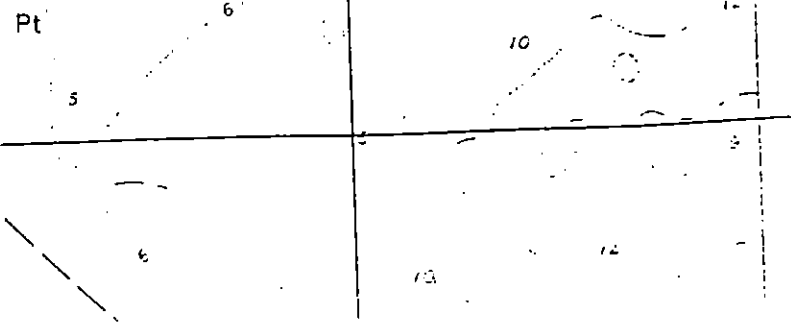


Figure 3. The areas of the shoreline which are connected to the Town Wastewater Facility.



WATER QUALITY MONITORING STATIONS

1. Town Way
2. Seahorse Lane
3. Conahassett Street
4. Swifts Beach
- 4A. Shore Drive Ramp
- 4B. #5 Worrall Street
5. Algelo Street
6. Pigs Point & Seabreeze
9. British Landing
10. S. end of Warrs Marina
12. Culvert on Narrows Road
13. Oak Street Ramp
14. #27 Crab Cove Terrace
15. John J. Cronin Beach
- 16A. #97 Edgewater Drive
19. Dewitts Residence

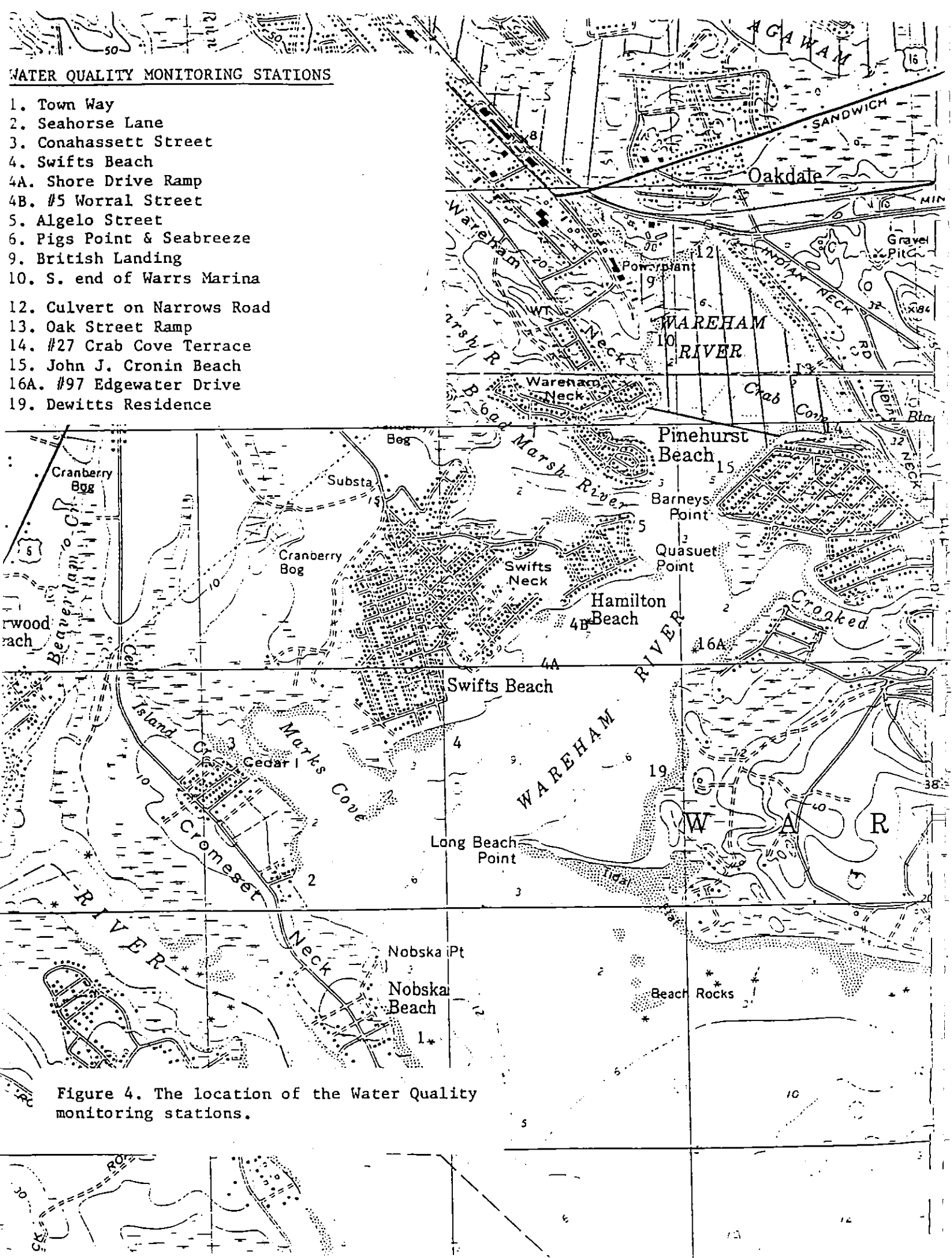


Figure 4. The location of the Water Quality monitoring stations.

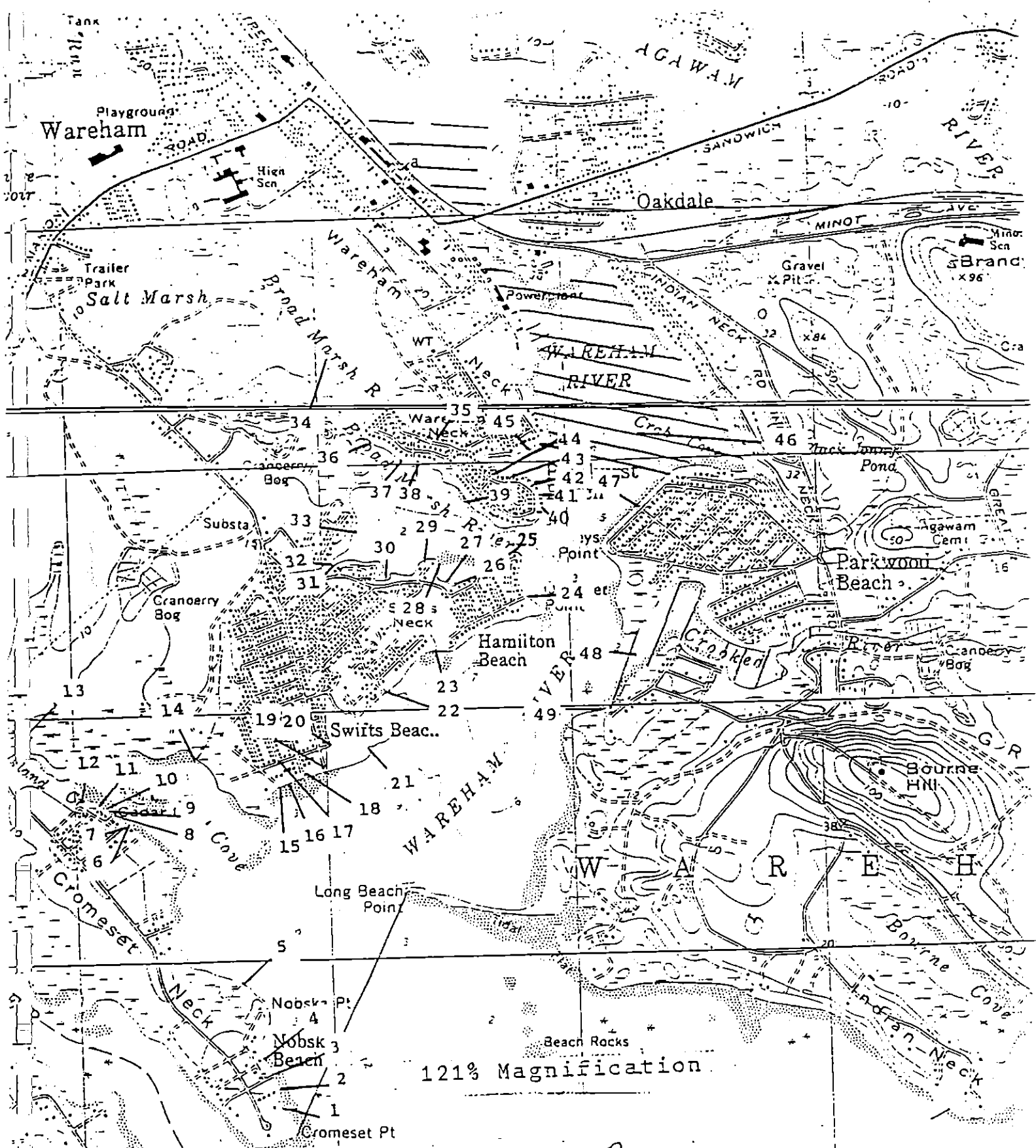
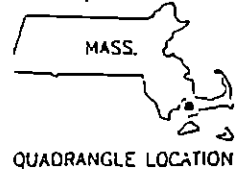


Figure 5. Actual/potential pollution sources located in the Wareham River.



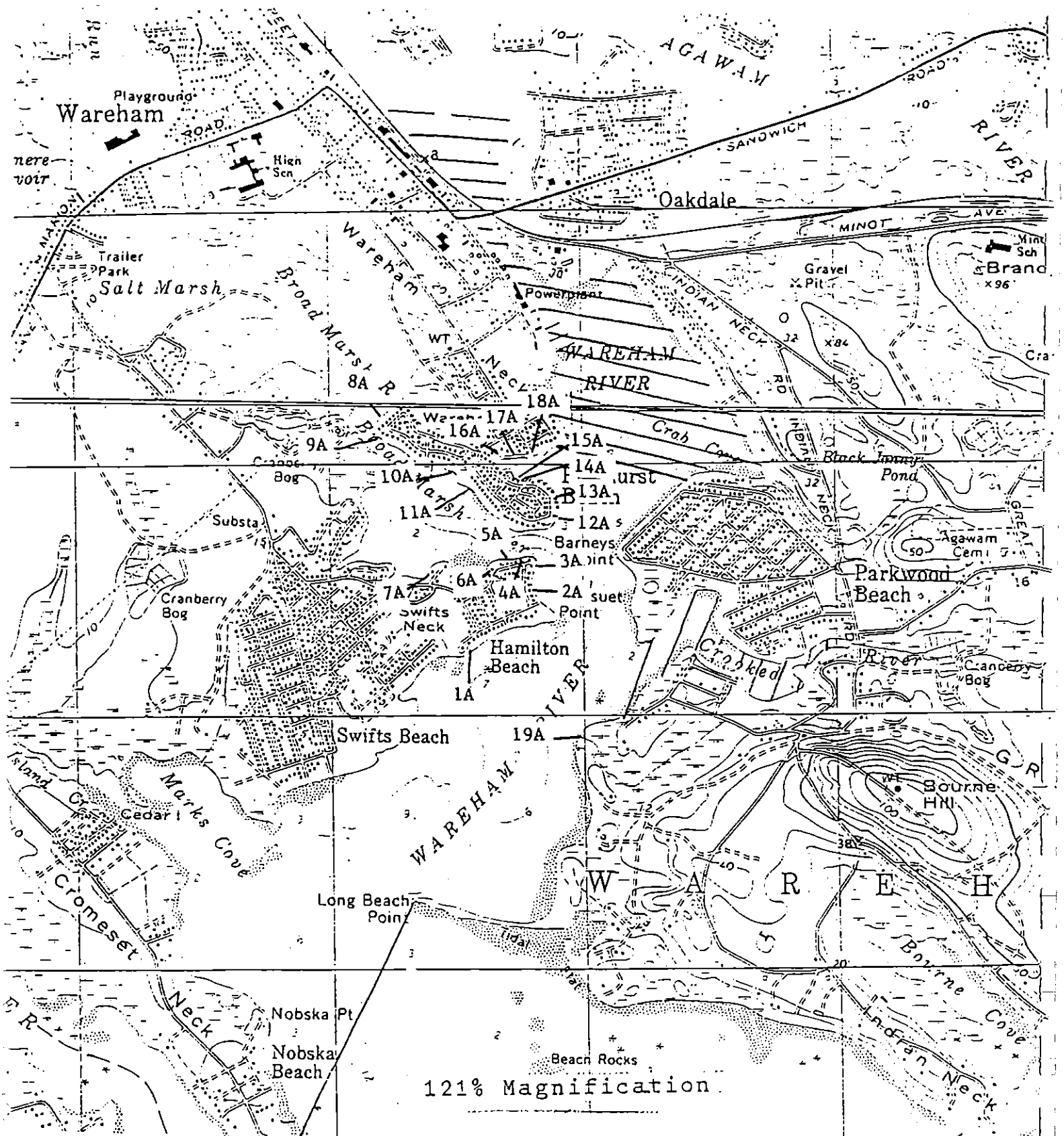
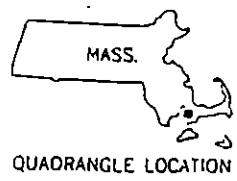


Figure 6. Additional pollution sources located along the Wareham River shoreline.



Little Bird Island

Mooring APPRAISAL FORM 1

MARINA OFF Cromeset Neck (#1) ADDRESS N/A

NAME N/A INSPECTED BY W. Ellis DATE August 1999

BOATS LOCATED IN SHELLFISH HARVESTING AREA? Yes

TYPE OF SHELLFISH? QUAHOGS X SOFT SHELL CLAMS      OYSTERS      OTHER     

DATING DATES: FROM May TO Nov NO. OF BOATS OBSERVED 15 NO. BOATS W/TOILETS 4

CAPACITY OF Area N/A

PEOPLE LIVE ON BOATS OVERNIGHT IN mooring AREA? No

ONSHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN       
COMBINED     

ONSHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS

RESTAURANT OR SNACK BAR? N/A (NOTES UNDER REMARKS)

WASTE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall #57 Marion Rd. Wareham, Ma TELEPHONE NO. 508-291-3186  
Harbormaster bld

ARE THERE Mooring REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Town Hall

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

DENIES ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

DOES ANYONE DO RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN mooring AREA (VISUAL OBSERVATION) Clear TIDE Ebb

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boats range in size from 12'-30'.

Mooring APPRAISAL FORM 2

NAME OF MARINA Marks Cove (#2) ADDRESS N/A

BOATERS NAME N/A INSPECTED BY W. Ellis DATE August 199

BOATS LOCATED IN SHELLFISH HARVESTING AREA? Yes

TYPE OF SHELLFISH? QUAHOGS  SOFT SHELL CLAMS  OYSTERS  OTHER

DATING DATES: FROM May TO Oct NO. OF BOATS OBSERVED 46 NO. BOATS W/TOILETS 15

CAPACITY OF Area N/A

PEOPLE LIVE ON BOATS OVERNIGHT IN mooring AREA? No

ONSHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN       
COMBINED     

ONSHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS  
RESTAURANT OR SNACK BAR? N/A (NOTES UNDER REMARKS)

FUEL DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE  ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd. Wareham, Ma TELEPHONE NO. 508-291-3186

ARE THERE mooring REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Town Hall Hbrmaster bldg

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

MARINE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN mooring AREA (VISUAL OBSERVATION) Murky TIDE Ebb

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boats range in size from 12'-30'.

Mooring APPRAISAL FORM 3

MARINA Swifts Neck (#3) ADDRESS N/A

NAME N/A INSPECTED BY W. Ellis DATE August 1989

BOATS LOCATED IN SHELLFISH HARVESTING AREA? Yes

TYPE OF SHELLFISH? QUAHOGS      SOFT SHELL CLAMS X OYSTERS      OTHER     

MOORING DATES: FROM May to Nov NO. OF BOATS OBSERVED 68 NO. BOATS W/TOILETS 15

CAPACITY OF Area N/A

PEOPLE LIVE ON BOATS OVERNIGHT IN mooring AREA? No

SHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN       
COMBINED     

SHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS       
(NOTES UNDER REMARKS)

CURANT OR SNACK BAR? N/A

WASTE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd. Wareham, MA. TELEPHONE NO. 508-291-3186  
Town Hall

ARE THERE Mooring REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Harbormaster bldg

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

DID TOWN ENFORCE REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

DOES ANYONE DO RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN mooring AREA (VISUAL OBSERVATION) Clear TIDE Ebb

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

BOAT LENGTHS range in size from 12'-30'

Mooring APPRAISAL FORM 4

NAME OF MARINA Hamilton Beach (#4) ADDRESS N/A  
 OWNER'S NAME N/A INSPECTED BY W. Ellis DATE August 1989

ARE BOATS LOCATED IN SHELLFISH HARVESTING AREA? No

WHAT TYPE OF SHELLFISH? QUAHOGS \_\_\_\_\_ SOFT SHELL CLAMS \_\_\_\_\_ OYSTERS \_\_\_\_\_ OTHER \_\_\_\_\_

OPERATING DATES: FROM May TO Nov NO. OF BOATS OBSERVED 13 NO. BOATS W/TOILETS 1

CAPACITY OF Area N/A

DO PEOPLE LIVE ON BOATS OVERNIGHT IN MOORING AREA? No

ARE ONSHORE TOILET FACILITIES PROVIDED? N/A HRS. \_\_\_\_\_ NO. OF TOILETS: MEN \_\_\_\_\_ WOMEN \_\_\_\_\_

COMBINED \_\_\_\_\_

ARE ONSHORE SHOWER FACILITIES PROVIDED? N/A

SEWAGE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM \_\_\_\_\_ CESSPOOL \_\_\_\_\_

IF CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER \_\_\_\_\_ FT.  
 OF LEACHING WORKS

RESTAURANT OR SNACK BAR? N/A (NOTES UNDER REMARKS)

REFUSE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS \_\_\_\_\_

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS \_\_\_\_\_

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall, #54 Marion Rd. Wareham, MA. TELEPHONE NO. 508-291-3186

ARE THERE MOORING REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Town Hall Harbormaster

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

MARINE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Clear TIDE Ebb

STATUS OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boats range in size from 12'-26'.



Mooring APPRAISAL FORM 5

MARINA Broad Marsh (#5)

ADDRESS N/A

NAME N/A

INSPECTED BY W. Ellis

DATE August 1989

LOCATED IN SHELLFISH HARVESTING AREA? Yes

TYPE OF SHELLFISH? QUAHOGS  SOFT SHELL CLAMS  OYSTERS  OTHER

MOORING DATES: FROM May TO Nov NO. OF BOATS OBSERVED 50 NO. BOATS W/TOILETS 16

CAPACITY OF Area N/A

PEOPLE LIVE ON BOATS OVERNIGHT IN MOORING AREA? No

SHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN       
COMBINED     

SHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT.  
OF LEACHING WORKS       
(NOTES UNDER REMARKS)

RESTAURANT OR SNACK BAR? N/A

WASTE DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE ) William Ellis

ADDRESS C/O Town Hall #54 Marion Rd. Wareham, Ma TELEPHONE NO. 508-291-3186  
Town Hall

ARE THERE MOORING REGULATIONS? Yes ARE THEY CONSPICUOUSLY POSTED? Yes WHERE? Harbormaster bldg

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

DOES TOWN ENFORCE REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

IS THERE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Murky TIDE Ebb

NUMBER OF PIPE DISCHARGES: N/A

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boat range in size from 12'-28'.

Mooring APPRAISAL FORM 6

NAME OF MARINA Off Parkwood (#6) ADDRESS N/A

BOATERS NAME N/A INSPECTED BY W. Ellis DATE August 1989

BOATS LOCATED IN SHELLFISH HARVESTING AREA? No

TYPE OF SHELLFISH? QUAHOGS      SOFT SHELL CLAMS      OYSTERS      OTHER     

MOORING DATES: FROM May TO Nov NO. OF BOATS OBSERVED 47 NO. BOATS W/TOILETS 13

CAPACITY OF Area N/A

DO PEOPLE LIVE ON BOATS OVERNIGHT IN MOORING AREA? No

ONSHORE TOILET FACILITIES PROVIDED? N/A HRS.      NO. OF TOILETS: MEN      WOMEN     

COMBINED     

ONSHORE SHOWER FACILITIES PROVIDED? N/A

WASTE DISPOSAL: MUNICIPAL N/A SEPTIC TANK & LEACHING SYSTEM      CESSPOOL     

CESSPOOL OR SEPTIC TANK: CAPACITY N/A (GAL./DAY) DISTANCE FROM WATER      FT. OF LEACHING WORKS

RESTAURANT OR SNACK BAR? N/A (NOTES UNDER REMARKS)

FUEL DISPOSAL: NO. OF BARRELS N/A DISTANCE FROM BOATS     

WATER SUPPLY: PUBLIC N/A PRIVATE WELLS     

NAME OF HARBOR MASTER (NONE  ) William Ellis

ADDRESS C/O Town Hall #54 Marion Rd. Wareham, Ma TELEPHONE NO. 508-291-3186 Hbrmaster bldg

ARE THERE MOORING REGULATIONS? yes ARE THEY CONSPICUOUSLY POSTED? yes WHERE? Town Hall

ARE THERE TOWN REGULATIONS: Yes POSTED? Yes WHERE? Same

WHO ENFORCES REGULATION OF RULES WHEN BOATS ARE DOCKED? Harbormaster

MARINE RAILWAY OR HULL SCRAPING ACTIVITIES: YES  NO

CONDITION OF WATER IN MOORING AREA (VISUAL OBSERVATION) Clear TIDE ebb

STATUS OF PIPE DISCHARGES: Under study

PERCENTAGE OF TOTAL BOATS IN: OCT. 50% NOV. 0 DEC. 0

DOES YOUR TOWN HAVE A HARBOR MANAGEMENT PLAN: YES  NO

Boats range in size from 12'-32'.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Aerial BB 36  
Date of Survey: August 1989

Class/status: App./Pro.  
Amount

Reviewed By: \_\_\_\_\_  
Town/City: Wareham  
Crew: J. Spalding

Source	Location	Source I.D.	Source Status	Flow	Potential	Follow up	REMARKS
1	#276 Cromessett Rd.	Type 3 Size 7" 2"/19"	3 D. (I)	N/A	2	NO	19 Weepholes in the seawall.
2	North of #276 Cromessett Rd.	I 10 S/I	3 D. (I)	1 varies 1 varies	2	No	Runoff situation.
3	Nobska Rd.	I 10 S/I	3 D. (I)	1 varies	2	No	Runoff situation
4	Nobska Rd.	I 10 S/I 2'	3 D. (I)	1 varies	2	Yes	A cut in the bank due to runoff, next to Montgomery Res.
5	North of Nobska Pt.	I 10 S/I	1 D. (I)	Tidal	2	Yes	A tidal creek north of Gleason Res.
6	Marks Cove Rd.	I 1 S/I 18'	2 D. (I)	1 varies	2	Yes	A storm drain.
7	North of Marks Cove Rd.	I 3 S/I 4"	1 D. (I)	2 5gpm	2	Yes	A black 4" PVC pipe that is under the rocks at the first house north of Marks Cove Rd.
8	North of Marks Cove Rd.	I 3 S/I 3"/2"	3 D. (I)	N/A	2	NO	2 Inactive weepholes in the seawall.
9	Same area	I 3 S/I 6"/1"	3 D. (I)	N/A	2	No	A 6" possible weephole in the seawall.
10	End of Mattapoisett Rd	I 1 S/I 18"/1"	2 D. (I)	1	2	Yes	A storm drain at the end of the road. Also runoff from the road.

Source = number in survey.  
Source I.D. = Type 1. Storm Drain, 2. STP, 3. Pipes, 4. Fann, 5. Industry, 6. Septic system, 7. Roof Drain, 8. Animals, 9. Boats, 10. Deter, S/I = Size of source and/or marker.  
Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
Notes = 1 Wet weather, 2 Dry weather, flow rate ft. 3/min.  
Code = 1 reported pollution, 2 actual pollution, 3 possible problem, 4 Cont. that log source.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Reviewed By: Wareham  
Town/City

Crew J. Spalding

Area: BB-36 Date of Survey: AUGUST 18, 1989 Class/Status: APP./PRO. Amount

Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
11	North of Matt. Rd.	3 S/N/V 5"/3	3 D. (I)	N/A	1	No	Possible weepholes that appear inactive.
12	End of Conahasset Rd.	1 S/N	3 D. (I)	1	2	Yes	A storm drain which appears to be sanded in. The catch basin overflows down the road and into the woods.
13	Pine Tree Est. Creek	10 S/N	1 D. (I)	2	3	Yes	A creek which drains the cranberry bog and Pine Tree Estates.
14	Eastern shore of Marks Cove.	10 S/N	1 D. (I)	tidal	2	Yes	A tidal creek bordering Swifts Beach.
15	End of Barnes St.	1 S/N	2 D. (I)	1 Varies	2	Yes	A storm drain extending out into the water.
16	End of Pleasant St.	3 S/N	2 D. (I)	1 Varies	2	Yes	2 PVC pipes at the yellow house on Pleasant St. One of the pipes extends out onto the beach.
17	Corner of Bayview St and Wankinco St.	10 S/N	2 D. (I)	1 Varies	2	No	Road runoff.
18	West of Swifts Beach Rd.	3 S/N	3 D. (I)	1?	2	Yes	Weepholes which appear to be inactive.
19	Swifts Beach	8 S/N	1 D. (I)	N/A		Yes	Large dog(s) whose owner regularly walks them on the beach.
20	Almeida Rd.	10 S/N	2 D. (I)	1 Varies	2	No	Road runoff.

Source = number in survey; Source I.D. = Type 1. Storm Drain, 2 STP, 3 Pipes, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boat, 10, Other, S/N = Size of source and or number. Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow. Flow = 1 Wet weather, 2 Dry weather, flow rate (ft. 3/min. Potential = Potential to pollute 1 = Low, 2 = Medium, 3 = High

Area: BB 36  
 Date of Survey: August 1989  
 Class/Status: App./Pro.

Collected Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
21	East end of Swifts Deach	10 5'	1 D. 1	2 tidal	2	Yes	A tidal creek-composite drainage.
22	End of Shore Rd	10 S/W	2 D. 1	1 Varies		Yes	Runoff.
23	Swifts Neck	10 S/W 40'	1 D. 1	2 tidal		Yes	A tidal creek.
24	End of Worrall and Reynolds.	10 S/W 12"	2 D. 1	1 Varies		Yes	A storm drain.
25	#36 Worrall Ave.	3 S/W 3"	2 D. 1	1 Varies		Yes	The white house- yard and gutter runoff thru the weepholes during a rainfall.
26	Angelo/Pilgrim Ave.	1 S/W 18"/1	2 D. 1	1 Varies		Yes	A storm drain which feeds the tidal creek and also 2 cuts in the bank due to runoff.
27	Guosett Hts.	10 S/W	1 D. 1	2 Tidal		Yes	A tidal creek which is fed from the marsh extending into Swifts Beach.
28	East side of Point Rd.	3 S/W 4"/24	3/2 D. 1	1 Minimal		Yes	The first house on the right has app. 24 weepholes in the seawall. The 16th appears to be active.
29	West side of Point Rd.	3 S/W 12	3 D. 1	N/A		Yes	12 Weepholes in the seawall, some are on the beach
30	Pilgrim Ave. Ext.	10 S/W 2"/4	2 D. 1	1 Varies		Yes	4 Cuts in the banking. Road runoff.

Source = Number in survey;  
 Source I.D. = Type 1. Storm Drain, 2. STP, 3. Pipes, 4. Fams, 5. Industry, 6. Septic system, 7. Roof Drain, 8. Animals, 9. Boats, 10. Other, S/W = Size of source and of number.  
 Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 Flow = 1 Wet weather, 2 Dry weather, flow rate ft. 3/min.  
 Potential to pollute = 1 By actual problem, 2 Possible problem, 3 Contributing source.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Town/City Wareham  
Reviewed By: \_\_\_\_\_

Area: BB 36  
Date of Survey: AUGUST 189

Class/Status: App./Pro.  
Amount \_\_\_\_\_  
Crew: J. Spalding

Illeg. Source	Location	Source I.D.	Source Status	Flow	Potential	Follow up	REMARKS
31	Broadmarsh Ave.	Type Size/ID 12"	2 D. I.	1 Varies		Yes	A storm drain.
32	Broadmarsh Ave.	I S/12"	2 D. I.	1 Varies		Yes	A storm drain.
33	#21 Broadmarsh Ave.	I S/10 4"/2	2 D. I.	N/A		Yes	2 PVC drainage pipes in the seawall for the yard. 6 additional weepholes.
34	Broadmarsh River	T S/10	1 D. I.	2 tidal		Yes	Large shallow tidal area subject to decreased water circulation and waterfowl, some runoff, minor housing
35	#92 Circuit Ave.	I S/11 18"/1	2 D. I.	1 Varies		Yes	A storm drain
36	#32 Circuit Ave.	T S/11 18"/1	2 D. I.	1 Varies		Yes	A storm drain.
37	#8 Circuit Ave.	I S/11 18"/1	2 D. I.	1 Varies		Yes	A storm drain.
38	#146 Pinehurst	T S/11 10"/1	2 D. I.	1 Varies		Yes	A storm drain.
39	# 132 Pinehurst	T S/16"/1	2 D. I.	1 Varies		Yes	A storm drain, also weepholes in the seawall.
40	#96 Pinehurst	T S/16"/1	2 D. I.	1 Varies		Yes	A storm drain.

Source = Number in survey;  
Source I.D. = Type 1. Storm Drain, 2 STP, 3 Pipes, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boats, 10. Other, S/H = Size of source and of number.  
Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.

Area: BB 36 AUGUST 1989 Class/Status: APP./PRD. Amount \_\_\_\_\_  
 Date of Survey: \_\_\_\_\_ Crew: J. Spalding

Collected Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
41	#82 Pinehurst	S/I 3 5"/4	2 D. I.	1? varies		Yes	Pipes in the seawall. (Weepholes)
42	#80-#82 Pinehurst	I 1 S/I 18"/1	2 D. I.	1 varies		Yes	A storm drain.
43	#76 Pinehurst	I 1 S/I 10"/1	2 D. I.	1 varies		Yes	A possible storm drain.
44	Cottage St.	I 1 S/I 18"/1	2 D. I.	1 varies		Yes	A white PVC, possible storm drain.
45	Driftwood & Barnacle	I 1 S/I 18"/1	2 D. I.	1 varies		Yes	A storm drain.
46	Wareham River	I 10 S/I	1 D. I.	2 alot		Yes	The prohibited area of Wareham River flows into the Approved portion of BB36.
47	End of Parkwood Drive	I 1 S/I 16"/1	2 D. I.	1 varies		Yes	A storm drain.
48	Crooked River	I 10 S/I	1 D. I.	2 alot		Yes	The Crooked River (prohibited) flows into Wareham River.
49	#93 Edgewater	I 3 S/I 4"/1	2 D. I.	1 varies		Yes	A possible roof and patio drain. The runoff from the pipe does not appear to reach the water.

Source = 1 Water in survey; 2 Dry weather, flow rate ft. 3/min.  
 Source I.D. = Type 1. S/I = Septic system, 2 SIP, 3 Pipes, 4 Farm, 5 Industry, 6 Septic system, 7 Roof Drain, 8 Animals, 9 Boats, 10, Other, S/I = Size of source and or rainfall.  
 Source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow; I = Indirect flow.  
 Flow = 1 Dry weather, 2 Dry weather, flow rate ft. 3/min.  
 I = 1 Possible problem, 2 Possible problem, 3 Other that log source.

MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Warranted By: \_\_\_\_\_

Area: BB: 36

Restricted/Approved

Date of Survey: 10/14, 10/19, 10/19

Town/City: Wareham  
Crew: T. O'Neil, G. Sawyer

Source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
5A	#1 Worral Ave.	S/P 3 4"/7	3 D. I.	N/A	1	No	Seven 4" weepholes in the seawall. No evidence of a flow.
6A	#13 Reynolds Ave	I 3 S/P 2"/2	2 D. I.	?	1	No	Two 2" iron weepholes. Slight evidence of a flow. Seawall is located app. 50' from the water.
7A	End of Algeloo Ave (south of)	I 3 S/P 4"/2	3 D. I.	N/A	1	No	Two 4" weepholes, no evidence of a flow.
8A	#36 Algeloo Ave.	I 1/3 S/P 4"/8"	2/3 D. I.	1/N/A	2/1	Yes	A 4" iron pipe, slight evidence of a flow. A 8" pipe, possible storm drain, with no evidence of a flow.
9A	#30 Algeloo Ave.	I 1/3 S/P	2/2 D. I.	1?	2	Yes	A 4" roof drain (probably the same as P.S. #25 in the sanitary survey. A 8" storm drain with a slight staining on the seawall. The neighbor said that she has lived in the neighborhood for twenty years and has never seen the storm drain discharge.
6A	#18 Algeloo Ave.	I 3 S/P 4"/3	2 D. I.	N/A	2	Yes	Three 4" weepholes, slight staining of the seawall.
7A	#4 Wisteria Lane	I 3 S/P	3 D. I.	N/A	1	No	A 4" iron pipe in the seawall, no evidence of a flow.
8A	#54 Circuit Ave.	I 3 S/P 8"/1	3 D. I.	N/A	1	Yes	A 8" clay pipe in the seawall, no evidence of a flow. Also, Two 4" weepholes, no evidence of a flow.
9A	#40 Circuit Ave.	I 3 S/P 4"/9	3 D. I.	N/A	1	No	Nine 4" black tile weepholes, no evidence of a flow.

Source = Number in Survey; Source I.D. = Type 1 = Storm Drain, 2 = STP, 3 = Pipes, 4 = Farm, 5 = Industry, 6 = Septic system, 7 = Roof Drain, 8 = Animals, 9 = Boats, 10 = Other, S/P = Size of source and or number.

Flow status = 1 = Discharge, 2 = Evidence of Discharge, 3 = No Evidence of Discharge, D = Direct flow, I = Indirect flow.



MASSACHUSETTS DIVISION OF MARINE FISHERIES  
POLLUTION SOURCE SURVEY DATA

Reviewed By:

Town/City Wareham

Area: BB:36 Date of Survey: 10/14, 10/19 Class/status: Restricted/Approved

Crew: T. O'Neil, G. Sawyer

Liquid source	Location	Source I.D. Type	Source Status	Flow	Potential	Follow up	REMARKS
10A	#138 Pinehurst	I 10 S/4" 4"/3	3 D. I.	1?	2	No	Three 4" openings used as a patio drain, no evidence of a flow.
11A	#136 Pinehurst	I 3 S/4" 4"/1	3 D. I.	1?	2	No	A 4" clay pipe (possibly a yard drain), with no evidence of a flow.
12A	#100 Pinehurst	I 3 S/4" 4"/2	2 D. I.	1?	2	Yes	Two 4" white PVC pipes (weepholes), slight evidence of a flow.
13A	#82 Pinehurst	I 3 S/4" 4"/1	2 D. I.	1?	2	Yes	A 4" black tile pipe in the seawall, evidence of a flow.
14A	#62 Pinehurst	I 3 S/4" 4"/1	3 D. I.	1?	2	Yes	A 4" clay pipe (possible roof drain), no evidence of a flow.
15A	#2 Cottage St.	I 3 S/4" 4"/1	3 D. I.	1?	2	Yes	Same as #14A.
16A	#32 Pinehurst	I 3 S/2" 2"/1	2 D. I.	1?	2	Yes	A two inch white PVC pipe in the seawall, slight evidence of a flow.
17A	#22 Pinehurst	I 3 S/4" 4"/2	3 D. I.	N/A	1	No	Two 4" white PVC pipes in the seawall, no evidence of a flow.
18A	Sea Street	I 1 S/10" 10"/1	2 D. I.	1	2	Yes	A 10" corrugated tin storm drain.
19A	S. of Crooked River	I 10 S/8"	1 D. I.	tidal	2	Yes	A marsh drainage (possibly spring fed) which discharges south of Crooked River.

Source = Number in survey; Source I.D. = Type 1. Storm Drain, 2. STP, 3. Pipes, 4. Farm, 5. Industry, 6. Septic system, 7. Roof Drain, 8. Animals, 9. Boats, 10. Other, S/# = Size of source and or number.  
 source status = 1 Discharge, 2 Evidence of Discharge, 3 No Evidence of Discharge, D = Direct flow, I = Indirect flow.  
 flow = 1 Wet weather, 2 Dry weather, flow rate ft. 3/min.

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**APPENDIX 3 - WAREHAM BOARD OF ASSESSORS -  
WATERFRONT PARCEL INVENTORY**

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WAREHAM WATERFRONT PARCEL INVENTORY  
Wareham Board of Assessors

PLAT/LOT	USE	NUMBER	STREET	OWNER	OWNER ADDRESS	CITY	STATE	ZIP	LAND AREA	WATER	SEWER	???? ZONI
10/1010A	393		LONG NECK RD	PISCITELLI PAUL J	BOX 106	E WAREHAM	MA	02538	39 PS		SP	3 RA
10/1010A	393		LONG NECK RD	PISCITELLI PAUL J	BOX 106	E WAREHAM	MA	02538	39 PS		SP	1 RA
10/1010A	393		LONG NECK RD	PISCITELLI PAUL J	BOX 106	E WAREHAM	MA	02538	39 PS		SP	2 RA
11/1000A	390	3057	CRAN HWY	E.S.T.E. CORPORATION	17 BAILEY RD	WAREHAM	MA	02172	0			1 CD
11/1003	202		ELLIS AVE OFF	ELDRIDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	1 NO		NO	1 RB
11/A	132	59	FIFTEENTH ST	EDMUNDS ALFRED B	PO BOX 502	ONSET	MA	02558	1 NO		NO	1 RB
11/B	903	13	FIFTEENTH ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 PS		SW	1 RI
11/E	202	17	ELLIS AVE OFF	EDMUNDS ALFRED B	PO BOX 502	ONSET	MA	02558	13 NO		NO	1 RB
11/E	202	17	ELLIS AVE OFF	EDMUNDS ALFRED B	PO BOX 502	ONSET	MA	02558	13 NO		NO	2 RB
12/1010	132		COVE RD	BEACH WILLIAM E	PO BOX 270	BUZZARDS BAY	MA	02532	1 NO		NO	1 RA
12/1011	901		CRAN HWY	COMM OF MASS	10 PARK PLAZA RM 351	BOSTON	MA	02116	7 NO		NO	1 RA
12/A	132	3031	CRAN HWY OFF	ANGUS NANCY C	PO BOX 270	BUZZARDS BAY	MA	02532	20 NO		NO	1 RA
12/A	132	3031	CRAN HWY OFF	ANGUS NANCY C	PO BOX 270	BUZZARDS BAY	MA	02532	20 NO		NO	2 RA
12/LC36	369	3031	CRAN HWY	WATER WIZZ OF CAPE COD INC	15 COLD SPRING RD	BARRINGTON	RI	02806	6			2 CD
12/LC36	369	3031	CRAN HWY	WATER WIZZ OF CAPE COD INC	15 COLD SPRING RD	BARRINGTON	RI	02806	6			1 CD
12/LC37	390	3051	CRAN HWY	E.S.T.E. CORPORATION	17 BAILEY RD	WAREHAM	MA	02172	0			1 CD
12/LC38	401	3065	CRAN HWY	REAL VEST CORPORATION	17 BAILEY RD	WAREHAM	MA	02172	0			1 CD
12/LC3B	400	3045	CRAN HWY	SHAFFER PETER B ET ALS	PO BOX 160	HARTVILLE	SC	29550	2			1 CD
132A/1	101	45	MAYFLOWER RIDGE DR	GIAMO FRANK T	83 WOODCHESTER DR	WESTON	MA	02193	0.42 PS		SP	1 RA
132A/2	131	47	MAYFLOWER RIDGE DR	LANGE MARILYN R	20 JEFFERSON SHS RD	BUZZARDS BAY	MA	02532	0.34 PS			1 RA
132A/3	132	49	MAYFLOWER RIDGE DR	LANGE MARILYN R	20 JEFFERSON SHS RD	BUZZARDS BAY	MA	02532	0.44 PS			1 RA
132A/4	132	51	MAYFLOWER RIDGE DR	SAMPLE HOWARD M	6 MARLBORO ST	DEDHAM	MA	02026	0.47 PS			1 RA
132A/5	101	53	MAYFLOWER RIDGE DR	SAMPLE HOWARD M	6 MARLBORO ST	DEDHAM	MA	02026	0.46 PS		SP	1 RA
132B/1000	132		CRAN HWY OFF	LAKE ALICE	BOX 91	ONSET	MA	02558	1 NO		NO	1 RA
132B/22	132		CRAN HWY OFF	LAKE ALICE	BOX 91	ONSET	MA	02558	0.37 NO			1 RA
132B/26	132		CRAN HWY OFF	LAKE ALICE	BOX 91	ONSET	MA	02558	0.36 NO			1 RA
132B/27	132		CRAN HWY OFF	ZION MARGARET H	321 EASTERN ST BLDG A	NEW HAVEN	CT	06513	0.32 NO			1 RA
132B/28	132		CRAN HWY OFF	JOSEPH HERBERT	25 DERBY ST	GLOUCESTER	MA	01930	0.65 NO			1 RA
132/1007	400	8	ELM ST	TREMONT NAIL LIMITED PARTNER-	111 CHURCH ST	PERU	IL	61354	5			2 SC
132/1007	400	8	ELM ST	TREMONT NAIL LIMITED PARTNER-	111 CHURCH ST	PERU	IL	61354	5			1 SC
132/1008A	400	6	ELM ST	TREMONT NAIL LIMITED	P O BOX 111	WAREHAM	MA	02571	1			1 SC
132/1008B	2		ELM ST	TREMONT NAIL LIMITED	P O BOX 111	WAREHAM	MA	02571	1 PS		SP	2 SC
132/1008B	2		ELM ST	TREMONT NAIL LIMITED	P O BOX 111	WAREHAM	MA	02571	1 PS		SP	1 SC
132/1027	132		CRAN HWY OFF	HORNE ARTHUR A JR	2 ANCHORAGE DR	MILFORD	CT	06460	1 PS			1 SC
132/1029	101	2641	CRAN HWY	WALKER MERRILL B JR	3736 THOMAS PT RD	ANNAPOLIS	MD	21403	12 IW		SP	1 SC
132/1029	101	2641	CRAN HWY	WALKER MERRILL B JR	3736 THOMAS PT RD	ANNAPOLIS	MD	21403	12 IW		SP	2 SC
132/1037	131	2677	CRAN HWY	GABRIEL ROSE ZION	P.O. BOX 496	WAREHAM	MA	02571	4 NO			1 SC

132/1037	131	2677	CRAN HWY	GABRIEL ROSE ZION	P.O. BOX 496	WAREHAM	MA	02571	4 NO	NO	2 SC
132/1037	131	2677	CRAN HWY	GABRIEL ROSE ZION	P.O. BOX 496	WAREHAM	MA	02571	4 NO	NO	3 SC
132/1043A	132		CRAN HWY	LUTOFF MABEL T	2683 CRANBERRY HWY	WAREHAM	MA	02571	2 NO	NO	1 SC
132/1043A	132		CRAN HWY	LUTOFF MABEL T	2683 CRANBERRY HWY	WAREHAM	MA	02571	2 NO	NO	2 SC
132/1048	101		ELM ST OFF	LANOUE WILLIAM F JR	OFF ELM ST	WAREHAM	MA	02571	0.28 PS	SP	1
132/1049A	101		ELM ST OFF	EDMUNDS ALFRED	PO BOX 502	ONSET	MA	02558	0.44 PS	SP	1 SC
132/1049B	101		ELM ST OFF	EDMUNDS ALFRED	PO BOX 502	ONSET	MA	02558	0.44 PS	SP	1 SC
132/1050A	101	R	ELM STREET	EDMUNDS ALFRED B	P.O. BOX 502	ONSET	MA	02558	0.72 PS	SP	1 RA
132/1050B	130	OFF	ELM STREET	EDMUNDS ALFRED B	P.O. BOX 502	ONSET	MA	02558	1 PS		2 RA
132/1050B	130	OFF	ELM STREET	EDMUNDS ALFRED B	P.O. BOX 502	ONSET	MA	02558	1 PS		1 RA
132/1050C	131	25	MAYFLOWER RIDGE	EDMUNDS ALFRED B	P.O. BOX 502	ONSET	MA	02558	0.74 PS		1 RA
132/1050D	130	R	ELM STREET	EDMUNDS ALFRED B	P.O. BOX 502	ONSET	MA	02558	0.9 PS		1 RA
132/1056	101	33	MAYFLOWER RIDGE DR	SCHIAPPA GLORIA	33 MAYFLOWER RIDGE D	WAREHAM	MA	02571	0.56 PS	SP	1 RA
132/1057	132		MAYFLOWER RIDGE DR	THOMAS REALTY TRUST	83 WOODCHESTER DR	WESTON	MA	02193	0.21 PS		1 RA
132/1062	131	109	MAYFLOWER RIDGE DR	FREEMAN LUCY A	32 PAYSON AVE	DORCHESTER	MA	02125	12 PS		1 RA
132/1062	131	109	MAYFLOWER RIDGE DR	FREEMAN LUCY A	32 PAYSON AVE	DORCHESTER	MA	02125	12 PS		2 RA
132/1063	132	11	CRAN HWY OFF	ELDREDGE DAVID W	BOX 346	WAREHAM	MA	02571	8 NO	NO	2 RA
132/1063	132	11	CRAN HWY OFF	ELDREDGE DAVID W	BOX 346	WAREHAM	MA	02571	8 NO	NO	1 RA
132/1071	132	2657	CRAN HWY OFF	ZION JOHN	P O BOX 496	WAREHAM	MA	02571	9 NO	NO	2 RA
132/1071	132	2657	CRAN HWY OFF	ZION JOHN	P O BOX 496	WAREHAM	MA	02571	9 NO	NO	1 RA
132/1072	101	55	MAYFLOWER RIDGE DR	IACOZZA ANTHONY M JR	55 MAYFLOWER RIDGE D	WAREHAM	MA	02571	1 PS	SP	2 RA
132/1072	101	55	MAYFLOWER RIDGE DR	IACOZZA ANTHONY M JR	55 MAYFLOWER RIDGE D	WAREHAM	MA	02571	1 PS	SP	1 RA
132/1072	101	55	MAYFLOWER RIDGE DR	IACOZZA ANTHONY M JR	55 MAYFLOWER RIDGE D	WAREHAM	MA	02571	1 PS	SP	3 RA
132/1073	132		MAYFLOWER RIDGE DR	IACOZZA ANTHONY M JR	55 MAYFLOWER RIDGE D	WAREHAM	MA	02571	1 PS		1 RA
132/1074	132		MAYFLOWER RIDGE DR	IACOZZA MARIA	55 MAYFLOWER RIDGE D	WAREHAM	MA	02571	0.3 PS		1 RA
132/1075	903		MAYFLOWER RIDGE DR	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	4 NO	NO	1 R1
132/1076			MAYFLOWER RIDGE DR	COMMUNITY GARAGE INC	24 WILTON ST	WALTHAM	MA	02154	5 NO	NO	1 RA
132/1076			MAYFLOWER RIDGE DR	COMMUNITY GARAGE INC	24 WILTON ST	WALTHAM	MA	02154	5 NO	NO	2 RA
132/1080	101		CRAN HWY OFF	ELDREDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	0.36 IW	SP	1 RA
132/1081			CRAN HWY OFF	ELDREDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	4 IW	SP	3 RA
132/1081			CRAN HWY OFF	ELDREDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	4 IW	SP	1 RA
132/1081			CRAN HWY OFF	ELDREDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	4 IW	SP	2 RA
132/1082	101		CRAN HWY OFF	FREEMAN LUCY A	32 PAYSON AVE	DORCHESTER	MA	02125	2 IW	SP	1 RA
132/1082	101		CRAN HWY OFF	FREEMAN LUCY A	32 PAYSON AVE	DORCHESTER	MA	02125	2 IW	SP	2 RA
132/1083	131		CRAN HWY OFF	ELDREDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	8 NO	NO	1 RA
132/1083	131		CRAN HWY OFF	ELDREDGE DAVID W	PO BOX 346	WAREHAM	MA	02571	8 NO	NO	2 RA
132/1084	132	40	CRAN HWY OFF	HORNE JOHN DAVID	35 HELLSTOM RD	E HAVEN	CT	06512	1 NO	NO	1 RA
132/1085	132		CRAN HWY	WALKER MERRILL B JR	3736 THOMAS PT RD	ANNAPOLIS	MD	21403	0.2 NO	NO	1 SC
132/1088	901		MAIN ST OFF	COMM OF MASS	10 PARK PLAZA RM 351	BOSTON	MA	02116	7 NO	NO	1 SC

133A/117	101 5	WREN TER	MARTELLI ALBERT A	5 WREN TERRACE	WAREHAM	MA	02571	0.5 PS	SP	1 RA
133A/118	105 3	WREN TER	CAMILLE REALTY CORP	890 CLAPBOARD TREE S	NORWOOD	MA	02061	0.42 PS	SP	1 RA
133A/119	104 1	WREN TER	NORTON JACQUELINE A	1 WREN TER	WAREHAM	MA	02570	0.37 PS	SP	1 R1
133A/142	101 26	SANDPIPER TER	J & L REALTY CO	15 VICTORIA CIRCLE	NEWTON CENTER	MA	02159	0.34 PS	SP	1 RA
133A/143	101 24	SANDPIPER TER	FISHER JOHN S	P O BOX 534	WAREHAM	MA	02571	0.33 PS	SP	1 RA
133A/144	132 22	SANDPIPER TER	FISHER JOHN S	BOX 534	WAREHAM	MA	02571	0.33 PS		1 RA
133A/145	101 20	SANDPIPER TER	COLBURN MARY ANN	20 SANDPIPER TERR	WAREHAM	MA	02571	0.29 PS	SP	1 RA
133A/146	101 18	SANDPIPER TER	ODONNELL JOHN F JR	14 SALEM DR	WAREHAM	MA	02571	0.33 PS	SP	1 RA
133A/147	101 16	SANDPIPER TER	JONES ARNOLD M	16 SANDPIPER TERR	WAREHAM	MA	02571	0.32 PS	SP	1 RA
133A/148	101 14	SANDPIPER TER	CARRIGAN WILLIAM C	14 SANDPIPER TER	WAREHAM	MA	02571	0.33 PS	SP	1 RA
133A/149	101 12	SANDPIPER TER	BROWN BARBARA B TRS TWELVE	99 PORTER PLACE	BRIDGEWATER	MA	02324	0.38 PS	SP	1 RA
133A/150	101 10	SANDPIPER TER	FORGIONE WILLIAM R	86 JEFFERSON AVE	EVERETT	MA	02149	0.41 PS	SP	1 RA
133A/151	101 8	SANDPIPER TER	ROBINSON LEIF J	14 WILLOW RD	WELLESLEY	MA	02181	0.39 PS	SP	1 RA
133A/152	101 6	SANDPIPER TER	AYOTTE FRANCIS L	5 DAMASE ST	PROSPECT	CT	06712	0.36 PS	SP	1 RA
133A/153	101 4	SANDPIPER TER	WARD FRANK M	4 SANDPIPER TERR	WAREHAM	MA	02571	0.43 PS	SP	1 R1
133A/C1	903 2	SANDPIPER TER	TOWN OF WAREHAM	54 MARION RD	WAREHAM	MA	02571	1 PS	SP	1 RA
133A/C2	132 1	WREN TER OFF	NORTON JACQUELINE A	1 WREN TER	WAREHAM	MA	02571	0.25 NO	NO	1 RA
133A/D	903	WHIPPOORWILL WAY	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	9 NO	NO	1 R1
133/1002	105 2729	CRAN HWY	BOSSY JAMES J	PO BOX 3245	WAREHAM	MA	02571	3 PS	SP	1 RA
133/1002	105 2729	CRAN HWY	BOSSY JAMES J	PO BOX 3245	WAREHAM	MA	02571	3 PS	SP	2 RA
133/1003	101 2731	CRAN HWY	GOLEMO STEVEN A	2731 CRANBERRY HWY	WAREHAM	MA	02571	3 PS	SP	1 RA
133/1003	101 2731	CRAN HWY	GOLEMO STEVEN A	2731 CRANBERRY HWY	WAREHAM	MA	02571	3 PS	SP	2 RA
133/1004	301 2739	CRAN HWY	RYAN JOHN J JR TRUSTEE OF THE	369 WASHINGTON ST	PEMBROKE	MA	02359	0.84	SP	1 RA
133/101	101 108	SANDWICH RD	JAMES WILLIE	46 MISSINGER ST	MATTAPAN	MA	02126	1 PS	SP	2 RA
133/1011	031 2747	CRAN HWY	SRIBERG ROBERT M	69 MANDALAY RD	NEWTON	MA	02159	1	SP	2 RA
133/1011	031 2747	CRAN HWY	SRIBERG ROBERT M	69 MANDALAY RD	NEWTON	MA	02159	1	SP	1 RA
133/1012	132	CRAN HWY	HALL ROGER L	PO BOX 606	E WAREHAM	MA	02538	1 NO	NO	1 RA
133/1014A	112 2739	CRAN HWY	STONE VILLAGE CORPORATION	75 ARLINGTON ST	BOSTON	MA	02110	13	NO	2 RA
133/1014A	112 2739	CRAN HWY	STONE VILLAGE CORPORATION	75 ARLINGTON ST	BOSTON	MA	02110	13	NO	1 RA
133/1015	903 76	SANDWICH RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	6 PS		1 R1
133/1016	101	SANDWICH RD OFF	POTTER NEIL A	99 SANDWICH RD	WAREHAM	MA	02571	0.75 PS	SP	1 RA
133/1017	101 80	SANDWICH RD	POTTER NEIL A	99 SANDWICH RD	WAREHAM	MA	02571	5 PS	SP	1 RA
133/1017	101 80	SANDWICH RD	POTTER NEIL A	99 SANDWICH RD	WAREHAM	MA	02571	5 PS	SP	2 RA
133/1018	130 102	SANDWICH RD	POTTER NEIL A	99 SANDWICH RD	WAREHAM	MA	02571	2 PS	SP	1 RA
133/1018	130 102	SANDWICH RD	POTTER NEIL A	99 SANDWICH RD	WAREHAM	MA	02571	2 PS	SP	2 RA
133/1019A	101 172	SANDWICH RD	COLE BRUCE M	99 SANDWICH RD	WAREHAM	MA	02571	2 PS	SP	1 RA
133/1019B	130 178	SANDWICH RD	MORSE GEORGE H III	CHESTNUT ST	MIDDLEBORO	MA	02346	0.79 PS	SP	1 RA
133/1019C	130 184	SANDWICH RD	MORSE GEORGE H III	215 ROCKY MEADOW ST	MIDDLEBORO	MA	02346	0.92 PS	SP	1 RA
133/1020	903	SANDWICH RD OFF	TOWN OF WAREHAM	215 ROCKY MEADOW ST	MIDDLEBORO	MA	02346	0.89 PS	SP	1 RA
				TOWN HALL	WAREHAM	MA	02571	0.14 NO	NO	1 R1

134/1026	132	AVENUE A	OFF	HARRIS JAMES W	WAREHAM	MA	02571	0.38	NO	1	RA
134/1027	101	AVENUE A	OFF	HARRIS JAMES W	WAREHAM	MA	02571	0.75	PS	1	RA
134/1034	131	JOHNSON ST		GOMES MANUEL J	WAREHAM	MA	02571	0.34	PS	1	RA
134/1037	130	JOHNSON ST		CRUSE GEORGE	DORCHESTER	MA	02122	0.87	PS	1	RA
134/1039	132	CHERRY ST	OFF	SEQUEIRA TIMEO	WAREHAM	MA	02571	1	PS	1	RA
134/1094	132	JOHNSON ST		GOMES MANUEL J	WAREHAM	MA	02571	0.08	NO	1	RA
134/1096	101	JOHNSON ST		QUEELEY HELENA ET ALS	WAREHAM	MA	02571	5	IW	2	RA
134/1096	101	JOHNSON ST		QUEELEY HELENA ET ALS	WAREHAM	MA	02571	5	IW	1	RA
134/1097A	132	APPLE ST		KENNEDY JOHN T	WAREHAM	MA	02571	0.6	NO	1	RA
134/1097B	903	ASH ST		TOWN OF WAREHAM	WAREHAM	MA	02571	0	PS	1	R1
134/A1	132	AVENUE A	OFF	LOUIS EARNEST A	ROXBURY	MA	02121	0.17	NO	1	RA
134/F-99	903	OAKDALE ST		TOWN OF WAREHAM	WAREHAM	MA	02571	1	PS	2	RA
134/F-99	903	OAKDALE ST		TOWN OF WAREHAM	WAREHAM	MA	02571	1	PS	1	RA
13/1030	906	OLD ONSET RD	OFF	DELAPP G LESLIE PRESIDING BISH	WAREHAM*	MA	02571	17	PS	2	R1
13/1030	906	OLD ONSET RD	OFF	DELAPP G LESLIE PRESIDING BISH	WAREHAM	MA	02571	17	PS	1	R1
13/1031A	906	COMMONWEALTH AVE		DELAPP G LESLIE PRESIDING BISH	WAREHAM	MA	02571	32		1	R1
13/1031A	906	COMMONWEALTH AVE		DELAPP G LESLIE PRESIDING BISH	WAREHAM	MA	02571	32		3	R1
13/1031A	906	COMMONWEALTH AVE		DELAPP G LESLIE PRESIDING BISH	WAREHAM	MA	02571	32		2	R1
13/1036	132	CAMP ST	OFF	BOOTH WALLACE C JR	ONSET	MA	02558	0.61	NO	1	RA
13/1038	132	OLD ONSET RD		DIAS EUGENE	ONSET	MA	02558	0.24	NO	1	RA
13/A	906	CAMP ST		DELAPP LESLIE G PRESIDING BISH	WAREHAM	MA	02571	2	PS	1	R1
16/1029	132	ONSET AVE	OFF	BARROWS VICTOR	ONSET	MA	02558	2	NO	1	OV
16/1030	903	ONSET AVE	OFF	TOWN OF WAREHAM	WAREHAM	MA	02571	1	PS	1	R1
16/1031	132	FREDERICK GOMEZ WAY		GLEASON CHARLES S	WAREHAM	MA	02571	4	NO	1	CR
16/1033	101	SQUAW'S PATH		RACKLIFFE MARY S D	EXETER	NH	03833	1	PS	2	OV
16/1033	101	SQUAW'S PATH		RACKLIFFE MARY S D	EXETER	NH	03833	1	PS	1	OV
16/1037	131	SQUAW'S PATH		POND THOMAS A	BOSTON	MA	02100	0.25	NO	1	OV
16/1A	130	FREDERICK GOMEZ WAY		GLEASON CHARLES S	WAREHAM	MA	02571	30	PS	1	R3
16/1A	130	FREDERICK GOMEZ WAY		GLEASON CHARLES S	WAREHAM	MA	02571	30	PS	2	R3
16/1A	130	FREDERICK GOMEZ WAY		GLEASON CHARLES S	WAREHAM	MA	02571	30	PS	3	R3
16/11	101	BAKER'S IS		BARNHARDT MARJORIE P	ONSET	MA	02558	0.39	PS	1	R3
16/12	131	BAKERS ISL		ORCUTT BERNARD R	ONSET	MA	02558	0.21	PS	1	R3
16/13	101	BAKER'S IS		ORCUTT BERNARD R	ONSET	MA	02375	0.21	PS	1	R3
16/14	101	BAKER'S IS		SAWIN SAMUEL R	ONSET	MA	02558	0.18	PS	1	R3
16/15	101	BAKER'S IS		MOFFORD DONALD F	RANDOLPH	MA	02368	0.18	PS	1	R3
16/16	101	BAKER'S IS		SAWYER LOWELL L ET ALS	EVERETT	MA	02149	0.15	PS	1	R3
16/S16	101	SQUAW'S PATH	OFF	MCFADDEN MARY E	BROOKLINE	MA	02146	0.74	PS	1	R3
16/S17	101	SQUAW'S PATH	OFF	PULSIFER JOSEPH	NEWTONVILLE	MA	02160	1	PS	1	R3
18/1000C	101	SQUAW'S PATH		STETSON HOUSE INC	ACUSHNET	MA	02743	3	IW	3	R6



133/1021A 903	SANDWICH RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 NO	NO	1 R1
133/1021B 903	SANDWICH RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 NO	NO	1 R1
133/1021C 132	CRAN HWY OFF	PACE WARD E JR	1467 STATE RD	PLYMOUTH	MA	02360	1 NO	NO	1 RA
133/1022 132	CRAN HWY OFF	MANter LESLIE F	TEMPEST KNOB TERR	WAREHAM	MA	02571	1 NO	NO	1 RA
133/1023 130 2755	CRAN HWY	ROBERTSON'S REALTY CORP	PO BOX 231	WAREHAM	MA	02571	20 NO	NO	2 RA
133/1023 130 2755	CRAN HWY	ROBERTSON'S REALTY CORP	PO BOX 231	WAREHAM	MA	02571	20 NO	NO	1 RA
133/1025 101	SANDWICH RD OFF	FRANKLIN GILBERT E SR	OFF SANDWICH RD	WAREHAM	MA	02571	0 PS	SP	2 RA
133/1025 101	SANDWICH RD OFF	FRANKLIN GILBERT E SR	OFF SANDWICH RD	WAREHAM	MA	02571	0 PS	SP	1 RA
133/1028 130 188	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	02571	2 NO	NO	1 RA
133/1028 130 188	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	02571	2 NO	NO	1 RA
133/1028 130 188	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	02571	2 NO	NO	3 RA
133/103 131 116	SANDWICH RD	RUZA ANDREW P	605 HARTFORD ST	WAREHAM	MA	02571	2 NO	NO	2 RA
133/104 101 118	SANDWICH RD	PHILLIPS JOSEPH C ET ALS	BOX 161	WESTWOOD	MA	02090	0.4 PS		1 RA
133/105 130 120	SANDWICH RD	MENDES NORMAN E	126 SANDWICH RD	WAREHAM	MA	02571	0.55 PS	SP	1 RA
133/105 130 120	SANDWICH RD	MENDES NORMAN E	126 SANDWICH RD	WAREHAM	MA	02571	1 PS		1 RA
133/105 130 120	SANDWICH RD	MENDES NORMAN E	126 SANDWICH RD	WAREHAM	MA	02571	1 PS		2 RA
133/108 101 126	SANDWICH RD	MENDES NORMAN E	SANDWICH RD	WAREHAM	MA	02571	1 PS	SP	2 RA
133/110 132 130	SANDWICH RD	SYLVESTER NORMAN W	BOX 757	WAREHAM	MA	02571	1 PS		1 RA
133/111 101 134	SANDWICH RD	SYLVESTER NORMAN W	BOX 757	WAREHAM	MA	02571	1 PS	SP	2 RA
133/111 101 134	SANDWICH RD	SYLVESTER NORMAN W	BOX 757	WAREHAM	MA	02571	1 PS	SP	1 RA
133/113 340 136	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	02571	0.65		1 RA
133/113 340 136	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	02571	0.65		2 RA
133/114 101 138	SANDWICH RD	BRYANT WILLARD A &	179 SANDWICH RD	WAREHAM	MA	02571	0.47 PS	SP	1 RA
133/115 310 140	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	02571	0.24		1 RA
133/116 132 142	SANDWICH RD	COMMONWEALTH ELECTRIC COMPANY	PO BOX 9150	WAREHAM	MA	02142	0.25 PS		1 RA
133/118 132 146	SANDWICH RD	SANTIAGO EILEEN P	BOX 103	CAMBRIDGE	MA	02571	0.39 PS		1 RA
133/131 101 156	SANDWICH RD	SOUZA PHILLIP	PO BOX 505	WAREHAM	MA	02571	0.27 PS	SP	1 RA
134/1000 013 8	SANDWICH RD	NYMAN DANIEL C	DRAWER K	WAREHAM	MA	02571	0.33		1 SC
134/1000 013 8	SANDWICH RD	NYMAN DANIEL C	DRAWER K	WAREHAM	MA	02571	0.33		2 SC
134/1001 132 4	AVENUE A	NUOVO FRANK J	BOX 1487	BUZZARDS BAY	MA	02532	8 PS		1 RA
134/1001 132 4	AVENUE A	NUOVO FRANK J	BOX 1487	BUZZARDS BAY	MA	02532	8 PS		2 RA
134/1008 132 20	AVENUE A	NUOVO FRANK J	BOX 1487	BUZZARDS BAY	MA	02532	4 NO	NO	1 RA
134/1009 132 24	AVENUE A OFF	LINCOLN JAMES R JR	5808 S RAPP ST 202A	LITTLETON	CO	80120	0.73 NO	NO	1 RA
134/1010 101 28	AVENUE A	TEIXEIRA JULIA	28 AVE A	WAREHAM	MA	02571	0.49 PS	SP	1 RA
134/1011 131 34	AVENUE A OFF	DANIEL CAROLINE M	PO BOX 124	MARSHFIELD	MA	02051	0.23 NO	NO	1 RA
134/1012 131 38	AVENUE A OFF	DANIEL CAROLINE M	PO BOX 124	MARSHFIELD	MA	02051	0.27 NO	NO	1 R1
134/1013 131 40	AVENUE A OFF	DANIEL CAROLINE M	PO BOX 124	MARSHFIELD	MA	02051	0.25 NO	NO	1 R1
134/1020 131 48	AVENUE A OFF	DANIEL CAROLINE M	PO BOX 124	MARSHFIELD	MA	02051	0.48 NO	NO	1 R1
134/1023 130 52	AVENUE A	LINCOLN JAMES R JR	5808 S RAPP ST 202A	LITTLETON	CO	80120	0.93 PS		1 RA
134/1025 101 58	AVENUE A	GOMES ROSE A	58 AVENUE A	WAREHAM	MA	02571	0.21 PS	SP	1 RA

18/1000C	101	SQUAW'S PATH	STETSON HOUSE INC	PO BOX 126	ACUSHNET	MA	02743	3 IW	SP	1 R6
18/1000C	101	SQUAW'S PATH	STETSON HOUSE INC	PO BOX 126	ACUSHNET	MA	02743	3 IW	SP	2 R6
18/1001	132	GREAT NECK RD	OFF GIBBS HELEN B	39 GREAT NECK RD	E WAREHAM	MA	02538	11 NO	NO	1 R3
18/1001	132	GREAT NECK RD	OFF GIBBS HELEN B	39 GREAT NECK RD	E WAREHAM	MA	02538	11 NO	NO	2 R3
18/1003	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	1 NO	NO	1 R6
18/1004	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	23 NO	NO	1 R6
18/1004	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	23 NO	NO	2 R6
18/1005	101	GREAT NECK RD	GREGORY ELIZABETH L	11 SUNNY PLAIN AVE	WEYMOUTH	MA	02188	3 PS	SP	2 R3
18/1005	101	GREAT NECK RD	GREGORY ELIZABETH L	11 SUNNY PLAIN AVE	WEYMOUTH	MA	02188	3 PS	SP	1 R3
18/1005	101	GREAT NECK RD	GREGORY ELIZABETH L	11 SUNNY PLAIN AVE	WEYMOUTH	MA	02188	3 PS	SP	3 R3
18/1006	202	GREAT NECK RD	VOLPE S & CO, INC	PO BOX 3040	WAREHAM	MA	02571	5 NO	NO	1 R6
18/1012	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	6 NO	NO	1 R6
18/1036	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	0 NO	NO	2 R6
18/1036	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	0 NO	NO	1 R6
18/1037	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	1 NO	NO	1 R6
18/1038	132	GREAT NECK RD	OFF VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	1 NO	NO	1 R6
18/1039	101	GREAT NECK RD	BERGERON CLAIRE J	122 GREAT NECK RD	WAREHAM	MA	02571	0.55 PS	SP	1 R6
18/1039A	132	GREAT NECK RD	OFF NICKERSON ANNIE M	617 MAIN ST	HARWICHPORT	MA	02646	0 NO	NO	1 R6
18/1047	131	GREAT NECK RD	VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	0 NO	NO	1 R6
18/1047	131	GREAT NECK RD	VOLPE S & CO INC	PO BOX 3040	WAREHAM	MA	02571	0 NO	NO	2 R6
19/1000	132	ARLINGTON RD OFF	STARON DAVID S	18 ARLINGTON RD	WAREHAM	MA	02571	1 NO	NO	1 R6
19/1001	202	NORTHPORT DR	STARON DAVID S	18 ARLINGTON RD	WAREHAM	MA	02571	0 NO	NO	1 R6
19/1002		GREAT NECK RD	OFF GALLAGHER FRANCIS O	75 NEWLAND ST	NORTON	MA	02766	13 PS	SP	3 R6
19/1002		GREAT NECK RD	OFF GALLAGHER FRANCIS O	75 NEWLAND ST	NORTON	MA	02766	13 PS	SP	1 R6
19/1002		GREAT NECK RD	OFF GALLAGHER FRANCIS O	75 NEWLAND ST	NORTON	MA	02766	13 PS	SP	2 R6
19/1006	132	GREAT NECK RD	HOWARD JOHN B	62 OLDE KNOLL RD	MARTON	MA	02738	9 IW	SP	2 R6
19/1006	132	GREAT NECK RD	HOWARD JOHN B	62 OLDE KNOLL RD	MARTON	MA	02738	9 IW	SP	1 R6
19/1012	101	GREAT NECK RD	COOK SANDRA STUART	8 WALLACE CT	CHARLESTOWN	MA	02129	1 IW	SP	2 R6
19/1012	101	GREAT NECK RD	COOK SANDRA STUART	8 WALLACE CT	CHARLESTOWN	MA	02129	1 IW	SP	1 R6
19/1014	132	NORTHPORT DR	OLNEY FREDERICK H JR	24 SCHOOL ST	S EASTON	MA	02375	0.36 PS	SW	1 R6
19/1015	132	NORTHPORT DR	LAKE DONALD T	158 WOODMONT ST	W SPRINGFIELD	MA	01089	0.17 PS	SW	1 R6
19/1016	132	NORTHPORT DR	LILJA VERNER A	4 GLADSTONE AVE	WAREHAM	MA	02571	0.38 PS	SW	1 R6
19/104	101	NORTHPORT DR	MCCARTHY WILLIAM E	6 NORTHPORT DR	WAREHAM	MA	02571	0.17 PS	SP	1 R6
19/107	101	ARLINGTON RD	TOSCANO FRANK	32 ARLINGTON RD	WAREHAM	MA	02571	0.28 PS	SP	1 R6
19/A	132	NORTHPORT DR	THOMSON WAYNE C	25 PINEHURST AVE	BROCKTON	MA	02402	0 PS	SP	1 R6
19/B	132	NORTHPORT DR	THOMSON WAYNE C	25 PINEHURST AVE	BROCKTON	MA	02402	0 PS	SP	1 R6
19/C	132	NORTHPORT DR	MENDONCA MANUEL	1563 COVE RD	NEW BEDFORD	MA	02740	0 PS	SP	1 R6
19/D	132	NORTHPORT DR	CRESCENTINI LOUIS A	11 AVOLA ST	ARLINGTON	MA	02174	0 PS	SP	1 R6
19/E	132	NORTHPORT DR	BEDARD EDWARD F	2696 CRAN HWY	WAREHAM	MA	02571	0 PS	SW	1 R6

19/G	106	NORTHPORT DR	ELLIS KARL W	101 NORWELL ST	NEW BEDFORD	MA	02740	0 PS	SP	1 R6
19/H	132	NORTHPORT DR	STARON DAVID S	18 ARLINGTON RD	WAREHAM	MA	02571	0 PS	SP	1 R6
19/J	132	NORTHPORT DR	STARON DAVID S	18 ARLINGTON RD	WAREHAM	MA	02571	0 PS	SP	1 R6
19/K	132	ARLINGTON RD OFF	HELDMAN DALE L	4 BAYVIEW RD	E SANDWICH	MA	02537	0 PS	SP	1 R6
19/L	132	ARLINGTON RD OFF	DONOVAN FRANCIS J	PO BOX 248	WAREHAM	MA	02571	0 PS	SP	1 R6
19/M	132	ARLINGTON RD OFF	DONOVAN FRANCIS J	PO BOX 248	WAREHAM	MA	02571	0 PS	SP	1 R6
19/P	132	NORTHPORT DR OFF	TOSCANO FRANK	32 ARLINGTON RD	WAREHAM	MA	02571	0 PS	SP	1 R6
1A/1000	132	HARBOR AVE OFF	ONSET ISLANDERS ASSOC INC	255 BROOKHAVEN DR	ELK GROVE VILLAGE	MA	60007	0.13 NO	NO	1 RA
1A/1001	106	HARBOR AVE OFF	ONSET ISLANDERS ASSOC INC	255 BROOKHAVEN DR	ELK GROVE VILLAGE	MA	60007	0.07 NO	NO	1 RA
1A/1005	132	OCEAN AVE	ONSET ISLANDERS ASSOC INC	255 BROOKHAVEN DR	ELK GROVE VILLAGE	MA	60007	0.76 NO	NO	1 RA
1A/1004	131	WICKETS IS	PILON HAROLD F	290 HOPMEADOW RD	WEATOGUE	CT	06089	4 NO	NO	2 RA
1A/1004	131	WICKETS IS	PILON HAROLD F	290 HOPMEADOW RD	WEATOGUE	CT	06089	4 NO	NO	2 RA
1/1005	903 160	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.03		1 R1
1/1006	903 150	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.11		1 R1
1/1014	384	ONSET AVE	JONES LEROY P	735 WASHINGTON ST	WALPOLE	MA	02081	0.24		1 R1
1/10158	903 27	EAST BLVD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.13 PS	SW	1 R1
1/1023	903	NORTH BLVD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2		1 R1
1/1030A	106	NORTH AVE	BALDWIN INVESTMENTS LIMITED	457 MT AUBURN ST #10	CAMBRIDGE	MA	02138	1 PS		1 OV
1/1030C	132	WESTERN AVE	BALDWIN INVESTMENTS LIMITED	457 MT AUBURN ST #10	CAMBRIDGE	MA	02138	0 PS		1 OV
1/1031	903 248	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	4		1 R1
1/1031	903 248	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	4		3 R1
1/1031	903 248	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	4		2 R1
1/1038	903	WEST BLVD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 NO	NO	2 R1
1/1038	903	WEST BLVD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 NO	NO	1 R1
1/1039	132	SUNSET AVE OFF	NUOVO FRANK J	PO BOX 1487	BUZZARDS BAY	MA	02532	0 NO	NO	1 OV
1/1040	132	SUNSET AVE OFF	BALDWIN INVESTMENTS LIMITED	457 MT AUBURN ST	CAMBRIDGE	MA	02138	0 NO	NO	1 OV
1/1040	132	SUNSET AVE OFF	BALDWIN INVESTMENTS LIMITED	457 MT AUBURN ST	CAMBRIDGE	MA	02138	0 NO	NO	2 OV
1/1041	132	SUNSET AVE OFF	NUOVO FRANK J	PO BOX 1487	BUZZARDS BAY	MA	02532	0 NO	NO	1 OV
1/1042	132	SUNSET AVE OFF	NUOVO FRANK J	PO BOX 1487	BUZZARDS BAY	MA	02532	0 NO	NO	1 OV
1/1043A	132	SUNSET AVE OFF	EARLS THOMAS ET ALS	217 CROSSFIELD RD	FRANKLIN	MA	02038	0 NO	NO	1 OV
1/1043B	132	SUNSET AVE OFF	DUNN PATRICIA CURLEY	1 MCLEOD RD	TROY	NY	12180	0 NO	NO	1 OV
1/1043C	132	SUNSET AVE OFF	SCANZIO HENRY	2195 MAIN ST	WALPOLE	MA	02081	0 NO	NO	1 OV
1/1044	101 1	SUNSET AVE	PISCITELLI DOMENICO	9 EISENHOWER DR	S EASTON	MA	02375	2 PS	SP	2 OV
1/1044	101 1	SUNSET AVE	PISCITELLI DOMENICO	9 EISENHOWER DR	S EASTON	MA	02375	2 PS	SP	1 OV
1/1045	903	SUNSET RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0 NO	NO	1 R1
1/1048	903	WEST BLVD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	9 NO	NO	1 R1
1/1052A	903 182	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0		1 R1
1/1052B	903 184	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1		1 R1
1/1052B	903 184	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1		2 R1

1/1053	326	180	ONSET AVE	CLARKSON JOY A	8 STONE DAM ROAD	BETHEL	CT	06801	0.11	1 OV
1/1054	903		ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1	1 R1
1/622D	101	2	SUNSET AVE	LITTLEHALE DOUGLAS S	BEAVER POND RD	BEVERLY	MA	01915	0.16 PS	1 OV
1/629	132	3	SUNSET AVE OFF	PISCITELLI DOMENICO	9 EISENHOWER DR	S EASTON	MA	02375	0 NO	1 OV
1/66A	132	128	SUNSET AVE OFF	MAGLIOZZI VALLEY A	52 CREELEY RD	BELMONT	MA	02178	0.09 PS	1 OV
1/LC1	106	39	EAST BLVD	TROMBLEY BARBARA E	143 E BLVD	ONSET	MA	02558	0.03 PS	1 OV
1/LC2	101	37	EAST BLVD	ANDERSON BARBARA	28 MOUNT AVE	WORCESTER	MA	01600	0.2 PS	1 OV
1/LC3	35		EAST BLVD	CARR WALTER J	1 EMERSON RD	NORTHBORO	MA	01532	0.19 PS	1 OV
1/W10	101	43	EAST BLVD	ASACKER GEORGE G TRUSTEE	98 CRICKET RD	BROCKTON	MA	02401	0.05 PS	1 OV
1/W11	101	41	EAST BLVD	TROMBLEY ELIZABETH	143 EAST BLVD	ONSET	MA	02558	0.07 PS	1 OV
1/W15	101	33	EAST BLVD	PINK LAWRENCE W	OLD CORDWOOD PATH	DUXBURY	MA	02332	0.02 PS	1 OV
1/W1A	101	63	EAST BLVD	BERRY NEAL G	PO BOX 16	ONSET	MA	02558	0.03 PS	1 OV
1/W1B	101	61	EAST BLVD	COSTA ALFRED JR	389 FOREST ST	N DIGHTON	MA	02764	0.04 PS	1 OV
1/W2	101	59	EAST BLVD	PAPALIA DOMINIC A JR	14 QUIRK ST	WATERTOWN	MA	02172	0.07 PS	1 OV
1/W3	101	57	EAST BLVD	SHAW ALBERT H	P.O. BOX 909	LAKEVILLE	MA	02347	0.07 PS	1 OV
1/W4	101	55	EAST BLVD	DILLINGHAM LOIS E	58 BAYVIEW AVE	BERKLEY	MA	02780	0.07 PS	1 OV
1/W5	132	53	EAST BLVD	OHARA EVERETT F	P O BOX 216	ONSET	MA	02558	0.03 PS	1 OV
1/W6	101	51	EAST BLVD	OHARA EVERETT F	P O BOX 216	ONSET	MA	02558	0.06 PS	1 OV
1/W7	101	49	EAST BLVD	LLOYD WILLIAM H	E BOULEVARD	ONSET	MA	02558	0.1 PS	1 OV
1/W8	101	47	EAST BLVD	HUTCHINS BRUCE L	46 CRICKET LN	DRACUT	MA	01826	0.05 PS	1 OV
1/W9	101	45	EAST BLVD	SOMERSET IRA JON	22 LEDGEWOOD DR	BEDFORD	MA	01730	0.05 PS	1 OV
20/1000	101	15	GREAT NECK RD OFF	MURPHY RAYMOND L H	38 CYPRESS RD	WELLESLEY HILLSMA	MA	02181	1 PS	1 R6
20/1000	101	15	GREAT NECK RD OFF	MURPHY RAYMOND L H	38 CYPRESS RD	WELLESLEY HILLSMA	MA	02181	1 PS	2 R6
20/1001	101	4	GREAT NECK RD OFF	GERRISH EDWARD E	460 LEXINGTON ST	WOBURN	MA	01801	0.78 IM	1 R6
20/1002	131	6	GREAT NECK RD OFF	GERRISH NELLIE E	460 LEXINGTON ST	WOBURN	MA	01801	0.76 NO	1 R6
20/1003	101	8	GREAT NECK RD OFF	DECAS CHRIST N	P.O. BOX 134	WAREHAM	MA	02571	1 PS	2 R6
20/1003	101	8	GREAT NECK RD OFF	DECAS CHRIST N	P.O. BOX 134	WAREHAM	MA	02571	1 PS	1 R6
20/1004	106	10	GREAT NECK RD OFF	DECAS CHRISTINE	BOX 134	WAREHAM	MA	02571	0.62 NO	1 R6
20/1005	101	12	GREAT NECK RD OFF	DECAS CHRIST N	BOX 134	WAREHAM	MA	02571	0.61 PS	1 R6
20/1012	132		OVER JORDAN RD	HALE ESTHER G	PO BOX 82	WAREHAM	MA	02571	2 NO	2 R6
20/1012	132		OVER JORDAN RD	HALE ESTHER G	PO BOX 82	WAREHAM	MA	02571	2 NO	1 R6
20/1013	132		GREAT NECK RD OFF	MITCHELL ELEANOR M	OFF GREAT NECK RD	WAREHAM	MA	02571	0 NO	1 R6
20/1015	101		GREAT NECK RD OFF	GARRETT ELIZABETH	64 BURGESS PT RD	WAREHAM	MA	02571	0.26 PS	1 R6
20/1016	101		GREAT NECK RD OFF	MITCHELL ELEANOR M	OFF GREAT NECK RD	WAREHAM	MA	02571	0.24 PS	1 R6
20/1018	106	15	OVER JORDAN RD	VOLPE SABESTINO	12 OVER JORDAN RD	WAREHAM	MA	02571	0.8 PS	1 R6
20/1026	132	13	OVER JORDAN RD	VOLPE SABESTINO	PO BOX 3040	WAREHAM	MA	02571	0.76 PS	1 R6
20/1028	101		OVER JORDAN RD OFF	VOLPE SABESTINO	PO BOX 3040	WAREHAM	MA	02571	1 PS	2 R6
20/1028	101		OVER JORDAN RD OFF	VOLPE SABESTINO	PO BOX 3040	WAREHAM	MA	02571	1 PS	1 R6
20/1029	132		OVER JORDAN RD OFF	VOLPE SABESTINO	PO BOX 3040	WAREHAM	MA	02571	0.15 PS	1 R6

20/1030	132	OVER JORDAN RD	OFF	VOLPE SABESTINO	WAREHAM	MA	02571	0.12	PS	SW	1	R6
20/1031	101	GREAT NECK RD	OFF	MURRAY WINIFRED	WAREHAM	MA	02571	0.31	PS	SP	1	R6
20/1032	132	OVER JORDAN RD	OFF	VOLPE SABESTINO	WAREHAM	MA	02571	0	PS		2	R6
20/1032	132	OVER JORDAN RD	OFF	VOLPE SABESTINO	WAREHAM	MA	02571	0	PS		1	R6
20/1033	132	GREAT NECK RD	OFF	VOLPE SABESTINO	WAREHAM	MA	02571	0	PS		1	R6
20/1033	132	GREAT NECK RD	OFF	VOLPE SABESTINO	WAREHAM	MA	02571	0	PS		2	R6
20/1045	130	GREAT NECK RD		DERMODY FRANK M	NEEDHAM	MA	02194	0	PS		2	R6
20/1045	130	GREAT NECK RD		DERMODY FRANK M	NEEDHAM	MA	02194	0	PS		1	R6
20/1046A	132	GREAT NECK RD	OFF	DERMODY FRANK M	NEEDHAM	MA	02194	0	PS		1	R6
20/1046B	132	GREAT NECK RD	OFF	MCKNITT ROBERT	WELLESLEY	MA	02181	0	PS		1	R6
20/1047	132	GREAT NECK RD	OFF	ANTOSCA JAMES F	EASTON	MA	02334	0	PS		2	R1
20/1047	132	GREAT NECK RD	OFF	ANTOSCA JAMES F	EASTON	MA	02334	0	PS		1	R1
20/1048	101	GREAT NECK RD	OFF	ANTOSCA JAMES F	EASTON	MA	02334	1	IW	SP	3	R1
20/1048	101	GREAT NECK RD	OFF	ANTOSCA JAMES F	EASTON	MA	02334	1	IW	SP	2	R1
20/1048	101	GREAT NECK RD	OFF	ANTOSCA JAMES F	EASTON	MA	02334	1	IW	SP	1	R1
20/1A	101	23	OVER JORDAN RD	CIVITARESE RALPH J	SHERBOURNE	MA	01770	0.21	PS	SW	1	R6
20/1B	104	21	OVER JORDAN RD	CHERUBINI ROSE M	WAREHAM	MA	02571	1	PS	SW	1	R6
20/1B	104	21	OVER JORDAN RD	CHERUBINI ROSE M	WAREHAM	MA	02571	1	PS	SW	2	R6
20/2	101	25	OVER JORDAN RD	GRACEFFA FRANCES M	W NEWTON	MA	02165	0.22	PS	SW	1	R6
20/3	101	27	OVER JORDAN RD	SAUNDERS DANIEL J	ROSLINDALE	MA	02131	0.19	PS	SW	1	R6
20/4	106	29	OVER JORDAN RD	MALESKA EUGENE T	WAREHAM	MA	02571	0.8	PS	SW	1	R6
20/5	101	22	OVER JORDAN RD	MALESKA EUGENE T	WAREHAM	MA	02571	0.3	PS	SW	1	R6
20/6	101	20	OVER JORDAN RD	DUMOULIN CHARLES T	WAREHAM	MA	02571	0.31	IW	SP	1	R6
20/7	101	19	OVER JORDAN RD	LAZARUS DOROTHY C	WAREHAM	MA	02571	0.34	IW	SP	1	R6
20/L3	101		GREAT NECK RD	DOYLE EDWARD V	QUINCY	MA	02170	0.15	PS	SW	1	R6
20/L5	101		GREAT NECK RD	RALEIGH MARILYN	W BRIDGEWATER	MA	02379	0.06	PS	SW	1	R6
21/1005	101		GREAT NECK RD	BROWNSON PETER R	CLIFTON PARK	NY	12065	5	IW	SP	1	R6
21/1005	101		GREAT NECK RD	BROWNSON PETER R	CLIFTON PARK	NY	12065	5	IW	SP	2	R6
21/1006	101		GREAT NECK RD	CAMERON AUDREY J	WAREHAM	MA	02571	2	IW	SP	1	R6
21/1006	101		GREAT NECK RD	CAMERON AUDREY J	WAREHAM	MA	02571	2	IW	SP	2	R6
21/1007	132		GREAT NECK RD	DESLAURIERS BARBARA A	SILVER SPRINGS	MD	20903	0.31	NO	NO	1	R6
21/1008	101		GREAT NECK RD	CAMERON REALTY TRUST	BUZZARDS BAY	MA	02532	3	IW	SP	1	R6
21/1008	101		GREAT NECK RD	CAMERON REALTY TRUST	BUZZARDS BAY	MA	02532	3	IW	SP	2	R6
21/1009	101		GREAT NECK RD	COYLE ELISE H ET ALS	MATTAPOISETT	MA	02739	0.29	IW	SP	1	R6
21/1010	132		GREAT NECK RD	TOSCHES AUGUSTINE J	W BRIDGEWATER	MA	02379	0.29	NO	NO	1	R6
21/1011	101		GREAT NECK RD	TOSCHES AUGUSTINE J	W BRIDGEWATER	MA	02379	0.22	IW	SP	1	R6
21/1012	130		GREAT NECK RD	TOSCHES AUGUSTINE J	W BRIDGEWATER	MA	02379	0.37	NO	NO	1	R6
21/1013	101		GREAT NECK RD	WARSHAUER LLOYD H	WABAN	MA	02168	0.34	IW	SP	1	R6
21/1016A	132		GREAT NECK RD	DECAS JOHN C	WAREHAM	MA	02571	35	PS	SW	1	R6

DATE	UNIT	NAME	ADDRESS	CITY	STATE	ZIP	PS	RI	PROVIDENCE	RI	02906	PS	SW	R6
21/10168	132	SCHWARTZ ROBERT	GREAT NECK RD	OFF					PROVIDENCE	RI	02906	0.09	SW	1 R6
21/1017	101	OBRIEN MARJORIE M	GREAT NECK RD	OFF			3 IW	MA	BROOKLINE	MA	02146		SP	2 R6
21/1017	101	OBRIEN MARJORIE M	GREAT NECK RD	OFF			3 IW	MA	BROOKLINE	MA	02146		SP	1 R6
21/1018	132	OBRIEN MARJORIE M	GREAT NECK RD	OFF			3 NO	MA	BROOKLINE	MA	02146		NO	1 R6
21/1019	101	DECAS JOHN C	GREAT NECK RD	OFF			5 IW	MA	WAREHAM	MA	02571		SP	3 R6
21/1019	101	DECAS JOHN C	GREAT NECK RD	OFF			5 IW	MA	WAREHAM	MA	02571		SP	1 R6
21/1019	101	DECAS JOHN C	GREAT NECK RD	OFF			5 IW	MA	WAREHAM	MA	02571		SP	2 R6
21/1020	132	OBRIEN MARJORIE M	GREAT NECK RD	OFF			3 PS	MA	BROOKLINE	MA	02146		SW	1 R6
22/1	18	JOAQUIN JOHN T	WINSHIP AVE	OFF			4 IW	MA	WAREHAM	MA	02571		SP	1 R6
22/1	18	JOAQUIN JOHN T	WINSHIP AVE	OFF			4 IW	MA	WAREHAM	MA	02571		SP	2 R6
22/1001	106	EDWARDS TERRY L	WINSHIP AVE	OFF			0.84 IW	MA	AVON	MA	02322		SP	1 R6
22/1002	101	CLARK ELEANOR W	WINSHIP AVE	OFF			0.76 IW	MA	NEEDHAM	MA	02192		SP	1 R6
22/1003	101	DECAS GEORGE C	WINSHIP AVE	OFF			1 IW	MA	MIDDLEBORO	MA	02346		SP	2 R6
22/1003	101	DECAS GEORGE C	WINSHIP AVE	OFF			1 IW	MA	MIDDLEBORO	MA	02346		SP	1 R6
22/1006A	101	GRANDMONT JOHN J	WIDOW'S COVE LN	OFF			5 PS	MA	WAREHAM	MA	02571		SW	1 R6
22/1006A	101	GRANDMONT JOHN J	WIDOW'S COVE LN	OFF			5 PS	MA	WAREHAM	MA	02571		SW	2 R6
22/1006B		GEAGAN THOMAS V	WIDOW'S COVE LN	OFF			2 IW	MA	WAREHAM	MA	02571		SP	2 R6
22/1006B		GEAGAN THOMAS V	WIDOW'S COVE LN	OFF			2 IW	MA	WAREHAM	MA	02571		SP	1 R6
22/1007		CRITTENDEN GERTRUDE SHAW	WIDOW'S COVE LN	OFF			9 IW	MA	DOVER	MA	02030		SP	2 R6
22/1007		CRITTENDEN GERTRUDE SHAW	WIDOW'S COVE LN	OFF			9 IW	MA	DOVER	MA	02030		SP	1 R6
22/1009	130	JONES ANNE C	BURGESS PT RD	OFF			5 PS	NY	NEW YORK	NY	10010		SP	2 R6
22/1009	130	JONES ANNE C	BURGESS PT RD	OFF			5 PS	NY	NEW YORK	NY	10010		SP	1 R6
23/1000	905	MASSACHUSETTS AUDUBON SOCIETY	BURGESS PT RD	OFF			3 IW	MA	BOSTON	MA	02110		SP	1 R1
23/1001		JONES ANNE C ET ALS	BURGESS PT RD	OFF			19 IW	MA	BOSTON	MA	02110		SP	2 R6
23/1001		JONES ANNE C ET ALS	BURGESS PT RD	OFF			19 IW	MA	BOSTON	MA	02110		SP	1 R6
24/1001	132	JONES ANNE C	BURGESS PT RD	OFF			0 IW	NY	NEW YORK	NY	10010		SP	1 R6
24/1002	101	ROSENBERG DE ANNE TRUSTEE OF	BURGESS PT RD	OFF			2 IW	MA	E WAREHAM	MA	02538		SP	2 R6
24/1002	101	ROSENBERG DE ANNE TRUSTEE OF	BURGESS PT RD	OFF			2 IW	MA	E WAREHAM	MA	02538		SP	1 R6
24/B	905	MASSACHUSETTS AUDUBON SOCIETY	BURGESS PT RD	OFF			51 IW	MA	WAYLAND	MA	01778		SP	2 R1
24/B	905	MASSACHUSETTS AUDUBON SOCIETY	BURGESS PT RD	OFF			51 IW	MA	WAYLAND	MA	01778		SP	3 R1
24/B	905	MASSACHUSETTS AUDUBON SOCIETY	BURGESS PT RD	OFF			51 IW	MA	WAYLAND	MA	01778		SP	1 R1
24/D	101	FARDY GEORGE F JR	GREAT NECK RD	OFF			6 IW	MA	WAYLAND	MA	01778		SP	2 R6
24/D	101	FARDY GEORGE F JR	GREAT NECK RD	OFF			6 IW	MA	WAYLAND	MA	01778		SP	1 R6
25/1000	906	CONGREGATION OF THE SACRED	GREAT NECK RD	OFF			110	MA	FAIRHAVEN	MA	02719		SP	1 R1
25/1000	906	CONGREGATION OF THE SACRED	GREAT NECK RD	OFF			110	MA	FAIRHAVEN	MA	02719		SP	4 R1
25/1000	906	CONGREGATION OF THE SACRED	GREAT NECK RD	OFF			110	MA	FAIRHAVEN	MA	02719		SP	2 R1
25/1000	906	CONGREGATION OF THE SACRED	GREAT NECK RD	OFF			110	MA	FAIRHAVEN	MA	02719		SP	3 R1
26/1000B		LYMAN CHARLES P	GREAT NECK RD	OFF			32 IW	MA	CANTON	MA	02021		SP	2 R6
26/1000B		LYMAN CHARLES P	GREAT NECK RD	OFF			32 IW	MA	CANTON	MA	02021		SP	1 R6

26/1000C	131	GREAT NECK RD	OFF	SARGENT HESTER L	BOSTON	MA	02109	17 IW	SP	2 R6
26/1000C	131	GREAT NECK RD	OFF	SARGENT HESTER L	BOSTON	MA	02109	17 IW	SP	1 R6
26/1000D	101	GREAT NECK RD	OFF	CHEEVER DANIEL S JR	WAREHAM	MA	02571	16 IW	SP	2 R6
26/1000D	101	GREAT NECK RD	OFF	CHEEVER DANIEL S JR	WAREHAM	MA	02571	16 IW	SP	1 R6
26/1001A	101	GREAT NECK RD	OFF	MONTMINY RAYMOND J	WAREHAM	MA	02571	12 IW	SP	2 R6
26/1001A	101	GREAT NECK RD	OFF	MONTMINY RAYMOND J	WAREHAM	MA	02571	12 IW	SP	3 R6
26/1001A	101	GREAT NECK RD	OFF	MONTMINY RAYMOND J	WAREHAM	MA	02571	12 IW	SP	1 R6
26/1001B	101	GREAT NECK RD	OFF	WHITESIDE HOWARD S	MILTON	MA	02186	4 IW	SP	2 R6
26/1001B	101	GREAT NECK RD	OFF	WHITESIDE HOWARD S	MILTON	MA	02186	4 IW	SP	1 R6
26/1001C	131	GREAT NECK RD	OFF	WHITESIDE HOWARD S	MILTON	MA	02186	18 IW	SP	2 R6
26/1001C	131	GREAT NECK RD	OFF	WHITESIDE HOWARD S	MILTON	MA	02186	18 IW	SP	3 R6
26/1001C	131	GREAT NECK RD	OFF	WHITESIDE HOWARD S	MILTON	MA	02186	18 IW	SP	1 R6
26/1002A	101	GREAT NECK RD	OFF	CANHAM COLIN A JR	WAREHAM	MA	02571	2 IW	SP	1 R6
26/1002A	101	GREAT NECK RD	OFF	CANHAM COLIN A JR	WAREHAM	MA	02571	2 IW	SP	1 R6
26/1002B	101	GREAT NECK RD	OFF	SHAW S PARKMAN	WAREHAM	MA	02571	2 IW	SP	2 R6
26/1002B	101	GREAT NECK RD	OFF	SHAW S PARKMAN	WAREHAM	MA	02571	2 IW	SP	2 R6
26/1002B	101	GREAT NECK RD	OFF	SHAW S PARKMAN	WAREHAM	MA	02571	2 IW	SP	2 R6
26/1002C	131	GREAT NECK RD	OFF	CRITTENDEN GERTRUDE S	NEW YORK	NY	10021	3 IW	SP	1 R6
26/1002C	131	GREAT NECK RD	OFF	CRITTENDEN GERTRUDE S	NEW YORK	NY	10021	3 IW	SP	1 R6
26/1002C	131	GREAT NECK RD	OFF	CRITTENDEN GERTRUDE S	NEW YORK	NY	10021	3 IW	SP	1 R6
26/1002D	101	GREAT NECK RD	OFF	BLAKE ROSEMARY S	DOVER	MA	02030	15 IW	SP	2 R6
26/1002D	101	GREAT NECK RD	OFF	BLAKE ROSEMARY S	DOVER	MA	02030	15 IW	SP	2 R6
26/1002D	101	GREAT NECK RD	OFF	BLAKE ROSEMARY S	DOVER	MA	02030	15 IW	SP	2 R6
26/1004		GREAT NECK RD	OFF	CHEEVER JANE G	BROOKLINE	MA	02146	7 IW	SP	1 R6
26/1004		GREAT NECK RD	OFF	CHEEVER JANE G	BROOKLINE	MA	02146	7 IW	SP	1 R6
26/1005	101	GREAT NECK RD	OFF	SARGENT HESTER L	BROOKLINE	MA	02146	7 IW	SP	3 R6
26/1005	101	GREAT NECK RD	OFF	SARGENT HESTER L	BROOKLINE	MA	02146	7 IW	SP	3 R6
26/1006	101	GREAT NECK RD	OFF	CHEEVER DANIEL S	BROOKLINE	MA	02146	7 IW	SP	2 R6
26/1006	101	GREAT NECK RD	OFF	CHEEVER DANIEL S	BROOKLINE	MA	02146	7 IW	SP	2 R6
26/1008		GREAT NECK RD	OFF	COBURN JOHN	S NATICK	MA	01760	2 IW	SP	1 R6
26/1008		GREAT NECK RD	OFF	COBURN JOHN	S NATICK	MA	01760	2 IW	SP	1 R6
26/1009A	101	GREAT NECK RD	OFF	MITTENDORF ELEANOR S	BOSTON	MA	02109	2 IW	SP	2 R6
26/1009A	101	GREAT NECK RD	OFF	MITTENDORF ELEANOR S	BOSTON	MA	02109	2 IW	SP	2 R6
27/1000	64	GREEN GATE LN	OFF	BARKER ATHALIA O	CAMBRIDGE	MA	02138	3 IW	SP	1 R6
27/1000	64	GREEN GATE LN	OFF	BARKER ATHALIA O	CAMBRIDGE	MA	02138	3 IW	SP	1 R6
27/1000	64	GREEN GATE LN	OFF	BARKER ATHALIA O	CAMBRIDGE	MA	02138	3 IW	SP	1 R6
27/1001	101	85	MELROSE PAUL	NEEDHAM	MA	02192	1 IW	SP	1 R6	1 R6
27/1002	101	79	NYMAN MARY M	NEEDHAM	MA	02192	1 IW	SP	2 R6	2 R6
27/1002	101	79	NYMAN MARY M	NEEDHAM	MA	02192	1 IW	SP	2 R6	2 R6
27/1002	101	79	NYMAN MARY M	NEEDHAM	MA	02192	1 IW	SP	2 R6	2 R6
27/1003	101	75	FRANKLIN WILLIAM	NEEDHAM	MA	02192	1 IW	SP	2 R6	2 R6
27/1003	101	75	FRANKLIN WILLIAM	NEEDHAM	MA	02192	1 IW	SP	2 R6	2 R6
27/1003	101	75	FRANKLIN WILLIAM	NEEDHAM	MA	02192	1 IW	SP	2 R6	2 R6
300 COMMERCIAL ST					BOSTON	MA	02109			
300 COMMERCIAL ST					BOSTON	MA	02109			
PO BOX 3010					WAREHAM	MA	02571			
PO BOX 3010					WAREHAM	MA	02571			
CEDAR POINT					WAREHAM	MA	02571			
CEDAR POINT					WAREHAM	MA	02571			
CEDAR POINT					WAREHAM	MA	02571			
93 HILLSIDE ST					MILTON	MA	02186			
93 HILLSIDE ST					MILTON	MA	02186			
93 HILLSIDE ST					MILTON	MA	02186			
93 HILLSIDE ST					MILTON	MA	02186			
93 HILLSIDE ST					MILTON	MA	02186			
15 STONY PT					WAREHAM	MA	02571			
15 STONY PT					WAREHAM	MA	02571			
130 E 67TH ST					NEW YORK	NY	10021			
130 E 67TH ST					NEW YORK	NY	10021			
STRAWBERRY HILL RD					DOVER	MA	02030			
STRAWBERRY HILL RD					DOVER	MA	02030			
STRAWBERRY HILL RD					DOVER	MA	02030			
HEATH ST					BROOKLINE	MA	02146			
HEATH ST					BROOKLINE	MA	02146			
HEATH ST					BROOKLINE	MA	02146			
9 LOOKOUT FARM RD					S NATICK	MA	01760			
9 LOOKOUT FARM RD					S NATICK	MA	01760			
300 COMMERCIAL ST					BOSTON	MA	02109			
300 COMMERCIAL ST					BOSTON	MA	02109			
158 BRATTLE ST					CAMBRIDGE	MA	02138			
158 BRATTLE ST					CAMBRIDGE	MA	02138			
PO BOX 136					NEEDHAM	MA	02192			
PO BOX 136					NEEDHAM	MA	02192			
MT HARMONY RD					BERNARDSVILLE	NJ	07924			
MT HARMONY RD					BERNARDSVILLE	NJ	07924			
GREAT NECK RD					WAREHAM	MA	02571			
GREAT NECK RD					WAREHAM	MA	02571			
GREAT NECK RD					WAREHAM	MA	02571			
40 RUANE RD					W NEWTON	MA	02165			
BOX 642					WAREHAM	MA	02571			
BOX 642					WAREHAM	MA	02571			
1 HAWTHORNE PL					BOSTON	MA	02114			

27/1003	101	75	GREEN GATE LN	FRANKLIN WILLIAM	1 HAWTHORNE PL	BOSTON	MA	02114	2 IW	SP	1 R6
27/1004	101	69	GREEN GATE LN	WASHBURN CHARLES P JR	BOX 31	MIDDLEBORO	MA	02346	4 IW	SP	2 R6
27/1004	101	69	GREEN GATE LN	WASHBURN CHARLES P JR	BOX 31	MIDDLEBORO	MA	02346	4 IW	SP	1 R6
27/1005A	101	43	GREEN GATE LN	HEARD ELIZABETH A	PO BOX 214	WAREHAM	MA	02571	3 IW	SP	2 R6
27/1005A	101	43	GREEN GATE LN	HEARD ELIZABETH A	PO BOX 214	WAREHAM	MA	02571	3 IW	SP	1 R6
27/1005B		47	GREEN GATE LN	HEARD LUISA NAZZARO	PO BOX 272	CARLISLE	MA	01741	4 IW	SP	2 R6
27/1005B		47	GREEN GATE LN	HEARD LUISA NAZZARO	PO BOX 272	CARLISLE	MA	01741	4 IW	SP	1 R6
27/1005C	131	49	GREEN GATE LN	HEARD NATHANIEL E ET ALS	PO BOX 214	WAREHAM	MA	02571	22 IW	SP	1 R6
27/1005C	131	49	GREEN GATE LN	HEARD NATHANIEL E ET ALS	PO BOX 214	WAREHAM	MA	02571	22 IW	SP	2 R6
27/1006A	101		GREEN GATE LN OFF	SANFORD ALFRED W	BOX 303	WAREHAM	MA	02571	2 IW	SP	2 R6
27/1006A	101		GREEN GATE LN OFF	SANFORD ALFRED W	BOX 303	WAREHAM	MA	02571	2 IW	SP	1 R6
27/1006B	101		GREEN GATE LN OFF	SANFORD GEORGE B JR	BOX 520	WAREHAM	MA	02571	0.99 IW	SP	1 R6
27/1008A	101	37	GREEN GATE LN	REIDY JOHN S	151 EAST 79TH ST	NEW YORK	NY	10021	14 IW	SP	2 R6
27/1008A	101	37	GREEN GATE LN	REIDY JOHN S	151 EAST 79TH ST	NEW YORK	NY	10021	14 IW	SP	1 R6
28/1004	903		LITTLE HARBOR RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	6	NO	1 R6
28/1004	903		LITTLE HARBOR RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	6	NO	2 R6
28/1005	104	5	BAYBERRY RD	PEARSON RICHARD H TRUSTEE	52 HANCOCK AVE	NEWTON CENTRE	MA	02159	3 IW	SP	2 R6
28/1005	104	5	BAYBERRY RD	PEARSON RICHARD H TRUSTEE	52 HANCOCK AVE	NEWTON CENTRE	MA	02159	3 IW	SP	1 R6
28/1006	101	20	LITTLE HARBOR RD	RUSSETT PETER A	PO BOX 293 MAIN ST S	BUZZARDS BAY	MA	02532	1 IW	SP	2 R6
28/1006	101	20	LITTLE HARBOR RD	RUSSETT PETER A	PO BOX 293 MAIN ST S	BUZZARDS BAY	MA	02532	1 IW	SP	1 R6
28/1007	132	17R	BAYBERRY RD	BAYVIEW ASSOC INC	11 BAYBERRY RD	WAREHAM	MA	02571	0.34 IW	SP	1 R6
28/1008	132	11	BEACH PLUM LN	FRAZER CAROLINE A ET ALS	557 PECKS RD	PITTSFIELD	MA	01201	0.18 IW	SP	1 R6
28/1014A	132		SPINDRIFT LN	DONOHOE JOHN	1220 OCEAN BLVD	RYE	NH	03870	11 NO	NO	1 R6
28/1014B	805	10	SPINDRIFT LN	LITTLE HARBOR COUNTRY CLUB INC	STOCKTON SHORT CUT	WAREHAM	MA	02571	1		1 R6
28/1015	132	14	LOOKOUT LN OFF	EDWARDS DEBORAH S ET ALS	15 LOOKOUT LN	WAREHAM	MA	02571	0.45 IW	SP	1 R6
28/H6	101	10	BEACH PLUM LN	PETITE ANDREW G	15 SHORE RD	ARLINGTON	MA	02174	0.45 IW	SP	1 R6
28/H7	101	8	BEACH PLUM LN	PACELLA MICHAEL	PO BOX 2234	PLAINVILLE	MA	02762	0.48 IW	SP	1 R6
29/1001B	101	167	GREAT NECK RD	MCMITT ROBERT	40 GROVE ST	WELLESLEY	MA	02181	6 PS	SP	4 R6
29/1001B	101	167	GREAT NECK RD	MCMITT ROBERT	40 GROVE ST	WELLESLEY	MA	02181	6 PS	SP	1 R6
29/1001B	101	167	GREAT NECK RD	MCMITT ROBERT	40 GROVE ST	WELLESLEY	MA	02181	6 PS	SP	3 R6
29/1001B	101	167	GREAT NECK RD	MCMITT ROBERT	40 GROVE ST	WELLESLEY	MA	02181	6 PS	SP	2 R6
29/1004	903		GREAT NECK RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	20 NO	NO	2 R1
29/1004	903		GREAT NECK RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	20 NO	NO	1 R1
29/1005	101	10	HARBORVIEW LN	FINN MATTHEW C JR	106 MAIN ST	WAREHAM	MA	02571	1 IW	SP	3 R6
29/1005	101	10	HARBORVIEW LN	FINN MATTHEW C JR	106 MAIN ST	WAREHAM	MA	02571	1 IW	SP	2 R6
29/1005	101	10	HARBORVIEW LN	FINN MATTHEW C JR	106 MAIN ST	WAREHAM	MA	02571	1 IW	SP	1 R6
29/1006	132	12	HARBORVIEW LN	HIGGS JOHN A	603 MAIN ST	READING	MA	01867	0 IW	SP	2 R6
29/1006	132	12	HARBORVIEW LN	HIGGS JOHN A	603 MAIN ST	READING	MA	01867	0 IW	SP	1 R6
29/1008	101		GREAT NECK RD OFF	SAVARY CLIFTON V	58 SANDWICH RD	WAREHAM	MA	02571	1 IW	SP	1 R6



29/1008	101	GREAT NECK RD OFF	SAVARY CLIFTON V	58 SANDWICH RD	WAREHAM	MA	02571	1 IV	SP	2 R6
29/1011	132	HARBORVIEW LN	SAVARY EVELYN L	32 KENWOOD AVE	SAUGUS	MA	01906	3 NO	NO	2 R6
29/1011	132	HARBORVIEW LN	SAVARY EVELYN L	32 KENWOOD AVE	SAUGUS	MA	01906	3 NO	NO	1 R6
2/1003	384	ONSET AVE	POINT INDEPENDENCE YACHT	BOX 367	ONSET	MA	02558	2		1 RA
2/1006	903	POINT INDEPENDENCE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 PS	SW	1 R1
2/1007A	132	S WATER ST	HAMMOND ROBERT C ET ALS	BOX 214	E WAREHAM	MA	02538	0.5 NO	NO	1 OV
2/1007B	132	S WATER ST	BAKER RUPERT G	146 NEVADA ST	NEWTONVILLE	MA	02160	0.07 NO	NO	1 OV
2/1007C	132	EAGLE WAY	CONROY DENNIS J EXECUTOR	245 MAIN ST	WAREHAM	MA	02571	0.1 NO	NO	1 OV
2/1007E	132	S WATER ST	TOURIGNY ROBERT J	20 SOUTH WATER ST	ONSET	MA	02558	0.04 NO	NO	1 OV
2/1008	132	S WATER ST	STEPHENS LEE K	PO BOX 1259	ONSET	MA	02558	0.05 NO	NO	1 OV
2/1009	132	S WATER ST	FITZSIMMONS ROBERT	16 SO WATER ST	ONSET	MA	02558	0.02 NO	NO	1 RA
2/1010	903	S WATER ST	PACINI PERRI	42 WARR AVE	WAREHAM	MA	02571	0.04 NO	NO	1 OV
2/1011	903	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.06		1 R1
2/1053	132	2	KEENAN CHRISTINE	TOWN HALL	WAREHAM	MA	02571	0.06 PS	SW	1 R1
2/10531	903	PLEASANT VIEW RD	MISSIONARY SISTERS OF THE	34 GRANDVIEW AVE	BUZZARDS BAY	MA	02532	0.03 PS	SW	1 RB
2/10532	132	PLEASANT VIEW RD	CAVALLARO MARY G	357 GROVE ST	WALTHAM	MA	02154	0.03 NO	NO	1 RB
2/10533	132	PLEASANT VIEW RD	BRIIGGS LAWRENCE F	111 DUSTIN ST	BRIGHTON	MA	02135	0.01 PS	SW	1 RB
2/10534	903	PLEASANT VIEW RD	MISSIONARY SISTERS OF THE	PO BOX 259	W BRIDGEWATER	MA	02379	0.03 PS	SW	1 RB
2/1054	132	GRANDVIEW AVE OFF	DEVLIN GLADYS M	357 GROVE ST	WALTHAM	MA	02154	0.05 NO	NO	1 RB
2/10541	132	GRANDVIEW AVE OFF	STARK WARTHA C	30 TOMAHAWK DR RFD#3	BUZZARDS BAY	MA	02532	0.02 PS	SW	1 RB
2/10542	132	GLENDALE RD	RIZZO FRANCIS D	3 RIPLEY ST	NEWTON CENTRE	MA	02159	0.01 PS	SW	1 RB
2/10543	132	FAIRMOUNT RD OFF	WEYGANDT THEODORE L	PO BOX 709	ONSET	MA	02558	0.03 PS	SW	1 RB
2/10544	132	FAIRMOUNT RD OFF	CASHEN PATRICIA	116 FOUNDRY ST	S EASTON	MA	02375	0.03 PS	SW	1 RB
2/10546	132	BLUEBERRY RD OFF	TOOLE CHARLES	134 MT VERNON ST	NEWTON	MA	02158	0.04 PS	SW	1 RB
2/10547	132	BLUEBERRY RD OFF	DEVLIN GLADYS M	BOX 74	ONSET	MA	02558	0.07 PS	SW	1 RB
2/1058A	132	COVE ST OFF	SANDY BCH ASSOC OF POINT	30 TOMAHAWK DR RFD3	BUZZARDS BAY	MA	02532	0.01 PS	SW	1 RB
2/1058B	132	COVE ST OFF	HAMMOND ROBERT C ET ALS	PO BOX 244	ONSET	MA	02558	0.03 NO	NO	1 RB
2/1058C	132	COVE ST OFF	JAMESON WILLIAM J	BOX 214	E WAREHAM	MA	02538	0.18 NO	NO	1 OV
2/1058D	132	COVE ST OFF	DEIULIO MARY K	BOX 464	ONSET	MA	02558	0.05 PS	SW	1 OV
30/1006	132	GREAT NECK RD OFF	ARMSTRONG EMMABELL	55 VIOLET AVE	DEDHAM	MA	02026	0.06 PS	SW	1 OV
30/1006	132	GREAT NECK RD OFF	ARMSTRONG EMMABELL	PO BOX 328	WAREHAM	MA	02571	1 PS	SW	2 R6
30/1022B	132	MARITIME DR OFF	SUDDARD BENJAMIN A	PO BOX 328	WAREHAM	MA	02571	1 PS	SW	1 R6
30/1026	101	MARITIME DR	PITMAN ROBERT L	PO BOX 659	WAREHAM	MA	02571	1 PS	SW	1 R6
30/1026	101	MARITIME DR	PITMAN ROBERT L	6 TANAGER RD	ATTLEBORO	MA	02703	2 PS	SW	2 R6
30/20A	132	MARITIME DR OFF	HAYDEN RALPH JR	6 TANAGER RD	ATTLEBORO	MA	02703	2 PS	SW	1 R6
30/22B	132	MARITIME DR	NERCO O ARTHUR	20 MARITIME DR	WAREHAM	MA	02571	0.18 PS	SW	1 R6
30/22C	132	MARITIME DR	HAYDEN RALPH JR	24 MARITIME DR	WAREHAM	MA	02571	0.38 PS	SW	1 R6
30/24	101	MARITIME DR	NERCO O ARTHUR	20 MARITIME DR	WAREHAM	MA	02571	0.37 PS	SW	1 R6
				24 MARITIME DR	WAREHAM	MA	02571	0 PS	SW	1 R6

31/1	101	BOURNE'S COVE RD	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON	MA	02105	6 IW	SP	2 R6
31/1	101	BOURNE'S COVE RD	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON	MA	02105	6 IW	SP	1 R6
31/1000	101	BOURNE'S COVE RD	HOWLAND GEORGE	294 WASHINGTON ST	BOSTON	MA	02108	7 IW	SP	1 R6
31/1000	101	BOURNE'S COVE RD	HOWLAND GEORGE	294 WASHINGTON ST	BOSTON	MA	02108	7 IW	SP	2 R6
31/1001	101	BOURNE'S COVE RD	BEATON MELVILLE C RE TRUST	PO BOX 1890	BOSTON	MA	02105	1 IW	SP	1 R6
31/1001	101	BOURNE'S COVE RD	BEATON MELVILLE C RE TRUST	PO BOX 1890	BOSTON	MA	02105	1 IW	SP	2 R6
31/1002	47	BOURNE'S COVE RD	NELSON JOHN R	379 MAIN ST	WAREHAM	MA	02571	2 IW	SP	1 R6
31/1002	47	BOURNE'S COVE RD	NELSON JOHN R	379 MAIN ST	WAREHAM	MA	02571	2 IW	SP	2 R6
31/1008	101 23	BOURNE'S COVE RD	WHEELER EDWIN O	31 MOON HILL RD	LEXINGTON	MA	02173	3 IW	SP	2 R6
31/1008-	101 23	BOURNE'S COVE RD	WHEELER EDWIN O	31 MOON HILL RD	LEXINGTON	MA	02173	3 IW	SP	1 R6
31/1009	101 29	BOURNE'S COVE RD	DEPPE THEODORE R	1112 BROOKS DR	BLOOMINGTON	IN	47401	0.96 IW	SP	1 R6
31/1011	101 31	BOURNE'S COVE RD	NELSON JOHN R	379 MAIN ST	WAREHAM	MA	02571	1 IW	SP	1 R6
31/1011	101 31	BOURNE'S COVE RD	NELSON JOHN R	379 MAIN ST	WAREHAM	MA	02571	1 IW	SP	2 R6
31/1012	132	FATHOM LN	TRUMP ALLEN E ET ALS	3 TARPULIN WAY	WAREHAM	MA	02571	16 PS	SW	2 R6
31/1012	132	FATHOM LN	TRUMP ALLEN E ET ALS	3 TARPULIN WAY	WAREHAM	MA	02571	16 PS	SW	1 R6
31/2	101 48	BOURNE'S COVE RD	GRAY MARGARET P	SAFFRON-WALDEN	WAREHAM	MA	02571	3 PS	SW	2 R6
31/2	101 48	BOURNE'S COVE RD	GRAY MARGARET P	SAFFRON-WALDEN	WAREHAM	MA	02571	3 PS	SW	1 R6
31/26	131 26	MARITIME DR	FANNING FRANCES A	962 LOWELL RD	CONCORD	MA	01742	0.83 PS	SW	1 R6
31/28	101 28	MARITIME DR	PIERCE ARLEEN K TRS OF THE	28 MARITIME DR	WAREHAM	MA	02571	1 PS	SW	1 R6
31/28	101 28	MARITIME DR	PIERCE ARLEEN K TRS OF THE	28 MARITIME DR	WAREHAM	MA	02571	1 PS	SW	2 R6
31/3	131	BOURNE'S COVE RD	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON	MA	02105	1 PS	SW	2 R6
31/3	131	BOURNE'S COVE RD	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON	MA	02105	1 PS	SW	1 R6
31/30	101 30	MARITIME DR	GRAGANI JOSEPH L	30 MARITIME DRIVE	WAREHAM	MA	02571	1 IW	SP	1 R6
31/30	101 30	MARITIME DR	GRAGANI JOSEPH L	30 MARITIME DRIVE	WAREHAM	MA	02571	1 IW	SP	2 R6
31/4	131 51	BOURNE'S COVE RD	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON	MA	02105	4 PS	SW	2 R6
31/4	131 51	BOURNE'S COVE RD	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON	MA	02105	4 PS	SW	1 R6
31/A	106	BOURNE'S COVE RD	PEIRCE GRACE MINOT	9 GARDEN ST	TOPSFIELD	MA	01983	2 PS	SW	2 R6
31/A	106	BOURNE'S COVE RD	PEIRCE GRACE MINOT	9 GARDEN ST	TOPSFIELD	MA	01983	2 PS	SW	2 R6
31/C	905	BOURNE'S COVE RD	ANDERSON KATHLEEN S ET ALS	STATE RD RFD8	PLYMOUTH	MA	02360	6 IW	SP	2 R6
31/C	905	BOURNE'S COVE RD	ANDERSON KATHLEEN S ET ALS	STATE RD RFD8	PLYMOUTH	MA	02360	6 IW	SP	1 R6
31/P7	132	BOURNE'S COVE RD	PEIRCE JOHN W ET ALS	9 GARDEN ST	TOPSFIELD	MA	01983	2 PS	SW	2 R6
31/P7	132	BOURNE'S COVE RD	PEIRCE JOHN W ET ALS	9 GARDEN ST	TOPSFIELD	MA	01983	2 PS	SW	1 R6
32/1000		NEW GRAVEL RD	CHANNING HENRY M ET ALS TRS	225 FRANKLIN ST	BOSTON	MA	02110	16	SP	1 R6
32/1000		NEW GRAVEL RD	CHANNING HENRY M ET ALS TRS	225 FRANKLIN ST	BOSTON	MA	02110	16	SP	2 R6
32/1002	132	INDIAN NECK RD	OFF HURD GEORGE N JR	189 CANTON AVE	MILTON	MA	02187	1 PS	SW	1 R6
32/1002	132	INDIAN NECK RD	OFF HURD GEORGE N JR	189 CANTON AVE	MILTON	MA	02187	1 PS	SW	2 R6
32/1003	101 99	INDIAN NECK RD	OFF HURD GEORGE N JR	189 CANTON AVE	MILTON	MA	02187	4	SP	2 R6
32/1003	101 99	INDIAN NECK RD	OFF HURD GEORGE N JR	189 CANTON AVE	MILTON	MA	02187	4	SP	1 R6
32/1004	101 93	INDIAN NECK RD	OFF MCDONALD RODERICK JAMES III	16 WEDGE WAY	LITTLETON	CO	80120	4	SP	1 R6

32/1004	101	93	INDIAN NECK RD	OFF McDONALD RODERICK JAMES III	16 WEDGE WAY	LITTLETON	CO	80120	4	SP	2 R6
32/1005	101	85	INDIAN NECK RD	OFF HOPKINS JOHN D	INDIAN NECK RD	WAREHAM	MA	02571	2 PS	SW	2 R6
32/1005	101	85	INDIAN NECK RD	OFF HOPKINS JOHN D	INDIAN NECK RD	WAREHAM	MA	02571	2 PS	SW	1 R6
32/1006	101	69	INDIAN NECK RD	OFF BALDWIN HOWARD	PO BOX 66	MARION	MA	02738	7 PS	SW	1 R6
32/1006	101	69	INDIAN NECK RD	OFF BALDWIN HOWARD	PO BOX 66	MARION	MA	02738	7 PS	SW	2 R6
32/1006A	101		INDIAN NECK RD	OFF KEYES DANA C	BOX 63	WAREHAM	MA	02571	2	SP	2 R6
32/1006A	101		INDIAN NECK RD	OFF KEYES DANA C	BOX 63	WAREHAM	MA	02571	2	SP	1 R6
32/1006B	101	78	INDIAN NECK RD	OFF BALDWIN HOWARD L	1470 BLUE JAY WAY	LOS ANGELES	CA	90069	3 PS	SW	3 R6
32/1006B	101	78	INDIAN NECK RD	OFF BALDWIN HOWARD L	1470 BLUE JAY WAY	LOS ANGELES	CA	90069	3 PS	SW	1 R6
32/1006B	101	78	INDIAN NECK RD	OFF BALDWIN HOWARD L	1470 BLUE JAY WAY	LOS ANGELES	CA	90069	3 PS	SW	2 R6
32/1006F	132		INDIAN NECK RD	OFF DECAS JOHN N	BOX L	WAREHAM	MA	02571	2 PS	SW	1 R6
32/1006G	101		INDIAN NECK RD	OFF DECAS JOHN N	BOX L	WAREHAM	MA	02571	3 PS	SW	1 R6
32/1006G	101		INDIAN NECK RD	OFF DECAS JOHN N	BOX L	WAREHAM	MA	02571	3 PS	SW	2 R6
32/1008	132		INDIAN NECK RD	OFF HOPKINS JOHN D	INDIAN NECK RD	WAREHAM	MA	02571	0.5 IW	SP	1 R6
32/A			INDIAN NECK RD	OFF RANDOLPH PETER B F	22 CRAIGIE	CAMBRIDGE	MA	02138	6 IW	SP	1 R6
32/A			INDIAN NECK RD	OFF RANDOLPH PETER B F	22 CRAIGIE	CAMBRIDGE	MA	02138	6 IW	SP	2 R6
32/B	101	105	INDIAN NECK RD	MCNAY JOSEPH C	206 CHESTNUT HILL RD	CHESTNUT HILL	MA	02167	3 PS	SW	2 R6
32/B	101	105	INDIAN NECK RD	MCNAY JOSEPH C	206 CHESTNUT HILL RD	CHESTNUT HILL	MA	02167	3 PS	SW	1 R6
32/C	101	106	INDIAN NECK RD	MCNAY JOSEPH C	206 CHESTNUT HILL RD	CHESTNUT HILL	MA	02167	1 IW	SP	1 R6
32/C	101	106	INDIAN NECK RD	MCNAY JOSEPH C	206 CHESTNUT HILL RD	CHESTNUT HILL	MA	02167	1 IW	SP	2 R6
32/D	132		INDIAN NECK RD	RANDOLPH PETER B F	22 CRAIGIE	CAMBRIDGE	MA	02138	0.53 PS	SW	1 R6
32/E	132	107	INDIAN NECK RD	MCNAY JOSEPH C	206 CHESTNUT HILL RD	CHESTNUT HILL	MA	02167	2 PS	SW	2 R6
32/E	132	107	INDIAN NECK RD	MCNAY JOSEPH C	206 CHESTNUT HILL RD	CHESTNUT HILL	MA	02167	2 PS	SW	1 R6
32/K	132		INDIAN NECK RD	OFF HURD GEORGE N	18 WINFIELD RD	PRINCETON	NJ	08450	0 PS	SW	1 R6
33/3A	131		INDIAN NECK RD	OFF BENTON KATE B	129 E 82ND ST	NEW YORK	NY	10028	4 NO	NO	2 R6
33/3A	131		INDIAN NECK RD	OFF BENTON KATE B	129 E 82ND ST	NEW YORK	NY	10028	4 NO	NO	1 R6
33/3B	81		INDIAN NECK RD	OFF MUEHLMANN AMORY F	59 OUTLOOK DR	LEXINGTON	MA	02173	3 IW	SP	3 R6
33/3B	81		INDIAN NECK RD	OFF MUEHLMANN AMORY F	59 OUTLOOK DR	LEXINGTON	MA	02173	3 IW	SP	1 R6
33/3B	81		INDIAN NECK RD	OFF MUEHLMANN AMORY F	59 OUTLOOK DR	LEXINGTON	MA	02173	3 IW	SP	2 R6
33/5	101	75	NEW GRAVEL RD	STRAUS DAVID A	1700 BROADWAY SUITE	NEW YORK	NY	10019	4 IW	SP	1 R6
33/5	101	75	NEW GRAVEL RD	STRAUS DAVID A	1700 BROADWAY SUITE	NEW YORK	NY	10019	4 IW	SP	2 R6
33/6	101		NEW GRAVEL RD	OFF WYLDE JOHN H	INDIAN NECK RD	WAREHAM	MA	02571	4 IW	SP	1 R6
33/6	101		NEW GRAVEL RD	OFF WYLDE JOHN H	INDIAN NECK RD	WAREHAM	MA	02571	4 IW	SP	2 R6
33/B1	101	69	INDIAN NECK RD	BENTON KATE B	129 E 82ND ST	NEW YORK	NY	10028	3 IW	SP	1 R6
33/B1	101	69	INDIAN NECK RD	BENTON KATE B	129 E 82ND ST	NEW YORK	NY	10028	3 IW	SP	2 R6
33/B3	132		INDIAN NECK	GROSJEAN PRISCILLA W	60 E 42ND ST LINCOLN	NEW YORK	NY	10165	0.45 NO	NO	1 R6
33/C	390		BLOSSOM LANE	BALDWIN ROSE W ET ALS	18 WINFIELD RD	PRINCETON	NJ	08450	18 NO	NO	2 R6
33/C	390		BLOSSOM LANE	BALDWIN ROSE W ET ALS	18 WINFIELD RD	PRINCETON	NJ	08450	18 NO	NO	3 R6
33/C	390		BLOSSOM LANE	BALDWIN ROSE W ET ALS	18 WINFIELD RD	PRINCETON	NJ	08450	18 NO	NO	1 R6

33/J	106	BLOSSOM LN	TITUS DAVID B TRUSTEE	PO BOX 95	HARRISVILLE NH	03450	5 NO	NO	1 R6
33/J	106	BLOSSOM LN	TITUS DAVID B TRUSTEE	PO BOX 95	HARRISVILLE NH	03450	5 NO	NO	2 R6
34/1006A	101	INDIAN NECK	AYER JOHN P DR	225 FRANKLIN ST	BOSTON MA	02110	4	SP	2 R6
34/1006A	101	INDIAN NECK	AYER JOHN P DR	225 FRANKLIN ST	BOSTON MA	02110	4	SP	1 R6
34/1006B	101	LONG BCH RD	AYER JOHN P ET. ALS.	12 BROWNING LANE	LINCOLN MA	01773	3 IW	SP	1 R6
34/1006B	101	LONG BCH RD	AYER JOHN P ET. ALS.	12 BROWNING LANE	LINCOLN MA	01773	3 IW	SP	3 R6
34/1006B	101	LONG BCH RD	AYER JOHN P ET. ALS.	12 BROWNING LANE	LINCOLN MA	01773	3 IW	SP	2 R6
34/1006C	101	LONG BCH RD	AMES SUZANNAH A	12 BROWNING LN	LINCOLN MA	01773	2 IW	SP	2 R6
34/1006C	101	LONG BCH RD	AMES SUZANNAH A	12 BROWNING LN	LINCOLN MA	01773	2 IW	SP	1 R6
34/1007A	131	LONG BCH RD	CUNNINGHAM SHEILA D	471 GROVE ST	NEEDHAM MA	02192	6 NO	NO	1 R6
34/1007A	131	LONG BCH RD	CUNNINGHAM SHEILA D	471 GROVE ST	NEEDHAM MA	02192	6 NO	NO	3 R6
34/1007A	131	LONG BCH RD	CUNNINGHAM SHEILA D	471 GROVE ST	NEEDHAM MA	02192	6 NO	NO	2 R6
34/1007B	101	LONG BCH RD	HAWKINS DAVID	285 DUDLEY ST	BROOKLINE MA	02146	12 IW	SP	3 R6
34/1007B	101	LONG BCH RD	HAWKINS DAVID	285 DUDLEY ST	BROOKLINE MA	02146	12 IW	SP	1 R6
34/1007C	101	LONG BCH RD	HAWKINS DAVID	285 DUDLEY ST	BROOKLINE MA	02146	12 IW	SP	2 R6
34/1007C	101	LONG BCH RD	CUNNINGHAM SHEILA D	471 GROVE ST	NEEDHAM MA	02192	1	SP	1 R6
34/1007C	101	LONG BCH RD	CUNNINGHAM SHEILA D	471 GROVE ST	NEEDHAM MA	02192	1	SP	3 R6
34/1007C	101	LONG BCH RD	CUNNINGHAM SHEILA D	471 GROVE ST	NEEDHAM MA	02192	1	SP	2 R6
34/1008	101	LONG BCH RD OFF	DEWITT JAMES C	355 OLD POST RD	N ATTLEBORO MA	02760	4	SP	1 R6
34/1008	101	LONG BCH RD OFF	DEWITT JAMES C	355 OLD POST RD	N ATTLEBORO MA	02760	4	SP	2 R6
34/1010		LONG BCH RD OFF	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON MA	02105	4 IW	SP	1 R6
34/1010		LONG BCH RD OFF	FIRST NATIONAL BANK OF BOSTON	PO BOX 1890	BOSTON MA	02105	4 IW	SP	2 R6
34/7A	101	NEW GRAVEL RD	PETERSON C RICHARD	311 CAVERSHAM RD	BRYN MAWR PA	19010	4 IW	SP	1 R6
34/7A	101	NEW GRAVEL RD	PETERSON C RICHARD	311 CAVERSHAM RD	BRYN MAWR PA	19010	4 IW	SP	2 R6
34/7B	132	NEW GRAVEL RD	WYLDE JOHN	INDIAN NECK RD	WAREHAM MA	02571	0.68 NO	NO	1 R6
34/A	390	NEW GRAVEL ROAD OFF	HURD GEORGE N, HERRING H JAMES	18 WINFIELD RD	PRINCETON NJ	08450	15 NO		1 R6
34/A	390	NEW GRAVEL ROAD OFF	HURD GEORGE N, HERRING H JAMES	18 WINFIELD RD	PRINCETON NJ	08450	15 NO		2 R6
34/D	131	LONG BCH RD	HURD GEORGE N	18 WINFIELD RD	PRINCETON NJ	08450	2 NO	NO	2 R6
34/D	131	LONG BCH RD	HURD GEORGE N	18 WINFIELD RD	PRINCETON NJ	08450	2 NO	NO	1 R6
35/1	101	EDGEWATER DR	PATRICK PHILIP P	PO BOX 3195	WAREHAM MA	02571	0.38 PS	SP	1 RB
35/1000	101	LONG BCH RD OFF	LOCKE ALLAN P	INDIAN NECK RD	WAREHAM MA	02571	9 PS	SP	1 RB
35/1000	101	LONG BCH RD OFF	LOCKE ALLAN P	INDIAN NECK RD	WAREHAM MA	02571	9 PS	SP	2 RB
35/1000	101	LONG BCH RD OFF	LOCKE ALLAN P	INDIAN NECK RD	WAREHAM MA	02571	9 PS	SP	3 RB
35/1007A	106	EDGEWATER DR OFF	ROME BERNARD P	11 BEACON ST, SUITE	BOSTON MA	02108	1 NO	NO	1 RB
35/1007C	106	EDGEWATER DR	SIGNORE AUGUSTINE	351 LANGLEY RD	NEWTON CENTRE MA	02159	0.57 NO	NO	1 RB
35/1009	905	EDGEWATER DR	ABBOTT WILLIAM S ET ALS	898 STATE RD RFD8	PLYMOUTH MA	02360	0.09 PS	SP	1 RB
35/1011	905	EDGEWATER DR OFF	ABBOTT WILLIAM S ET ALS	898 STATE RD RFD8	PLYMOUTH MA	02360	2 PS	SP	1 RB
35/11	101	EDGEWATER DR	BOURNE BASIL L	1029 PEARL ST	BROCKTON MA	02401	0.42 PS	SW	1 RB
35/12	130	EDGEWATER DR	BOURNE BASIL L	1029 PEARL ST	BROCKTON MA	02401	0.38 PS	SP	1 RB

35/13	106	71	EDGEWATER DR	STANDISH SHORES ASSOC INC	34 EDGEWATER DR	WAREHAM	MA	02571	0.63 PS	SP	1	RB
35/14	101	69	EDGEWATER DR	VANZETTI JOHANNA	BLDG 20 APT 11	BROCKTON	MA	02401	0.23 PS	SP	1	RB
35/15	101	67	EDGEWATER DR	CLARK JOSEPH A &	42 GRANT AVE	BROCKTON	MA	02401	0.21 PS	SP	1	RB
35/16	101	65	EDGEWATER DR	GENOVA DINO	59 SPINDLEWICK DR	MASHUA	NH	03062	0.21 PS	SP	1	RB
35/17	101	63	EDGEWATER DR	NOLAN MARILYN A	3 RADCLIFFE CIR	BEDFORD	MA	01730	0.21 PS	SP	1	RB
35/18	101	61	EDGEWATER DR	CHRISTIAN RUSSELL M JR	PO BOX 289	WAREHAM	MA	02571	0.21 PS	SP	1	RB
35/19	130	59	EDGEWATER DR	LEWIS ROBERTA H	9 FAIRVIEW RD	CANTON	MA	02021	0.22 PS	SP	1	RB
35/2	131	95	EDGEWATER DR	SIGNORE AUGUSTINE M	351 LANGLEY RD	NEWTON	MA	02159	0.27 PS	SP	1	RB
35/20	101	57	EDGEWATER DR	LEWIS DONALD	9 FAIRVIEW RD	CANTON	MA	02021	0.47 PS	SP	1	RB
35/21 --	101	51	EDGEWATER DR	SOUTHERN DAVID L	55 EDGEWATER DR	WAREHAM	MA	02571	0.88 PS	SP	1	RB
35/24	101	49	EDGEWATER DR	RIVER DEVELOPMENT REALTY TRUST	49 EDGEWATER DR	WAREHAM	MA	02571	0.31 PS	SP	1	RB
35/25	132	47	EDGEWATER DR	MARBLE RALPH P JR	SOMERSET RD	WAREHAM	MA	02571	0.26 PS	SP	1	RB
35/26	101	45	EDGEWATER DR	MARBLE RALPH P JR	SOMERSET RD	NANTUCKET	MA	02554	0.26 PS	SP	1	RB
35/27	101	43	EDGEWATER DR	SPRADLIN JESSIE J	43 EDGEWATER DR	NANTUCKET	MA	02554	0.26 PS	SP	1	RB
35/28	130	41	EDGEWATER DR	SCULLY REALTY TRUST	12 PRISCILLA RD	WAREHAM	MA	02571	0.26 PS	SP	1	RB
35/29	130	39	EDGEWATER DR	KIELY SHERYL G	94 LAWTON RD	WELLESLEY	MA	02181	0.23 PS	SP	1	RB
35/3	101	93	EDGEWATER DR	GERBER ANNE S	64 LAWTON RD	NEEDHAM	MA	02192	0.31 PS	SP	1	RB
35/39	131	17	EDGEWATER DR	PROSPER JOHN L JR	64 PARKMAN ST	BROOKLINE	MA	02146	0.39 PS	SP	1	RB
35/40	131	15	EDGEWATER DR	PROSPER JOHN L JR	142 SOUTH ST	E BRIDGEWATER	MA	02333	0.31 PS	SP	1	RB
35/41	131	13	EDGEWATER DR	DAILEY WILLIAM J JR	142 SOUTH ST	E BRIDGEWATER	MA	02333	0.45 PS	SP	1	RB
35/42	101	11	EDGEWATER DR	OPLADEN HEINZ B	1 BUSHNELL DR	LEXINGTON	MA	02173	0.46 PS	SP	1	RB
35/43	101	9	EDGEWATER DR	TAYLOR DOROTHY ANNE	11 EDGEWATER CR	WAREHAM	MA	02571	0.29 PS	SP	1	RB
35/44	130	7	EDGEWATER DR	DOWNEY WALTER L	PO BOX 283	WAREHAM	MA	02571	0.29 PS	SP	1	RB
35/45	101	5	EDGEWATER DR	PAPALIA RICHARD F	135 BELLEVUE ST	WAREHAM	MA	02132	0.42 PS	SP	1	RB
35/46	101	3	EDGEWATER DR	ENZIAN CLAYTON T JR	42 NOTRE DAME RD	WAREHAM	MA	01730	0.46 PS	SP	1	RB
35/47	101	1	EDGEWATER DR	HOULIHAN WILLIAM F III	3 EDGEWATER DR	WAREHAM	MA	02571	0.38 PS	SP	1	RB
37/1	130	32	CROOKED RIVER RD	DACEY MICHAEL J TRUSTEE OF	1 EDGEWATER DR	WAREHAM	MA	02571	0.42 PS	SP	1	RB
37/1	130	32	CROOKED RIVER RD	DACEY MICHAEL J TRUSTEE OF	488 STATE RD SUITE	PLYMOUTH	MA	02360	1 NO	NO	2	R6
37/1014	101	101	GREAT NECK RD	FOSTER HOWARD W	488 STATE RD SUITE	PLYMOUTH	MA	02360	1 NO	NO	1	R6
37/1014	101	101	GREAT NECK RD	FOSTER HOWARD W	101 GREAT NECK RD	WAREHAM	MA	02571	13 PS	SP	3	R6
37/1014	101	101	GREAT NECK RD	FOSTER HOWARD W	101 GREAT NECK RD	WAREHAM	MA	02571	13 PS	SP	2	R6
37/1014	101	101	GREAT NECK RD	FOSTER HOWARD W	101 GREAT NECK RD	WAREHAM	MA	02571	13 PS	SP	1	R6
37/1032	905		INDIAN NECK RD	ABBOTT WILLIAM S ET ALS TRUSTE	101 GREAT NECK RD	WAREHAM	MA	02571	13 PS	SP	4	R6
37/1032	905		INDIAN NECK RD	ABBOTT WILLIAM S ET ALS TRUSTE	STATE RD RFD8	PLYMOUTH	MA	02360	2 NO	NO	2	R6
37/1033A			CROOKED RIVER RD	POITRAS ROBERT B	STATE RD RFD8	PLYMOUTH	MA	02360	2 NO	NO	1	R6
37/1033A			CROOKED RIVER RD	POITRAS ROBERT B	PO BOX 930	PLYMOUTH	MA	02360	39 NO	NO	1	R6
37/1033A			CROOKED RIVER RD	POITRAS ROBERT B	PO BOX 930	PLYMOUTH	MA	02360	39 NO	NO	3	R6
37/1034	132		CROOKED RIVER RD	POITRAS ROBERT B	PO BOX 930	PLYMOUTH	MA	02360	39 NO	NO	2	R6
37/1034	132		CROOKED RIVER RD	POITRAS ROBERT B	PO BOX 930	PLYMOUTH	MA	02360	4 NO	NO	1	R6
					PO BOX 930	PLYMOUTH	MA	02360	4 NO	NO	2	R6

37/1035	132	CROOKED RIVER RD	POITRAS ROBERT B	PO BOX 930	PLYMOUTH	MA	02360	5 NO	NO	2 R6
37/1035	132	CROOKED RIVER RD	POITRAS ROBERT B	PO BOX 930	PLYMOUTH	MA	02360	5 NO	NO	1 R6
38/1001		CRAB COVE TER OFF	PARKWOOD BEACH IMPROVEMENT	3 GARDONIA ST	WAREHAM	MA	02571	1 PS	SW	1 RB
38/1002		PARKWOOD DR	PARKWOOD BEACH IMPROVEMENT	3 GARDONIA ST	WAREHAM	MA	02571	2 PS	SW	1 RB
38/1003		PARKWOOD DR OFF	PARKWOOD BEACH IMPROVEMENT	3 GARDONIA ST	WAREHAM	MA	02571	11 PS	SW	1 RB
38/1004		BAYSIDE AVE	PARKWOOD BEACH IMPROVEMENT	3 GARDONIA ST	WAREHAM	MA	02571	2 PS	SW	1 RB
38/1005		INDIAN NECK RD	PARKWOOD BEACH IMPROVEMENT	3 GARDONIA ST	WAREHAM	MA	02571	2 PS	SW	1 RB
38/344	101 23	CRAB COVE TERR	STONE CARLTON W	PO BOX 7137	PASADENA	CA	91109	0.23 PS	SP	1 RB
38/345B	101 25	CRAB COVE TERR	DEWHURST DAVID C	PO BOX 601	WAREHAM	MA	02571	0.23 PS	SP	1 RB
38/347--	101 27	CRAB COVE TERR	MORLEY ROBERT J ET ALS	17 BURKE ST	WESTWOOD	MA	02090	0.17 PS	SP	1 RB
39/1000	106	NARROWS RD	FOYE LYDA B	275 PLYMOUTH ST	MIDDLEBORO	MA	02346	0.2 PS	SP	1 RB
39/1001	903	OAK ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 PS	SP	2 R1
39/1001	903	OAK ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 PS	SP	1 R1
39/M10	101 75	OAK ST	MURRAY WILLIAM J	130 RICHMOND ST	DORCHESTER	MA	02124	0.9 PS	SP	1 RB
39/M11	79	OAK ST	SAINT JACQUES ROBERT H	79 OAK ST	WAREHAM	MA	02571	1 PS	SP	2 RB
39/M11	79	OAK ST	SAINT JACQUES ROBERT H	79 OAK ST	WAREHAM	MA	02571	1 PS	SP	1 RB
39/M12A	101 83	OAK ST	KEOHANE CORNELIUS V	APT 23	N QUINCY	MA	02171	0.72 PS	SP	1 RB
39/M12B	131 85	OAK ST	MAFFEI PETER J, TRUSTEE	600 MAIN ST	WALTHAM	MA	02154	0.39 PS	SP	1 RB
39/M13	87	OAK ST	BUNSHAFT SOLOMON	10 TILDEN RD	CANTON	MA	02021	1 PS	SP	1 RB
39/M13	87	OAK ST	BUNSHAFT SOLOMON	10 TILDEN RD	CANTON	MA	02021	1 PS	SP	2 RB
39/M13A	101 91	OAK ST	KEYES GARY F	91 OAK ST	WAREHAM	MA	02571	1 PS	SP	2 RB
39/M13A	101 91	OAK ST	KEYES GARY F	91 OAK ST	WAREHAM	MA	02571	1 PS	SP	1 RB
39/T1	101 1	NARROWS RD	YOUNG STEPHEN D	1 NARROWS RD	WAREHAM	MA	02571	0.15 PS	SP	1 RB
39/T11	101 7	OAK HILL RD	NASUTI ANTHONY J	PO BOX 624	WAREHAM	MA	02571	0.13 PS	SP	1 RB
39/T13	101 9	OAK HILL RD	GRUTTNER FRANCIS J	64 LONSDALE ST	DORCHESTER	MA	02122	0.13 IW	SP	1 RB
39/T15	101 11	OAK HILL RD	DOHERTY JAMES E	11 OAKHILL RD	WAREHAM	MA	02571	0.12 PS	SP	1 RB
39/T17	101 13	OAK HILL RD	WHITE EARLE B	26 WARDWELL RD	CANTON	MA	02021	0.12 PS	SP	1 RB
39/T18B	101 15	OAK HILL RD	STANLEY ANASTATIA	P O BOX 28	WAREHAM	MA	02571	0.09 PS	SP	1 RB
39/T19	101 13	OAK ST	BRENNAN MARJORIE R	21 BLANCHARD RD	S WEYMOUTH	MA	02190	0.17 PS	SP	1 RB
39/T2	132	OAK HILL RD	FROST WENDELL A	144 MENDALL RD	ACUSHNET	MA	02743	0.16 PS	SP	1 RB
39/T20A	101 15	OAK ST	KENYON JAMES S JR	TEMPEST KNOB	WAREHAM	MA	02571	0.14 PS	SP	1 RB
39/T20B	101 17	OAK ST	RYCROFT LOIS U	PO BOX 3192	WAREHAM	MA	02571	0.2 PS	SP	1 RB
39/T22	101 19	OAK ST	TARANTINO RICHARD A	254 MILL ST	MANSFIELD	MA	02048	0.17 PS	SP	1 RB
39/T23	101 21	OAK ST	MELLONI MICHAEL F	21 OAK ST-TEMP KNOB	WAREHAM	MA	02571	0.17 PS	SP	1 RB
39/T24	101 23	OAK ST	CAMPANARIO OSCAR A	23 OAK ST-TEMP KNOB	WAREHAM	MA	02571	0.17 PS	SP	1 RB
39/T25	101 25	OAK ST	GANDOLFI VINCENT J	6903 CALLE DEL-PAZ S	BOCA RATON	FL	33433	0.17 PS	SP	1 RB
39/T26	101 27	OAK ST	OLMSTEAD STANLEY D	671 WASHINGTON ST	HOLLISTON	MA	01746	0.17 PS	SP	1 RB
39/T27	101 29	OAK ST	VAN DER WAL JOHANNES	541 WRENTHAM RD	BELLINGHAM	MA	02019	0.26 PS	SP	1 RB
39/T29	33	OAK ST	BERNSTEIN DANIEL S	33 OAK ST TEMP KNOB	WAREHAM	MA	02571	0.2 PS	SP	1 RB

39/73	1	OAK HILL RD	FROST WENDELL A	144 MENDALL RD	ACUSHNET	MA	02743	0.18 PS	SW	1 RB
39/7308	101 35	OAK ST	GIORDANI ELIZABETH J	8 HIGHLAND AVE	RANDOLPH	MA	02368	0.07 PS	SP	1 RB
39/731	101 37	OAK ST	DAMIANO THOMAS M	26 MAY ST	JAMAICA PLAIN	MA	02130	0.17 PS	SP	1 RB
39/732	39	OAK ST	MONCEY PATRICIA A	39 OAK ST	WAREHAM	MA	02571	0.17 PS	SP	1 RB
39/733	104 41	OAK ST	GUPTA SUSHIL K	11 INDIAN SPRING RD	MILTON	MA	02186	0.17 PS	SP	1 RB
39/734	101 43	OAK ST	BARTLETT GENE	24 MONTGOMERY ST	LAKEVILLE	MA	02360	0.17 PS	SP	1 RB
39/735	101 45	OAK ST	BOWMAN ROBERT W	45 OSK ST	WAREHAM	MA	02571	0.17 PS	SP	1 RB
39/736A	101 47	OAK ST	WALSH KATHLEEN R	47 OAK ST	WAREHAM	MA	02571	0.09 PS	SP	1 RB
39/736B	101 49	OAK ST	FOLEY JOHN D	1267 HANOVER ST	HANOVER	MA	02339	0.09 PS	SP	1 RB
39/737	101 51	OAK ST	LOCKE ELEANOR G	11220 FALL RIVER CT	POTOMAC	MD	20854	0.17 PS	SP	1 RB
39/738	101 53	OAK ST	CARPENTER JOHN W	19 FLORENCE AVE	NORWOOD	MA	02062	0.15 PS	SP	1 RB
39/74	101 2	OAK HILL RD	PAVADORE JAMES P	83 BOLIVAR ST	CANTON	MA	02021	0.23 PS	SP	1 RB
39/740	101 57	OAK ST	ADANALIAN JACQUES	121 HOLLWOOD AVE	ENGLEWOOD CLIFFNJ		07632	0.32 PS	SP	1 RB
39/741	101 59	OAK ST	BAKER CLIFTON L JR	59 OAK ST TEMP KNOB	WAREHAM	MA	02571	0.17 PS	SP	1 RB
39/742	101 61	OAK ST	HIRST JOSEPH E	27 MORNINGSIDE RD	NEEDHAM	MA	02192	0.17 PS	SP	1 RB
39/743	63	OAK ST	ABBOTT HOWARD L	5 WASHINGTON PK	CANTON	MA	02021	0.19 PS	SP	1 RB
39/744	101 65	OAK ST	KENRICK ROBERT H JR	10 NORMAN AVE	WAREHAM	MA	02571	0.15 PS	SP	1 RB
39/745	101 67	OAK ST	KENRICK ROBERT H ET ALS	32 WARDWELL RD	WAREHAM	MA	02571	0.17 PS	SP	1 RB
39/75	101 3	OAK HILL RD	GALLIGAN CHARLES M	3 OAK HILL RD	WAREHAM	MA	02571	0.15 PS	SP	1 RB
39/77	101 5	OAK HILL RD	CORRAO MICHAEL J	271 UNION ST	WAREHAM	MA	02571	0.03 PS	SP	1 RB
39/7-21B	903	OAK ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.03 PS	SP	1 RB
3/1000	106 13	GROVELAND ST	ROBINSON HENRY S	BAY ST RFD	BUZZARDS BAY	MA	02532	0.64 NO	NO	1 RA
3/1002	132	WILD ROSE AVE	NANUMETT SHORES IMPROV	253 CENTRAL ST	MILFORD	MA	01757	0.06 NO	NO	1 RA
3/1003	132	WILD ROSE AVE	NANUMETT SHORES IMPROV	253 CENTRAL ST	MILFORD	MA	01757	0 PS	SW	1 RA
3/1007	101 24	FISHERMAN COVE RD	DOLAN CHESTER A JR	111 PERKINS ST	JAMAICA PLAIN	MA	02130	0.6 PS	1 R4	
3/1008	132	FISHERMAN COVE RD	WYMAN ROBERT	101 PLAIN ST	BRIDGEWATER	MA	02324	0.04 PS	1 R4	
3/1009	101 22	FISHERMAN COVE RD	WILL DOROTHEA E	41 PACELLA DR	DEDHAM	MA	02026	0.62 PS	SP	1 R4
3/1010A	101 20	FISHERMAN COVE RD	BETTENCOURT GEORGE J	114 PARKER ST	LOWELL	MA	01850	0.96 PS	SP	1 R4
3/1011	132	FISHERMAN COVE RD	FORTE VINCENT A	PO BOX 270	BUZZARDS BAY	MA	02532	0.37 PS	SP	1 R4
3/1014	384 18	GREENE ST	ONSET BAY CORPORATION	18 GREEN ST RFD 3	BUZZARDS BAY	MA	02532	1	1	1
3/1033A	903	BEACH ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0 NO	NO	1 R1
3/1033B	903	BEACH ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0 NO	NO	1 R1
3/249	101 41	PROSPECT ST	ATKINS EILENE L	4 WILLIAMS PL	MIDDLEBORO	MA	02346	0.68 PS	SP	1 RA
3/A	101 26	FISHERMAN COVE RD	KURIAKOSE THAZHATHAKUDYIL	41 ARBORWAY	JAMAICA PLAIN	MA	02130	1 PS	SP	2 R4
3/A	101 26	FISHERMAN COVE RD	KURIAKOSE THAZHATHAKUDYIL	41 ARBORWAY	JAMAICA PLAIN	MA	02130	1 PS	SP	1 R4
3/E	101 30	ROBINWOOD RD	RIBEIRO MANUEL M	30 ROBINWOOD RD	BUZZARDS BAY	MA	02532	0.75 PS	SP	1 R4
3/LC1	101 13	ROBINWOOD RD	MALOOMIAN JOHN	13 FISHERMAN COVE RD	BUZZARDS BAY	MA	02532	1 PS	SP	2 R4
3/LC1	101 13	ROBINWOOD RD	MALOOMIAN JOHN	13 FISHERMAN COVE RD	BUZZARDS BAY	MA	02532	1 PS	SP	1 R4
43/1000	903	TOWN WAY	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02532	1 PS	SP	1 R4
							60			2 R1

43/1000	903	TOWN WAY	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	60	3	RI
43/1000	903	TOWN WAY	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	60	1	RI
43/1025A	906	CRAN HWY	EMMANUEL CHURCH OF THE	ROGERS AVE	E WAREHAM	MA	5 PS	2	RA
43/1025A	906	CRAN HWY	EMMANUEL CHURCH OF THE	ROGERS AVE	E WAREHAM	MA	5 PS	3	RA
43/1025A	906	CRAN HWY	EMMANUEL CHURCH OF THE	ROGERS AVE	E WAREHAM	MA	5 PS	1	RA
43/1025B	131	CRAN HWY	MAKEPEACE CO A D	PO BOX 151	WAREHAM	MA	0 NO	1	RA
43/1025B	131	CRAN HWY	MAKEPEACE CO A D	PO BOX 151	WAREHAM	MA	0 NO	2	RA
43/1025C	132	CRANBERRY HWY	MAKEPEACE CO A D	PO BOX 151	WAREHAM	MA	0.12 PS	1	RA
43/1028	101 20	ROGERS AVE	FRANKLIN FRANCES J	BOX 485	E WAREHAM	MA	0 IW	2	RA
43/1028	101 20	ROGERS AVE	FRANKLIN FRANCES J	BOX 485	E WAREHAM	MA	0 IW	1	RA
43/1035	101 8	CHAPEL LN	ASHBURN I KENNETH	8 CHAPEL LANE	E WAREHAM	MA	2 PS	3	RA
43/1035	101 8	CHAPEL LN	ASHBURN I KENNETH	8 CHAPEL LANE	E WAREHAM	MA	2 PS	2	RA
43/1035	101 8	CHAPEL LN	ASHBURN I KENNETH	8 CHAPEL LANE	E WAREHAM	MA	2 PS	1	RA
43/W36	101 26	LINWOOD AVE	BADER HERBERT I	96 NORWOOD ST	SHARON	MA	0.49 PS	1	RA
43/W37	101 23	LINWOOD AVE	FETGIN DAVID A	23 LINWOOD AVE	WAREHAM	MA	1 PS	1	RA
43/W37	101 23	LINWOOD AVE	FETGIN DAVID A	23 LINWOOD AVE	WAREHAM	MA	1 PS	2	RA
43/W38	111 21	LINWOOD AVE	LES THEODORE I	38 CLIFFSIDE DR	PLYMOUTH	MA	0.86 PS	1	RA
43/W39	111 19	LINWOOD AVE	LES THEODORE I	38 CLIFFSIDE DR	PLYMOUTH	MA	0.98 PS	1	RA
43/W40	101 17	LINWOOD AVE	WIESNER DAVID C	17 LINWOOD AVE	WAREHAM	MA	0.99 PS	1	RA
43/W41	101 15	LINWOOD AVE	MULGREW RUSSELL N	15 LINWOOD AVE	WAREHAM	MA	0.6 PS	1	RA
43/W42	101 13	LINWOOD AVE	SPILLANE CLEMENT JR	13 LINWOOD AVE	WAREHAM	MA	0.6 PS	1	RA
43/W43	111 11	LINWOOD AVE	LINN STEVEN D	5 BRISTOL DR	SO EASTON	MA	0.75 PS	1	RA
43/W44	132 25	LINWOOD AVE	FETGIN DAVID A	23 LINWOOD AVE	WAREHAM	MA	0.36 PS	1	RA
44/1000	400 72	MINOT AVE	MORITZ JEFFREY M	PO BOX 407	WAREHAM	MA	4	2	SC
44/1000	400 72	MINOT AVE	MORITZ JEFFREY M	PO BOX 407	WAREHAM	MA	4	1	SC
44/1006A	013 179	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	7	1	RA
44/1006A	013 179	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	7	4	RA
44/1006A	013 179	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	7	2	RA
44/1006A	013 179	SANDWICH RD	BRYANT WILLARD A	179 SANDWICH RD	WAREHAM	MA	7	3	RA
44/1006B	388 109	SANDWICH RD	COLLINS JOHN L	130 SPRING ST	MARION	MA	113	1	RA
44/1006B	388 109	SANDWICH RD	COLLINS JOHN L	130 SPRING ST	MARION	MA	113	4	RA
44/1006B	388 109	SANDWICH RD	COLLINS JOHN L	130 SPRING ST	MARION	MA	113	2	RA
44/1006B	388 109	SANDWICH RD	COLLINS JOHN L	130 SPRING ST	MARION	MA	113	3	RA
44/1008	101 1	LADD AVE	BELLUCHE DAVID	PO BOX 446	WAREHAM	MA	2 PS	1	RA
44/1008	101 1	LADD AVE	BELLUCHE DAVID	PO BOX 446	WAREHAM	MA	2 PS	2	RA
44/1009	901	MINOT AVE	COMM OF MASS	10 PARK PLAZA RM 351	BOSTON	MA	11 PS	1	RA
45/1002	326 1	NARROWS RD	STONE LARS E	960 OLD STAGE RD	CENTERVILLE	MA	0.18	1	RA
45/1003	400	NARROWS RD	CAPE COD SHIPBUILDING CO	BOX 152	WAREHAM	MA	10	2	RA
45/1003	400	NARROWS RD	CAPE COD SHIPBUILDING CO	BOX 152	WAREHAM	MA	10	1	RA



46A1/1000 132	PINEHURST DR OFF	PINEHURST BEACH ASSOCIATION	BOX 256	WAREHAM	MA	02571	1 PS	SW	1 RB
46A2/1000 132	PINEHURST DR OFF	PINEHURST BEACH ASSOCIATION	BOX 256	WAREHAM	MA	02571	0.76 NO	NO	1 RB
46A3/1000 132	SEA BREEZE DR	PETRUSEWICZ JOSEPH PETER	HOUGHS NECK	QUINCY	MA	02169	1 NO	NO	1 RB
46/1000 132	RIVERSIDE AVE	WARR WILLIAM E C III	40 WARR AVE	WAREHAM	MA	02571	2 PS	SW	1 SC
46/1002 384 18	WARR AVE	WARRS MARINE INC	LOWER MAIN ST	WAREHAM	MA	02571	12		2 MA
46/1002 384 18	WARR AVE	WARRS MARINE INC	LOWER MAIN ST	WAREHAM	MA	02571	12		1 MA
46/1002 384 18	WARR AVE	WARRS MARINE INC	LOWER MAIN ST	WAREHAM	MA	02571	12		3 MA
47/1000A 130	CHURCH AVE	TOBEY HOSPITAL	43 HIGH ST	WAREHAM	MA	02571	15 PS	SW	1 RB
47/1000A 130	CHURCH AVE	TOBEY HOSPITAL	43 HIGH ST	WAREHAM	MA	02571	15 PS	SW	2 RB
47/1000A 130	CHURCH AVE	TOBEY HOSPITAL	43 HIGH ST	WAREHAM	MA	02571	15 PS	SW	3 RB
47/1000A 130	CHURCH AVE	TOBEY HOSPITAL	43 HIGH ST	WAREHAM	MA	02571	15 PS	SW	4 RB
47/1124 313 55	MAIN ST	MCLAUGHLIN LAWRENCE B JR	52 HIGH STREET	PEMBROKE	MA	02359	0		1 SC
47/1125 313 57	MAIN ST	MCLAUGHLIN LAWRENCE B JR	52 HIGH STREET	PEMBROKE	MA	02359	0		1 SC
47/1126 313	MAIN ST	MCLAUGHLIN LAWRENCE B JR	52 HIGH STREET	PEMBROKE	MA	02359	0		1 SC
47/1127 903	MAIN ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0		1 R1
47/1128 903	MAIN ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0		1 R1
47/1161 903	MAIN ST OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.15		1 R1
47/1161 903	MAIN ST OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.15		2 R1
47/1162 903	KENNEDY LN	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02751	7		1 R1
47/1162 903	KENNEDY LN	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02751	7		2 R1
47/1163 901	CHURCH AVE	DEPARTMENT OF MENTAL HEALTH	PO BOX 631 ATTN: BU	TAUNTON	MA	02780	8		2 R1
47/1163 901	CHURCH AVE	DEPARTMENT OF MENTAL HEALTH	PO BOX 631 ATTN: BU	TAUNTON	MA	02780	8		1 R1
47/1163 901	CHURCH AVE	DEPARTMENT OF MENTAL HEALTH	PO BOX 631 ATTN: BU	TAUNTON	MA	02780	8		3 R1
47/1164 903	CHURCH AVE	WAREHAM HOUSING AUTHORITY	TOWN HALL	WAREHAM	MA	02571	5		2 SC
47/1164 903	CHURCH AVE	WAREHAM HOUSING AUTHORITY	TOWN HALL	WAREHAM	MA	02571	5		1 SC
47/1164 903	CHURCH AVE	WAREHAM HOUSING AUTHORITY	TOWN HALL	WAREHAM	MA	02571	5		3 SC
48/1001 903 54	MARION RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	21		2 SC
48/1001 903 54	MARION RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	21		1 SC
48/1001 903 54	MARION RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	21		3 SC
48/1005 903	MARION RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	10 PS	SW	2 RA
48/1005 903	MARION RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	10 PS	SW	1 RA
48/1005 903	MARION RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	10 PS	SW	3 RA
48/1006 132	LONGMEADOW DR OFF	DONAMON CO INC, THE	80 MARION RD	WAREHAM	MA	02571	0 PS	SW	2 RA
48/1006 132	LONGMEADOW DR OFF	DONAMON CO INC, THE	80 MARION RD	WAREHAM	MA	02571	0 PS	SW	1 RA
48/1008 202	SALT MEADOW RD	ENGLISH JOHN B	SALTMEADOW RD	WAREHAM	MA	02571	2 NO	NO	1 RA
48/1009A 132 10	SALT MEADOW RD	ENGLISH JOHN B III TRUSTEE	FRANK CUTLER DR	WAREHAM	MA	02571	1 PS	SW	1 RA
48/1026 903	MARION RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 NO	NO	1 RA
48/1046 903	SWIFTS BCH RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	3 NO	NO	1 RA
48/1047 130 16	SWIFTS BCH RD	ROGERS FANNIE W ET ALS	P O BOX 365	WAREHAM	MA	02571	9 PS	SW	3 RA

48/1047	130	16	SWIFTS BCH RD	ROGERS FANNIE W ET ALS	P O BOX 365	WAREHAM	MA	02571	9 PS	SW	2 RA
48/1047	130	16	SWIFTS BCH RD	ROGERS FANNIE W ET ALS	P O BOX 365	WAREHAM	MA	02571	9 PS	SW	1 RA
48/1050	101	30	SWIFTS BCH RD	GIBBS MARGARET A	30 SWIFTS BEACH RD	WAREHAM	MA	02571	1 PS	SP	1 RA
48/1050	101	30	SWIFTS BCH RD	GIBBS MARGARET A	30 SWIFTS BEACH RD	WAREHAM	MA	02571	1 PS	SP	2 RA
48/1052		36	SWIFTS BCH RD	VATALARO RALPH J	32 SWIFT'S BEACH RD	WAREHAM	MA	02571	3 PS	SW	1 RA
48/1056	101		SWIFTS BCH RD	BANDONI DONALD G	19 SHERWOOD DR	NORWOOD	MA	02062	17 PS	SP	3 RA
48/1056	101		SWIFTS BCH RD	BANDONI DONALD G	19 SHERWOOD DR	NORWOOD	MA	02062	17 PS	SP	2 RA
48/1056	101		SWIFTS BCH RD	BANDONI DONALD G	19 SHERWOOD DR	NORWOOD	MA	02062	17 PS	SP	1 RA
48/1057	132		SWIFTS BCH RD	HASKELL VIRGINIA M	7 PARTNERS TRACE RD	POUGHKEEPSIE	NY	12603	2 PS	SW	1 RA
48/1059A	903		SWIFTS BCH RD	TOWN OF WAREHAM CONSERVATION	TOWN HALL	WAREHAM	MA	02571	3 PS	SW	1
48/1059B	903		SWIFTS BCH RD	TOWN OF WAREHAM					1 PS	SW	1 RA
48/1060	132		BROAD MARSH AVE	WESTON FREDERICK S	P O BOX 151	MIDDLEBORO	MA	02346	0 PS	SW	1 RA
48/1061	903		SWIFTS BCH RD	TOWN OF WAREHAM TAX POSS.	TOWN HALL	WAREHAM	MA	02571	0 NO	NO	1 R1
48/1063A	903		SWIFTS BCH RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 NO	NO	1 RA
48/1063B	202		SWIFTS BCH RD	HOLLOWAY WENDELL E	1 TWIN OAK CT	AVON	CT	06001	1 PS	SW	1 RA
48/1064	903		SWIFTS BCH RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	10 NO	NO	1 R1
48/1066	202		SWIFTS BCH RD	ATWOOD GILBERT RICHARD	21 REDWOOD LN	BRIARCLIFF MANORY	MA	10510	1 PS	SW	1 RA
48/1067	903		SWIFTS BCH RD	TOWN OF WAREHAM TAX POSS.	TOWN HALL	WAREHAM	MA	02571	1 NO	NO	1 R1
48/1068	903		SWIFTS BCH RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 NO	NO	1 R1
48/1069	903		SWIFTS BCH RD	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 NO	NO	1 R1
49/1000			JOB'S IS	CONDON NATALIE H	P O BOX 503	WAREHAM	MA	02571	15 IW		1 RA
49/1000			JOB'S IS	CONDON NATALIE H	P O BOX 503	WAREHAM	MA	02571	15 IW		2 RA
49/1000			JOB'S IS	CONDON NATALIE H	P O BOX 503	WAREHAM	MA	02571	15 IW		3 RA
49/1001	101		SWIFTS BCH RD	MICHELSEN PHYLLIS B	P O BOX 345	KINDERLOOK	NY	12106	0.78 IW	SP	1 RA
49/1002			SWIFTS BCH RD	CONDON NATALIE H	202 MAIN ST	N EASTON	MA	02356	13 PS	SW	1 RA
49/1003	132		STEPHEN AVE	CONDON NATALIE H	202 MAIN ST	N EASTON	MA	02356	5 PS	SW	1 RB
49/1004A	132		STEPHEN AVE	ELDRIDGE DAVID C	8172 S.E. VILLA WAY	HOBE SOUND	FL	33455	7 PS	SW	1 RB
49/1004A	132		STEPHEN AVE	ELDRIDGE DAVID C	8172 S.E. VILLA WAY	HOBE SOUND	FL	33455	7 PS	SW	2 RB
49/1004B	132		STEPHEN AVE	DEBELLA MICHELE B TRUSTEE	23 STEPHENS AVE	WAREHAM	MA	02571	0.21 PS	SW	1 RB
49/1009A	132		MARSH AVE	HOWES JEAN B	3 BISHOP AVE, RFD #4	MIDDLEBORO	MA	02346	2 PS	SW	1 RA
49/1009B	903		MARSH AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 NO	NO	1 R1
4/10	101	5	SIAS POINT RD	SYLVESTER JOHN A	17 FOREST PARK DR	LAKEVILLE	MA	02346	0.71 PS	SP	1 R4
4/11	101	3	SIAS POINT RD	PREVITE ANTHONY D	66 GRAYMORE RD	WALTHAM	MA	02154	0.55 PS	SP	1 R4
4/13	101	60	ROBINWOOD RD	SILVERSTEIN F ROBERT	221 OAK ST	BROCKTON	MA	02401	0.43 PS	SP	1 R4
4/29	104	8	ROBINWOOD RD	ROLLINS ALFRED A	P O BOX 375	BUZZARDS BAY	MA	02532	1 PS	SP	1 R4
4/29	104	8	ROBINWOOD RD	ROLLINS ALFRED A	P O BOX 375	BUZZARDS BAY	MA	02532	1 PS	SP	2 R4
4/30	101		ROBINWOOD RD	PELLETIER RAYMOND G	833 OLD POST RD	WALPOLE	MA	02081	0.43 PS	SP	1 R4
4/31	101		ROBINWOOD RD	CALISI MARIO	289 WALK HILL ST	ROSLINDALE	MA	02131	0.46 PS	SP	1 R4
4/32	132		ROBINWOOD RD	CALISI MARIO	289 WALK HILL ST	ROSLINDALE	MA	02131	0.34 PS	SP	1 R4

4/33	101 51	ROBINWOOD RD	CASOLI JOHN I	80 PHILLIPS ST	HANSON	MA	02341	0.34 PS	SP	1 R4
4/A	905 36	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR					2 PS		2 R1
4/A	905 36	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR					2 PS		1 R1
4/B	903	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR					3 IW	SP	2 R1
4/B	903	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR					3 IW	SP	1 R1
4/C	903 46	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR		WAREHAM	MA	02571	2 IW	SP	1 R1
4/C	903 46	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR		WAREHAM	MA	02571	2 IW	SP	2 R1
4/D1	101 52	ROBINWOOD RD	SOCIETY OF THE FRIARS MINOR OR	52 ROBINWOOD RD	BUZZARDS BAY	MA	02532	0.47 PS	SP	1 R4
4/F2	101 57	ROBINWOOD RD	VIVEIROS RUSSELL TRUSTEE OF	78 STANLEY RD	NEWTON	MA	02168	0.68 PS	SP	1 R4
4/F3	101 55	ROBINWOOD RD	SHAPIRO DEBORAH TRUSTEE OF	PO BOX 1385	ONSET	MA	02558	2 PS	SP	2 R4
4/F3	101 55	ROBINWOOD RD	WHITE JOAN M	PO BOX 1385	ONSET	MA	02558	2 PS	SP	1 R4
4/G	32	ROBINWOOD RD	TOLENTINO FLORA L	PO BOX 555	ONSET	MA	02558	11 PS	SP	2 R4
4/G	32	ROBINWOOD RD	TOLENTINO FLORA L	PO BOX 555	ONSET	MA	02558	11 PS	SP	1 R4
4/H2	132 45	ROBINWOOD RD	CASOLI JOHN I	80 PHILLIPS ST	HANSON	MA	02341	1 PS	SP	1 R4
4/LC21	101 6	VALLEY RD	CICCARIELLO SALVATORE	6 VALLEY RD, RFD#3	BUZZARDS BAY	MA	02532	0.79 PS	SP	1 R4
4/LC27	132	WILD ROSE AVE	NANUMETT SHORE IMPROV	253 CENTRAL ST	MILFORD	MA	01757	0.2 NO	NO	1 RA
4/LC28	106	TINKER'S LN	NANUMETT SHORE IMPROV	253 CENTRAL ST	MILFORD	MA	01757	0.28 NO	NO	1 RA
4/LC36	101 2	SIAS PT EXT	VITIELLO FRANCO TRUSTEE	89 PORTER ST	SOMERVILLE	MA	02143	0.43 PS	SP	1 R4
4/LC37	101 4	SIAS PT EXT	ANGUS LESLIE A	PINE TREE DR	BUZZARDS BAY	MA	02532	0.38 PS	SP	1 R4
4/LC38	101 6	SIAS PT EXT	CAHALY RONALD F	1302B COMMONWEALTH A	ALLSTON	MA	02134	0.35 PS	SP	1 R4
4/LC39	101 8	SIAS PT EXT	CHRISTOFERSON ROY	RFD #3	BUZZARDS BAY	MA	02532	0.8 PS	SP	1 R4
4/LC40	130 5	SIAS PT EXT	FORRESTER RONALD M	418 RESERVOIR ST	NORTON	MA	02766	0.48 PS	SP	1 R4
4/LC41	101 3	SIAS PT EXT	TSAGRONIS DIMITRIOS S	46 TOWNSEND DR	W BOYLSTON	MA	01583	0.58 PS	SP	1 R4
4/LC42	101 1	SIAS PT EXT	LYDON EDWARD J	BOX 267	BUZZARDS BAY	MA	02532	0.58 PS	SP	1 R4
50A/1000	132	WESTON AVE	PEREIRA VINCENT R	44 BRIAN DR	BROCKTON	MA	02401	0 PS	SW	1 RB
50A/1001B	132 REAR	COLUMBIA ST	WILLIAMSON ALBERT C	60 LEDGELAWN AVE	LEXINGTON	MA	02173	0.01 PS	SW	1 RB
50A/1002	130	COLUMBIA ST	FLIBOTTE ALFRED P	5761 24TH AVE S W	NAPLES	FL	33999	1 PS	SW	1 RB
50A/C-9	903	BAYVIEW ST OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 PS	SW	1 R1
50B1/1	131	MURPHY ST	PAPAGEORGE GEORGE	484 MAIN ST	WAREHAM	MA	02571	7 PS	SW	2 RB
50B2/B1	130	WANKINCO AVE	SHWACHMAN PHILIP O TRUSTEE	PO BOX 1488	WORCESTER	MA	01601	5 PS	SW	1 RB
50B2/B1	130	WANKINCO AVE	SHWACHMAN PHILIP O TRUSTEE	PO BOX 1488	WORCESTER	MA	01601	5 PS	SW	2 RB
50B2/B2	903	SWIFTS BCH RD	TOWN OF WAREHAM	54 MARION RD	WAREHAM	MA	02571	0.2 PS	SW	1 R1
50B2/B3	132	SWIFTS BEACH RD OFF	PAPAGEORGE GEORGE	484 MAIN ST	WAREHAM	MA	02571	0.2 PS	SW	1 RB
50D/1034	101 53	BEACH ST	STROSCIO CARMEN	61 OCEAN STREET	SQUANTUM	MA	02171	0.25 PS	SW	1 RB
50D/1036	903	SHORE AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.34 PS	SW	1 R1
50D/1037	903	SHORE AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0.15 PS	SW	1 R1
50D/31	132 31	BEACH ST	SWIFTS NECK ASSOC	23 LITTLE FARMS RD	FRAMINGHAM	MA	01701	0.28 PS	SW	1 RB
50D/34	132 35	BEACH ST	COLARUSSO JOSEPH	222 LAKEVIEW AVE	W PALM BEACH	FL	33414	0.09 PS	SW	1 RB
50D/35	132 37	BEACH ST	LUNETTA LOUIS L	8 MAY ST	JAMAICA PLAIN	MA	02130	0.09 PS	SW	1 RB

500/36	101	39	BEACH ST	CALARESO JOSEPH JR	5 VINSON CIRCLE	WINCHESTER	MA	01890	0.21 PS	SW	1 RB
500/42	101	43	BEACH ST	SILVA RAYMOND F	24 STANFORD ST	AUBURNDALE	MA	02166	0.09 PS	SW	1 RB
500/42	101	49	BEACH ST	MARTOCCHIO LOUIS J	16 EMERALD DR	VERNON	CT	06086	0.18 PS	SW	1 RB
50F/1040	132		BROAD MARSH AVE	MAIERHOFFER HENRY F	29 HOWARD ST	WAREHAM	MA	02571	0.65 PS		1 RB
50F/1041	132		PILGRIM AVE OFF	MAIERHOFFER HENRY F	29 HOWARD ST	WAREHAM	MA	02571	0.63 PS		1 RB
50F/1042	132		PILGRIM AVE	JOSEPH HERBERT E CORPORATION	35 NORWELL AVE	NORWELL	MA	02061	0.46 PS		1 RB
50F/1043	132		BEACH ST OFF	POLCARI STEPHEN	491 BELMONT ST	BELMONT	MA	02178	0.41 PS		1 RB
50F/1048	132		WORRALL AVE OFF	KADLAC GLENDA M	8600 US#IN LOT 55	SEBASTIAN	FL	32958	0.12 PS		1 RB
50F/1049	132		WORRALL AVE OFF	HAMILTON BEACH ASSOC INC	22 ALGEO AVE	WAREHAM	MA	02571	3 PS		1 RB
50F/1051	132		PILGRIM AVE	GREGENSEN IRENE J TRUSTEE	22 ALGEO AVE	WAREHAM	MA	02571	1 NO	NO	1 RB
50F/151	131	12	PILGRIM AVE	FOSCAROTA RAYMOND	25 CLEVELAND ST	SOMERVILLE	MA	02143	0.23 PS		1 RB
50F/167B	101	31	BROAD MARSH AVE	PAZSIT ANDREW S	10611 SW 204TH TERR	MIAMI	FL	33189	0.14 PS	SP	1 RB
50/1019	132		SWIFTS BCH RD OFF	BONITO FAUSTINE JR	BOX 105	E FALMOUTH	MA	02536	1 PS	SW	1 RB
50/1031	903		CEDAR ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	8		1 R1
50/1031	903		CEDAR ST	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	8		2 R1
51/1000	905		CROMESETT RD OFF	MASSACHUSETTS AUDUBON SOCIETY	121 HIGH ST	WAREHAM	MA	02571	13 PS	SW	1 R1
51/1000	905		CROMESETT RD OFF	MASSACHUSETTS AUDUBON SOCIETY	601 GROVE ST	WAREHAM	MA	02571	13 PS	SW	4 R1
51/1000	905		CROMESETT RD OFF	MASSACHUSETTS AUDUBON SOCIETY	50 HUNNEWELL AVE	WAREHAM	MA	02571	13 PS	SW	2 R1
51/1000	905		CROMESETT RD OFF	MASSACHUSETTS AUDUBON SOCIETY	121 HIGH ST	WAREHAM	MA	02571	13 PS	SW	3 R1
51/1001	130		CROMESETT RD	GLEASON CHARLES S	121 HIGH ST	WAREHAM	MA	02571	0.37 PS	SP	1 RB
51/1002	101		PROGRESS AVE	MAGLATHLIN ROBERT N	601 GROVE ST	NORWELL	MA	02061	0.33 IW	SP	1 RB
51/1003	101	8	PROGRESS AVE	MANNIX WILLIAM J JR ET ALS	50 HUNNEWELL AVE	NEWTON	MA	02158	0.14 IW	SP	1 RB
51/1004A	601	245	CROMESETT RD	GLEASON CHARLES S	121 HIGH ST	WAREHAM	MA	02571	4 PS	SP	1 RB
51/1004A	601	245	CROMESETT RD	GLEASON CHARLES S	121 HIGH ST	WAREHAM	MA	02571	4 PS	SP	2 RB
51/1004B	101	4	QUAIL LN	MYERSON DAVID J	4 QUAIL LN	WAREHAM	MA	02571	1 PS	SP	1 RB
51/1004C	132	4	QUAIL LN OFF	MYERSON DAVID J	4 QUAIL LN	WAREHAM	MA	02571	0.26 PS	SP	1 RB
51/1005	101	2	QUAIL LN	HALL STUART	81 HARRISON ST	N KINGSTOWN	RI	02852	0.11 PS	SP	1 RB
51/1006	101		CROMESETT RD	GLEASON ROBERT CHRISTOPHER	CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	2 RB
51/1006	101		CROMESETT RD	GLEASON ROBERT CHRISTOPHER	CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	1 RB
51/1007A	101	252	CROMESETT RD	GLEASON ELIZABETH H	121 HIGH ST	WAREHAM	MA	02571	3 PS	SP	1 RB
51/1007A	101	252	CROMESETT RD	GLEASON ELIZABETH H	121 HIGH ST	WAREHAM	MA	02571	3 PS	SP	2 RB
51/1008	905		PROGRESS AVE OFF	MASSACHUSETTS AUDUBON SOCIETY	GROVE ST	WAREHAM	MA	02571	4 PS	SP	1 R1
51/1009	905		PROGRESS AVE OFF	MASSACHUSETTS AUDUBON SOCIETY	GROVE ST	WAREHAM	MA	02571	0 PS	SP	1 R1
51/1010	132		CROMESETT RD OFF	MAGLATHLIN ROBERT N	CROMESETT PT	NORWELL	MA	02061	0.15 PS	SP	1 RB
51/202	101	16	NOBSKA WAY	BLONDIN EDMUND A TRUSTEE	CROMESETT PT	WAREHAM	MA	02571	0.34 PS	SP	1 RB
51/205	132	11	PLOYER RD	GIARDINA STEPHEN J	180 WESTON ST	WALTHAM	MA	02154	0.1 PS	SP	1 RB
51/206	101	6	NOBSKA WAY	MUSTO PETER TRUSTEE	961 MAIN STREET	WALPOLE	MA	02081	0.19 PS	SP	1 RB
51/208	101	4	NOBSKA WAY	MONTGOMERY JOHN ET ALS	2 BURNS ST	DANVERS	MA	01923	0.1 PS	SP	1 RB
51/212	101	14	NOBSKA WAY OFF	STRACZYNSKI RICHARD S	25 RAMBLEWOOD DR	N EASTON	MA	02356	0.42	SP	1 RB

51/258	132	19	DOVEKIE WAY	WAYSHVILLE BARBARA J	CROMESETT POINT	WAREHAM	MA	02571	0.09 PS	SP	1 RB
51/259	101	1	CURLEW WAY	WAYSHVILLE BARBARA J	CROMESETT POINT	WAREHAM	MA	02571	0.09 PS	SP	1 RB
51/260	101	13	DOVEKIE WAY	TROJANO FRANCIS F TRUSTEE	38 VEGA AVE	BROCKTON	MA	02402	0.36 IW	SP	1 RB
51/262	101	1	POLOVER RD	EDSON ARLENE L TRUSTEE OF	CROMESETT POINT	WAREHAM	MA	02571	0.35 IW	SP	1 RB
51/264	101	5	DOVEKIE WAY	MCDONALD EDWARD J	39 BEECHWOOD DR	CLIFTON PK	NY	12065	0.36 PS	SP	1 RB
51/266	101	3	DOVEKIE WAY	SNELL RONALD P TRUSTEE	88 N MAIN ST	W BRIDGEMATER	MA	02379	0.23 PS	SP	1 RB
51/269	101	16	NOBSKA WAY OFF	MARTIN PAUL E	48 LIVINGSTON DR	PLYMOUTH	MA	02360	0.19 PS	SP	1 RB
51/270	132		NOBSKA WAY OFF	MARTIN PAUL E	48 LIVINGSTON DR	PLYMOUTH	MA	02560	0.18 PS	SP	1 RB
51/4	101	281	CROMESETT RD	SISSON RICHARD T	281 CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	2 RB
51/4	101	281	CROMESETT RD	SISSON RICHARD T	281 CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	1 RB
51/8	101	278	CROMESETT RD	OUJMET EMIL R	230 ELLIOT ST	BROCKTON	MA	02401	0.83 PS	SP	1 RB
51/9	101	274	CROMESETT RD	OUJMET EMIL R	230 ELLIOT ST	BROCKTON	MA	02401	1 PS	SP	2 RB
51/9	101	274	CROMESETT RD	OUJMET EMIL R	230 ELLIOT ST	BROCKTON	MA	02401	1 PS	SP	1 RB
51/9	101	9	CURLEW WAY	NEWBERG CARL	9 CURLEW WAY	WAREHAM	MA	02571	0.49 PS	SP	1 RB
51/0100	101	8	CROMESETT RD OFF	ANDREOTTI ANTHONY P	15 ELIZABETH ST	CANTON	MA	02021	0.21 IW	SP	1 RB
51/016	101	12	CROMESETT RD	SMITH FREDERICK W	12 CROMESETT RD	WAREHAM	MA	02571	0.29 IW	SP	1 RB
51/019	101	6	CROMESETT RD	HANLEY L DAVID	6 CROMESETT PT	WAREHAM	MA	02571	0.24 IW	SP	1 RB
51/0-17	131	8	CROMESETT RD	OUJMET EMIL R TRUSTEE	230 ELLIOT ST	BROCKTON	MA	02402	0.44 PS	SW	1 RB
52/1000	132		CROMESETT RD	POOLE RICHMOND	22 LAKE ST	PLYMPTON	MA	02367	20 IW	SP	2 RB
52/1000	132		CROMESETT RD	POOLE RICHMOND	22 LAKE ST	PLYMPTON	MA	02367	20 IW	SP	1 RB
52/1001	132		MARK'S COVE	CROMESETT PARK IMPROV ASSOC	30 CENTRE ST	BROCKTON	MA	02401	0.49 PS	SP	1 RB
52/1002	903		CROMESETT RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1 NO	NO	1 RB
52/1003	132		CROMESETT RD OFF	DECAS REAL ESTATE TRUST	219 MAIN ST	WAREHAM	MA	02571	3 IW	SP	1 RB
52/1005	132		CEDAR ISLAND ST	DECAS REAL ESTATE TRUST	219 MAIN ST	WAREHAM	MA	02571	0.23 IW	SP	1 RB
52/1006A	903		CROMESETT RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	2 NO	NO	1 RB
52/1006B	905		CROMESETT RD OFF	MASSACHUSETTS AUDUBON SOCIETY	93 AVENUE A	WAREHAM	MA	02571	6 NO	NO	1 RB
52/1006C	132		CROMESETT RD OFF	FANTASTIA ALBERT A	WAREHAM	WAREHAM	MA	02571	1 NO	NO	1 RB
52/1006D	132		CROMESETT RD OFF	LAIRD JOSEPH	POPE POINT RD, RFD	CARVER	MA	02330	1 NO	NO	1 RB
52/1006E	132		CROMESETT RD OFF	RYDER ROGER F JR	7909 FAIRFAX RD	ALEXANDRIA	VA	22308	3 NO	NO	1 RB
52/1006F	905		CROMESETT RD OFF	MASSACHUSETTS AUDUBON SOCIETY		WAREHAM	MA	02571	4 NO	NO	1 RB
52/1007	132		CROMESETT RD	GLEASON CHARLES S	121 HIGH ST	WAREHAM	MA	02571	0.2 NO	NO	1 RB
52/11A	132	190	CROMESETT RD	GLEASON CHARLES S	121 HIGH ST	WAREHAM	MA	02571	2 NO	NO	1 RB
52/11B	131		CROMESETT RD	TRUCCHI DAVID M	84 SHERWOOD LN	RAYNHAM	MA	02767	1 IW	SP	1 RB
52/11B	131		CROMESETT RD	TRUCCHI DAVID M	84 SHERWOOD LN	RAYNHAM	MA	02767	1 IW	SP	3 RB
52/11B	131		CROMESETT RD	TRUCCHI DAVID M	84 SHERWOOD LN	RAYNHAM	MA	02767	1 IW	SP	2 RB
52/11C	132		CROMESETT RD	GLEASON CHARLES S	121 HIGH ST	WAREHAM	MA	02571	0 NO	NO	1 RB
52/D6	101	28	MARK'S COVE RD	CORKERY ROBERT J	28 OLD COACH RD	CANTON	MA	02021	0.29 IW	SP	1 RB
52/N10	101	5	GEM ST	TRUCCI DAVID M	63 CENTER ST	W BRIDGEMATER	MA	02379	0.28 IW	SP	1 RB
53/1000	334		MARLON RD	HANDY MELISSA	484 MAIN ST	WAREHAM	MA	02571	2		1 RB

53/1000	334	MARION RD	HANDY MELISSA	484 MAIN ST	WAREHAM	MA	02571	2	2	2	R1
53/1001	132	BRIARWOOD BCH	STRUCK CHARLES W	78 MENLO ST	BROCKTON	MA	02401	2	PS	SP	RB
53/1002	903	MADISON ST OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	7	NO	NO	R1
53/1002	903	MADISON ST OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	7	NO	NO	R1
53/1004	132	FILLMORE ST	STEMPKA JOSEPH W	167 DUFFY DR	TAUNTON	MA	02780	0	PS	SP	RB
53/1006	132	JEFFERSON RD OFF	MCKINSTRY WILLIAM E	41 FAY RD	DEDHAM	MA	02026	0	PS	SP	RB
53/1007	132	FILLMORE ST	KELLEY WILLIAM	1123 WASHINGTON ST	NORWOOD	MA	02062	0	PS	SW	RB
53/1008	132	FILLMORE ST OFF	BARRY VIVIAN A	2535 OGDEN ST	FALLS CHURCH	VA	22043	0	PS	SP	RB
53/1009	903	MUNROE PKWY OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0	PS	SW	R1
53/1010A	903	BRIARWOOD DR OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	0	PS	SW	R1
53/1013B	132	GARFIELD ST	RAZZANO MICHAEL A, TRUSTEE	157 PLEASANT ST	FRANKLIN	MA	02038	0	PS	SP	RB
53/1014	132	GARFIELD ST OFF	FREITAS LEOLA L	79 VAUGHN ST RT6	MIDDLEBORO	MA	02346	0	PS	SP	RB
53/1016	132	BRIARWOOD DR OFF	CAPOZZOLI GERALD R	97 WHITNEY AVE	STOUGHTON	MA	02072	0	PS	SP	RB
53/1017B	132	ROOSEVELT ST OFF	MAGOON JAMES B	341 TREMONT ST	BARRE	VT	05641	0	PS	SP	RB
53/1018	132	BRIARWOOD DR OFF	WATT DONALD F	34 BRIARWOOD DR	WAREHAM	MA	02571	0	PS	SP	RB
53/1019	903	EISENHOWER AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	1	NO	NO	R1
53/1020	132	MADISON ST OFF	CANNISTRARO THERESA M	22 LYMAN TERRACE	WALTHAM	MA	02154	0	PS	SP	RB
53/1021	132	FILLMORE ST OFF	ANDRADE JOHN T	22 FILLMORE ST	WAREHAM	MA	02571	0	PS	SP	RB
53/2108	101	BRIARWOOD DR	NEWHALL HERBERT C	35 BRIARWOOD DR	WAREHAM	MA	02571	0.47	PS	SP	RB
53/226	132	HARRISON AVE	CUNEO DENISE M	PO BOX 184	CHARTLEY	MA	02712	0.09	PS	SP	RB
53/227	101	HARRISON AVE	YULE RUSSELL J	936 WEONIT COURT	RAYNHAM	MA	02767	0.55	PS	SP	RB
53/295	903	LINCOLN HWY OFF	TOWN OF WAREHAM	319 DELANO RD	MARION	MA	02738	4	NO	SW	RB
54/1000	132	CROMESETT RD OFF	MORSE PAUL R, ET ALS	TOWN HALL	WAREHAM	MA	02571	2	NO	NO	RA
54/1001	132	CROMESETT RD OFF	HEPBURN ELLEN F ESTATE OF	121 HIGH ST	WAREHAM	MA	02571	3	NO	NO	RA
54/1002	132	CROMESETT RD OFF	GLEASON CHARLES S	TOWN HALL	WAREHAM	MA	02571	1	NO	NO	R1
54/1003	903	CROMESETT RD OFF	TOWN OF WAREHAM	125 CROMESETT RD	WAREHAM	MA	02571	9	IW	SP	RB
54/1004	101	CROMESETT RD OFF	EISENMENGER ANNE W	125 CROMESETT RD	WAREHAM	MA	02571	9	IW	SP	RB
54/1004	101	CROMESETT RD OFF	EISENMENGER ANNE W	43-63 163RD ST	FLUSHING	NY	11358	0	NO	NO	RB
54/1006	132	CROMESETT RD	LORD EMILIE L	43-63 163RD ST	FLUSHING	NY	11358	0	NO	NO	RB
54/1006	132	CROMESETT RD	LORD EMILIE L	TOWN HALL	WAREHAM	MA	02571	1	NO	NO	R1
54/1007	905	CROMESETT RD OFF	MASS. AUDUBON SOCIETY, INC.	43-63 163RD ST	FLUSHING	NY	11358	3	NO	NO	RB
54/1008	903	CROMESETT RD	TOWN OF WAREHAM	43-63 163RD ST	FLUSHING	NY	11358	3	NO	NO	RB
54/1009	131	CROMESETT RD	LORD EMILIE L	43-63 163RD ST	FLUSHING	NY	11358	3	NO	NO	RB
54/1009	131	CROMESETT RD	LORD EMILIE L	43-63 163RD ST	FLUSHING	NY	11358	3	NO	NO	RB
54/1009	131	CROMESETT RD	LORD EMILIE L	43-63 163RD ST	FLUSHING	NY	11358	3	NO	NO	RB
54/1010	905	CROMESETT RD OFF	MASS. AUDUBON SOCIETY, INC	TOWN HALL	WAREHAM	MA	02571	2	NO	NO	R1
54/1011	903	CROMESETT RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	6	NO	NO	R1
54/1012	905	CROMESETT RD OFF	MASS. AUDUBON SOCIETY, INC.	TOWN HALL	WAREHAM	MA	02571	4	NO	NO	R1
54/1013	905	CROMESETT RD OFF	MASS. AUDUBON SOCIETY, INC.	TOWN HALL	WAREHAM	MA	02571	4	NO	NO	R1

54/1014	101	LAZY HARBOR RD	BIRENBACH LEONARD P	PO BOX 519	WAREHAM	MA	02576	1 IW	SP	1 RB
54/1014	101	LAZY HARBOR RD	BIRENBACH LEONARD P	PO BOX 519	WAREHAM	MA	02576	1 IW	SP	2 RB
54/1014	101	LAZY HARBOR RD	BIRENBACH LEONARD P	PO BOX 519	WAREHAM	MA	02576	1 IW	SP	3 RB
54/1015	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	37 NO	NO	2
54/1015	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	37 NO	NO	1
54/1015	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	37 NO	NO	3
54/1015	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	37 NO	NO	4
54/1016	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	12 NO	NO	3 RB
54/1016	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	12 NO	NO	1 RB
54/1016	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	12 NO	NO	4 RB
54/1016	131	CROMESETT RD	ISSADORE BRUCE A	45 POND ST	NORWELL	MA	02061	12 NO	NO	2 RB
54/1017	132	CROMESETT RD OFF	CROWLEY JOHN J	289 HIGH ST	HINGHAM	MA	02043	2 NO	NO	1 RB
54/1018	905	CROMESETT RD OFF	MASS. AUDUBON SOCIETY, INC.					2 NO	NO	1 R1
54/1019	132	CROMESETT RD OFF	COMMONWEALTH ELECTRIC COMPANY	PO BOX 9150	CAMBRIDGE	MA	02142	1 NO	NO	1
55/1000	132	SHADY LN	BOUCHER RICHARD V	97 WILMARTH ST	ATTLEBORO	MA	02703	3 NO	NO	1 RB
55/1001	101	SWIFTS BCH RD OFF	MESSIER JAMES	35 MT VERNON AVE	N ATTLEBORO	MA	02760	0.23 IW	SP	1 RB
55/1008	132	TURNER ST OFF	FREITAS JOSEPH F	79 VAUGHN ST RT6	MIDDLEBORO	MA	02346	0.11 NO	NO	1 RB
55/T1	132	SHADY LN	SIMPSON EDWARD E	46 FAIRWAY LANE	FOXBORO	MA	02035	0.1 NO	NO	1 RB
55/T10	132	TURNER ST OFF	FREITAS JOSEPH F	79 VAUGHN ST RT6	MIDDLEBORO	MA	02346	0.11 NO	NO	1 RB
55/T2	101	TURNER ST OFF	BRADFORD GEORGE W	44 SARGENT CIR	ATTLEBORO	MA	02703	0.11 IW	SP	1 RB
55/T4	132	SHADY LN	MACAULAY ROBERT C	23 MONTELLO ST	MIDDLEBORO	MA	02346	0.11 NO	NO	1 RB
55/T6	131	TURNER ST	BRADFORD GEORGE W	44 SARGENT CIR	ATTLEBORO	MA	02703	0.23 NO	NO	1 RB
58/1018	903	MARION RD OFF	TOWN OF WAREHAM	TOWN HALL	WAREHAM	MA	02571	6 PS	SP	1 R1
58/1033	132	FAIRFIELD DR	SNOW EUGENE L TR	28 SNELL ST	HOLBROOK	MA	02343	3 PS		1 RA
58/1033	132	FAIRFIELD DR	SNOW EUGENE L TR	28 SNELL ST	HOLBROOK	MA	02343	3 PS		2 RA
58/1034A	132	WINSLOW LN	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	1 PS		2 RA
58/1034A	132	WINSLOW LN	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	1 PS		1 RA
58/1034B	132	WINSLOW LN	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	0 PS		2
58/1034B	132	WINSLOW LN	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	0 PS		1 RA
58/1034C	132	WINSLOW LN	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	0 PS		1 RA
58/1034D	132	WINSLOW LN OFF	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	3 PS		1 RA
58/1034E	132	FAIRFIELD DR OFF	SNOW EUGENE L TRUSTEE	28 SNELL ST	HOLBROOK	MA	02343	0 PS		1 RA
58/B41	131	FAIRFIELD DR	DUCLILLE DANIEL M	560 TRATCHER ST	BROCKTON	MA	02402	0.37 PS	SP	1 RA
58/B-58	131	FAIRFIELD DR	DOLPHIN CONSTRUCTION INC	165 ROUTE 3A	SAGAMORE	MA	02561	1 PS	SP	1 RA
58/B-59	130	FAIRFIELD DR	DOLPHIN CONSTRUCTION INC	165 ROUTE 3A	SAGAMORE	MA	02561	0.85 PS	SP	1 RA
58/S15	101	CROMESETT RD	WHITNEY RICHARD W	77 CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	2 RA
58/S15	101	CROMESETT RD	WHITNEY RICHARD W	77 CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	1 RA
58/S16	101	CROMESETT RD	CAVICCHI PETER M	81 CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	1 RA
58/S16	101	CROMESETT RD	CAVICCHI PETER M	81 CROMESETT RD	WAREHAM	MA	02571	1 PS	SP	2 RA

5/1	101	30	ONSET AVE OFF	MACLEAN HOWARD A	269 FOUNDRY ST	EASTON MA	02375	0.31	PS	SP	1 R4
5/1002B	101	10	GRANSTON WAY	POPLACK HELEN TRUSTEE	114 KIRKSTALL RD	NEWTONVILLE MA	02160	3	PS	SP	2 R4
5/1002B	101	10	GRANSTON WAY	POPLACK HELEN TRUSTEE	114 KIRKSTALL RD	NEWTONVILLE MA	02160	3	PS	SP	1 R4
5/1003B	132		ONSET AVE OFF	EGBERT RICHARD M	TWO CENTER PL	BOSTON MA	02108	0.01	NO	NO	1 R4
5/1003C	101	14	ONSET AVE OFF	GRANT RITA M	14 GRANSTON WAY	BUZZARDS BAY MA	02532	0.84	PS	SP	1 R4
5/1004	101	11	ONSET AVE OFF	STONE SYBIL F	BOX 728	WAREHAM MA	02571	1	PS	SP	1 R4
5/1004	101	11	ONSET AVE OFF	STONE SYBIL F	BOX 728	WAREHAM MA	02571	1	PS	SP	2 R4
5/1007D	101		RHODDENDRON DR	MCLAUGHLIN BRIAN J	321 MANLEY ST	W BRIDGEWATER MA	02379	2	PS	SP	2 R4
5/1007D	101		RHODDENDRON DR	MCLAUGHLIN BRIAN J	321 MANLEY ST	W BRIDGEWATER MA	02379	2	PS	SP	1 R4
5/1007E	106		RHODDENDRON DR	MCLAUGHLIN BRIAN J	321 MANLEY ST	W BRIDGEWATER MA	02379	2	PS	SP	1 R4
5/1007E	106		RHODDENDRON DR	MCLAUGHLIN BRIAN J	321 MANLEY ST	W BRIDGEWATER MA	02379	2	PS	SP	2 R4
5/1011A	101		PETER'S LN	BRIGGS LAWRENCE F	PO BOX 259	W BRIDGEWATER MA	02379	0.19	PS	SP	1 R4
5/1011B	101	5	PETER'S LN	BRIGGS LAWRENCE F	PO BOX 259	W BRIDGEWATER MA	02379	0.43	PS	SP	1 R4
5/1012	132	24	ONSET AVE OFF	REID GEORGE M	PO BOX 1234	ONSET MA	02558	0.04	PS		1 R4
5/1015	132	18	ONSET AVE	NIKORAS MARY M	21 ONSET AVE	BUZZARDS BAY MA	02532	0.11	PS		1 R4
5/1016	101	16	ONSET AVE	ANDERSON ROBERT	PO BOX 507	ONSET MA	02558	0.54	PS	SP	1 R4
5/1017A	101	14	ONSET AVE	BORR DONALD	22 DARRELL DR	RANDOLPH MA	02368	0.67	PS	SP	1 R4
5/1017B	101	12	ONSET AVE	CECCA RICHARD M	12 ONSET AVE RFD3	BUZZARDS BAY MA	02532	0.41	PS	SP	1 R4
5/1018A	132	10	ONSET AVE	POST RICHARD W JR	11 ONSET AVE RFD 3	BUZZARDS BAY MA	02532	0.18	PS		1 R4
5/1018B	132		ONSET AVE	QUINTAL ROBERT E	343 SCENIC HWY	BOURNE MA	02532	0.17	PS		1 R4
5/1019	101	8	ONSET AVE	QUINTAL GLORIA M	343 SCENIC HWY	BOURNE MA	02532	0.33	PS	SP	1 R4
5/1020	101	6	ONSET AVE	COAKLEY TIMOTHY W	6 ONSET AVE, RFD 3	BUZZARDS BAY MA	02532	0.72	PS	SP	1 R4
5/1021	101	4	ONSET AVE	MAHONEY DOROTHY C	3 RIPLEY ST	NEWTON CENTER MA	02159	0.28	PS	SW	1 R4
5/1022A	132		ONSET AVE	JONES JAMES T	700 ACUSHNET AVE	NEW BEDFORD MA	02740	0.01	PS	SP	1 R4
5/1022B	101	16	SHANLEY WAY	BAGLEY ROBERTA	8 PROSPECT ST	BETHEL CT	06801	0.64	PS	SP	1 R4
5/1023A	101	14	ONSET AVE OFF	JONES JAMES T	700 ACUSHNET AVE	NEW BEDFORD MA	02740	0.28	PS	SP	1 R4
5/1023B	104	14	ONSET AVE OFF	JONES JAMES T	700 ACUSHNET AVE	NEW BEDFORD MA	02740	0.23	PS	SP	1 R4
5/1024	132	2	ONSET AVE OFF	OBRIEN AGNES E ET ALS	12 SHANLEY WAY RFD3	BUZZARDS BAY MA	02532	0.69	PS	SW	1 R4
5/1025	132	2	ONSET AVE OFF	NELSON KENNETH E	19 STONEHILL RD	N ATTLEBORO MA	02760	1	PS		1 R4
5/1026	132	18	ONSET AVE OFF	PETERS FRANCES B	47 PORTER RD	MATICK MA	01760	0.04	PS		1 R1
5/1027	903	62	ONSET AVE	TOWN OF WAREHAM	TOWN HALL	WAREHAM MA	02571	0.07	PS	SW	1 R1
5/2	101		ONSET AVE OFF	HAYES GLENN FRANCIS	140 LURA LN	WALTHAM MA	02154	0.29	PS	SP	1 R4
5/A	101	4	ONSET AVE OFF	NELSON SUSAN B	19 STONEHILL RD	N ATTLEBORO MA	02760	0.29	PS	SP	1 R4
5/B	101	6	ONSET AVE OFF	MACDONALD MARY E	9 ROBERTA DR RFD3	BUZZARDS BAY MA	02532	0.31	PS	SP	1 R4
5/B3	132		BUTLER'S COVE RD	FULLER A CLAYTON E	RFD #3	BUZZARDS BAY MA	02532	0.06	NO	NO	1 R4
5/C1	130	8	SHANLEY WAY	REZZA JOSEPH P	26 DODGE AVE	ATTLEBORO MA	02763	0.4	PS		1 R4
5/D4	101	10	SHANLEY WAY	DEY ARABINDA N	P.O. BOX 453	BUZZARDS BAY MA	02532	0.3	PS	SP	1 R4
5/LC1	130	24	PINE TREE DR	BEREJIK ANTHONY	50 OXBOW RD	NEEDHAM MA	02192	1	PS		1 R4
5/LC1	130	24	PINE TREE DR	BEREJIK ANTHONY	50 OXBOW RD	NEEDHAM MA	02192	1	PS		2 R4



5/LC11A	132	PETER'S LN	MASASCHI MARY ANNE TRUSTEE	REFD 3	BUZZARDS BAY	MA	02532	0.55 PS	SP	1 R4
5/LC11B	104	PETER'S LN	TURNER MARGARET A	118 PETER'S LN RFD3	BUZZARDS BAY	MA	02532	0.51 PS	SP	1 R4
5/LC2	101	PINE TREE DR	JENNINGS ADDISON L TRUSTEE	22 PINE TREE DR-RFD	BUZZARDS BAY	MA	02532	1 PS	SP	1 R6
5/LC2	101	PINE TREE DR	JENNINGS ADDISON L TRUSTEE	22 PINE TREE DR-RFD	BUZZARDS BAY	MA	02532	1 PS	SP	2 R6
5/LC27	101	PINE TREE DR	HENNESSEY JOHN D	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	3 PS	SP	2 R4
5/LC27	101	PINE TREE DR	HENNESSEY JOHN D	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	3 PS	SP	1 R4
5/LC28A	130	PINE TREE DR	HENNESSEY JOHN D	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	2 PS	SP	2 R4
5/LC28A	130	PINE TREE DR	HENNESSEY JOHN D	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	2 PS	SP	1 R4
5/LC28B	132	PINE TREE DR	HENNESSEY JOHN D	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	2 PS	SP	1 R4
5/LC29A	101	PINE TREE DR	ANGUS LESLIE A	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	0.08 PS	SP	1 R4
5/LC29A	101	PINE TREE DR	ANGUS LESLIE A	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	2 PS	SP	2 R4
5/LC29A	101	PINE TREE DR	ANGUS LESLIE A	WHITTEMORES PT RFD	BUZZARDS BAY	MA	02532	2 PS	SP	1 R4
5/LC2A	132	ONSET AVE OFF	MCLAUGHLIN BRIAN J	321 MANLEY ST	W BRIDGEMATER	MA	02379	0.43 NO	NO	1 R4
5/LC30	101	PINE TREE DR	LANDRY ARTHUR N JR	37 PINE TREE DR, RFD	BUZZARDS BAY	MA	02532	0.92 PS	SP	1 R4
5/LC31	101	PINE TREE DR	GURNON RICHARD J	54 CABOT RD	DANVERS	MA	01923	0.81 PS	SP	1 R4
5/LC32	101	PINE TREE DR	GODSOE BOYCE W	1 FEDERAL ST	BOSTON	MA	02110	0.71 PS	SP	1 R4
5/LC33	130	PINE TREE DR	PARKER IRENE M	R F D #3	BUZZARDS BAY	MA	02532	0.59 PS	SP	1 R4
5/LC34	101	PINE TREE DR	ZECCO JANICE J TR	151 CRAWFORD ST	NORTHBORO	MA	01532	0.7 PS	SP	1 R4
5/LC35	40	PINE TREE DR	FLANDERS JAMES W	276 WEST MAIN ST	NORTHBORO	MA	01532	0.92 PS	SP	1 R4
5/LC36	101	PINE TREE DR	SANTANGELO LAURA B TRUSTEE	RFD#3	BUZZARDS BAY	MA	02532	1 PS	SP	1 R4
5/LC36	101	PINE TREE DR	SANTANGELO LAURA B TRUSTEE	RFD#3	BUZZARDS BAY	MA	02532	1 PS	SP	2 R4
5/LC37	130	PINE TREE DR	PARKER IRENE M	R F D #3	BUZZARDS BAY	MA	02532	0.52 PS	SP	1 R4
5/LC38	101	PINE TREE DR	PARKER IRENE M	R F D #3	BUZZARDS BAY	MA	02532	0.53 PS	SP	1 R4
5/LC39	101	PINE TREE DR	UPHAM NORMAN E	32 PINE TREE DR RFD3	BUZZARDS BAY	MA	02532	0.43 PS	SP	1 R4
5/LC3A	60	ONSET AVE	FAFARD HOWARD	290 ELIOT ST	ASHLAND	MA	01721	6 PS	SP	2 R4
5/LC3A	60	ONSET AVE	FAFARD HOWARD	290 ELIOT ST	ASHLAND	MA	01721	6 PS	SP	1 R4
5/LC4	101	PINE TREE DR	VOGEL JAMES E	WHITTEMORE PT RFD3	BUZZARDS BAY	MA	02532	0.52 PS	SP	1 R4
5/LC40	101	PINE TREE DR	LUCIER GARY P	30 PINE TREE DR RFD3	BUZZARDS BAY	MA	02532	0.63 PS	SP	1 R4
5/LC41	130	PINE TREE DR	BEREJIK ANTHONY	50 OXBOW RD	NEEDHAM	MA	02192	0.55 PS	SP	1 R4
5/LC42	101	PINE TREE DR	BEREJIK ANTHONY	50 OXBOW RD	NEEDHAM	MA	02192	0.44 PS	SP	1 R4
5/LC5	101	PINE TREE DR	BROWN CLAYTON D JR	103 MAIN ST	S GRAFTON	MA	01560	0.44 PS	SP	1 R4
5/LC6	101	PINE TREE DR	WHITTEMORE WILLIAM G	P.O. BOX 379	BUZZARDS BAY	MA	02532	0.4 PS	SP	1 R4
5/LC7	101	PINE TREE DR	LILLA EDWARD M	P.O. BOX 510	BUZZARDS BAY	MA	02532	0.41 PS	SP	1 R4
5/LC73	101	PINE TREE DR	OCONNOR DANIEL F	11 PINE TREE DR, RFD	BUZZ BAY	MA	02532	3 PS	SP	2 R4
5/LC73	101	PINE TREE DR	OCONNOR DANIEL F	11 PINE TREE DR, RFD	BUZZ BAY	MA	02532	3 PS	SP	1 R4
5/LC74	101	PINE TREE DR	BORGGAARD HOWARD	P.O. BOX 545	BUZZARDS BAY	MA	02532	2 PS	SP	1 R4
5/LC74	101	PINE TREE DR	BORGGAARD HOWARD	P.O. BOX 545	BUZZARDS BAY	MA	02532	2 PS	SP	1 R4
5/LC75	101	PINE TREE DR	ATTAYA JOHN O	P.O. BOX 269	BUZZARDS BAY	MA	02532	2 PS	SP	2 R4
5/LC75	101	PINE TREE DR	ATTAYA JOHN O	P.O. BOX 269	BUZZARDS BAY	MA	02532	2 PS	SP	2 R4
5/LC8A	101	PINE TREE DR	DANDREA FRANK	153 OSTEND ST	BUZZARDS BAY	MA	02532	2 PS	SP	1 R4
					JOHNSTON	RI	02919	0.41 PS		1 R4

5/LC9A	101 8	PINE TREE DR	HOGAN GARY	9 LANTERN LANE	S EASTON	MA 02375	0.33 PS	SP	1 R4
6/1006A	322 3255	CRAN HWY	BYRON FLORENCE	99 HIGH ST	WAREHAM	MA 02571	1		2 CD
6/1006A	322 3255	CRAN HWY	BYRON FLORENCE	99 HIGH ST	WAREHAM	MA 02571	1		1 CD

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**APPENDIX 4 - WAREHAM MARINAS, YACHT CLUBS,  
BOAT YARDS, AND BOAT RAMPS**

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**APPENDIX 4      Wareham Marinas, Yacht Clubs, Boat Yards, and Boat Ramps**

**a.              Public Marina Facilities**

Wareham River

**WARR'S MARINE**

Lower Main Street, Wareham

Warr's Marine, located off Wareham Neck on the Wareham River, is a private marina which has space for 160 recreational vessels and 5 commercial fishing vessels. These vessels are accommodated in 110 slips and 65 moorings. The Mooring Grid Plan (1991) recorded 82 boats at Warr's Marine. Of these moorings, 40 are used by sailcraft and 15 by power boats. Of the available slips, 3 are used by sailcraft and 75 by power boats. A total of ten slips are reserved for transient use. There are two workings floats and one dinghy float. Electricity is provided to the ships on the docks. There was no waiting list for slips or moorings during the 1991 season, although there has been a wait in past years, according to the proprietor of Warr's Marine.

Two hundred parking spaces are available at no charge to customers or their guests. Amenities include restrooms and showers, which are accessible with keys by slip and moorings customers only. During the day, the general public may access these facilities. One on-site building houses the marina office, store, brokerage, and mechanical shop. There is inside storage under cover for 100-115 vessels ranging from 16 feet to 50 feet.

A bulkhead (145 feet) is made of stone with wood decking. Four piers, each 120 feet in length, accommodate the slips. The bulkhead serves as the gas dock. According to the U.S. Coast Guard the controlling depth at the marina is 6.5 feet, although some of the slips have a 3-foot depth at low water times.

The pump-out facility at Warr's Marine is connected to the town sewer. A fee of \$10 per discharge was charged for use of the pump-out in 1991. All pump-outs in Wareham are free in 1992.

According to the Wareham Harbormaster, Warr's Marine had 120 slips and 65 moorings in 1992.

**BRITISH LANDING**

Lower Main Street, Wareham

British Landing is a waterfront condominium development on Main Street adjacent to Warr's Marine. The development has 40 slips on four piers for tenant use only. Use of the marina is a privilege of the condominium association. No service facilities are provided at British Landing, but the pump-out at Warr's Marine may be used for a fee (free in 1992). According to the Wareham Harbormaster, British Landing had 41 slips in 1992.

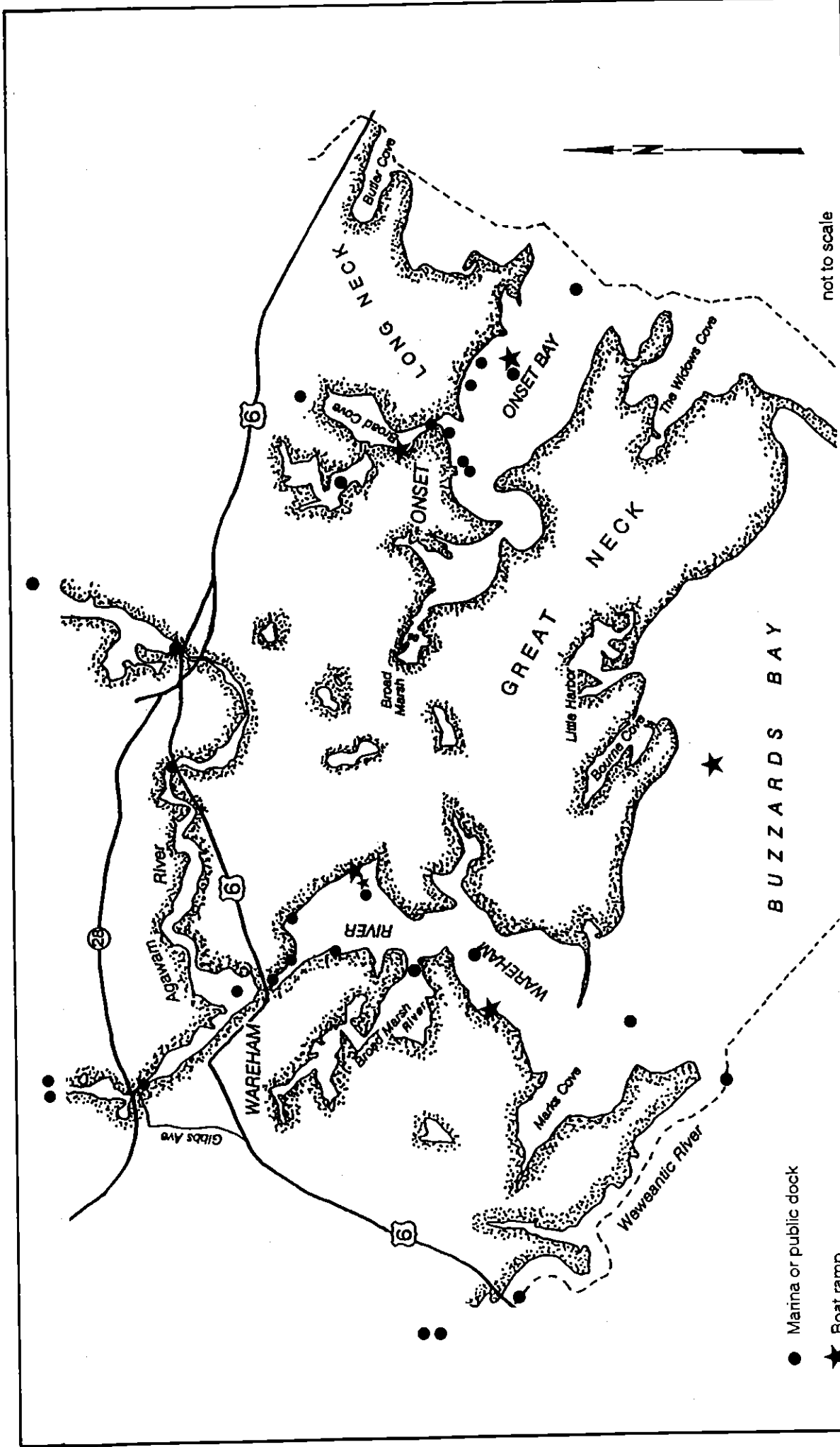


Figure: Appendix 4  
Boating Facilities

Source: Louis Berger & Associates, Inc.

HARBOR MANAGEMENT PLAN  
TOWN OF WAREHAM

## Onset Bay

### **STONEBRIDGE MARINA**

5 East Boulevard, Onset

Stonebridge Marina, located in Onset Harbor, accommodates approximately 80 boats in slips. All of the vessels are recreational power boats. The slip fee is \$65/foot per season. No space is reserved for transient use. No seasonal storage or dry stack space is available and there are no moorings. According to the marina proprietor, there is no waiting list for slips this year, unlike past years.

Stonebridge Marina has two piers. Due to limited parking, no parking is available for non-tenants. Amenities include restrooms, showers, and on-site fuel service. Since this is a private marina, pump-out facilities are available free-of-charge to marina tenants only.

Water depth at the marina is less than 4 feet at low tide, and occasionally is as low as 3 feet. The marina proprietor reports that the East River is filling in quickly.

According to the Wareham Harbormaster, Stonebridge Marina had 73 slips in 1992.

### **MAXI MARINE**

Cranberry Highway, Wareham

Maxi Marine is located in the Onset area of town on Buttermilk Bay along Cranberry Highway (Route 6 and 28). It is a small marina area with accommodations for 24 boats. All of the twenty-four vessels at Maxi Marine are recreational and are kept in slips. There is no attendant at this marina area. The slip fee is \$55/foot per season with all utilities included. No fuel facilities are available.

According to the Wareham Harbormaster, Maxi Marine had 20 slips in 1992.

### **ONSET BAY MARINA**

Green Street, Onset

Onset Bay Marina on Green Street is a full-service private marina serving only recreational vessels. There are 104 slips and 34 moorings of which 8 slips and 12 moorings are reserved for transient use. The slip fee is \$100/foot per season and the mooring fee is \$800 plus tax per season. During the 1991 season, there was no waiting list for moorings or slips. Dry stack space and seasonal storage is available for 65 vessels.

Amenities at Onset Bay Marina include toilets, showers, offices, a complete service department, a concession stand, and fuel service. In addition, pump-out service is available at \$5 for marina residents and \$15 for non-residents (free in 1992).

Onset Bay Marina has one steel/concrete bulkhead and one pier. There are no restrictions due to water depth which measures seven feet at the mean low water depth.

According to the Wareham Harbormaster, Onset Bay Marina had 155 slips and 34 moorings in 1992.

#### **POINT INDEPENDENCE YACHT CLUB**

Independence Lane, Onset

According to the Mooring Grid Plan (1991), Point Independence Yacht Club (PIYC) has 117 boats at its facility on Onset Bay. The facility is in operation from April to October. The yacht club offers on-shore shower and toilet facilities. In 1990, according to the Coalition for Buzzards Bay and the Buzzards Bay Project, Point Independence Yacht Club had 57 moorings. The pump-out facility at PIYC is used by members only at no charge. The Harbormaster reported that PIYC has a high rate of use of its pump-out but no quantitative data on usage was available.

According to the Wareham Harbormaster, PIYC had 62 slips and 31 moorings (although permitted for 57 moorings) in 1992.

#### **BEVANS MARINA**

Route 6, Wareham

Bevans Marina is situated along Route 6/28 on Buttermilk Bay near the Buzzards Bay town line. This is a full-service marina with indoor summer and winter storage. Bevans also has a marine store and boat brokerage at this location. There are 54 slips at the marina for small motorboats. The size of boats is restricted by the bridges at Buttermilk Bay. The pump-out fee averages \$15 per discharge (free in 1992).

According to the Wareham Harbormaster, Bevans Marina had 42 slips in 1992.

### **b. Public Piers and Boating Areas**

In addition to four public boat ramps, the Town of Wareham operates a town pier in Onset Bay and has a pier in Wareham.

#### **ONSET TOWN PIER**

South Boulevard, Onset

The town pier is centrally located on Onset Avenue, surrounded by the publicly-owned and guarded Onset Beach, and serves as a base for sightseeing (Canal Cruises) and sport fishing. The Harbormaster has an office here and operates the pier. Ticket parking is available in the lot at the town pier for \$1/hour during the season between Memorial Day and Labor Day.



Facilities include public toilets and a bulkhead. A pump-out facility is available free-of-charge to those with a harbor services permit and for \$5 to others (free in 1992). Refueling trucks are allowed access to Onset Town Pier to service large boats by special arrangement. There are no refueling facilities for small boats.

According to the Wareham Harbormaster, Onset Town Pier has no permanent slips or moorings. However, there are accommodations for 10 transient boaters.

### **BESSE PARK**

Main Street, Wareham

Besse Park on the Wareham River in the center of Wareham Village may be considered a public boating facility because the cement pier, seawall and floating pier enable boats to access Wareham center temporarily. Fuel trucks have easy access to Besse Park because of its central location at the corner of Main Street and Route 6 and because of the parking availability (12 spaces). Boat refueling is facilitated by the accessibility of these trucks, making Besse Park one of the only locations in town for large boats to refuel. Refueling is not available for recreational craft. The park itself is a small grass green along the river.

According to the Wareham Harbormaster, this pier may accommodate three or four 25- to 30-foot boats at a time.

### **c. Commercial Boatyards**

Two boatyards in Wareham are in the business of servicing vessels. Cape Cod Shipbuilding also does boat construction.

### **WAREHAM BOAT YARD**

Rose Point Avenue, West Wareham

Located north of Route 6 on the Weweantic River, Wareham Boat Yard repairs and services boats. The number of boats being serviced varies between 20 to 25 at any one time. Wareham Boat Yard has 24 slips and 15 moorings. There is winter dry stack space available for approximately 50 boats, but the number of boats which are stored varies from year to year. There is one cement boat ramp (40 feet x 40 feet) and two piers.

The Route 6 bridge crosses a shallow part of the Weweantic River; therefore, the low water depth prohibits large boats from accessing Wareham Boat Yard. At low tide the channel depth is approximately 3 feet, according to a Wareham Boat Yard representative.

Wareham Boat Yard has a pump-out facility and one fuel pump.

According to the Wareham Harbormaster, Wareham Boat Yard had 30 slips and 15 moorings in 1992.

## **CAPE COD SHIPBUILDING**

Narrows Road, Wareham

Cape Cod Shipbuilding is the oldest sailboat maker in the United States. In addition to construction, the operation offers storage and repair of boats. Twenty-two models of sailcraft are produced, among them cruising boats, dinghies, and small day sailors ranging from 15 to 30 feet in length. Approximately 50 new boats per year are built by Cape Cod Shipbuilding. Approximately 65 boats per year are stored and/or repaired although there is sufficient space on land for a 195-vessel maximum.

Cape Cod Shipbuilding has two moorings and a long finger pier dock with approximately 90 feet of float space. Approximately 20 small buildings are located on the site. No fuel or pump-out service is provided at Cape Cod Shipbuilding.

According to the Wareham Harbormaster, Cape Cod Shipbuilding had 2 moorings and docking facilities available for boat repair in 1992.

### **d. Public Ramps**

The Land Use Map shows the locations of the public ramps in Wareham, as documented by the town's Conservation Officer and the Harbormaster. Vehicles are able to launch trailered boats from these ramps.

There are four public ramps in Wareham. Parking is limited and often restricted to sticker parking.

- In addition to a cement ramp at Oak Street/Tempest Knob Beach, there is a small dock connected to a pier. This facility is scheduled for rehabilitation in fall 1992. Although a town sticker is now required, following rehabilitation access will be unlimited.
- The state ramp at the Weweantic River at I-95 has little water at low tide and at high tide there is no room to pass under the bridge, thus limiting the size of boats allowed. The parking here, which accommodates 50 cars and trailers, is the most provided at any of the public launches in Wareham.
- The 12th Street boat ramp on the East River in Onset was recently repaired but there is no legal parking.
- Swifts Beach ramp is located at the end of Shore Avenue. Use is limited to small boats due to the low water depth. Sticker parking is available at Swifts Neck.

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**APPENDIX 5 - INVENTORY OF COASTAL AND INLAND  
WETLAND RESOURCES**

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Wareham Harbor Management Plan - Coastal & Inland Wetland Resources

WAREHAM HARBOR MANAGEMENT PLAN - COASTAL & INLAND WETLAND RESOURCES							DATA FORM
REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	<u>Weweantic River to Marks Cove</u>						
452	Briarwood Beach	Beach				2000'	
396	Beaverdam Creek	Salt Marsh				12a	
397	Beaverdam Creek		Shallow Fresh Marsh			5a	
401	Beaverdam Creek (Rte. 6)		Cranberry Bog			7a	
396	Cromeset Neck/ Weweantic River	Salt Marsh				7a	
390	Cromeset Neck/ Weweantic River		Swamp		Wooded/Shrub	17a	
451	Cromeset Neck/ Weweantic River	Salt Marsh				33a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
394	Cromeset Neck		Swamp		Wooded/Shrub	6a	
385	Nobska Beach	Beach				4600'	
386	Cromeset Neck	Salt Marsh				7a	
	Cromeset Neck	Tidal Flat				10a	
399	Cedar Island Creek	Salt Marsh				12a	
	Cedar Island	Island				1a	
395	Marks Cove	Salt Marsh				12a	
402	Marks Cove		Deep Marsh			21a	
405	Marks Cove		Cranberry Bog			12a	
402	Marks Cove		Swamp		Shrub	4a	
216	Marks Cove		Cranberry Bog			5a	
222	Marks Cove		Deep Marsh			10a	
	<u>Wareham River, Swifts Beach to Hamilton Beach – 1</u>						
404	Swifts Beach	Salt Marsh				3a	
	Swifts Beach	Beach				1300'	
361	Swifts Beach	Tidal Flat				10a	
	Swifts Beach	Dune				1a	
362	Swifts Neck	Salt Marsh				10a	
	Hamilton Beach	Beach				2000'	

Wareham Harbor Management Plan - Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
		<u>Broad Marsh River to Route 6 Bridge - 2</u>					
366	Broad Marsh River	Tidal Flat				5a	
369	Broad Marsh River	Salt Marsh				5a	
	Broad Marsh River		Deep Fresh Marsh			4a	
409	Broad Marsh River		Cranberry Bog			5a	
411	Broad Marsh River	Salt Marsh				11a	
327	Pinehurst Beach	Tidal Flat				10a	
	Pinehurst Beach	Beach				1500'	
	Wareham Neck	Salt Pond				1a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	<u>Waninco River and Aqawam River – 3</u>						
335/6	Waninco River	Salt Marsh				9a	
339	Aqawam River	Salt Marsh				18a	
340/1	Aqawam River		Deep Fresh Marsh		Shrub	10a	
338	Aqawam River	Beach				600'	
	Aqawam River	Salt Marsh				1a	
	Old Carr Landing Rd.	Salt Marsh				5a	
	Old Carr Landing Rd.		Swamp		Shrub	2a	
	South of Elm St.		Shallow Fresh Meadow, Wet Meadow, Swamp		Wooded/Shrub	16a	



Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	South of Elm St.		Swamp		Shrub	2a	
	East of Mallard Rd.	Salt Marsh				8a	
	North of Agawam River	Salt Pond				3a	
	Aqawam River	Salt Marsh				32a	
	South of Elm St.		Swamp, Shallow Fresh Marsh,		Wooded	22a	
	South of Elm St.		Deep Marsh			5a	
	Agawam River North of Sandwich Rd.	Salt Marsh				6a	
	Agawam River South of Sandwich Rd.	Salt Marsh				3a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

WAREHAM HARBOR MANAGEMENT PLAN – COASTAL & INLAND WETLAND RESOURCES						DATA FORM	
REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	North of Sandwich Rd.		Cranberry Bog			4a	
	North of Sandwich Rd.		Swamp		Wooded	1a	
	North of Sandwich Rd.		Pond			1a	
	North of Sandwich Rd.		Swamp			3a	
	Agawam River Near Sewage Treatment Plant		Bog			1a	
	Agawam River		Shallow Fresh Marsh			1a	
	Agawam River		Shallow Fresh Marsh			1a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	<u>Wareham River (East Shore – Rte. 6 to North of Long Beach Point)</u>						
	Tempest Knob	Beach				2400'	
	Tempest Knob	Tidal Flat				6a	
	Crab Cove	Tidal Flat				6a	
	Parkwood Drive	Beach				1600'	
	Crab Cove		Deep Fresh Marsh			3a	
	Indian Neck Rd.		Cranberry Bog			2a	
	Indian Neck Rd.		Swamp		Wooded	3a	
	Black Johnny Pond		Pond			2a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

WAREHAM HARBOR MANAGEMENT PLAN – COASTAL & INLAND WETLAND RESOURCES							DATA FORM
REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	Barneys Point	Sea Cliff				300'	
	Barneys Point	Beach				1500'	
	Barneys Point	Dune				1a	
	Barneys Point	Salt Marsh				4a	
	Crooked River	Tidal Flat				1a	
	Crooked River		Shallow Fresh Meadow			1a	
	Crooked River		Swamp		Shrub	1a	
	Crooked River		Swamp			4a	
	Crooked River		Cranberry Bog			8a	
	Crooked River		Shallow Fresh Meadow			2a	
	Crooked River		Deep Marsh			10a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	Crooked River	Salt Marsh				2a	
	Crooked River	Beach				200'	
306	Wareham River	Salt Marsh				1a	
303	Wareham River	Tidal Flat				5a	
305	Wareham River	Salt Marsh				17a	
328/9	Wareham River (Near Power Plant)	Salt Marsh				1a	
332	Wareham River (Near Power Plant)	Salt Pond				1a	
243/4	South of Rte. 6/ Oakdale		Swamp			42a	
245	Near RR/Oakdale		Bog			1a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	<u>Buzzards Bay – Long Beach Point to Cedar Island Point</u>						
299	Long Beach Point	Beach				1600'	
	North of Long Beach Point	Tidal Flat				6a	
	South of Long Beach Point	Tidal Flat				12a	
297	Long Beach Point	Dune				2a	
298	Long Beach Point	Salt Marsh				3a	
202	Indian Neck to Warren Point	Beach				7600'	
	Indian Neck to Warren Point	Salt Marsh				3a	
204	Indian Neck to Warren Point	Sea Cliff				600'	
	Warren Point	Dune				1a	

**Wareham Harbor Management Plan - Coastal & Inland Wetland Resources**

Wareham Harbor Management Plan - Coastal & Inland Wetland Resources							DATA FORM
REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	Bourne Cove	Tidal Flat,				12a	
	Bourne Cove	Salt Marsh				25a	
	Bourne Point	Beach				1800'	
211	Bourne Point	Salt Marsh				1a	
160	Little Harbor	Salt Marsh				40a	
620	Little Harbor	Tidal Flat				36a	
159	Great Neck Rd.		Cranberry Bog			5a	
44	Little Harbor Beach	Beach				3500'	
159	Little Harbor Beach	Dune				2a	
158	Lookout Lane	Sea Cliff				600'	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
44	West of Stony Point	Beach				4400'	
37	West of Stony Point	Dune				1a	
126	Tempes Knob	Sea Cliff				1300'	
	West of Stony Point	Tidal Flat				10a	
38	West of Stony Point		Pond, Swamp		Wooded/Shrub	3a	
34	Stony Point Dike	Dune				78a	
36	Stony Point Dike	Beach				2000'	(east & west shore)
	Stony Point Dike	Tidal Flat				46a	(east & west shore)
39/40	Cedar Island Point	Salt Marsh				35a	
	Cedar Island Point	Tidal Flat				6a	



Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	<u>Widows Cove to Sias Point (Onset Bay)</u>						
	Widows Cove						
	Bass Creek	Tidal Flat				4a	
	Bass Creek	Salt Marsh				1a	
	West of Bass Creek		Wooded Swamp			2a	
	West of Bass Creek		Deep Marsh			1a	
	Bass Creek		Wooded Swamp/ Meadow			2a	
	Bass Creek	Tidal Flat				7a	
	Bass Cove	Tidal Flat				7a	
	Bass Cove	Salt Marsh				11a	
	Onset Bay (south)	Tidal Flat				14a	
	Onset Bay (south)	Salt Marsh				8a	
	Onset Bay (south)	Salt Marsh				3a	
	Onset Bay (south)	Tidal Flat				6a	
	Onset Bay (south)	Tidal Flat				10a	
62	Onset Bay (south)	Dune				15a	
57	Onset Bay (south)	Sea Cliff				450'	
2	Onset Bay (south)	Beach				2200'	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
231	Great Neck Rd.		Deep Marsh			7a	
127	Great Neck Rd.		Deep Marsh			1a	
230	Great Neck Rd.		Cranberry Bog			7a	
129/3	Sunset Cove	Salt Marsh				7a	
168	Broad Marsh	Salt Marsh				78a	
174	Great Squaws Path to Onset Ave.		Swamp		Wooded	7a	
176	Great Neck Rd. (west)		Deep Marsh			11a	
232	Great Neck Rd. (west)		Cranberry Bog			40a	
233	Great Neck Rd. (west)		Swamp		Wooded	15a	
133	Point Richard	Beach				400'	
131	Great Squaws Path	Sea Cliff				1000'	
66/67	Onset	Beach				4600'	
65	Onset (E of East River)	Beach				1800'	
9	Pleasant Harbor	Beach				2600'	
6	Pleasant Harbor	Salt Marsh				1a	
7	Pleasant Harbor	Dune				1a	
	Onset	Tidal Flat				7a	
	East River/Broad Cove	Tidal Flat				16a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

DATA FORM

REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
166	Shell Point Bay (Northport Ave.)	Beach				400'	
165	Great Neck Rd. (east)	Salt Marsh				8a	
	Sunset Cove	Tidal Flat				7a	
	Shell Point	Tidal Flat				7a	
	East River/Broad Cove	Tidal Flat				16a	
	Riverside		Cranberry Bog			37a	
	Muddy Cove	Tidal Flat				1a	

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources

Wareham Harbor Management Plan – Coastal & Inland Wetland Resources						DATA FORM	
REF. #	LOCATION	COASTAL WETLAND FEATURES	INLAND WETLAND FEATURES	SPECIAL FEATURES	DOMINANT VEGETATION	APPROX. ACRES	ADDITIONAL INFO
	Muddy Cove	Salt Marsh				24a	
	Beaver Dam Pond		Deep Marsh		Shrub	23a	
	Aunt Hannah's Lane		Cranberry Bog			2a	
78	Muddy Cove	Salt Marsh				24a	
141	Muddy Cove/Onset Ave.	Salt Marsh				10a	
	Onset Bay (east River to Sias Point)	Tidal Flat				20a	
	Wickets Island	Island				4a	
	Onset Island	Island				12a	
	Jacob's Neck	Beach				3800'	
	Point Independence	Beach				4100'	
	Peter's Neck	Sea Cliff				700'	
	Peter's Neck	Sea Cliff				500'	
	Butler Cove	Beach				4100'	

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**APPENDIX 6 - NHESP, RARE SPECIES ELEMENT  
OCCURRENCES IN WAREHAM,  
MASSACHUSETTS**

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11 JUL 1991

Mass. Natural Heritage & Endangered Species Program  
 Div. of Fisheries and Wildlife, 100 Cambridge St., Boston, MA  
 Rare Species Element Occurrences in WAREHAM, MA

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Scientific Name	Common Name	WAREHAM	First Obs	Last Obs.	DFW Rank
ANDROX PACIFICUS	OSPREY	WAREHAM		1987-81MM	- NL
TARSIPOXA APPASSIONATA	FITCHER PLANT BORER MOTH	WAREHAM	1971	1971-09-21	SC
TARSIPOXA SULPHURATA	DECODON STEM BORER MOTH	WAREHAM	1986	1987	-
TARSIPOXA SULPHURATA	DECODON STEM BORER MOTH	WAREHAM	1988	1975-09-27	-
PARULA AMERICANA	NORTHERN PARULA	WAREHAM	1889	1889-06-26	-
TRENANTHES SERPENTARIA	LION'S FOOT	WAREHAM	1971	1981-09-10	E
LABATIA KENNEDYANA	PLYMOUTH GENTIAN	WAREHAM	1982	1989-08-10	SC
LABATIA KENNEDYANA	PLYMOUTH GENTIAN	WAREHAM	1974	1986-07-09	SC
SAGITTARIA SUBULATA VAR SUBULATA	RIVER ARROWHEAD	WAREHAM	1928	1990-07-06	E
CHINIA TUBERCULUM	GOLDEN ASTER FLOWER MOTH	WAREHAM	1965	1979-09	-
SETARIA SENTICULATA	BRISTLY FOXTAIL	WAREHAM	1921	1921-09-27	SC
SETARIA SENTICULATA	BRISTLY FOXTAIL	WAREHAM	1989	1989-08-04	SC
SPARTINA CYNOSUROIDES	SALT REEDGRASS	WAREHAM	1927	1988-06-06	SC
SPARTINA CYNOSUROIDES	SALT REEDGRASS	WAREHAM	1989	1989-08-02	SC
SPARTINIPHAGA INOPS	SPARTINA BORER MOTH	WAREHAM	1977	1977-09-11	SC
STERNA DOUGALLII	ROSEATE TERN	BOURNE	1990	1990	E
		WAREHAM			
THALPOMYS COOPERI	SOUTHERN BOB LEMMING	WAREHAM	1993	1994-09-24	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM	1903	1985-07-18	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM	1986	1986-06-01	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM		1987-09-22	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM		1987-08-06	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM		1987-09-10	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM	1983	1987	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM	1988	1988-10-27	SC
TERRAPENE CAROLINA	EASTERN BOX TURTLE	WAREHAM	1989	1989-10-17	SC
TRICULARIA SUBULATA	SUBULATE BLADDERWORT	WAREHAM	1975	1975-06-21	SC

KEY TO DFW RANK:

E = Endangered, T = Threatened, SC = Special Concern,  
 - NL = Watch List, - H = Historical, - = Delisted.

01 JUL 1991

Mass. Natural Heritage & Endangered Species Program  
 Div. of Fisheries and Wildlife, 100 Cambridge St., Boston, MA  
 Rare Species Element Occurrences in WAREHAM, MA

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Scientific Name	Common Name	WAREHAM	First Obs	Last Obs.	DFW Rank
<i>ACCIPITER COOPERII</i>	COOPER'S HAWK	WAREHAM	1973	1988-SPRING	SC
<i>ACCIPITER BISTRATUS</i>	SHARP-SHINNED HAWK	WAREHAM	1908	1988-SPRING	SC
<i>ALLEMONTIA HETERODON</i>	DWARF WEDGE MUSSEL	WAREHAM		0000-00-00	E
		PLYMOUTH			
<i>AMBYSTOMA OPACUM</i>	MARBLED SALAMANDER	WAREHAM	1900	1900	T
<i>ANAX LONGIPES</i>	LONG-LEGGED GREEN DARNER DRAGONFLY	WAREHAM	1911	1913	SC
<i>ARETHUSA FULGOSA</i>	ARETHUSA	WAREHAM	1887	1986-06-01	T
<i>ASPECTUA PURPURASCENS</i>	PURPLE NEEDLEGRASS	WAREHAM	1913	1987-10-24	T
<i>ASTER CONCOLOR</i>	EASTERN SILVERY ASTER	WAREHAM	1926	1926-09-24	E
<i>CATANTHUS LONGII</i>	LONG B BITTER-CRESS	WAREHAM	1966	1990-07-06	E
<i>CAREX STRICTA</i> VAR <i>BREVIS</i>	WALTER'S SEDGE	WAREHAM	1890	1986-07-09	E
<i>CAREX STRICTA</i> VAR <i>BREVIS</i>	WALTER'S SEDGE	WAREHAM	1914	1974-06-0	E
<i>CASILLINA DOGCKEA</i>	INDIAN PAINTBRUSH	WAREHAM		1897--	- H
<i>CATOCALA HERODIAS BERHARDI</i>	BERHARD'S UNDERWING MOTH	WAREHAM	1978	1979-08	T
<i>CHARADRIUS MELODUS</i>	PIPING PLOVER	WAREHAM	1984	1990-05-29	T
<i>CHARADRIUS MELODUS</i>	PIPING PLOVER	WAREHAM	1984	1984-06-02	T
<i>CICINDELA PATRUCLA</i>	A TIGER BEETLE	WAREHAM	1921	1921-08-20	SC
<i>CLEMmys GUTTATA</i>	SPOTTED TURTLE	WAREHAM		1987-04-09	SC
<i>CLEMmys GUTTATA</i>	SPOTTED TURTLE	WAREHAM	1984	1984-03-20	SC
<i>CLEMmys GUTTATA</i>	SPOTTED TURTLE	WAREHAM	1988	1988-04-20	SC
<i>CLEMmys GUTTATA</i>	SPOTTED TURTLE	WAREHAM		1988-05-27	SC
<i>CLEMmys GUTTATA</i>	SPOTTED TURTLE	WAREHAM	1987	1988-07-23	SC
<i>CLEMmys GUTTATA</i>	SPOTTED TURTLE	WARION	1988	1989-05-28	SC
		WAREHAM			
<i>CORONILLA CONRADII</i>	BROOK CROWBERRY	WAREHAM	1978	1980-07-17	SC
<i>CORONILLA CONRADII</i>	BROOK CROWBERRY	WAREHAM	1950	1988-03-11	SC
<i>CORONILLA CONRADII</i>	BROOK CROWBERRY	PLYMOUTH	1980	1988-03-11	SC
		WAREHAM			
<i>CRASSULA AQUATICA</i>	PYGMYWEED	WAREHAM	1928	1990-07-06	T
<i>CUCULLIA SPEYERI</i>	A NOCTUID MOTH	WAREHAM	1968	1976-FRE	-
<i>CYPERUS HOUGHTONII</i>		WAREHAM	1690	1890-08-23	E
<i>DIANTHELIUM MATTANUSKEETENSE</i>	MATTANUSKEET PANIC-GRASS	WAREHAM	1910	1913-10-02	E
<i>DIANTHELIUM MATTANUSKEETENSE</i>	MATTANUSKEET PANIC-GRASS	WAREHAM	1960	1950-07-14	E
<i>DIANTHELIUM MATTANUSKEETENSE</i>	MATTANUSKEET PANIC-GRASS	WAREHAM	1990	1990-07-06	E
<i>DIPLAZIA LATERALE</i>	LATERAL BLUE BUTTERFLY	WAREHAM	1987	1987-06-01	SC
<i>DIPLAZIA LATERALE</i>	LATERAL BLUE BUTTERFLY	WAREHAM	1987	1987-06-01	SC
<i>ERIOCAULON PARKERI</i>	ESTUARY PIPEWORT	WAREHAM	1928	1990-07-06	E
<i>ERIOCAULON PARKERI</i>	ESTUARY PIPEWORT	WAREHAM	1929	1989-08-04	E
<i>EUPATORIUM AROMATICUM</i>	LESSER SNAKEROOT	WAREHAM	1935	1935-09-07	E
<i>HYPERICIS BUCHHOLZII</i>	BUCHHOLZ'S GRAY	WAREHAM	1968	1978-FRE	T
<i>ITAME SP 1</i>	PINE BARRENS ITAME	WAREHAM	1968	FRE-1978	SC
<i>MALACLEMYS TERRAPIN</i>	DIAMONDBACK TERRAPIN	WAREHAM	1896	1896-XX-XX	T
<i>MALACLEMYS TERRAPIN TERRAPIN</i>		WAREHAM	1896	1896-XX-XX	T
<i>METARRANTHIS PILOBARIA</i>	COASTAL SWAMP METARRANTHIS MOTH	WAREHAM	1978	1978-06	SC
<i>PANDION HALIAETUS</i>	OSPREY	WAREHAM	1981	1981	- WL
<i>PANDION HALIAETUS</i>	OSPREY	WAREHAM	1977	1985-SUMM	- WL
<i>PANDION HALIAETUS</i>	OSPREY	WAREHAM	1984	1984-SUMM	- WL

KEY TO DFW RANKS:

E = Endangered, T = Threatened, SC = Special Concern,  
 - WL = Watch List, - H = Historical, - = Delisted.



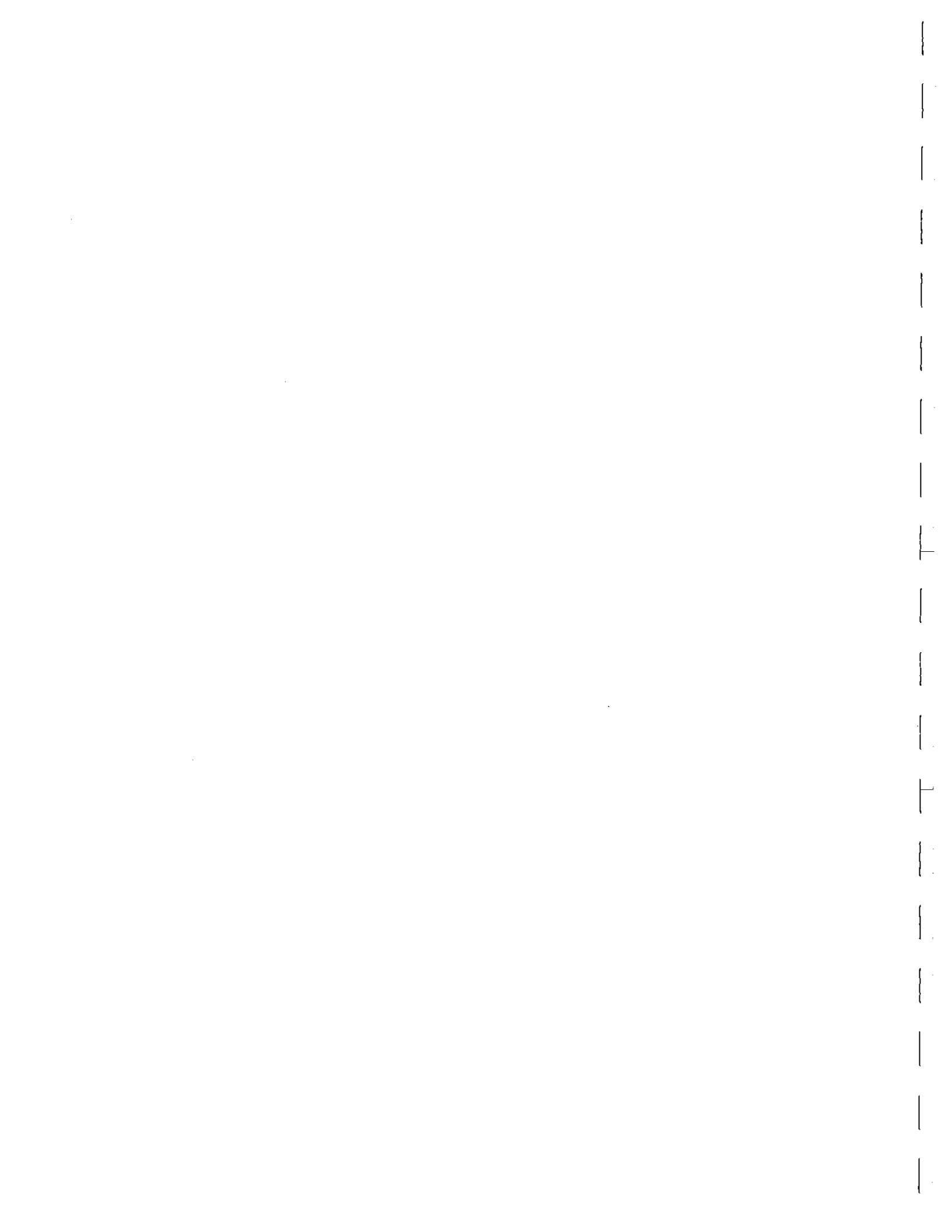
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**APPENDIX 7- SHELLFISH GRANTS**

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**APPENDIX 7      Shellfish Grants**

Ernest P. Hammond, Jr.	23.47 acres
Leroy P. Ellis and David Mann	10.8 acres
Henry A. Hawes, Jr. and John Nelson	11.0 acres
Benjamin A. Suddard and Howard L. Mallowes	18.6 acres
David Mann	13.0 acres
Charles H. Maxim	17.18 acres
Harry Reid and William W. Cook	2.95 acres
Wareham High School	5.70 acres

Source:      Wareham Shellfish Constable

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**APPENDIX 8 - EELGRASS MAPPING**



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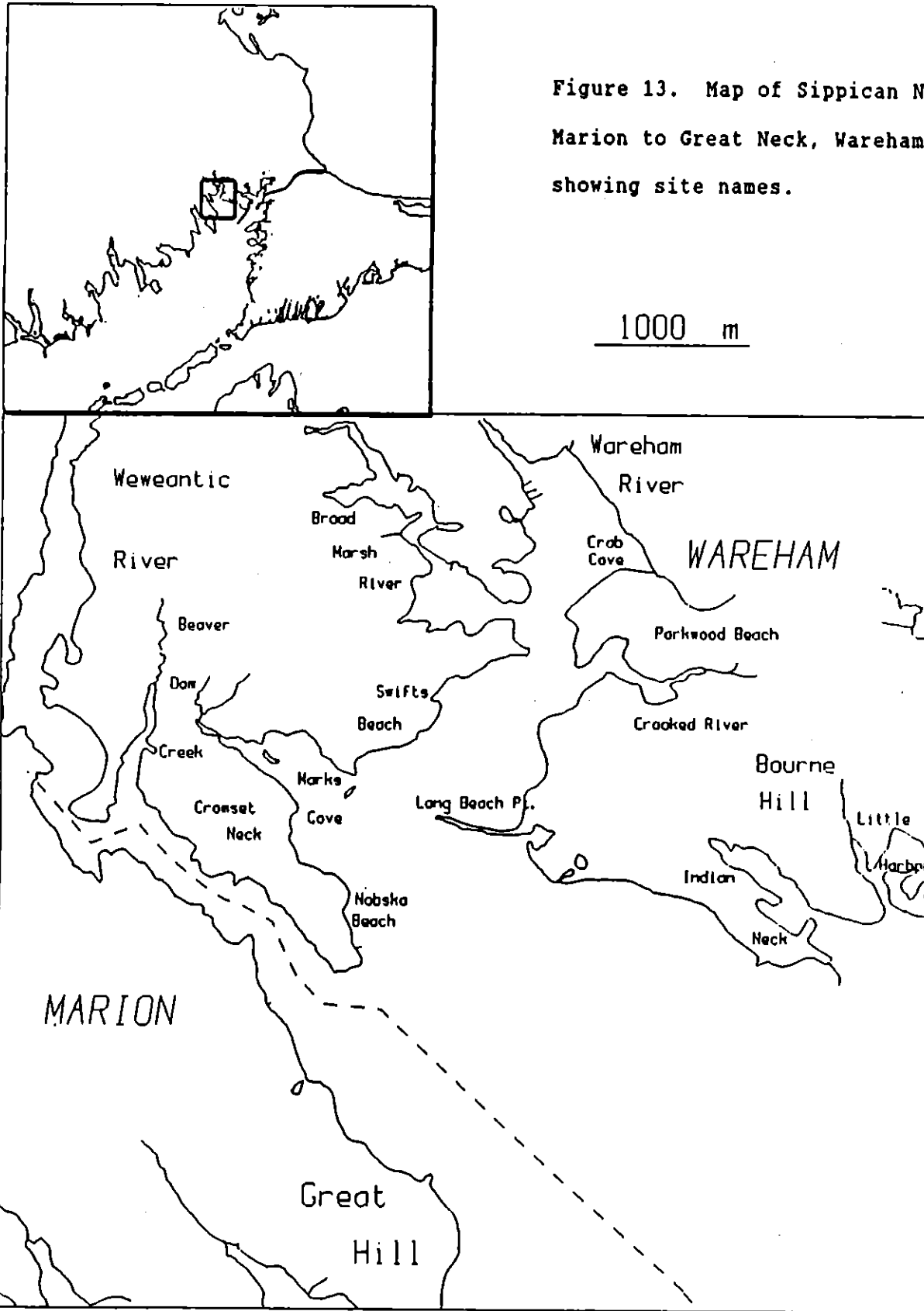
Table 1. Key to the symbols used on the maps.

On all maps in this report, the north-south meridian is parallel to the sides of the maps, and true north is at the top.

	Coastline (solid line)
	Eelgrass bed (dashed lines or darkened area)
+	Eelgrass present, bed dimensions unclear
±	Eelgrass distribution variable on recent photographs
?	Submerged vegetation, possibly eelgrass
PA	Patches of eelgrass present
NA	Photograph coverage not available for area
NI	Area not included in survey
AA	Attached algae, usually on rock or cobble
DA	Drift algae may be present on some photographs
B	Location of shoot counts or biomass harvesting
PE	Salt marsh peat reef offshore

BOPH5 Eelgrass bed ID #. The first two letters indicate town, the second two indicate local, then the number of the bed. In this case bed 5 in Phinneys Harbor in the town of Bourne. The town letters are omitted on the maps, but are included in Appendix III.

Figure 13. Map of Sippican Neck, Marion to Great Neck, Wareham showing site names.

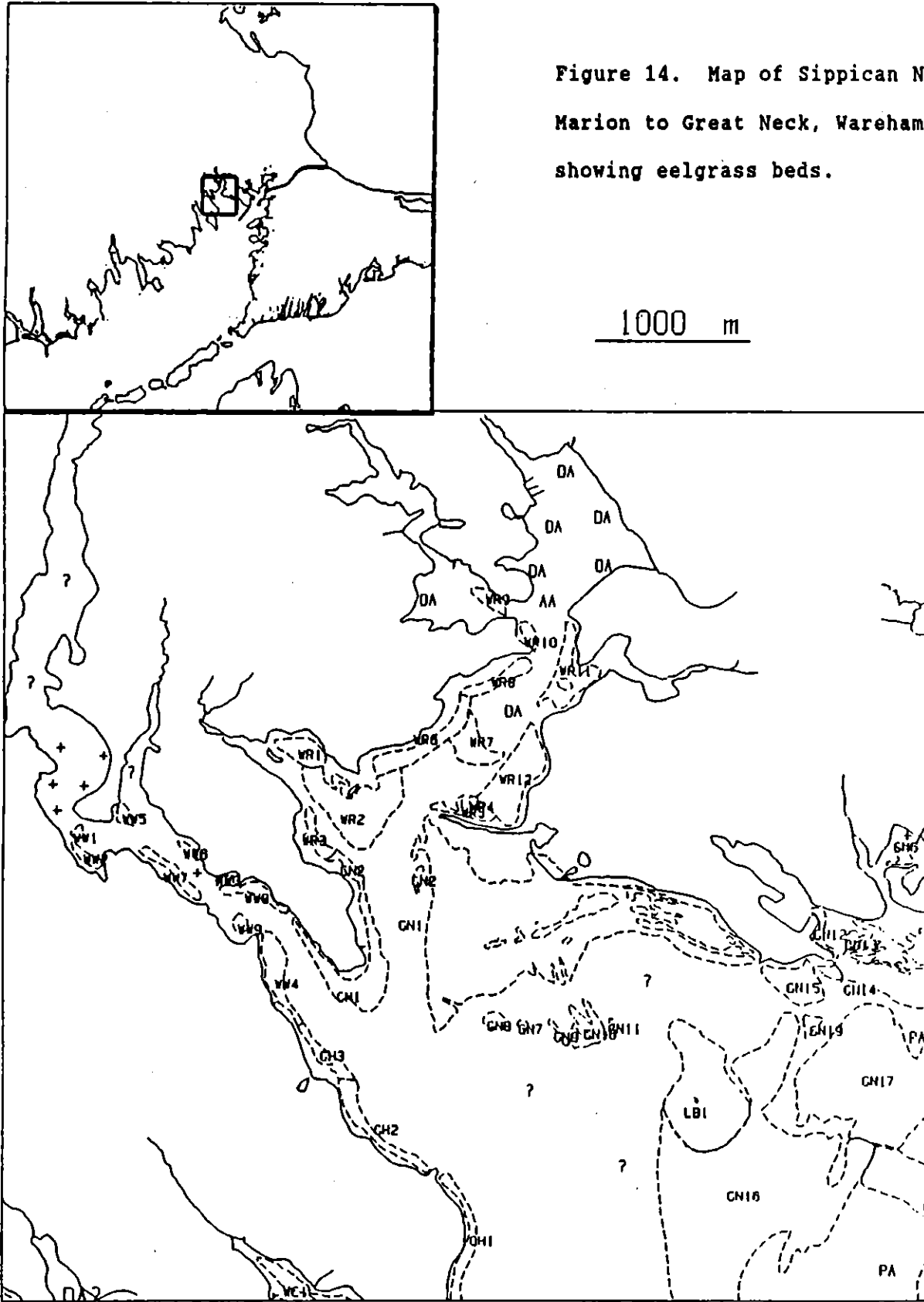


MAP COORDINATES = 354.5 360.5 618 624

Source: Costa, J.E., U.S. Environmental Protection Agency, Office of Marine and Estuarine Protection, Eelgrass in Buzzards Bay: Distribution, Production, and Historical Changes in Abundance, EPA 503/4-88-002, September, 1988.



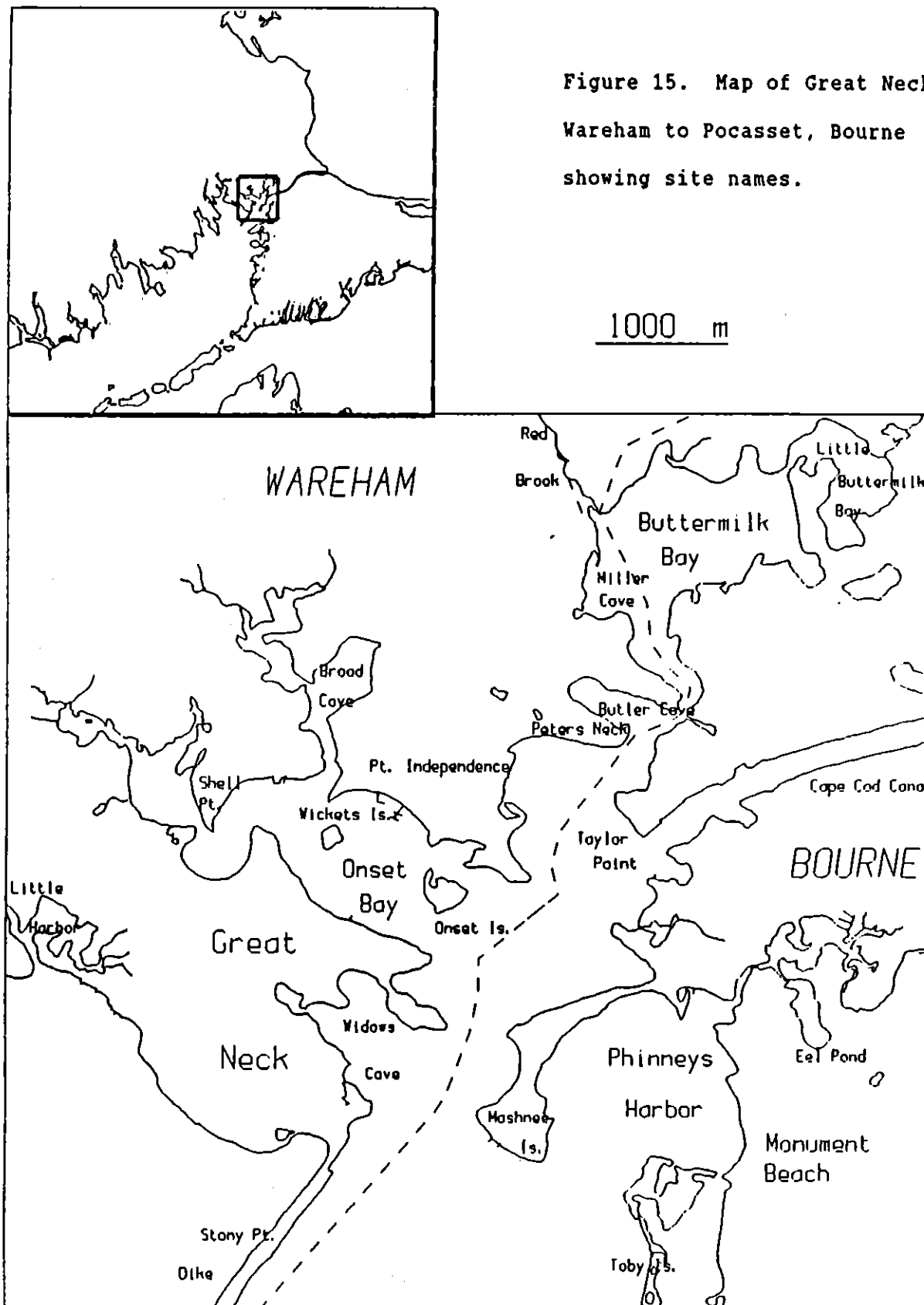
Figure 14. Map of Sippican Neck, Marion to Great Neck, Wareham showing eelgrass beds.



MAP COORDINATES = 354.5 360.5 618 624

Source: Costa, J.E., U.S. Environmental Protection Agency, Office of Marine and Estuarine Protection, Eelgrass in Buzzards Bay: Distribution, Production, and Historical Changes in Abundance, EPA 503/4-88-002, September, 1988.

Figure 15. Map of Great Neck, Wareham to Pocasset, Bourne showing site names.



MAP COORDINATES = 360 367 618 625

Source: Costa, J.E., U.S. Environmental Protection Agency, Office of Marine and Estuarine Protection. Elgrass in Buzzards Bay: Distribution, Production, and Historical Changes in Abundance. EPA 503/4-88-002, September, 1988.



# ***CURIOUS NATURALIST***

## **The Many Uses of Salt Marshes**

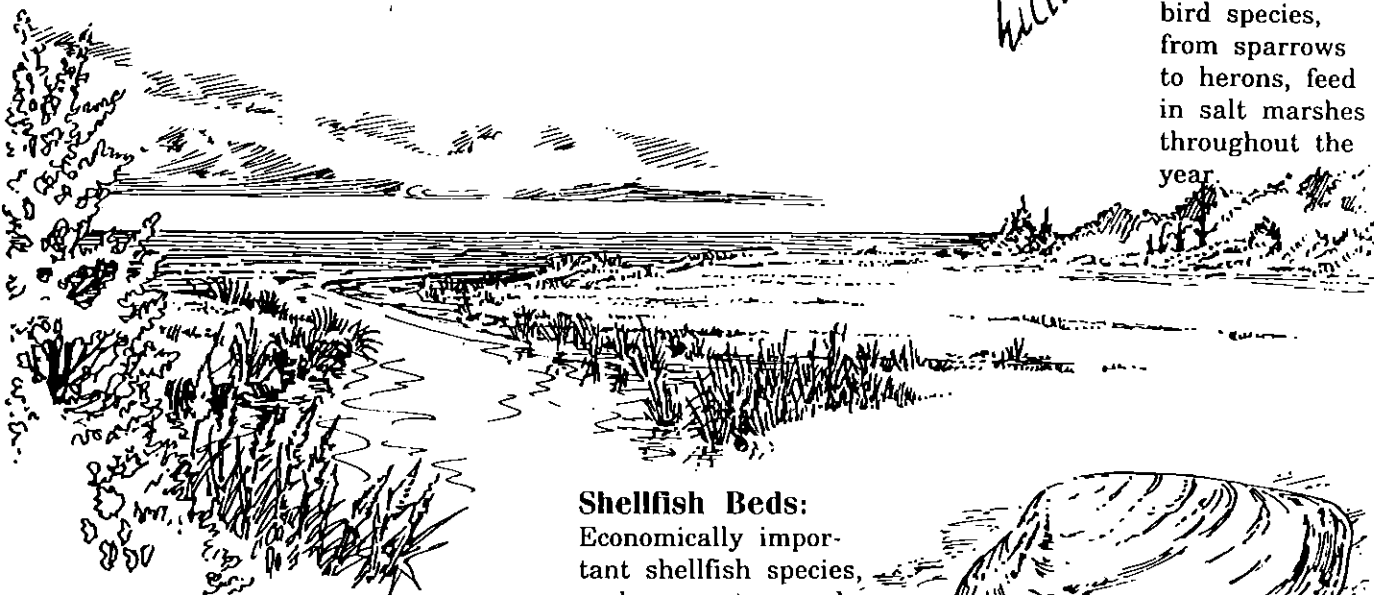
Salt marshes are among the most biologically productive ecosystems on earth and have many uses for the human community.



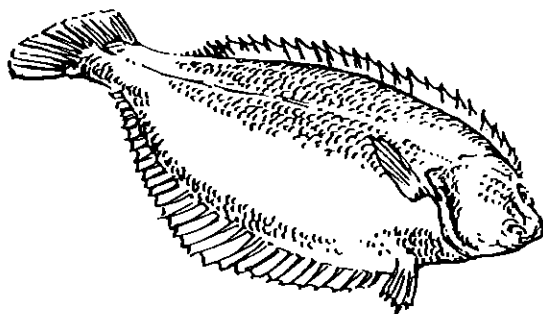
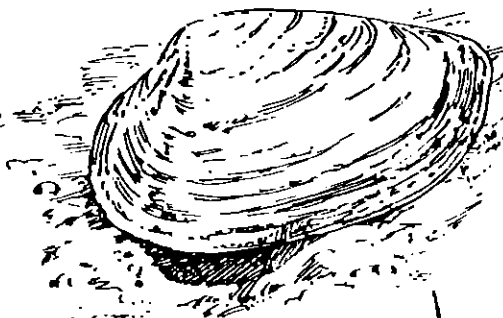
**Storm Buffers:**  
Coastal marshes take the brunt of storms and protect the nearby upland areas from extensive damage.



**Bird Feeding Areas:**  
Any number of bird species, from sparrows to herons, feed in salt marshes throughout the year.



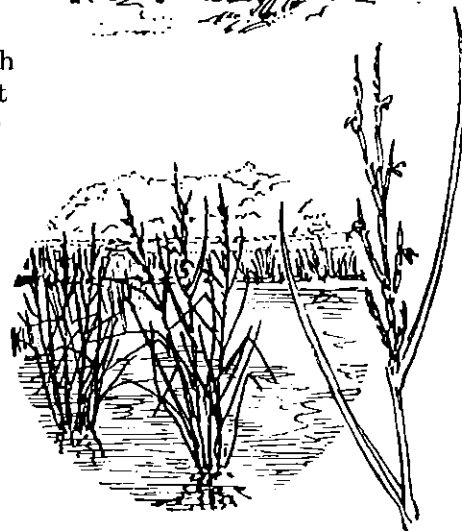
**Shellfish Beds:**  
Economically important shellfish species, such as oysters and clams, occur in flats near salt marshes.



**Fish Nurseries:**  
Many species of fish use salt marshes at some point in their life cycle.

### **Pastures of the Seashore:**

The spartina grasses that are found in salt marshes are the ecological base of the marsh pyramid, the nutrient source for both marine and terrestrial life forms found there. They also filter nutrients that would otherwise pollute the water.



GORDON MORRISON

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**APPENDIX 9 - WRITTEN COMMENTS**

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TOWN OF WAREHAM  
MARINE RESOURCES COMMISSION

## M E M O R A N D U M

Page 1 of 3.

DATE: [REDACTED]

TO: Ira Somerset, Chairman  
FROM: ~~Frank A. Tramontozzi~~, MemberSUBJECT: Comments and items for discussion at the November 4,  
1992 Meeting.

1. I was disappointed to find that our meeting was rescheduled to November 4, 1992. Although I have a conflict, I will try to attend the meeting. It appears that I will however, be late for the meeting. I would like to offer the following comments for consideration at the November 4, 1992 meeting.
2. I have reviewed the October 6, 1992 memorandum from the Harbor Master regarding the Harbor Management Plan. Mr. Ellis mentioned concerns about the plan being "undermined". I am pleased to see that he has come around to begin to accept the fact that a plan will be adopted even though he had attempted to undermine such in the past. I remember when he refused to participate and was uncooperative. I commend Mr. Ellis for finally realizing that we have to develop a plan for the best interest of the entire Town.

I am concerned about Mr. Ellis' statement "...I do not believe the current membership of the MRC is comprised of individuals who are dedicated to represent the best interests of the entire Town..." since all members are appointed to represent certain disciplines such as economic development, commercial fishing, boating, etc.... In the past my concern has been that Mr. Ellis has been partial to certain interests only. I certainly hope Mr. Ellis will act in the best interest of the entire Town.

I disagree with Mr. Ellis and therefore agree with Ms. Okolita's draft suggestion that the Harbor Master's office be restructured to report to the MRC or other citizen board. I believe that this is the only way to have public input and it appears that similarly the Conservation Commission/Conservation Agent is a good example of how this could work.

I agree with Mr. Ellis that there is a need to expand the septic waste systems throughout the Town.

I agree with Mr. Ellis that there is a need for dredging projects throughout the Town.

I agree with Mr. Ellis that there is a need for well designed mooring fields, boat launching facilities, docking space, shore side facilities, etc... but must note that there must be a balance so that other water dependent uses are not displaced. My biggest concern is that Mr. Ellis' personal desire may be to turn Onset/Wareham into a haven for boating activities only.

I agree with Mr. Ellis that there is a need for Waterway Rules and Regulations. I must however point out that attempts made by MRC to work with the Harbor Master's Office on this have yielded little cooperation in the past and little flexibility or willingness to change. I sincerely hope we are beyond this point.

I remain concerned about the tone of Mr. Ellis' memorandum, it has an appearance of more concern and interest in boating than with any of the other water dependent uses. I must point out that one major concern evident at the public meetings is that the public desires the waterskiing area in Onset Bay should remain in place. It was also obvious that open space is very important. My concern is that Mr. Ellis continues to attempt to eliminate waterskiing and open space.

3. I have reviewed the draft Waterways Rules and Regulations (8/92) and find that it remains the same as what we previously reviewed at several MRC meetings in the recent past. The MRC raised many points which have not yet been addressed. Some inconsistencies still remain. Regarding waterskiing, again, the public expressed its desires to keep waterskiing in Onset Bay. It appears that Mr. Ellis may be attempting again to eliminate it. I wish Mr. Ellis attended the public meetings so that he could have heard the concerns expressed and the desires to keep waterskiing in the area designated between Onset Island and Wicketts Island. Regarding sailboards, it appears that the regulations will also eliminate the use of such.
4. Regarding the Berger Goals, Policies and Actions statements of October 13, 1992 I offer the following.
  - A. I agree with the goal for safety, policies and actions stated.
  - B. I agree with the goals for water quality, policies and actions stated and offer an additional policy (#9) to expand the sewerage throughout the town.
  - C. I agree with the goal of multiple use, policies and actions recommended and offer policy (#4) to recognize the need to preserve open space for public enjoyment. I wish to note that action # 1 should be modified that the federal designation is for a "Special Anchorage" and the town designation for "waterskiing" in the vicinity is covered by Town By-Law.
  - D. I agree with the goal for shellfishing, policies and actions and wish to offer the need to find a balance for all the competing water dependent uses of the waterways.



8. I agree with the goal of dredging, policies and actions however wish to note that dredging must take place where it will appropriately provide benefits which outweigh the detriments.

The preliminary goals of July 9, 1992 provides additional broad based goals which for some reason have been eliminated in the October 13, 1992 draft recommendations. I believe these 11 preliminary goals should be included in their entirety.

CC: Pam Ololita, Louis Berger & Associates  
Lydia Van Hine, Conservation Agent

Lydia,

10/25/92

Enclosed is an annotated copy of the draft Section IV. Goals, Policies and Actions. As you can see, I have many reservations about what is expressed and the way it is expressed. Perhaps the fault is mine in that I do not understand the operative definitions and accepted procedures for constructing a document like this.

I think that there is a need to define what is meant by a goal, a policy, and the actions required to implement the policies. E.g., minimization of use conflicts is a goal (I think), not a policy. The policy might be to promote the maximum variety of uses consistent with state law and regs and safety.

I think that policies should be stated in the affirmative, positive, tone. E.g., "Promote proper, safe disposal of sewage from boats in Wareham waters" rather than "Eliminate discharge of sewage...." "Promote proper handling and disposal of petroleum products to reduce or eliminate adverse impacts on the environment," rather than "Eliminate the potential impact of petroleum products on local beaches."

I find myself in agreement with Mr. Ellis regarding the focus of the presentations (Onset v. Wareham) and the influence of special interests. I believe that Berger should be reminded that they were hired because they told us through their response to our RTP that they were experienced and expert in developing these Documents which would provide options, alternatives, recommendations and suggestions of how to attain these goals. They seem to have taken the comments made at the public meetings and by individual HRC members and phrased them as goals and policies. I do not believe that they will provide us with an adequate document unless they begin to take control and provide some independent input (at least in the general case of goals and policies). We can choose and apply appropriate limitations at that point.

As a question of policy/procedure, should the Action Items relate only to the HMP? For example, the structure to pursue grants to upgrade the WWTP? I think the issues should be separated: Improve the WWTP; reduce discharges of

disposal systems. Do this through upgrading individual disposal systems, proper maintenance of private systems, upgrading the WWTP through grants (and bonds), and encouraging expansion of the sewer system to eliminate the subsurface disposal systems.

I believe that these documents that we have reviewed demonstrate some significant differences in what I believe we expected to receive as opposed to the product being produced. I suggest that Ms. Okolita read Mr. Ellis' concerns very carefully and review the appropriate laws, regulations, bylaws and contract documents so we all understand where this is leading. I do not see L. Berger presenting an expert, unbiased overview of the situation, which is what I expected we would achieve.

Please call me if you have any questions. Also, please have Ms. Okolita contact me if she has any questions or would like to correct my misunderstandings/misinterpretations.

Best regards,  
Jim

112

Response to 10/13/92 L. Berger Co. "Draft, IV. Goals, Policies and Actions"

P. 1 A Actions 1) MRC has invited Harbormaster (Hb) to help complete a set of Boat Regs (for April '93 Town Meeting approval) that will be more consistent and complete than his previous submission.

P. 1 A Actions 3) Many citizens concur that a Citizen group overseeing the Harbormaster (Hb) is a necessary and constructive step. Public citizen involvement in the use of our waterspace/waterfront-- a Public asset of great economic, recreational, and aesthetic value-- can no longer be at the whim or ignorance of one person.

In letter 10/6/92 from Hb (cc. L. Berger), he advocates either abolishing the MRC (f) or instituting changes in its membership who he feels do not represent public interest. The MRC was established as a citizen group; the Hb is a non-voting member to avoid conflict of interest.

Public meetings have clearly shown strong public feeling that it is the Hb who has represented narrow special interest to the detriment of the Public. As evidence:-

1. A State Agency, DEM, representing Public interest, after many hearings in Wareham and Boston concluded Public Interest would be damaged if Onset Bay Marina was allowed further expansion.

The Harbormaster vociferously supported the expansion.

2. A second agency--representing the Public--the USACOE, essentially repudiated the Hb when the agency disallowed the Point Independence Yacht Club mooring grid expansion application as seriously inaccurate, flawed, and against Public Interest. The Hb had attested vigorously to the application's accuracy and merit. (Only because citizens became involved was approximately 15 acres of open space-- which had never been used before for moorings, but which the application alleged was a historic mooring area--saved for the Public use and interest.)

(If Onset citizens have seemed very involved in the Planning process, there are many good reasons.)

3. The Hb never complained when 2 of the 6 voting members of a former MRC several years ago were marina operator/owners; one of these 2 was chair of the MRC and simultaneously suing the Town of Wareham because its Conservation Commission opposed the expansion of his marina!

4. The Hb did not attend either of the Berger Public Meetings on the Plan and seldom attends MRC meetings. How does he know what the Public interests are if he doesn't listen to them? Is it possible that not everyone is out of step but him?

The success of our Country has been the democratic involvement of our citizens with perhaps varying views, to work toward a Common Public Good.

P. 2 B #7- Sewering should be extended. Let's realize though that after some areas were sewered (e.g., Pt. Independence), its entire shoreline has been summer-closed (when most people wish to use it) to shellfishing.

Response to Draft of Goals, Policies and Actions--p.2

P.2 Action 2--MRC should be informed periodically on progress of NO Discharge. (The MRC has requested--never gotten--this and similar information.) I believe there are 7, not 12, Wareham pumpouts. Ref: p.15, Berger Baseline.

P. 2 Action 9--Emphasis, I think, should be first NO Wake, second 5MPH max. Speeding boats churn up sedentary suspension which on calm days mixes with floating unevaporated petro products causing a "raft" of oil/soil mix.

P. 3C--I suggest it read: "---for use of Wareham waters---." (top line) Also, the listing of Groups needs to be expanded to include besides "transient" boaters: swimmers, sightseers, shellfishermen, (kayakers), fin fishermen, etc.

I strongly urge this section include what was in Berger Preliminary Goals 7/9/92: "The Town of Wareham recognizes that the residential character of Onset Bay and Wareham River communities are significant assets to the Town and that dominant commercialized uses conflict with this character." (In fact, the statement of Preliminary Goals, Berger 7/92 stated many other progressive ideas.)

Any increasing domination by commercial water uses would conflict with the unique character of these waters.

P. 3-C-Policies--I suggest additional emphasis be placed on needs for Open Water Space not only to accommodate present multi-uses but that as the plan evolves and future needs arise, suitable space will be available. (The Mass. Legislature is now considering "Scenic Vistas", recognizing their tourist/economic value. This concern for Scenic Vistas should be part of the Plan. "Scenic Vistas" are one of the major goals of the Town of Falmouth "Coastal Plan", 11/90.)

Same P.3-C-Policies section--Important about maintaining access but, but also that the Plan recognizes Wareham offers more public (not just for residents) access of varying types than any other Cape Cod Town. Wareham already offers large Public beaches, 3 Public boat ramps (most towns exclude these to non-residents, or charge either "use" or parking fees), more out-of-town shellfish permits, and public anchorages.

Many of the "tourists" formerly visiting Wareham have moved here; the population increased here in 1970-80 alone 61%. Many house lots being small, Wareham River and Onset Bay areas are the most densely populated recreational areas in Southeastern Massachusetts! The Hb agrees: "Wareham...has experienced a huge increase in the number of boats using the waters."

This sudden crunch of people--boats--etc., is now creating conflict with other long established uses. Unfortunately, what the Hb disregards in his unremitting efforts to cater to boating interests almost solely is the need for space and facilities to satisfy the Public's various activities other than just boating.

Wareham (Onset particularly) lost favor (tourism, etc.) in the late '40's and '50's to towns farther down Cape because its land uses seemed very congested compared to their then more open space offered. Wareham could repeat that sad experience if it allows the filling up of its remaining Open Water Space for primarily one activity:- boating.

Response to Draft of Goals, Policies and Actions--p.3

P. 3--Actions 1) Correction: area is a Town bylaw water ski area, not a Federal multi-purpose area. I suggest it now be designated a Town multi-use area. (There is, adjoining the Town Bylaw area, a Federal Special Anchorage line--see charts--where within this line, boats should be moored safely. This arrangement complies with the Aneptek Co. grid plan. Right outside the Special Anchorage area--to the South--is the area designated by Town bylaw.)

Action 2--Please see comment above. Reword? "Enforce the prohibition of mooring expansion..."

Action 3) I believe that the MRC is willing to accept the completed Aneptek Co. grid plan as a basic plan if MCZM gives its approval.

Action 4) I agree--suggest stronger emphasis on upgrading water qualities in compliance with CWA for all users.

Action 6) Suggest (1) No Wake, (2) 5 MPH max.

Action 7) This issue should be examined closely, I believe, before exposing to Public comment.

(1) 1916 decree may prohibit charge to use decree lands--i.e., East River Ramp, Shell Point, etc.

(2) Possibly a central charged parking area could be set up--ex.: Hines Field, Onset.

P. 4-D-#4--"Inner" harbors are already densely boat-populated. There are already conflicts of use in those inner areas between boaters, swimmers, shellfishing, windsurfers, etc. Multiple use would be further endangered if more boating use was to be encouraged in those areas: the chances of increased sedimentation, petro pollution, etc., are directly related to the number of boats.

Unfortunately, I don't know of any harbor that has promoted No-Discharge for 4-5 years that has reported other than a very minimal use of pump-outs.

P. 5--Dredging--In some instances, dredging previously undredged areas would multiply the public uses of the area.

NB: I suggest a 6th Goal be included in the draft:-

Environmental Concerns (other than water quality)  
I strongly suggest such a goal be instituted with its own Policies and actions. (Perhaps it should be #1.)

The protection, goals, uses and policies pertaining to our other Natural Resources need, I believe, to be more thoroughly covered than in the draft of 10/13/92. The Town's Natural Resources are its most important economic, recreational and aesthetic assets.

Such additional ideas as the following perhaps need addressing

1. Onset Bay and Wareham River, similarly to certain congested areas of Falmouth, should possibly be designated "Districts of Critical Planning Concern" in order that:

Response to Draft of Goals, Policies and Actions--p.4

visual characteristics.

b. "Visual Avenues" to the water be a design requirement in densely developed waterfront areas; also, building heights be less than inland developments.

c. Setbacks for waterfront development be more significant than the 100 feet (?) now in effect.

(Again, in Falmouth a 300' setback called "Coastal Zone Protection District" has been enacted to restrict phosphate migration into the bays.)

d. I believe the Plan should recommend the elimination of the 18 storm drains flowing into Onset Harbor.

(1) Establish a "No Direct Discharge" policy for drains (as well as for boats.)

ETC.

Two additional suggestions omitted earlier:

P. 1 Safety Action #3--Encourage federal agencies to eliminate hazards such as boats improperly moored in channels and dangerous congestion at entrance to Onset Bay from Cape Cod Canal.

P. 3-Action #2--Suggest adding to the booklet, no-discharge information

Sincerely -  
Frank C. Breen



Lydia,

10/8/92

Attached are my comments on the four Berger HMAP issues. I suggest that the names of certain individuals be deleted, unless we can identify all commenters. In L.B. planning to summarize the concerns in general headings such as:

Pollution control and abatement - primarily subsurface disposal systems, storm drains, boat discharges, and nutrient enrichment of the water.

Navigational Safety - maintaining channels free from obstructions, speed limits, separation of conflicting uses (eg. water skiing and swimming).

Law Enforcement. current rules and regulations are not being enforced.

Shellfish Enhancement - need a program for enhancing the shellfish resources for recreation fishing.

Conflicting uses - many competing and so conflicting, uses championed for the same

> 2 <

I hope these comments will be of some value to you and L.B.

*[Signature]*

P.S. Please provide me with copies of the old comments you receive.

Thank =



TOWN OF WAREHAM  
HARBOR MASTER/SHELLFISH CONSTABLE  
MEMORIAL TOWN HALL  
WAREHAM, MASSACHUSETTS 02571

TO: Ira Somerset, Chairman M.R.C.  
FROM: William E. Ellis III, Harbormaster/Shellfish Constable  
DATE: October 6, 1992  
RE: Harbor Management Plan

I have reviewed Section III. Issues (Draft) Harbor Management Plan and although it contains many valid points, I am concerned that it appears Ms. Okolita has been influenced to address the special interests of a few individuals. The Harbor Management Plan was, to my understanding, to address issues throughout the Town, however, the majority of issues discussed relate only to Onset.

Ms. Okolita emphasizes a very important point, on page 7 of the above document, when she states "As important as it is to gain a general consensus to establish a Harbor Management Plan, it is equally as important to select those to positions of power whose philosophy embodies the spirit of the plan. Otherwise the impact of this plan will be undermined". As I have explained to you previously, I do not believe the current membership of the MRC is comprised of individuals who are dedicated to represent the best interests of the entire Town and I believe the Board of Selectmen should consider abolishing the MRC, or, at the minimum insure the membership is comprised of individuals who will represent the best interests of the Town, not the personal interests of a few.

It must be understood that the Harbormaster/Shellfish Constable has no vote in MRC decisions, despite correspondence from Town Counsel suggesting the Harbormaster should have the most instrumental role in affairs concerning the waterways within the Town. This, together with the lack of support for any proposal I have submitted, has resulted in much frustration to me and is the primary reason I have failed to attend many meetings.

The concern of seasonal residents regarding the fact they will not have a voice at Town Meeting, regarding the Harbor Management Plan does have merit. However, it must be remembered that this is their choice. They do have the option of becoming registered voters of the Town. It must be remembered, also, that a large percentage of the boats in Wareham do belong to seasonal residents.

Water pollution is not a problem unique to only the Town of Wareham. This is a problem faced by most coastal communities. Although a common perception is that the tremendous increase, in recent years, of boats is responsible for the pollution, studies

reveal the majority of pollutants come from other sources. Coastal development, inadequate sewerage treatment systems and storm run-off/drainage are the major contributions to the pollution problems we have today. Public education of pollution sources, additional sewerage projects and filtration systems for all storm drains into the bays are a reality we must address to insure our waters do not become another Boston or New Bedford Harbor.

There are several issues in Ms. Okolita's draft that I believe I should address. They are:

(1) The suggestions that the Harbormaster's Office be restructured to report to MRC or other citizen board - This would result in a political quagmire and constant turmoil. Politics should have no role in this position. The appointment of the Harbormaster should continue to be governed by M.G.L.c102.

(2) Shellfish Area Closures - With the exception of the annual summer closure for the taking of soft-shell clams, the Town does not implement closures. The Division of Marine Fisheries must insure all areas from which shellfish is harvested meet specific federal guidelines. Should an area not meet certain standards, DMF must prohibit the harvest of shellfish. One of the standards I have argued many times is that an area must be closed based on the number of boats contained within it. This provision is based, not on water quality, but on the potential effect on water quality should a number of boats discharge untreated septic waste into the bay. The "No Discharge Area" designation has the potential to change this situation, provided that boat owner's comply and DMF has the resources to monitor the water quality within these areas.

Relaying of shellfish from areas closed because of pollution - This is an alternative that should be considered from areas that will be closed for many years. However, it must be understood that any such relay must be permitted by DMF and that the area into which the shellfish is being transplanted must be closed for at least one spawning season and the shellfish is certified by DMF as meeting health criteria standards. To preclude additional shellfish closures, I would recommend this type relay be done in the month of May, with the shellfish being transplanted to areas which are closed seasonally. Previous efforts by this department to have commercial shellfishermen volunteer to participate in such relays have not been successful, thus any such relay will have to be funded.

(3) Water Quality - It must be understood that the standards for water quality in areas from which shellfish is harvested far exceeds acceptable standards for swimming areas. With few exceptions, areas closed to the taking of shellfish pose no health hazard to swimmers.

As previously mentioned, major sources of pollution come from storm drains, run-off and inadequate septic waste systems. Although many areas have municipal sewerage, the need for expansion of the system cannot be over-emphasized. Last fall,

while conducting a Sanitary Survey with federal and state agencies, several owner's of waterfront property were asked about their septic systems. It was not uncommon to find a system that had never been pumped out (one owner stated the septic system had not been pumped out in over twenty years of year round use).

Expansion of the municipal sewerage system will result in the Treatment Plant discharging additional amounts of effluent into the Wareham River, resulting in future degradation of the estuary. In addition to the large amount of nitrogen effect on the salinity of water within this estuary, resulting in negative effects to marine life. Several times in the past years I have suggested discussing with SEMASS the possibility of piping this water to their facility, which I understand uses a tremendous amount of water each day. If this proposal is not feasible, the Town must find an alternative to this problem.

(4) Dredging Projects - There is a definite need for dredging projects throughout the Town. I have been working with federal and state agencies to address this problem. Dredging projects are costly and require the Town to share in the funding. Several years ago I suggested a portion of the Boat Excise Levy each year be set aside specifically for such projects.

Dredging projects are needed not only for navigation, but, to improve water quality. When the natural flushing action of tidal flows is impeded by shoaling it does effect water quality.

(5) Demography - One very essential issue not present in the preparation of the Harbor Management Plan is a demographic report of the area. I believe to address current and future uses of the waterfront this is just as important as it would be in developing a Master Plan for the entire town.

For many years the Town of Wareham was known as a summer resort which experienced a 500+% population increase during the summer months. Tourism was a major source of income for many businesses. The development of Cape Cod and a failure of the Town to heed demographic reports has resulted in the Town diminishing as a haven for tourists.

Wareham, as most coastal communities, has experienced a huge increase in the number of boats using the waters. Boating, as a form of recreation, has increased dramatically over the past two decades. Wareham, as most costal communities, is many years behind in addressing this issue. The need of well designed mooring fields, boat launching facilities, docking space, shore side facilities, etc cannot be over-emphasized.

(6) Navigational Safety and Law Enforcement - For several years I have attempted to institute a comprehensive set of Waterway Rules and Regulations that would comply with existing federal and state laws and be in the best interest of the Town. I do not profess that these rules and regulations were "perfect", however, they did comply with existing laws and addressed the majority of problems that exist. The MRC has thwarted every effort I have attempted to implement these rules and regulations.

page 4  
October 6, 1992

(7) Mooring Fields - Well designed mooring fields provide for optimal use of specific areas, which then allows other areas be dedicated to other uses.

A mooring grid system must be designed for each specific area, based on water depth, size and draft of boats, accessibility, the environment, on-shore facilities, etc. Mooring and ground tackle must be uniform and equally spaced (based on water depth and length of boats) to provide maximum use and safety. The Mooring Grid System which was done for MRC did not include many of these requirements, which was the basis for my stating that it was unacceptable to me as the Harbormaster.

(8) Public Access - As boating has become a major type of recreation there is a need for facilities to accommodate those individuals who prefer to trailer their boats. Boat ramps, with parking space, are a necessity of a coastal community. Boat launching facilities can reduce the demand for moorings in that many people with smaller boats would prefer to trailer their boats.

A boat ramp must be designed to be accessible (useable) at all times, not dependent on high tide. Many of the boats destroyed by Hurricane Bob could have been hauled out of the waters, prior to the arrival of the storm, if the Town had adequate facilities existed.

The Onset Boat Ramp has been a source of contention for several years. The claim that this ramp violates the 1916 Decree is, in my opinion, without merit. My understanding of this decree is that it dedicated the land in question for the recreational enjoyment of the public. As boating has become a major source of recreation, I believe the courts would agree this facility is an acceptable use of the land.

Should you think it necessary to discuss any of these issues please call my office to arrange a meeting.

WEE:mm  
files

cc: Charles Balczun, Town Administrator  
Louis Berger & Assoc.  
Lydia VanHine, Conservation

Sydia -

Please pass on these comments to L. Bergin  
re: Draft/Issues H. M. P.

1) I believe their comments and summaries are quite accurate.

2) I suggest a few minor corrections:

(a) pg 1 para 2 - Should read "courier" not "cour"  
para 2 # 1 OPL is about 50% / 50% summer  
yr round residents. (About 50% also of those  
attending were OPL members)

(b) pg 2 # 3 Onset is protected from storms in  
some ways but gets higher hurricane  
tidal water than most Cape Cod area.  
# 5 Complaint made referral southerly  
shore of Sunset Cove with ski area -  
not Wicket Island where there are no  
adjoining beaches.

(c) pg 4 Dredging - # 2 should be 1916 Mass.  
Supreme Ct. decree.

(d) pg 4 - Onset Bay # 4 No known history  
of TBT problems.

(e) pg 5 # 2 Kingwood ~~St.~~ Street.

(f) pg 7 Written + Telephone  
# 4 # 2 Shell Pt. area dredged 1972

(g) "Multiple Use" # 2 Water ski area designated  
by Wareham Town By-Law. This section

(3) Lastly, Comments on pages 9, 10, 11, 12.

(a) Citizens have with abundant and clear voice stated they want multi-use of the public waterways - not one dimensional (use) boat "parking lots". This requires maintaining Open Water Spaces if these multi uses are to be accommodated. (Open Space has economic as well as aesthetic value to the community). I believe the final H. M. P. Summary should clearly indicate citizens' position, Harbor Management Decisions in recent years in Wareham have not been in a satisfactory direction or gone to satisfy their diverse needs.

(b) There presently are "illegal" moorings in Federal designated Channels & Town By-Law water areas.

(c) Shore erosion is a problem in Orsett as well as Wareham River, partly caused by speeding boats. A No (damaging) Wake speed must be enforced.

(d) Boating regs written by Harbormaster should be approved by selectmen and MRC.

(e) MRC should be kept up to date by Harbormaster on: # of moorings, # of mooring permits, # of 2<sup>nd</sup> year violators, # of jumpouts, # and type of violations etc.

MRC has asked for - never received the data.



(3)

any area Capable of water quality upgrading, be upgraded. Some conditions that have developed over last 10-15 yrs, i.e.: on calm days a floating oil/dust raft on surface, and reduced water transparency, can be improved.

I hope the Plan will clearly state the Town's and us Citizens obligations to make that effort.

(g) There seems to be a wide chasm between many citizens and the Harbormaster. The latter appears to concentrate on obliging boating interests to the detriment of other water related interests.

To help bridge that gap and to widen and deepen the vision of harbor planning/usage it is suggested the Harbormaster report to a Town appointed (or elected) board - possibly the MLC composed of a variety of backgrounds and interests.

This Commission, more sensitive and responsible to the Citizens would form on-going harbor policies - the Harbormaster would be responsible for policy execution.

Harbor planning and usage is too vital to any longer be exercised by the hands of one person, whom many believe has limited views and capabilities.

(h) The main plan done by Anesth Co

(1)

altho with some correctable flaws, and which has been shown at several publicly advertised meetings, should be adopted as the basic template.

(2) Some redesign of East River (Broad Cove), scale to the size of boat using area and size of Bay would be desirable.

Warehouse and Ormet offer already 3 Public (open to all citizens of the USA) boat ramps with no parking or use charges. Other Towns in Buzzards Bay either: (1) restrict their ramp to their Town citizens, (2) charge to use ramp. 3) or charge for parking.

Any enlargement of the East River ramp would unwisely damage the quality of life of this densely residential area. Residents presently trying to swim in the area (the ramp was a former beach), shellfish, or do small boating already have more than enough competition from the ramp users.

Citizen involvement will result in a more successful Plan and a happier Community.

30 Sept. 1992

Dear Lydia,

My comments on the draft of  
of Berger and associates are all positive. I  
believe their report was both factual and objective.

I had hoped the report in the  
summary might have contained the following:

1. A harbor line to protect the existing structure  
and prevent encroachment in other areas.
2. Pay Anaptek in full to facilitate embodying  
Anaptek's mooring grid plan into the HMP.  
Anaptek has done most of the yoman work  
in spite of the lack of co-operation they received  
from Town officials.
3. Make available to the public the following mooring in  
How many moorings allowed in a given area.  
How many moorings (if any) are available.  
How to apply.

Sincerely,  
Frank Brown



**TOWN OF WAREHAM**  
HARBOR MASTER/SHELLFISH CONSTABLE  
MEMORIAL TOWN HALL  
WAREHAM, MASSACHUSETTS 02571

TO: Ira Somerset, Marine Resources Committee, Chairman  
FROM: William E. Ellis, Harbormaster/Shellfish Constable  
DATE: August 31, 1992  
RE: Onset Inner Harbor

A number of residents of Onset, Onset Island and Burgess Point have approached me to request that all of the area northerly and westerly of the end of Burgess Point (an imaginary line drawn southerly from the southwest tip of Onset Island to the end of Burgess Point) be considered as an Inner Harbor and that a speed limit be established for the area.

Their basis for the request is both for safety and protection of the shoreline. Based on the number of boats entering and departing Onset Harbor, I believe serious consideration should be given this proposal.

I believe the residents of Burgess Point intend to initiate a petition and forward it to the Selectmen in the near future.

Please advise me if you feel a need to discuss this issue.

WEE/rm  
cc: Town Administrator  
✓ L. Berger Co.  
Files

FILE COPY



TOWN OF WAREHAM  
HARBOR MASTER/SHELLFISH CONSTABLE  
MEMORIAL TOWN HALL  
WAREHAM, MASSACHUSETTS 02571

TO: Ira Somerset, Marine Resources Committee, Chairman  
FROM: *William E. Ellis*  
William E. Ellis, Harbormaster/Shellfish Constable  
DATE: August 27, 1992  
RE: Harbor Management Plan

The importance of a Harbor Management Plan cannot be over-emphasized. Although Wareham, as most coastal communities, is many years late in addressing the issue, I believe a successful plan can be implemented, if, it represents the best interest of the Town and is presented without controversy.

As I have stated many times, this plan must be based on federal and state laws, demographics, existing facilities, current/future needs of the Town, etc. Personal desires and self-interests can have no place within this plan and must not be considered.

The current state of the economy is very evident on the waterfront. The number of boats in the water is significantly less, with related commercial trades being affected. However, I believe once the economy strengthens, the demand for water dependent uses will increase. It is essential to complete the Harbor Management Plan, to include a comprehensive set of rules and regulations, prior to that time.

Although the Grid System, that was previously completed, was totally unacceptable to me, as the Harbormaster, I believe it can be used as a base to establish mooring fields. To do so, it will be necessary to adopt a uniform set of standards for all moorings, taking into consideration water depth, specific area, water depth, size and type of boat, etc.

In conversation with various state and federal agencies, it is my understanding funding may be available for harbor improvement projects. When considering any harbor improvement, the project must be in the best interest of the public and must have the support of the Town (and it's applicable boards and committees). When a proposed project is in the best interest of the Town, objections from a small, special interest group cannot be allowed to prevail (as has happened in the past).

On Tuesday Sept. 1, 1992 I will be meeting with the Board of Selectmen to discuss a proposal to dredge the East River. A previous proposal to dredge the East River included improvements to the existing boat ramp ( this project was to be 100% funded by the state) was withdrawn after a small, self-interest group created a major controversy. It is my intention to submit two proposals to the Board. The first will be the dredging of the East River from the Federal channel as far into Broad Cove as available funding will allow. The second proposal will be for the Town to avail itself of available funding to make necessary improvements to the existing boat ramp.

For a coastal community, the size of Wareham, not to have one public boat ramp facility, that can be used at all times of the day, is unconscionable. Although the Oak Street Boat Ramp is scheduled to be completely renovated in the near future, the need for additional facilities, primarily in Onset exists. I believe the existing boat ramp in Onset should be completely renovated and ask your support for this project.

If the Harbor Management Plan is to designate areas for a specific recreational use, such as waterskiing, the need must be proportionate to all water dependent uses. There has been much discussion and controversy concerning designated areas, particularly waterskiing areas. As this form of recreation involves a very small percentage of recreational boaters and requires a substantially large area (which must be away from swimming areas, mooring fields, areas of heavy boat traffic, etc.) it is my opinion that only Sunset Cove, the middle of Buttermilk Bay, and that area of the Wareham River currently approved for waterskiing be the only areas in the inner harbors considered as designated waterski areas.

Wind surfing has become another form of water dependent recreation involving a small percentage of users. This type of recreation not only requires a large area but, also, is dependent on wind. A number of participants are in the process of organizing a club and have approached me requesting a designated landing area at the northerly end of Little Harbor Beach (away from the swimming area). I have discussed this proposal with several individuals involved and they are most willing to cooperate. I will be meeting with them again in the near future and prior to next summer have rules and regulations established. I believe this are should be included in the Harbor Management Plan.

WEE/rm  
cc: L. Berger Co.  
Town Administrator  
Files

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

X 1.) To maintain open space as so designated on existing marine charts prior to recent expansion of some mooring fields into them. In no place is this as important as Onset Bay, where a major shipping channel & strong currents keep many recreational water uses confined to the harbor.

X 2.) To preserve & improve the quality of swimming areas & beaches.

X 3.) To Renew the cleanliness of the water in order to reopen shellfishing beds year round.

X 4.) As important as it is to gain a general consensus to establish a harbor management plan, it is equally as important to select those in positions of power whose philosophy embodies the spirit of the plan. Otherwise the impact of this plan will be undermined. Many regulations already on the books have been ignored and therefore rendered ineffective.

David Helena

Name: Meezelan Address: 33 Prospect St., Onset

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. Town Sewer along Coastal areas
2. Clean Beaches
3. No dumping of sewage from boats
4. less restrictions on floating docks / and of the
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

Name: J Hall-Guy Address: 55 Wain Ave, Wareham, Ma

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.



# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. If, as suggested by Mr Ellis, new waterway
2. regulations are needed, this should be
3. priority number one. But equally important
4. regulations must be enforced!
5. Clean waters and open space must be preserved!
6. A harbor line should be drawn to prevent
7. reefs from extending further into the bay.
8. All competing interest, swimming, boating,
9. jetting, recreational shell fishing, commercial shell fishing
10. sailing, water skiing, wind surfing and marinas  
must be considered to keep Wareham Harbor  
multi-purpose harbor.

Name: Robert Bany Address: 37 Prospect Street, Oneet, Ma. 02558

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. Control Canada Geese
2. Enforced separation of competing waterway usage
3. Enforced speed and safety rules north of canal and log island channel.
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

Name: Stephen Stone Address: P.O. Box 128 Wareham 02571

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

- RESOLVE THE MATTER OF STORM DRAINS CONTAMINATING
1. SWIMMING AND CLAMMING AREAS -  
ADOPT A FEASIBLE PLAN THAT WOULD PERMIT WATER SCOOTERS,  
AND WATER SKIERS TO ENJOY THEIR RECREATION WITHOUT INTERFERING  
WITH BATHERS & SWIMMERS.
  2. CURTAIN THE DUMPING OF "BODILY WASTE" FROM PLEASURE BOATS  
BY LIMITING THE NUMBER OF ANCHORAGES.
  3. TAKE NECESSARY MEASURES TO INSURE THAT CURRENT LAWS PERTAINING  
TO THE DUMPING OF "BODILY WASTE" & OILS & PETROLEUM PRODUCTS  
INTO THE HARBOR - ARE ENFORCED.
  4. TAKE STEPS TO ELIMINATE THE "CANADIAN GEESE" SITUATION, I.E. POST "DO  
NOT FEED THE DUCKS" SIGNS, EDUCATE THE PUBLIC ETC.
  5. DECIDE ONCE AND FOR ALL THE MATTER OF WHETHER THE HYDRAULIC  
DREDGING FOR SHELFISH IS DETRIMENTAL AND IF SO TAKE THE NEC-  
ESSARY STEPS TO PREVENT SAME.
  6. CONSIDER THE DREDGING OF CERTAIN AREAS IN ONSET-WAREHAM  
FOR PURPOSES OF SAFE BOATING PROTECTION AGAINST HURRICANS ETC.  
I.E. SHELL POINT.
  7. PROHIBIT OR AT LEAST LIMIT THE CONSTRUCTION OF NEW PUBLIC  
OR PRIVATE DOCKS - PIERS ETC - EXPANSION OF MARINAS.
  9. \_\_\_\_\_
  10. \_\_\_\_\_

Name: T. du Moulin Address: 20 Over Jordan Rd, Wareham 02571 MA

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. *Limit on moorings*
2. *No future expansion of Marina*
3. *No future expansion of Yacht Club*
4. *Enforce designated areas; e.g. <sup>waterskiing</sup>*
5. *Enforce "no feeding the geese"*
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

Name: *Sarafalo* Address: *PO Box 681, 46 Highland Ave, Orset 02538*

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. STORM WATER TREATMENT OR CONTAINMENT
2. STRICTER ENFORCEMENT OF SEPTIC/CESSPOOL SYSTEMS
3. ENFORCEMENT OF BOATING DISCHARGE LAWS
4. ENACTMENT OF SHELLFISH REGULATIONS - BAR HYDRAULICS -
5. ENACTMENT OF BOATING MOORING PLAN  
ELIMINATE ILLEGAL MOORINGS.
6. ENFORCEMENT OF BOATING SPEED LAWS
7. INSPECTION, REGULATION AND ENFORCEMENT OF  
INDUSTRIAL OR COMMERCIAL FACILITIES TO PREVENT  
SANDING, PAINTING, FUEL TRANSFER and PARKING LOT
8. RUNOFF FROM ENTERING THE WATER.
9. MONITOR STREAMS ENTERING COASTAL  
WATER FOR CONTAMINANTS.
10. \_\_\_\_\_

Name: WILFRED MAC LEOD Address: 1006 LYDIA'S ISLAND RD.

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1.  Greater CONCERN & CONTROL OF STREET
2.  DRAINS WHICH FLOW INTO HARBOR
3.  WITH STREET POLLUTION (OIL, CHEMICALS, ETC)
4. \_\_\_\_\_
5.  Properly supervised moorings in
6. harbor
7. \_\_\_\_\_
8. Replacing HARBOR MASTER II
9. \_\_\_\_\_
10. \_\_\_\_\_

FRANKLIN W Smith

Name: \_\_\_\_\_ Address: 6 Longwood Ave Onset MA

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. GOOSE POLLUTION - ONSET BEACH
2. SEWER PUMPING STATIONS SHOULD  
HAVE BACK UP PROPANE GENERATOR  
SYSTEMS IN CASE OF A POWER  
FAILURE ON SOUTH BLVD,  
ONSET AV, + EAST BLVD. TO
3. KEEP RAW SEWAGE OUT OF  
BAY
4. \_\_\_\_\_
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9. \_\_\_\_\_
10. \_\_\_\_\_

LARRY BLACKER

Name: \_\_\_\_\_

Address: \_\_\_\_\_

15 SOUTH BLVD ONSET

291-1283

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. Recreation & Commercial Shellfishing
2. Industrial + Commercial waterfront pollution sources
3. Recreational Boating
4. \_\_\_\_\_
5. \_\_\_\_\_
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9. \_\_\_\_\_
10. \_\_\_\_\_

Name: Ruth A. Mann Address: 620 Head of the Dug Rd  
Duxbury Dg, MA 02532

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

(over)



~~I feel that Doug Sparrow~~

I was under the impression that when Doug Sparrow ran the last meeting, it was supposed to be a workshop to get new ideas and learn what people felt should be prioritized. However, Mr. Somerset stood up and said Shellfish management was not a priority in this management plan. From this response it seems Mr. Somerset has ~~been~~ already ~~decided~~ decided what the priorities are going to be. If this is the case what is the purpose of the workshop, if it will not affect the direction of the plan. It seems to me that Mr. Somerset's narrow mindedness is not the attitude of the people working for Burger & Louis - Ass., but hopefully it will not control, too strongly, the final report made by Burger & Louis.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. Arrangements be made for dory and  
pram storage. Example - Unused beach area  
at Mount Beach could have a pipe with ~~steps~~ <sup>clips</sup>  
for locking prams onto. Presently people are  
driving pipes, tie on trees and cause damage.

② Develop good mooring system

③ Make sure channels are kept clear  
of moorings or traps

10. \_\_\_\_\_

William J. Inverary

Name: \_\_\_\_\_

Address: \_\_\_\_\_

75 Tempest Knit Terrace

130 Richman St Portland 02124

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# WAREHAM HARBOR MANAGEMENT PLAN

## Community Goals

Please list the ten issues you perceive as most important to the development of a Harbor Management Plan which will guide future use and development of the marine and upland areas of Wareham (south of Route 6).

1. DREDGE CROOKED RIVER (WAREHAM RIVER)
2. PROTECT BARRIER BEACHES 30+ in WAREHAM
3. PROTECT SHELLFISH BEDS  
ON COASTLINE
4. DO AWAY WITH POOR SEPTIC SYSTEMS
5. GEESE POPULATION NEEDS TO BE REDUCED
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

Name: D.J. ROSE Address: 10 JUNIPER ST WAREHAM

Please return to staff tonight or deliver to the Marine Resources Commission, Conservation Office, Wareham Memorial Town Hall by August 22, 1992.

# Suggestions

I. Harbor Planning can better succeed with good exchange of information between Marine Resources Com (MRC) and Harbormaster.

II. It is recommended:

- A. Harbormaster be requested to regularly attend MRC meetings. (Presently does not attend).
- B. Harbormaster be required to supply MRC information MRC requests. (Presently he does not).

example: 1) number of moorings paid for in 1992 in various areas - particularly public and other large mooring areas)?

Ex: Orcaet public anchorage off Town Pier

- (2) # of moorings out in water but not paid for?
  - (3) # of moorings paid for but vacant all summer?
  - (4) Harbormaster policy if mooring paid for but entirely vacant more than 1 year?
  - (5) Actions taken 1992 by Harbormaster to encourage compliance with Wareham's new No Discharge Policy?
- Any violations? Actions taken?
- # of "summate" services locations. (over)

III It is also recommended Harbormasters be structured that he or she answer to and be responsible to the MRC (or if advisable - some other Citizen Town appointed Board) for his actions.

This would be similar to where the Wareham Town Conservation Agent carries out policies of the Citizen Conservation Commission. (In both cases State regulations are sometimes involved.)



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**APPENDIX 10 - DRAFT WATERWAYS RULES &  
REGULATIONS, TOWN OF WAREHAM,  
MASSACHUSETTS**

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**APPENDIX 10      Draft Waterways Rules & Regulations, Town of Wareham,  
Massachusetts**

The following Waterways Rules & Regulations, drafted by Mr. William Ellis, Wareham Harbormaster, have been presented to town meeting and have been reviewed by the Marine Resources Commission. At the January 12, 1994 meeting, the Marine Resources Commission requested that the Harbormaster make the following changes, which were consented to by Mr. Ellis.

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## WATERWAYS RULES AND REGULATIONS

### DEFINITIONS

- HARBORMASTER:** The Harbormaster of the town of Wareham, duly empowered by the general laws of the commonwealth, or any authorized deputy.
- BOAT OR VESSEL:** Watercraft of every description capable of being used as a means of transportation on the water, whether propelled by power, by sail or manually.
- CMR:** Code of Massachusetts Regulations.
- DIVER:** Any swimmer using snorkel tubes, self-contained underwater breathing apparatus, or other diving equipment.
- HARBOR SERVICES:** Services rendered by the Harbormaster, including:
- A. Emergency response (24 hours);
  - B. Enforcement of laws, rules and regulations;
  - C. Safety inspections;
  - D. Pollution control;
  - E. Search and rescue;
  - F. Boating safety courses (in conjunction with Massachusetts Division of Law Enforcement);
  - G. Identification of boat owner in case of emergency;
  - H. Assignment of mooring locations and maintaining records of mooring assignments; and
  - I. Operation of town pump-out facilities at Onset Pier.
- HEADWAY SPEED:** The slowest speed at which a motorboat can be operated and maintain steerage, but not to exceed six (6) miles per hour, except in the case of Personal Watercraft, which may need to operate at a speed in excess of six (6) miles per hour to maintain steerage. (To be considered operating at headway speed the operator of a Personal Watercraft shall be either kneeling or sitting.)
- INNER HARBORS:** The inner harbors of Wareham are defined as follows:
- A. **WAREHAM RIVER** - All of the waters north of an imaginary line from Quasuet Point of Hamilton Beach due east to the point at Parkwood Beach.

- B. ONSET BAY - All of the waters north and west of an imaginary line from the south end of Onset Island due south to Burgess Point. This includes all of Onset Harbor, Shellpoint Bay and Broad Cove.
- C. COHASSET NARROWS and BUTTERMILK BAY - All of the Wareham waterways north of Daymark G9, including Butlers Cove, to the imaginary line drawn from the north end of Jefferson Shores due east to the Bourne town line.

MGL: Massachusetts General Laws.

PERSONAL WATERCRAFT: A small vessel that uses an inboard motor powering a water jet pump as its primary source of motive power and which is designed to be operated by persons sitting, standing or kneeling on the vessel. The term includes but is not limited to a jet ski, wet bike or surf jet, so-called.

TRANSIENT CRAFT: A boat or vessel resident in the town of Wareham for fewer than six (6) consecutive nights.

WAREHAM WATERWAYS: The navigable waters within the town of Wareham, including all harbors, rivers, bays, lakes, ponds and waterways made temporarily non-navigable by reason of low tides, drought or seasonal weather or water conditions.

WATERSKIING: The use of waterskis and surfboards, and the towing or manipulation of persons, waterskis, surfboards or similar devices by a motorboat.

**1. HARBOR SERVICES PERMIT**

- A. No person shall keep or moor any boat in excess of ten (10) feet in length on Wareham waterways without first obtaining a Harbor Services Permit from the Harbormaster, unless the boat is propelled solely by oars or paddles. A boat displaying the Harbor Services Permit is entitled to the harbor services of the Harbormaster at no additional charge.
- B. Harbor Services Permits are issued by the Harbormaster and are renewable annually for a fee established in accordance with the procedures of the town of Wareham. A Harbor Services Permit will not be issued for any boat with unpaid boat excise tax.
- C. The Harbor Services Permit shall be permanently affixed to the forward port (left) side of the boat and be clearly visible.

- D. A boat not displaying a current Harbor Services Permit is not entitled to moor in Wareham waterways and shall be removed in accordance with the provisions of MGL Chapter 102 by the Harbormaster at the owner's expense.

**2. TOWN, DOCKS, FLOATS, PIERS, MOORINGS AND LANDINGS**

- A. The town shall not be responsible for any loss or damage to boats or equipment at the public docks, floats, piers, moorings or landings.
- B. Boat owners and operators shall be responsible for any damage caused by themselves or their boats when made fast to any of the public piers, docks, floats or moorings.
- C. Except in an emergency, not boat shall be made fast to any public pier, float, mooring or dock for a period of time in excess of posted time limits without the permission of the Harbormaster.
- D. No boat shall be permitted to moor in Wareham waters or to make fast to any public pier, dock or float, if the boat is determined by the Harbormaster to be unseaworthy, deteriorated, or likely to cause damage to property or personal injury, or if the boat might become a menace to navigation. This shall not apply to boats in immediate distress as a result of a current emergency.
- E. No person shall leave any boating or fishing equipment, fish or any other personal property upon any public pier, dock, float or landing for longer than is necessary to load or unload said property to and from any boat or vehicle.
- F. There shall be no scaling or cleaning of fish or shellfish on any public piers, docks, floats or ramps.

**3. REFUELING OF VESSELS**

- A. The refueling of boats shall be in accordance with MGL Chapter 148 and 527 CMR 15.00.
- B. The refueling of boats at any public pier, dock, float or ramp without the permission of the Harbormaster is prohibited.
- C. THE DISPENSING OF FUEL AT ANY LOCATION NOT AUTHORIZED UNDER THE PROVISIONS OF MGL, CHAPTER 148 AND 527 CMR 15.00 IS PROHIBITED.

(Refueling of vessels, in or upon the waters of the commonwealth, by portable containers, tanks, etc. is prohibited.)

- D. The owner of any vehicle used to refuel a boat shall have such liability insurance in the form and amount as may be required by the town of Wareham, and spill containment equipment available in the event of the discharge of fuel into the water or onto the facility. Proof of insurance and availability of the containment equipment must be demonstrated to the Harbormaster before refueling is allowed to begin.

EXCEPTION—Personal watercraft and outboard motors with self-contained gas tanks may be refuel under the following conditions:

- 1) Only containers approved by the State Fire Marshall shall be used;
- 2) Containers shall not be left on the shore, dock, float or pier; and
- 3) The owner and the operator of the boat shall assume all liability for any damages and for the cleanup of any spill or the discharge of fuel into the water or onto the facility.

#### 4. BOAT OPERATION

- A. No vessel shall be operated at any time on the waters of the town of Wareham at speed greater than is reasonable and proper having regard to the lives and safety of the public; the state of visibility; the traffic density; the maneuverability of the vessel; the state of wind, water and current; and the proximity of navigational hazards.
- B. A vessel shall not be operated at more than headway speed:
- 1) When the operator's vision is obscured under a bridge, by bends or curves, or in any other manner.
  - 2) When the vessel is operated within three hundred feet (300') of a swimming beach unless operating in an area designated for higher speed.
  - 3) When the vessel is operated within one hundred fifty feet (150') of a mooring or anchorage area, marina, boat launching facility, raft or float.
  - 4) When the vessel is operated in an area posted "SLOW—NO WAKE."
  - 5) In any inner harbor, except in areas designated for higher speeds.
- C. A boat operator within sight of a diver's flag shall proceed with caution. No boat shall proceed at a speed exceeding three miles per hour (3 mph) within a radius of one hundred fifty feet (150') of a diver's flag (MGL Chapter 90B).
- D. No boat shall land on any swimming beach except in an extreme emergency, or in an area designated by the Harbormaster, and shall exercise extreme caution in doing so.
- E. Small rowboats (dinghies) used for transportation to a moored boat shall not be left on any swimming beach. Such boats shall be carried to the most inward portion of the beach and secured upside down.
- F. NO DISCHARGE AREA: Effective January 22, 1992, the Environmental Protection Agency (EPA) declared Wareham coastal waters a federal "no discharge area," making the

discharge of both treated and untreated boat sewerage in this area illegal, and enabling federal, state and local enforcement officers to assess fines and other penalties for discharge violations.

- G. The use of boats powered by engines of more than five (5) horsepower is prohibited on the waters of Blackmore Pond, West Wareham.

## **5. DIVERS**

- A. No person shall dive in Wareham waters without displaying an "Alpha" or red and white diver's flag which is clearly visible within a radius of three hundred feet (300').
- B. No diver shall be further than one hundred feet (100') from the diver's flag at any time while on or under the surface of the water.
- C. No person shall dive within the channels of the Wareham waterways without the prior permission of the Harbormaster.

## **6. MOORINGS**

- A. The Harbor Services Permit allows a specific boat to be moored in a specific location designated by the Harbormaster. The requirements are set forth in Section 1. The use of a mooring by any boat other than the assigned boat without the permission of the Harbormaster is prohibited.
- B. A mooring location will be assigned only to boats consistently moored or docked in Wareham waterways.
- C. Mooring placement may be authorized only by the Harbormaster.
- D. Applications for Mooring Space.
  - 1) The Harbormaster shall maintain a waiting list for mooring space with the following provisions:
    - a) Application forms must be filled out completely, to include specific area requested.
    - b) To remain on the waiting list, the applicant must confirm the application information no later than July 1 of each year. Applications not confirmed by July 1 of each year shall be removed from the waiting list.
    - c) Applications for mooring space from commercial fishing boats shall be given preference. All other applications shall be considered by the date of filing.
    - d) When a mooring space becomes available, the applicant shall have ten (10) days from the date of notification to install a mooring in that location. Failure

to install a mooring within this time shall be considered a refusal and the space assigned to the next application on the Waiting List.

- E. No mooring location shall be assigned if the mooring anchor or tackle does not meet the current requirements of the town of Wareham.
- F. Boats shall be moored only where assigned by the Harbormaster.
- G. Changes of mooring location or boat ownership will be in accordance with the following procedures:
  - 1) Boat owners wishing to transfer their mooring from one area to another must apply in writing to the Harbormaster, whose decision will be final.
  - 2) The Harbormaster shall be advised immediately if there is a change of boat or boat size. Boat owners may retain the same mooring location if a boat is replaced with one of equivalent size.
  - 3) The holder of a mooring assignment shall advise the Harbormaster when he ceases to have need for the mooring location.
  - 4) Boats with a change of ownership have no entitlement to the mooring space previously assigned to that boat unless the boat becomes jointly owned and the previous owner retains a share in the boat.
  - 5) The owner of a boat with an assigned mooring location may retain that location if, within one (1) year of the sale or transfer of ownership of that boat, the owner replaces it with another boat of equivalent size, as determined by the Harbormaster. If the replacement boat is not of equivalent size, a new application for a mooring location shall be filed with the Harbormaster, and a new location assigned if all requirements are met and a location is available.
- H. All mooring marker buoys shall be in place not later than June 1, annually.
- I. Mooring anchors and associated tackle: To promote uniformity, the following minimum standards for moorings have been adopted from well-known standards, such as Chapman. A mooring shall consist of an anchor, a length of heavy chain, a length of light chain, a float and a pennant. These moorings are expected to hold the boat under normal conditions providing that all parts of the system are properly maintained. Should the boat owner wish to use longer mooring tackle for additional holding power, the Harbormaster must be informed at the time of assigning the mooring so the boat can be moved to a more appropriate location. THE BELOW LISTED SPECIFICATIONS ARE MINIMUM STANDARDS FOR NORMAL CONDITIONS. UNDER STORM CONDITIONS VESSELS SHOULD BE REMOVED FROM THE WATERWAYS.
  - 1) Unless otherwise approved by the Harbormaster, all mooring anchors shall be of the type and minimum weight specified below:



<u>LENGTH OF BOAT</u>	<u>MUSHROOM ANCHOR</u>	<u>COMMERCIAL GRADE CONCRETE BLOCK</u>
under 15'	75 lbs.	18"x18"x12" weighing 340 lbs.
15' up to 23'	150 lbs.	22"x28"x18" weighing 1225 lbs.
23' up to 29'	200 lbs.	36"x36"x18" weighing 2205 lbs.
29' up to 37'	300 lbs.	45"x45"x18" weighing 2940 lbs.
37' up to 49'	400 lbs.	48"x48"x18" weighing 3345 lbs.
49' up to 61'	500 lbs.	52"x52"x18" weighing 3925 lbs.

- 2) All mooring chains shall be manufactured of galvanized iron or stainless steel and shall be a minimum of the size and length specified below:  
Any/all shackle(s) used shall be secured with galvanized/stainless steel wire or plastic wire ties.

<u>LENGTH OF BOAT</u>	<u>HEAVY CHAIN</u>	<u>LIGHT CHAIN</u>
14' and under	3/8"	2X maximum water depth
15' up to 23'	1/2"	3/8"
23' up to 35'	5/8"	3/8"
35' and over	3/4"	1/2"

The length of heavy chain shall be 1.5 times the maximum depth of water at the mooring location. The length of light mooring chain shall be equal to the maximum water depth at the mooring location, except as specified above for boats 14 feet and under.

- 3) a) Pennants shall be at 2.5 times the distance from the chock to the water.  
b) Pennants shall be either nylon or polyester (dacron) rope\* and a minimum diameter as listed below:

LENGTH OF BOAT

14' and under	3/8"
15' up to 23'	1/2"
23' up to 35'	5/8"
35' and over	3/4"

\*Stainless Steel Wire Rope may be substituted.

- c) The use of polypropylene rope for pennants is prohibited.

- d) Pennants shall be periodically inspected for wear and/or damage.
  - e) The use of chafing gear on pennants is required.
  - f) It is recommended that a secondary pennant be installed, and used, on all moorings.
- 4) The Harbormaster may require mooring anchors and associated tackle to exceed the above requirements in areas that are subject to high winds and storm damage.
- J. The Harbormaster may inspect any mooring and order its immediate replacement or repair if it does not conform to the current requirements for moorings of the town of Wareham.
- 1) All moorings in Wareham waterways shall be inspected at least once every three years by a qualified inspector, at the owner's expense.
    - a) Such inspection shall be made by raising the mooring or, in cases where the Harbormaster determines the mooring to be of such weight that it cannot be conveniently raised, inspections may be made underwater.
    - b) The Harbormaster will maintain a list of qualified inspectors. All inspectors must demonstrate to the Harbormaster knowledge of Wareham waterways and standards for moorings and associated ground tackle. Any inspector performing underwater inspections or services shall have a current Divers Certificate. The Harbormaster may remove any inspector's name from the approved list of qualified inspectors if it is determined, by the Harbormaster, that the Inspector has failed to exercise due diligence in performing the duties of an inspector.
    - c) IF THE RESULT OF ANY INSPECTION INDICATES THAT ANY CHAIN, SHACKLE OR MOORING HAS BECOME DAMAGED OR WORN BY ONE-THIRD ( $\frac{1}{3}$ ) OR MORE OF ITS ORIGINAL SIZE OR DIAMETER, SUCH CHAIN, SHACKLE OR MOORING SHALL BE REPLACED ACCORDINGLY. FAILURE TO MAKE SUCH REPLACEMENT, WITHIN TEN (10) DAYS OF THE INSPECTION, SHALL BE GROUNDS FOR REVOCATION OF THE HARBOR SERVICES PERMIT AND REMOVAL OF THE MOORING BY THE HARBORMASTER.
  - 2) INSPECTIONS:
    - a) Commencing on May 15, 1994 and every third year thereafter, no permit will be issued or renewed for a mooring space assigned to any vessel with an overall length of 32 feet or more unless the owner of the vessel provides the

Harbormaster with a certificate from a qualified inspector that the mooring tackle meets specifications and has been inspected by him within the preceding twelve (12) months.

- b) Commencing on May 15, 1995 and every third year thereafter, no permit will be issued or renewed for a mooring space assigned to any vessel with an overall length of 32 feet or more, but less than 32 feet, unless the owner of the vessel provides the Harbormaster with a certificate from a qualified inspector that the mooring tackle meets specifications and has been inspected by him within the preceding twelve (12) months.
- c) Commencing on May 15, 1996 and every third year thereafter, no permit will be issued or renewed for a mooring space assigned to any vessel with an overall length of 23 feet unless the owner of the vessel provides the Harbormaster with a certificate from a qualified inspector that the mooring tackle meets specifications and has been inspected by him within the preceding twelve (12) months.

K. Abandoned moorings and those whose owners cannot be identified shall be confiscated by the Harbormaster for disposal in the best interests of the town.

L. All winter sticks must be a minimum of 4"x4"x8' long, marked with the Harbor Services Permit number, and painted a bright color. The stick must be anchored so that it will be vertical at all tides and clearly visible. All winter sticks must be removed prior to June 1. (Winter sticks shall be installed on all moorings.)

M. ALL MOORING MARKER BUOYS SHALL BE WHITE STYROFOAM OR RUBBER WITH A BLUE STRIPE. The Harbor Services Permit number shall be affixed to each buoy and be legible. Buoys shall be large enough to support the required tackle.

N. No mooring shall be set in any navigation channel.

## 7. OUTHAULS

A. No outhaul stakes shall be permitted on any public beach.

B. No outhauls shall be placed on privately owned shoreline areas without the permission of the owner.

## 8. WATERSKIING

A. Waterskiing shall be restricted to those designated areas listed in Wareham town by-laws:

Water Skiing: Water skiing as hereinafter permitted is subject to the provisions of Section 3, Chapter 90B of the General Laws of Massachusetts and to the further restriction that there

shall be no water skiing within one hundred fifty (150) feet of bathers, divers, piers, docks, floats or other boats. Water skiing in tidal bays, harbors and rivers restricted to:

Broad Cove: An area east of an imaginary line drawn from a point at the intersection of North Water and Cove Streets, Point Independence, to a point of land east of the Dummy Bridge, excluding the boat mooring areas.

Onset Bay: An area south of an imaginary line between Onset and Wickets Island excluding the mooring areas and buoyed channels.

Sunset Cove: An area designated by the Harbor Master in the central portion of Sunset Cove together with a ski landing area on the western part of Shell Point and appropriately marked as such, excluding all mooring areas.

Wareham River: An area north of Long Beach Point between Long Beach Point and the Wareham River federal channel can "19" excluding the areas within 500 feet of the following beaches and shores:

Swifts Beach  
Hamilton Beach  
Swifts Neck

Briarwood Beach: Wewantic River outside the Briarwood Beach mooring area as designated by the Harbor Master.

Wewantic River: An area bounded by imaginary lines from federal channel buoys, can "11," off Cromesett Point to federal channel buoy, can "5," east of Great Hill to the southeast corner of Indian Neck and returning to aforesaid federal channel buoy, can "11." The waters known as Marks Cove shall not be used as a water skiing area.

Spectacle Pond/Agawam Lake: "Water skiing in ponds and lakes is restricted to: Spectacle Pond and Agawam Lake in specific areas designated by markers."

- B. Waterskiing shall be in compliance with MGL Chapter 90B and any other applicable state and federal requirement.

## 9. SAILBOARDS

Sailboards shall be operated at a safe distance away from any swimming area, pier or dock/float, or any moored or anchored vessel.

Sailboards shall not be operated within marked channels or fairways except for direct crossing of same.

## 10. BOATING ACCIDENTS

- A. Reports - Accident reports must be filed pursuant to the provisions of Chapter 90B of the MGL whenever any one or more of the following occurs on board of or involving any boat or vessel in or upon Wareham waterways:
- 1) Death of any person from whatever cause;
  - 2) Disappearance of any person from on board under circumstances that suggest the possibility of death or injury;
  - 3) Injury to any person; or
  - 4) Loss or damage to property of any kind, including the boat or vessel, in an amount equal to or greater than \$500.00.
- B. Time to file report - Whenever death or serious injury has resulted or may result from a boating accident, a written report shall be submitted within twenty-four (24) hours. For every other reportable boating accident, a written report shall be submitted within three (3) days.
- C. Where to file report - Reports shall be submitted to the Harbormaster, who will ensure that the report is filled out properly and then forward it to the Division of Law Enforcement.

## 11. MARINAS AND YACHT CLUBS

- A. Marinas will provide the Harbormaster with a list of all boats leasing dock facilities, moorings and rack storage facilities, on a seasonal basis, by August 15 of each year.

Yacht clubs will provide a list of all boats utilizing their facilities on a permanent basis by August 15 of each year.

- B. The list will include the following information:
- 1) Owner and Address
  - 2) Year, Type of Boat, Manufacturer, Length of Boat
  - 3) Date of Contract

- C. **MARINAS AND YACHT CLUBS WILL PROVIDE THE HARBORMASTER WITH A COPY OF THEIR RULES AND REGULATIONS.** It shall be a provision of such regulations that "Persons on boats lying at slips or docks shall use shore-side sanitary facilities only" and of the EPA designation of Wareham coastal waters as a "NO DISCHARGE AREA."

Marinas and yacht clubs will inform all transient vessels of the town of Wareham's regulations regarding Marine Sanitation Devices.

Marinas, yacht clubs, and the Harbormaster's Office will maintain a record of use of the pump-out station. The following information will be required:

- 1) Boat Owner
- 2) Registration Number or Documented Name of Boat
- 3) Date of Pump-out

## **12. ABANDONMENT**

- A. Except in a maritime emergency currently affecting those aboard or others in the immediate vicinity, no vessel, mooring or object shall be deliberately abandoned, sunk or otherwise placed in Wareham waterways where it may constitute a hazard. Any abandoned or sunk vessel, mooring or object so found and any vessel swamped, sunk, washed ashore or found may be ordered by the Harbormaster to be removed or relocated. If corrective action is not taken after seventy-two (72) hours notice to the owner, or if the owner is not known after notice has been posted for the same period at the Town Hall and the Harbormaster's Office, the Harbormaster may remove or relocate it at the expense of the owner (MGL Chapter 102).
- B. A boat or vessel which, in the opinion of the Harbormaster, is not seaworthy, shall not be placed or kept in Wareham waterways and/or the shoreline of the town of Wareham. The Harbormaster, after written notice to the owner (if known), may remove such boat or vessel, at the expense of the owner.
- C. No boat or vessel shall be left on the public shores from December 1 through March 15 without authorization of the Harbormaster. Any such boat or vessel shall be considered abandoned.

## **13. POLLUTION**

The discharge of any raw sewage, garbage, rubbish, oil or debris in or upon any waters within the town of Wareham or within twenty (20) yards of any such waters is prohibited (MGL Chapter 270).

## **14. FLOATS AND RAFTS**

The placement of temporary floats and/or rafts held by anchors or bottom moorings is subject to written approval of the Harbormaster. All floats or rafts will be identified with registration numbers affixed to the land and open water sides of the float or raft in contrasting color and shall be a minimum of three inches (3") in size. The owner(s) of such floats or rafts will sign a waiver releasing the town of Wareham from any liability related to the float or raft.

## **15. PIERS AND DOCKS**

No boat or vessel secured (tied) to any pier or dock shall be allowed to ground or rest on the ocean bottom.

## **16. BRIDGES**

Diving or jumping from bridges over any waterway is prohibited.

## **17. CHANNELS AND FAIRWAYS**

- A. No vessel shall anchor or moor within a navigational channel or fairway.
- B. No lobster pots, crab pots, ell pots, or nets, seines, trawls, traps, etc. are to be set in any navigational channel or fairway.

## **18. AIDS TO NAVIGATION**

- A. No vessel shall tie to any Aid to Navigation or anchor/moor in a position that would obscure the aid from the sight of passing vessels.
- B. No person, company or corporation may install "Private" Aids to Navigation without a proper permit from the authority having jurisdiction of the particular waterway. A copy of the required permit shall be filed with the Harbormaster.
- C. It is a criminal offense to cause any damage or hindrance to the proper operation of any Aid to Navigation. This includes defacing, altering, moving, destroying, tying a boat to, or obscuring from the sight of passing vessels any Aid to Navigation.

## **19. COMPATIBILITY WITH OTHER GOVERNMENTAL REGULATIONS**

Nothing contained herein shall be held or construed to supersede or conflict with, interfere with, or limit jurisdiction of the United States Government or commonwealth of Massachusetts, or limit or conflict with their laws and/or regulations. In any case, the more restrictive rule or regulation shall apply.

## **20. ENFORCEMENT**

The provisions of these regulations shall be enforced by the Harbormaster and may be enforced by any town of Wareham Police Officer.

## **21. PENALTIES**

The Harbormaster, Deputy Harbormasters or Police Officers of the town of Wareham, as an alternative to initiating criminal proceedings, may issue non-criminal citations for violations of the above Waterways Rules and Regulations under the provisions of Massachusetts General Laws, Chapter 40, Section 21D. The penalty for violations of such Rules and Regulations shall be:

FIRST OFFENSE .....	\$ 25.00
SECOND OFFENSE .....	\$ 50.00
EACH SUBSEQUENT OFFENSE .....	\$ 200.00

Each day of violation shall constitute a separate offense.

**22. SEVERABILITY CLAUSE**

In the event that any provision, section or clause of these regulations is hereafter found to be invalid, such invalidity shall not affect the validity of the remaining portions of these regulations.



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**APPENDIX 11- RECOMMENDED BYLAW FOR CREATION  
OF HARBOR MANAGEMENT COUNCIL: TOWN  
OF WAREHAM, MASSACHUSETTS**

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**APPENDIX 11      Recommended Bylaw for Creation of a Harbor Management Council:  
Town of Wareham, Massachusetts**

WHEREAS, the Town of Wareham wishes to protect its marine resources and sensitive natural resource areas found along Onset Bay, the Wareham River and other coastal waters; to provide greater public opportunities for water-based recreational activities; to maintain and enhance navigational facilities for the benefit of all harbor users; to allocate land and water resources in an economically sound manner, and

WHEREAS, the town believes that the most equitable way of balancing competing uses in the harbor and adjacent costal waters is to develop, adopt and implement a harbor management plan, and

WHEREAS, a harbor management council could properly manage and plan for the harbor,

THEREFORE, town meeting of the Town of Wareham hereby enacts a harbor management commission pursuant to ....

**Section 1:      Commission Composition**

There shall be a Harbor Management Council (HMC) which shall consist of nine (9) members who must be permanent or seasonal residents of the Town of Wareham. These members shall be appointed by the Board of Selectmen from a list of persons recommended, because of their interest in harbor activities, by existing local boards, town staff or local residents. Said council shall be composed of members of representatives of the following groups: beach associations (to be appointed on a rotating basis between Wareham River and Onset Harbor associations), recreational boating community, commercial fishing/shellfishing industry, two (2) community members at large, and representatives of the Board of Selectmen, Planning Board, Conservation Commission, and Board of Health. In addition there shall be appointed two (2) alternate members to serve in place of absent regular members, if necessary. The Harbormaster shall serve as an ex-officio member of the commission, without vote.

**Section 2:      Commission Member Tenure**

The term of all members shall run for four years except that the initial term shall be staggered so that the terms of not more than two (2) members shall terminate in any single year. Alternate members shall be appointed for two (2) years except that the initial term of one alternate shall be for one year. If a member resigns or is removed for any reason before his or her term expires, a replacement shall be appointed within two months of termination by the Board of Selectmen, in accordance with Section 1, to complete that term. A council member can be removed by the Board of Selectmen for good cause, upon request of the council. Failure to attend four (4) consecutive meetings without good reason shall constitute good cause for removal.

The council shall elect a chairperson and secretary. The commission can form subcommittees to address specific duties of the commission.

### **Section 3: Jurisdiction of the Harbor Management Council**

The harbor management council shall have jurisdiction within the area located in or contiguous to coastal waters of the town [*Louis Berger & Associates, Inc, (LBA) recommends that the area of jurisdiction be large enough to exercise control over development without having so much of an area of jurisdiction that it becomes unwieldy: LBA recommends jurisdiction over development on any part of any property located within 100 feet of tidal flowage*].

### **Section 4: Harbor Management Council Powers, Duties and Responsibilities**

The purpose of the harbor management council shall be to finalize and implement the Harbor Management Plan and Mooring Grid Plan. Upon adoption of these plans by town meeting the council shall provide annual review. In addition, the council may exercise any of the following powers, duties and responsibilities:

- (a) to recommend bylaws for adoption by town meeting which implement the harbor management plan; public hearings shall be held to allow public comment and discussion prior to presentation at town meeting.
- (b) to direct the Harbormaster in the assignment of moorings, the management of mooring and anchorage areas, and the collection of mooring fees;
- (c) to prepare an operating budget for the council using funds from sources which may include, but are not limited to, local appropriations, mooring fees, violation fines, or a harbor management fund which may be established by town bylaw;
- (d) to assist in the coordination of all local public and private agencies, commissions and other organizations which have interest or jurisdiction within the harbor area;
- (e) to review and make recommendations on the proposed land and water use activities contiguous to the waterfront and within the waters delineated in Section 3 of this bylaw that are received for review by other municipal boards in accordance with the procedure described in Section 5 of this bylaw;
- (f) to review for consistency with the Harbor Management Plan any public notice of an application for a local, state or federal permit for an activity taking place within the commission's jurisdiction as described in Section 3 of this ordinance, and to respond in a timely fashion with recommendations to the regulating agencies;
- (g) to conduct, or cause to be conducted, studies of the conditions and operations in or adjacent to Wareham waters and to present to the Board of Selectmen proposals for the harbor's efficient operation including development of a water uses map;
- (h) to maintain close coordination with federal and state agencies including the U.S. Army Corps of Engineers, the U.S. Coast Guard, Massachusetts CZM, and others regarding regulatory compliance, funding and permitting;

- (i) to consider administering the duties of the Shellfish Advisory Committee, including the propagation of shellfish; and
- (j) to educate the community on harbor-related issues, including water quality degradation.

**Section 5: Referral of Proposals Submitted to Other Municipal Boards**

The council shall review and make recommendations, consistent with the adopted Harbor Management Plan, on any proposal affecting the real property on, in or contiguous to the harbor as specified in Section 3 which is submitted to the Planning Board, Conservation Commission, Board of Health, or Shellfish Advisory Committee. The Harbor Management Council shall be notified in writing of any such proposal at least thirty-five days prior to the commencement of the hearing thereon or, where no hearing is held, at least thirty-five days prior to the taking of any final action on the proposal. The respective municipal agency shall send a copy of the application/proposal to the council upon request.

The primary reviewing agency authorized to act on the proposal shall consider the recommendations of the council. A two-thirds vote of all members of the board having authority to act on the proposal shall be required to approve a proposal which has not received a favorable recommendation from the council, provided that the provisions of this section shall not be deemed to alter the authority of the board having primary jurisdiction over the proposal to deny, modify or condition the proposal. Failure of the council to submit a recommendation on or before the date of the hearing or action on such proposal shall be deemed an approval.



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**APPENDIX 12 - NUTRIENT MANAGEMENT PLAN**

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## APPENDIX 12 Nutrient Management Plan

This appendix presents core components of a nutrient plan, to be considered by the Harbor Management Council and the Soil Conservation Service (SCS) for implementation of *Goal 2 - Clean Waters*. Under the Coastal Zone Act Reauthorization Amendment of 1990, states are subject to a number of requirements as they develop coastal nonpoint programs in accordance with the *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*, published jointly by the U.S. Environmental Protection Agency and the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce (January 1993). The goal of this management measure is to minimize edge-of-field delivery of nutrients and to minimize leaching of nutrients from the root area. Core components of such a management plan are presented below:

- (1) Farm and field maps showing acreage, crops, soils, and waterbodies.
- (2) Realistic yield expectations for the crop(s) to be grown, based primarily on the producer's actual yield history, state Land Grant University yield expectations for the soil series, or SCS Soils-5 information for the soil series.
- (3) A summary of the nutrient resources available to the producer, which at a minimum include the following:
  - soil test results for pH, phosphorus, nitrogen, and potassium;
  - nutrient analysis of manure, sludge, mortality compost (birds, pigs, etc.), or effluent (if applicable);
  - nitrogen contribution to the soil from legumes grown in the rotation (if applicable); and
  - other significant nutrient sources (e.g., irrigation water).
- (4) An evaluation of field limitations based on environmental hazards or concerns.
- (5) Use of the limiting nutrient concept to establish the mix of nutrient sources and requirements for the crop based on realistic yield expectation.
- (6) Identification of timing and application methods for nutrients to: provide nutrients at rates necessary to achieve realistic crop yield; reduce losses to the environment; and avoid applications as much as possible to frozen soil and during periods of leaching or runoff.
- (7) Provisions for the proper calibration and operation of nutrient application equipment.



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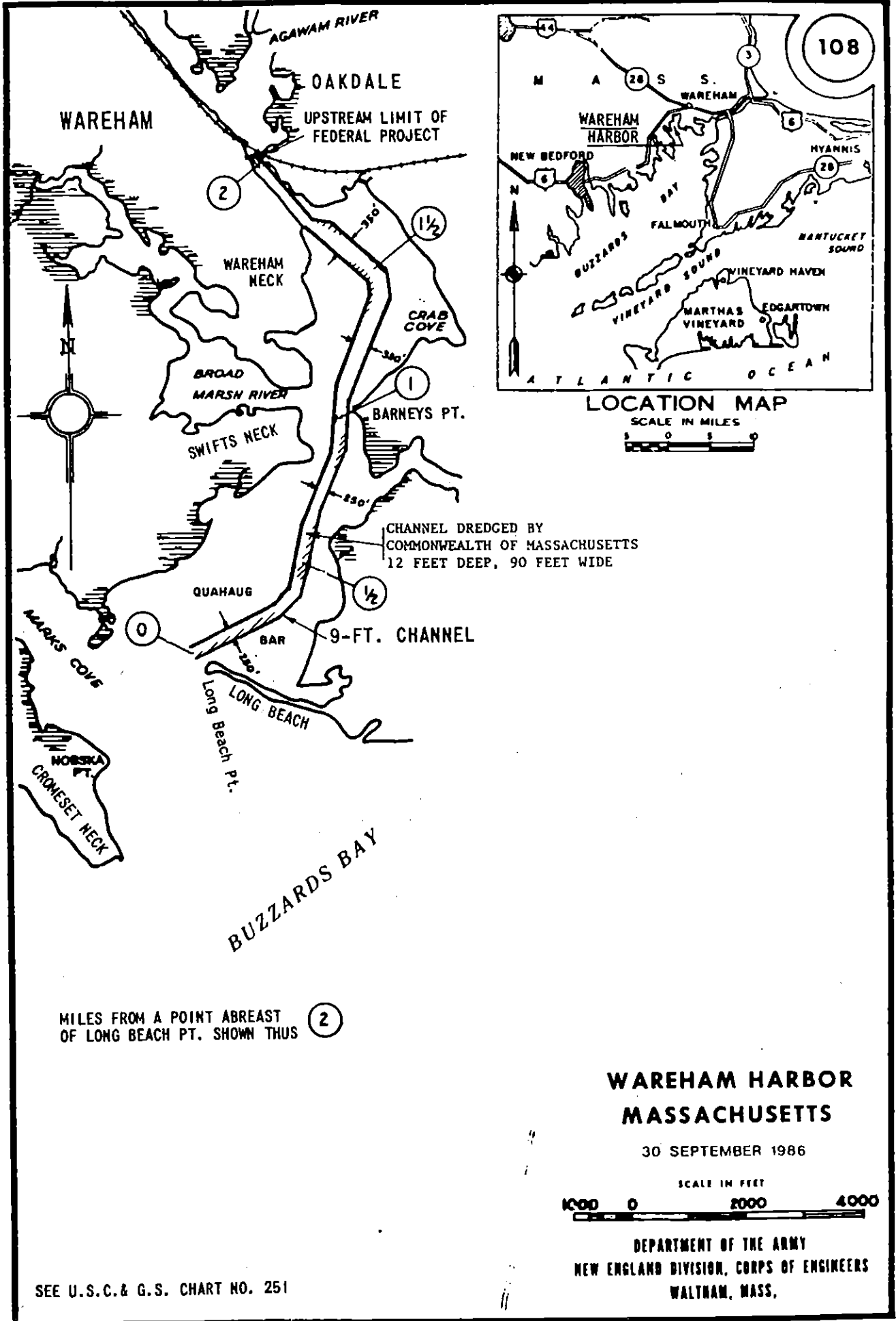
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**APPENDIX 13 - FEDERAL NAVIGATION PROJECT  
WAREHAM HARBOR**

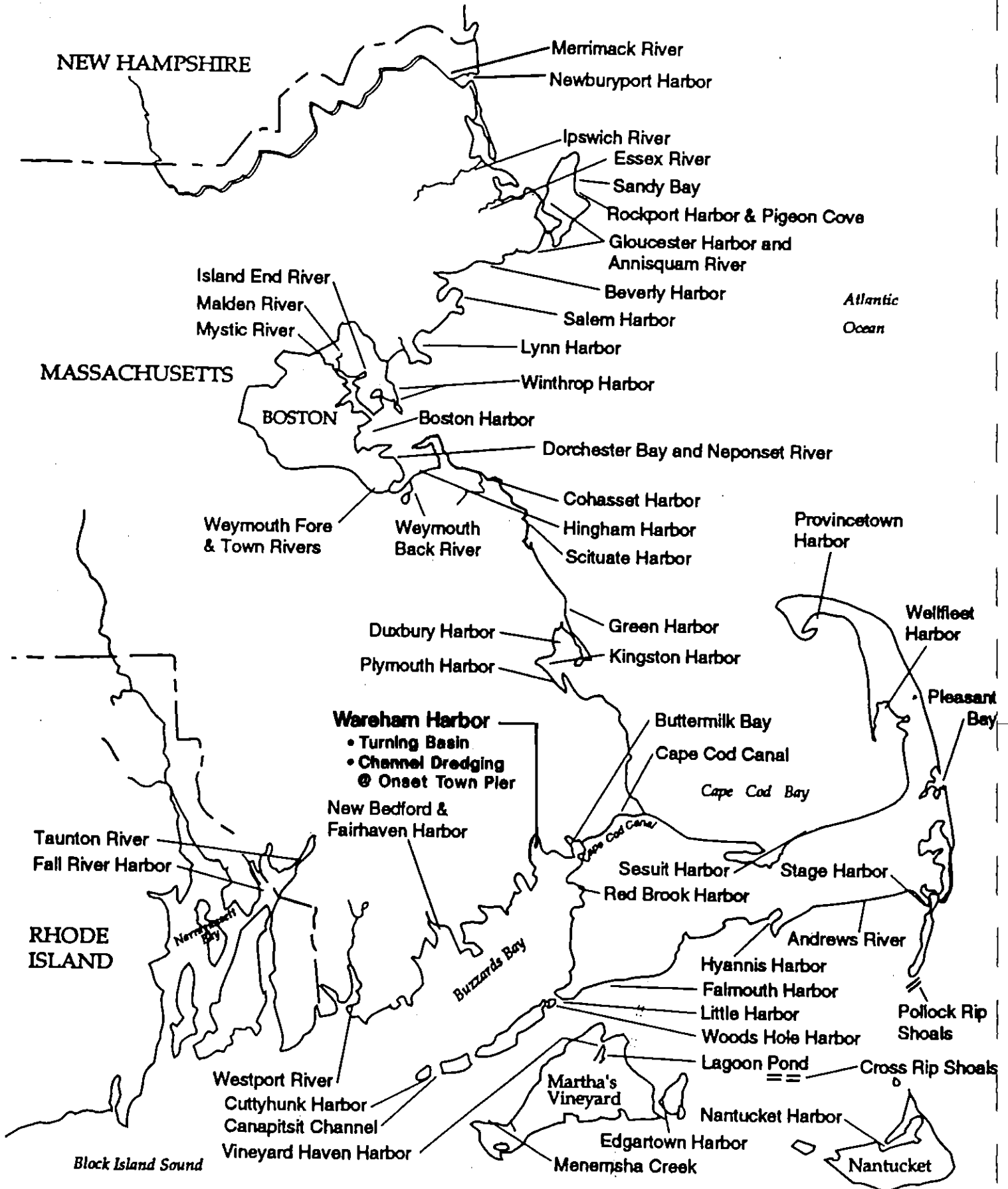
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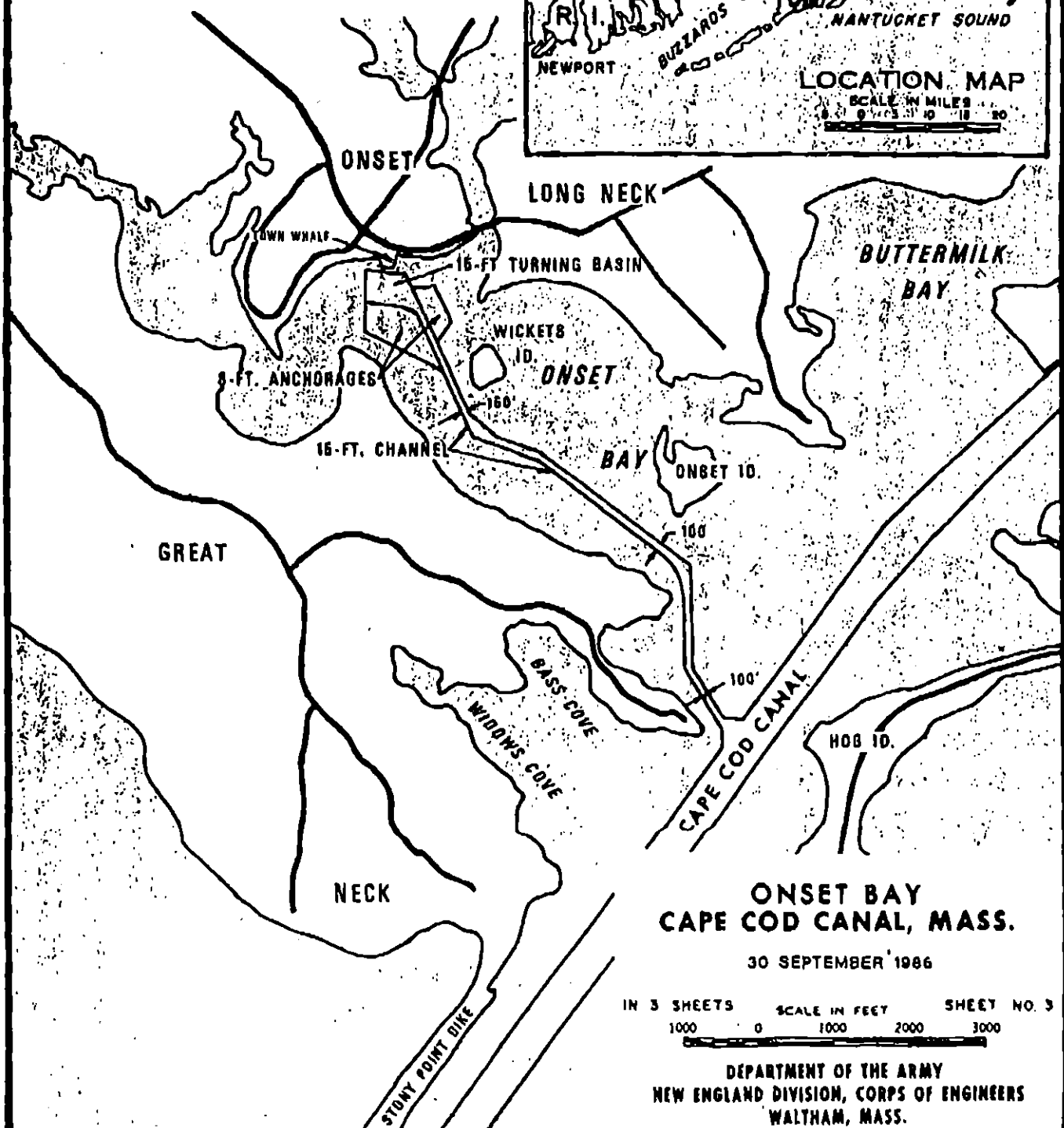
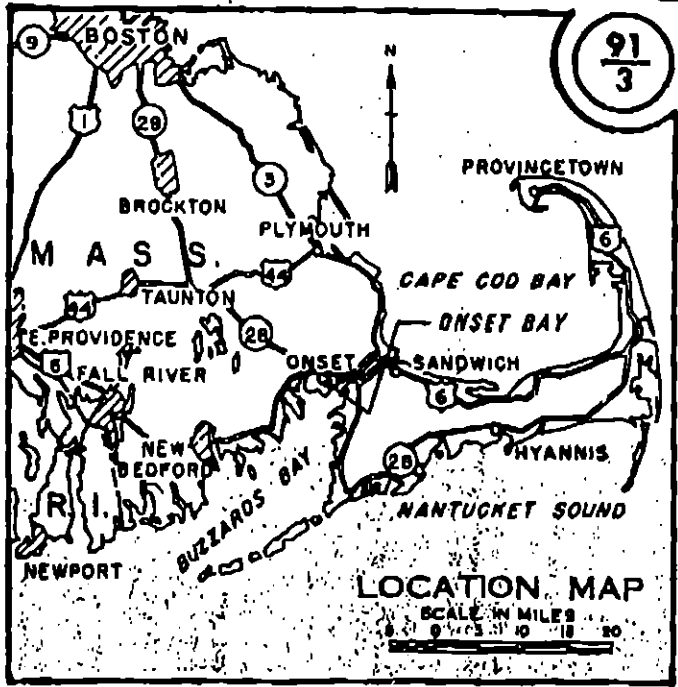
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# Federal Navigation Projects in Massachusetts





**ONSET BAY  
CAPE COD CANAL, MASS.**

30 SEPTEMBER 1986

IN 3 SHEETS    SCALE IN FEET    SHEET NO. 3  
1000    0    1000    2000    3000

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS.







REPLY TO  
ATTENTION OF

CENED-OD-R  
1993-01040

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
424 TRAPELO ROAD  
WALTHAM, MASSACHUSETTS 02254-9149

Effective Date: October 31, 1994  
Expiration Date: December 31, 1994

AMENDMENT TO  
DEPARTMENT OF THE ARMY PROGRAMMATIC GENERAL PERMIT  
COMMONWEALTH OF MASSACHUSETTS

The New England Division of the U.S. Army Corps of Engineers hereby amends the Massachusetts Programmatic General Permit (PGP) issued August 24, 1993, as follows:

The current expiration date of the PGP shall be extended to December 31, 1994.

*Christine Godfrey*

*WFL*

William F. Lawless, P.E.  
Chief, Regulatory Division  
Operations Directorate

Permit No.: 199301040

Effective Date: August 24, 1993  
Expiration Date: May 31, 1994

Applicant: General Public in Massachusetts

DEPARTMENT OF THE ARMY PROGRAMMATIC GENERAL PERMIT  
COMMONWEALTH OF MASSACHUSETTS

The New England Division of the U.S. Army Corps of Engineers hereby issues a programmatic general permit that expedites review of minimal impact work within coastal and inland waters and wetlands within the Commonwealth of Massachusetts. Activities with minimal impacts, as specified by the terms and conditions of this general permit, are either non-reporting (provided required local and state permits and required state certifications are received), or are to be screened by the Corps and federal resource agencies for applicability under the general permit. The Corps individual permit review process, and activities exempt from Corps jurisdiction, are not affected by this proposal.

Activities covered by this general permit include work and structures that are located in, or that affect, navigable waters of the United States (regulated by the Corps under Section 10 of the Rivers and Harbors Act of 1899), as well as the discharge of dredged or fill material into waters of the United States (regulated by the Corps under Section 404 of the Clean Water Act).

Procedures

**A. State and Local Approvals**

For projects authorized pursuant to this general permit, when the following state approvals are also required, they must be obtained in order for this general permit authorization to be valid (applicants are responsible for ensuring that all required state licenses and approvals have been applied for and obtained):

(a) A Final Order of Conditions under the Wetlands Protection Act (WPA) (MGL c. 131 Section 40) must be obtained for activities subject to jurisdiction as defined in 310 CMR 10.02.

(b) A waterways license or permit under MGL c. 91, from the Massachusetts Department of Environmental Protection (DEP) Division of Waterways must be obtained for activities subject to jurisdiction, as defined in 310 CMR 9.05.

(c) For work in Corps jurisdiction involving a discharge to waters of the U.S., an individual 401 water quality certification (WQC) <sup>1</sup> must be obtained from the Massachusetts DEP before work can proceed pursuant to this general permit for the following circumstances:

1. proposed work that is not subject to the WPA (310 CMR 10.00) but does require a 401 Water Quality Certification and proposes the loss of bordering vegetated wetlands, land under water, or federal non-state wetland;
2. any project intended to create a real estate subdivision for which a Notice of Intent is submitted on or after October 1, 1992;

(1) See MGL c. 21 Sections 26 - 53 and regulations at 314 CMR 9.00, as supplemented by the Interim Guidance effective 10/1/92.

their local Conservation Commission should submit a copy of their NOI materials to the Corps at the same time they apply to their Commission, along with additional information concerning the work within Corps jurisdiction<sup>2</sup>.

Additional information required may include (a) purpose of the project; (b) 8 1/2" by 11" plan views of the entire property and project limits with existing and proposed conditions; (c) wetland delineation for the site, information on the basis of the delineation, and calculations of the impact areas<sup>2</sup>; (d) typical cross-section views of all wetland and waterway fill areas and wetland replication areas; (e) amount, type and source of fill material to be discharged into waters and wetlands, including the volume of fill below ordinary high water in inland waters, and below the high tide line in coastal waters; (f) mean high and mean low water elevations in navigable waters; (g) limits of any Federal navigation project in the vicinity and State Plane coordinates for the limits of the proposed work closest to the Federal project; (h) alternatives analyses submitted to the DEP for WQC review, and/or additional alternatives information compiled; (i) for dredging projects include the volume of material and area in square feet to be dredged below mean high water, existing and proposed water depths, type of dredging equipment to be used, nature of material (e.g. silty sand), any existing sediment grain size and bulk sediment chemistry data for the proposed or any nearby projects, information on the location and nature of municipal or industrial discharges and occurrence of any contaminant spills in or near the project area, and the location of the disposal site (include locus sheet). Additional information may be requested by the Corps; dredging applicants may be required to conduct sediment testing, including physical, chemical and biological testing.

Information submitted will be reviewed for categorization as to (1) projects that will be subject to interagency coordination procedures (see below); (2) projects that warrant further study by the Corps (the applicant may be contacted for additional information); (3) projects that are ineligible under the terms and/or conditions of this general permit; and (4) projects that the Corps determines will require individual permit review, irrespective of whether they meet the terms and conditions of this general permit, based on concern for the aquatic environment or any other factor of the public interest.

Projects to be screened will be reviewed with the Federal resource agencies at meetings held every three weeks, or as necessary to provide applicants with a timely response. The Corps and Federal agencies may agree on certain activities that do not need to be coordinated at these meetings. For projects to be reviewed with the Federal agencies, the agencies may recommend special conditions for projects to avoid or minimize adverse environmental effects and to insure that the terms and conditions of the general permit are met. The Corps will determine that a project is ineligible under this general permit and will begin its individual permit review procedures if any one of the Federal agencies, within 10 working days after the screening meeting, expresses a concern within their area of expertise, states the resource or species that could be impacted by the project, and

## Programmatic General Permit Conditions:

The following conditions apply to activities authorized under the Programmatic General Permit, including all Category I (non-reporting) and Category II (screening) activities:

1. Other Permits. Authorization under this general permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

2. Applicability of this general permit shall be evaluated with reference to Federal jurisdictional boundaries. Federal and state boundaries may or may not be the same; for example, the upper limit of the WPA-defined "bank" may or may not coincide with the Corps "ordinary high water"; the upper limit of the WPA-defined "beach" may or may not coincide with the Corps "high tide line"; the WPA wetland delineation based on vegetation may or may not coincide with the Corps delineation based on vegetation, soils and hydrology. Applicants are responsible for ensuring that the boundaries used satisfy the federal criteria defined at 33 CFR 328-329.

3. Minimal Effects. Projects authorized by this general permit shall have minimal individual and cumulative adverse environmental impacts as determined by the Corps.

4. Discretionary Authority. Notwithstanding compliance with the terms and conditions of this permit, the Corps of Engineers retains discretionary authority to require review for an individual permit based on concerns for the aquatic environment or for any other factor of the public interest.

This authority is invoked on a case-by-case basis whenever the Corps determines that the potential consequences of the proposal warrant individual review based on the concerns stated above. This authority may be invoked for projects with cumulative environmental impacts that are more than minimal, or if there is a special resource or concern associated with a particular project, that is not already covered by the remaining conditions of the PGP, that warrants greater review.

Whenever the Corps notifies an applicant that an individual permit may be required, authorization under this general permit is voided, and no work may be conducted until the individual Corps permit is obtained, or until the Corps notifies the applicant that further review has demonstrated that the work may proceed under this general permit.

5. Single and Complete Projects. This general permit shall not be used for piecemeal work and shall be applied to single and complete projects. All components of a single project shall be treated together as constituting one single and complete project. All planned phases of multi-phased projects shall be treated together as constituting one single and complete project. This general permit shall not be used for any activity that is part of an overall project for which an individual permit is required.

6. Historic Properties. Any activity authorized by this general permit shall comply with Section 106 of the National Historic Preservation Act. Information on the location and existence of historic resources can be obtained from the Massachusetts Historic Preservation Office and the National Register of Historic Places. If the permittee, during construction of work authorized herein, encounters a previously unidentified archaeological or other cultural resource within the area subject to Department of the Army jurisdiction that might be eligible for listing in the National Register of Historic Places, he/she shall immediately notify the Division Engineer.

7. National Lands. Activities authorized by this general permit shall not impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary (e.g. Stellwagen Bank) or any area administered by the National Park Service (e.g. Cape Cod National Seashore).

8. Endangered Species. No activity is authorized under this general permit which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified

location, in a manner that will prevent its later erosion into a waterway or wetland. All exposed soil and other fills shall be permanently stabilized at the earliest practicable date.

17. **Waterway Crossings.** (a) All temporary and permanent crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed to withstand and to prevent the restriction of high flows, and so as not to obstruct the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction. (b) No open trench excavation shall be allowed in flowing waters. (c) Temporary bridges, culverts, or cofferdams shall be used for equipment access across streams (note: areas of fill and/or cofferdams must be included in total waterway/wetlands impacts to determine applicability of this general permit). (d) For projects eligible for Category I, instream work shall be conducted during the low flow period July 15 - October 1 in any year; projects that are not to be conducted during that time period shall be screened pursuant to Category II, regardless of the fill and/or impact area.

18. **Discharge of Pollutants.** All activities involving any discharge of pollutants into waters of the United States authorized under this general permit shall be consistent with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the Clean Water Act (33 U.S.C. 1251), and applicable state and local laws. If applicable water quality standards, limitations, etc., are revised or modified during the term of this permit, the authorized work shall be modified to conform with these standards within 6 months of the effective date of such revision or modification, or within a longer period of time deemed reasonable by the Division Engineer in consultation with the Regional Administrator of the Environmental Protection Agency. Applicants may presume that State water quality standards are met with issuance of the 401 Water Quality Certification.

19. **Spawning Areas.** Discharges in spawning or nursery areas during spawning seasons shall be avoided, and impacts to these areas shall be avoided or minimized to the maximum extent practicable during all times of year.

20. **Environmental Values.** The permittee shall make every reasonable effort to carry out the construction or operation of the work authorized herein in a manner so as to minimize any adverse impacts on fish, wildlife, and natural environmental values.

21. **Inspections.** The permittee shall permit the Division Engineer or his authorized representative(s) to make periodic inspections at any time deemed necessary in order to ensure that the work is being performed in accordance with the terms and conditions of this permit. The Division Engineer may also require post-dredging survey drawings for any dredging work.

22. **Maintenance.** The permittee shall maintain the work or structures authorized herein in good condition, including maintenance to ensure public safety.

23. **Property Rights.** This permit does not convey any property rights, either in real estate or material, or any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations.

24. **Modification, Suspension and Revocation.** This permit may be either modified, suspended, or revoked in whole or in part pursuant to the policies and procedures of 33 CFR 325.7; and any such action shall not be the basis for any claim for damages against the United States.

25. **Restoration.** The permittee, upon receipt of a notice of revocation of authorization under this permit, shall restore the wetland or waterway to its former conditions, without expense to the United States and as directed by the Secretary of the Army or his authorized representative. If the permittee fails to comply with such a directive, the Secretary or his designee may restore the wetland or waterway to its former condition, by contract or otherwise, and recover the cost from the permittee.

# DEFINITION OF CATEGORIES

## A. INLAND WATERS AND WETLANDS (WATERS OF THE U.S.) (1)

### CATEGORY I NON-REPORTING PGP

Less than 5,000 square feet waterway and/or wetland fill and secondary impacts (e.g., areas drained, flooded, excavated). Fill includes temporary and permanent fill. This category excludes dams, dikes, water diversions and water withdrawals.

### CATEGORY II SCREENED PGP

5,000 square foot to 1 acre waterway and/or wetland fill and secondary impacts (e.g., areas drained, flooded, excavated). Fill includes temporary and permanent fill. Any dam, dike, water diversion, or water withdrawal.

### CATEGORY III INDIVIDUAL PERMIT REQUIRED

Greater than 1 acre waterway and/or wetland fill and secondary impacts (e.g., areas drained, flooded, excavated). Fill includes temporary and permanent fill.

### (b) BANK STABILIZATION PROJECTS

Less than 500 linear feet and less than 1 cubic yard fill per linear foot below ordinary high water, provide no fill is placed in wetlands.

Projects that do not meet the terms under category I.

### (c) REPAIR/MAINTENANCE OF PREVIOUSLY AUTHORIZED FILL

For currently serviceable fills with no expansion or change in use.

For currently serviceable fills with expansion of any amount up to 1 acre, and/or change in use.

Replacement or expansion of greater than 1 acre fill.

## B. COASTAL WATERS OF THE U.S. AND NAVIGABLE WATERS (2)

### (a) FILL

N/A

Up to 1 acre waterway fill and/or secondary waterway or wetland impacts (e.g., areas drained or flooded). Fill includes temporary and permanent waterway fill.

Greater than 1 acre waterway fill and/or secondary waterway or wetland impacts (e.g., areas drained or flooded). Fill includes temporary and permanent waterway fill.

Up to 1 acre temporary salt marsh fill or excavation and backfill.

Any amount of permanent salt marsh fill

### (b) BANK STABILIZATION

N/A

Repair and maintenance of existing, previously authorized coastal or navigable waters bank stabilization (e.g., armoring)

Any new or reconstructed coastal or navigable waters bank stabilization project (e.g., armoring).

### (c) REPAIR/MAINTENANCE OF PREVIOUSLY AUTHORIZED STRUCTURES OR FILL

For currently serviceable structures or fill with no expansion or change in use.

For currently serviceable structures or fill, with expansion or change in use. Covers expansion of fill up to 1 acre.

Replacement or expansion of greater than 1 acre of fill.

Replacement of non-serviceable structures or fill. Covers replacement of fill up to 1 acre.

**CATEGORY I**                      **CATEGORY II**                      **CATEGORY III**  
**NON-REPORTING PGP**                      **SCREENED PGP**                      **INDIVIDUAL PERMIT REQUIRED**

**C. GENERAL**

- i. Temporary buoys, markers, floats, and similar structures for recreational use during specific events, provided they are removed within 30 days after the use has been discontinued.
- ii. Coast Guard – approved aids to navigation.
- iii. Oil spill clean – up temporary structures or fill.
- iv. Fish and Wildlife harvesting structures or fill.
- v. Structures (including fill) licensed by chapter 91 through the amnesty program.

- i. Structures and work in or affecting navigable waters that are not defined under any of the headings listed above. Includes, but is not limited to, utility lines, aerial transmission lines, pipelines out falls, bridges, boat ramps, etc.
- ii. Shellfish aquaculture facilities; refer to limitations of Corps aquaculture Letter of Permission dated Sep. 1, 1991, incorporated herein.

- i. EIS required by the Corps.
- ii. Structures or work within the horizontal limits of Corps Federal navigation projects, or with docked or moored vessels that extend within those limits; (does not include utility lines; aerial and subsurface crossings fall into Category III).

**Footnotes**

1. Waters of the U.S., Inland Areas: Inland rivers, lakes, streams and wetlands
2. Navigable Waters: waters that are subject to the ebb and flow of the tide, and Federally designated navigable rivers (the Merrimack River, Connecticut River, and the Charles River to the Watertown dam in Massachusetts).
3. Special Aquatic Sites-Include wetlands (salt marsh), mudflats and vegetated shallows.
4. Boating facilities: facilities that provide, rent or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockminiliums.
5. Vegetated Shallows: Subtidal areas that support rooted aquatic vegetation such as eelgrass.

